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

1685 "E" Street, Fresno, California 93706-2007
Phone (559) 445-5116 • Fax (559) 445-5910
http://www.waterboards.ca.gov/centralvalley

# ORDER R5-2013-0158
# NPDES NO. CA0081337

# WASTE DISCHARGE REQUIREMENTS
# SOUTHERN CALIFORNIA EDISON COMPANY
# BALSAM MEADOWS HYDROELECTRIC PROJECT
# EASTWOOD POWERHOUSE FACILITY
# FRESNO COUNTY

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

**Table 1. Discharger Information**

| | |
|---|---|
| **Discharger** | Southern California Edison Company |
| **Name of Facility** | Balsam Meadows Hydroelectric Project, Eastwood Powerhouse Facility |
| **Facility Address** | 45795 Tollhouse Road |
| | Shaver Lake, CA 93664 |
| | Fresno 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 Southern California Edison Company from the discharge points identified below is subject to waste discharge requirements as set forth in this Order:

**Table 2. Discharge Locations**

| Discharge Point | Effluent Description | Discharge Point Latitude | Discharge Point Longitude | Receiving Water |
|---|---|---|---|---|
| 001 | Treated Wastewater, Non-contact Cooling Water, and Groundwater | 37° 7' 44.65" N | 119° 16' 1.38" W | Shaver Lake |
| 002 | Groundwater | 37° 8' 7.08" N | 119° 15' 32.15" W | North Fork Stevenson Creek |

**Table 3. Administrative Information**

| | |
|---|---|
| This Order was adopted by the Regional Water Quality Control Board on: | 6 December 2013 |
| This Order shall become effective on: | 6 December 2013 |
| This Order shall expire on: | 1 December 2018 |
| The Discharger shall file a Report of Waste Discharge in accordance with Title 23, California Code of Regulations, as application for issuance of new waste discharge requirements no later than: | 4 June 2018 |

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 6 December 2013.

*Original signed by:*
PAMELA C. CREEDON, Executive Officer

## Table of Contents

I. Facility Information ..... 4
II. Findings ..... 4
III. Discharge Prohibitions ..... 10
IV. Effluent Limitations and Discharge Specifications ..... 10
A. Effluent Limitations – Discharge Point 001 ..... 10
B. Effluent Limitations – Discharge Point 002 ..... 11
C. Land Discharge Specifications – Not Applicable ..... 12
D. Reclamation Specifications – Not Applicable ..... 12
V. Receiving Water Limitations ..... 12
A. Surface Water Limitations ..... 12
B. Groundwater Limitation ..... 14
VI. Provisions ..... 14
A. Standard Provisions ..... 14
B. Monitoring and Reporting Program Requirements ..... 18
C. Special Provisions ..... 18
1. Reopener Provisions ..... 18
2. Special Studies, Technical Reports, and Additional Monitoring Requirements ..... 19
3. Best Management Practices and Pollution Prevention ..... 21
4. Construction, Operation, and Maintenance Specifications – Not Applicable ..... 21
5. Special Provisions for Municipal Facilities (POTWs Only) – Not Applicable ..... 21
6. Other Special Provisions ..... 22
7. Compliance Schedules – Not Applicable ..... 22
VII. Compliance Determination ..... 22

## List of Tables

Table 1. Discharger Information ..... 1
Table 2. Discharge Locations ..... 1
Table 3. Administrative Information ..... 1
Table 4. Facility Information ..... 4
Table 5. Basin Plan Beneficial Uses ..... 6
Table 6a. WS 001A Effluent Limitations ..... 11
Table 6b. WS 001B Effluent Limitations ..... 11
Table 6c. WS 003 Effluent Limitations ..... 11
Table 7. Discharge Point 002 Effluent Limitations ..... 11

## List of Attachments

Attachment A – Definitions ..... A-1
Attachment B – Map ..... B-1
Attachment C – Flow Schematic ..... C-1
Attachment D – Standard Provisions ..... D-1
Attachment E – Monitoring and Reporting Program ..... E-1
Attachment F – Fact Sheet ..... F-1
Attachment G – Summary of Reasonable Potential Analysis ..... G-1
Attachment H – Calculation of WQBELs ..... H-1
Attachment I – Reporting Levels for CTR Constituents ..... I-1

## I. FACILITY INFORMATION

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

**Table 4. Facility Information**

| | |
|---|---|
| **Discharger** | Southern California Edison Company |
| **Name of Facility** | Balsam Meadows Hydroelectric Project, Eastwood Powerhouse Facility |
| **Facility Address** | 45795 Tollhouse Road |
| | Shaver Lake, CA 93664 |
| | Fresno County |
| **Facility Contact, Title, and Phone** | Michael Murphy, Environmental Compliance Supervisor (559) 893-2033 |
| **Mailing Address** | P.O. Box 100, Big Creek, CA 93605 |
| **Type of Facility** | Hydroelectric power facility (SIC Code 4911 – Electric Services) |
| **Facility Design Flow** | Not Applicable |

## II. FINDINGS

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

**A. Background.** Southern California Edison Company is currently discharging pursuant to Order R5-2005-0093 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0081337. The United States Forest Service is the owner of the land on which the Balsam Meadows Hydroelectric Project, Eastwood Powerhouse Facility, hereinafter Facility, sits. This Order names Southern California Edison Company as Discharger. The Discharger submitted a Report of Waste Discharge, dated 22 December 2009, and applied for a NPDES permit renewal to discharge treated wastewater, non-contact cooling water, and untreated groundwater from the Facility.

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

**B. Facility Description.** Southern California Edison Company owns and operates an underground hydroelectric powerhouse. The underground Facility generates hydroelectric power through a single pump-turbine connected to a motor/generator and it is part of the Balsam Meadows Hydroelectric Project (Balsam Project). The Balsam Project includes a 5,900-foot diversion tunnel connecting the existing Huntington-Pitman-Shaver Conduit, a 4,320-foot power tunnel, an access tunnel, a construction tunnel used to store equipment and access different levels of the Facility, and a 7,500-foot tailrace tunnel with a 16-foot horseshoe section leading to Shaver Lake. The Balsam Project also includes the Balsam Meadows Forebay, a 2,100 acre-foot storage reservoir from which water flows to the Facility. During off-peak electrical consumption hours, water from Shaver Lake may be pumped into the forebay for power generation use the following day.

The Discharger's effluent consists of treated wastes from an oil and grease separator, untreated groundwater, and untreated non-contact cooling water. There are two discharge points from the Facility. Discharge Point 001 is from the Tailrace Tunnel to Shaver Lake and Discharge Point 002 is from the CT-4 and Access Tunnel Sumps to North Fork Stevenson Creek. Discharge Point 001 is the primary discharge point for the Facility and consists of the commingled waste streams (WSs) from the Main Sump, CT-4 Sump, and non-contact cooling water from the Powerhouse (WS 001A, WS 001B, and WS 003, respectively). Discharge Point 002 is used only when the Powerhouse is not operating, usually when there is maintenance on the Tailrace Tunnel and the discharge consists only of untreated groundwater from the CT-4 and Access Tunnel Sumps.

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

**D. Background and Rationale for Requirements.** The Central Valley Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for the requirements in this Order, is hereby incorporated into and constitutes 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 a NPDES permit is exempt from the provisions of CEQA, Public Resources Code sections 21000-21177.

**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 Best Professional Judgment (BPJ) in accordance with 40 CFR 125.3. A detailed discussion of the technology-based effluent limitations development is included in the Fact Sheet.

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

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

**H. Water Quality Control Plans.** The Central Valley Water Board adopted a *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins*, Fourth Edition, revised October 2011 (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 Shaver Lake and North Fork Stevenson Creek, but does identify present and potential uses for the San Joaquin River from its sources to Millerton Lake, to which Shaver Lake and North Fork Stevenson Creek are tributaries. In addition, the Basin Plan implements State Water Resources Control Board (State Water Board) Resolution No. 88-63, which establishes 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 Shaver Lake and North Fork Stevenson Creek are as follows:

**Table 5. Basin Plan Beneficial Uses**

| Discharge Point | Receiving Water Name | Beneficial Use(s) |
|---|---|---|
| 001 | Shaver Lake | Municipal and domestic supply (MUN); agricultural supply (AGR); hydropower generation (POW); water contact recreation (REC-1); non-contact water recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); and wildlife habitat (WILD). |
| 002 | North Fork Stevenson Creek | |
| -- | Groundwater | MUN; AGR; industrial service supply (IND); and industrial process supply (PRO). |

Requirements of this Order specifically implement the Basin Plan.

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

**J. State Implementation Policy.** On 2 March 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on 28 April 2000 with respect to the priority pollutant criteria promulgated for California by USEPA through the NTR and to the priority pollutant objectives established by the Central Valley Water Board in the Basin Plan. The SIP became effective on 18 May 2000 with respect to the priority pollutant criteria promulgated by 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, a NPDES permit must include final effluent limitations that are consistent with CWA section 301 and with 40 CFR 122.44(d). There are exceptions to this general rule. The State Water Board's *Policy for Compliance Schedules in National Pollutant Discharge Elimination System Permits* (Compliance Schedule Policy) allows compliance schedules for new, revised, or newly interpreted water quality objectives or criteria, or in accordance with a Total Maximum Daily Load (TMDL). All compliance schedules must be as short as possible, and may not exceed ten years from the effective date of the adoption, revision, or new interpretation of the applicable water quality objective or criterion, unless a TMDL allows a longer schedule. The Central Valley Water Board, however, is not required to include a compliance schedule, but may issue a Time Schedule Order pursuant to Water Code section 13300 or a Cease and Desist Order pursuant to Water Code section 13301 where it finds that the Discharger is violating or threatening to violate the permit. The Central Valley Water Board will consider the merits of each case in determining whether it is appropriate to include a compliance schedule in a permit, and, consistent with the Compliance Schedule Policy, should consider feasibility of achieving compliance, and must impose a schedule that is as short as possible to achieve compliance with the effluent limitations based on the objective or criterion.

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

Where a compliance schedule for final effluent limitations exceeds one year, the Order must include interim numeric effluent limitations for that constituent or parameter, interim milestones, and compliance reporting within 14 days after each interim milestone. The Order may also include interim requirements to control the pollutant, such as pollutant minimization and source control measures. 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 become effective for CWA purposes. (40 CFR 131.21 and 65 FR 24641 (27 April 2000).) Under the revised regulation (also known as the Alaska rule), new and revised standards submitted to

USEPA after 30 May 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by 30 May 2000 may be used for CWA purposes, whether or not approved by USEPA.

**M. Stringency of Requirements for Individual Pollutants.** This Order contains both technology-based effluent limitations and WQBELs for individual pollutants. The technology-based effluent limitations consist of restrictions on flow, settleable solids, total suspended solids, pH, and oil and grease. The WQBELs consist of restrictions on acute toxicity, chronic toxicity, arsenic, copper, lead, zinc, and pH. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements.

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

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

**O. Anti-Backsliding Requirements.** Sections 303(d)(4) and 402(o)(2) of the CWA and federal regulations at 40 CFR 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions. Some effluent limitations in this Order are less stringent than those in Order R5-2005-0093. As discussed in detail in the Fact Sheet, this relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

**P. Endangered Species Act.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). This Order requires compliance with effluent limitations, receiving water limitations, and other requirements to protect the beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

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

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

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

**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 Central Valley Water Board has also included in this Order special provisions applicable to the Discharger. A rationale for the special provisions contained in this Order is provided in the Fact Sheet.

**S. Provisions and Requirements Implementing State Law.** The provisions/requirements in section V.B and portions of section 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 Central Valley Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of notification are provided in the Fact Sheet of this Order.

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

THEREFORE, IT IS HEREBY ORDERED, that Order R5-2005-0093 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 CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order. This action in no way prevents the Central Valley Water Board from taking enforcement action for past violations of the previous Order.

## III. DISCHARGE PROHIBITIONS

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

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

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

**D.** Discharge of waste classified as ‘hazardous’ as defined in Title 23, California Code of Regulations (CCR), Section 2521(a), et seq., is prohibited.

## IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

### A. Effluent Limitations – Discharge Point 001

#### 1. Final Effluent Limitations – Discharge Point 001

**a.** The Discharger shall maintain compliance with the following effluent limitations at Discharge Point 001, with compliance measured at Monitoring Location EFF-001A, EFF-001B, EFF-001C (WS 001A, WS 001B, and WS 003, respectively) as described in the Monitoring and Reporting Program:

**Table 6a. WS 001A Effluent Limitations**

| Parameter | Units | Effluent Limitations | | | |
|---|---|---|---|---|---|
| | | Average Monthly | Maximum Daily | Instantaneous Minimum | Instantaneous Maximum |
| pH | standard units | -- | -- | 6.0 | 9.0 |
| Total Suspended Solids | mg/L | 5.0 | 10 | -- | -- |
| Zinc, Total Recoverable | µg/L | 5.0 | 10. | -- | -- |
| Oil and Grease | mg/L | -- | 15 | -- | -- |
| Settleable Solids | mL/L | 0.1 | 0.2 | -- | -- |

**Table 6b. WS 001B Effluent Limitations**

| Parameter | Units | Effluent Limitations | | | |
|---|---|---|---|---|---|
| | | Average Monthly | Maximum Daily | Instantaneous Minimum | Instantaneous Maximum |
| pH | standard units | -- | -- | 6.0 | 9.0 |
| Arsenic, Total Recoverable | µg/L | 10. | 20. | -- | -- |
| Lead, Total Recoverable | µg/L | 0.40 | 0.80 | -- | -- |

**Table 6c. WS 003 Effluent Limitations**

| Parameter | Units | Effluent Limitations | | | |
|---|---|---|---|---|---|
| | | Average Monthly | Maximum Daily | Instantaneous Minimum | Instantaneous Maximum |
| Flow | MGD | -- | 3.11 | -- | -- |
| Copper, Total Recoverable | µg/L | 0.28 | 0.56 | -- | -- |

**b. Acute Whole Effluent Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste at WS 001A and WS 001B shall be no less than:

**i.** Minimum for any one bioassay ---------- 70%
**ii.** Median for any three consecutive bioassays ---------- 90%

**c. Chronic Whole Effluent Toxicity.** There shall be no chronic toxicity in the effluent at WS 001A and WS 001B.

## B. Effluent Limitations – Discharge Point 002

### 1. Final Effluent Limitations – Discharge Point 002

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

**Table 7. Discharge Point 002 Effluent Limitations**

| Parameter | Units | Effluent Limitations | | | |
|---|---|---|---|---|---|
| | | Average Monthly | Maximum Daily | Instantaneous Minimum | Instantaneous Maximum |
| pH | standard units | -- | -- | 6.5 | 8.5 |

b. **Acute Whole Effluent Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste at Discharge Point 002 (compliance measured at monitoring location EFF-002) shall be no less than:

i. Minimum for any one bioassay ---------- 70%
ii. Median for any three consecutive bioassays ---------- 90%

**C. Land Discharge Specifications – Not Applicable**

**D. Reclamation Specifications – Not Applicable**

## V. RECEIVING WATER LIMITATIONS

### A. Surface Water Limitations

The discharge shall not cause the following in Shaver Lake and/or North Fork Stevenson Creek:

1. **Bacteria.** The fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, to exceed a geometric mean of 200 MPN/100 mL, nor more than ten percent of the total number of fecal coliform samples taken during any 30-day period to exceed 400 MPN/100 mL.

2. **Biostimulatory Substances.** Water to contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.

3. **Chemical Constituents.** Chemical constituents to be present in concentrations that adversely affect beneficial uses.

4. **Color.** Discoloration that causes nuisance or adversely affects beneficial uses.

5. **Dissolved Oxygen:**

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

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

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

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

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

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

9. **Pesticides:**

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

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

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

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

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

   f. Pesticides to be present in concentrations in excess of the maximum contaminant levels (MCLs) set forth in Title 22, CCR, division 4, chapter 15; nor

   g. Thiobencarb to be present in excess of 1.0 µg/L.

10. **Radioactivity:**

   a. Radionuclides to be present in concentrations that are harmful to human, plant, animal, or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.

   b. Radionuclides to be present in excess of the MCLs specified in Title 22, CCR, Table 64442 of Section 64442 and Table 64443 of Section 64443.

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

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

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

14. **Tastes and Odors.** Taste- or odor-producing substances to be present in concentrations that impart undesirable tastes or odors to fish flesh or other edible

products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.

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

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

17. **Turbidity.** Turbidity to:

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

    **b.** Increase more than 1 NTU where natural turbidity is between 1 and 5 NTUs;

    **c.** Increase more than 20 percent where natural turbidity is between 5 and 50 NTUs;

    **d.** Increase more than 10 NTUs where natural turbidity is between 50 and 100 NTUs; nor

    **e.** Increase more than 10 percent where natural turbidity is greater than 100 NTUs.

### B. Groundwater Limitation

The discharge shall not cause the underlying groundwater to be degraded.

## VI. PROVISIONS

### A. Standard Provisions

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

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

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

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

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

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

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

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

The causes for modification include:

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

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

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

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

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

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

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

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

**ii.** controls any pollutant limited in the Order.

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

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

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

**g.** A copy of this Order shall be maintained at the Facility and be available at all times to operating personnel. Key operating personnel shall be familiar with its content.

**h.** Safeguard to electric power failure:

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

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

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

**i.** The Discharger, upon written request of the Central Valley Water Board, shall file with the Board a technical report on its preventive (failsafe) and contingency (cleanup) plans for controlling accidental discharges, and for minimizing the

effect of such events. This report may be combined with that required under Central Valley Water Board Standard Provision contained in section VI.A.2.h. of this Order.

The technical report shall:

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

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

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

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

**j.** 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(s) responsible for the work.

**k.** The Central Valley Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13268, 13350, 13385, 13386, and 13387.

**l.** In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, instantaneous minimum effluent limitation, instantaneous maximum effluent limitation, maximum daily effluent limitation, acute toxicity effluent limitation, or receiving water limitation contained in this Order, the Discharger shall notify the Central Valley Water Board by telephone at (559) 445-5116 within 24 hours of having knowledge of such noncompliance, and shall confirm this notification in writing within 5 days, unless the Central Valley 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)].

**m.** 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.

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

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

## B. Monitoring and Reporting Program Requirements

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

## C. Special Provisions

### 1. Reopener Provisions

**a.** This Order may be reopened to address conditions that necessitate a major modification of a permit, as described in 40 CFR 122.62, including, but not limited to:

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

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

**b.** This Order may be reopened for modification, or revocation and reissuance, as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are not limited to, fish tissue sampling, whole effluent toxicity testing, 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. Whole Effluent Toxicity.** As a result of a Toxicity Reduction Evaluation (TRE), this Order may be reopened to include a new chronic toxicity effluent limitation, a new acute toxicity effluent limitation, and/or effluent limitations for specific toxicants 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.

**d. Water Effects Ratios (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating CTR criteria and effluent limitations for applicable priority pollutant inorganic constituents. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable when developing effluent limitations for copper, lead, and zinc. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

**e. Drinking Water Policy.** The Central Valley Water Board is developing a Drinking Water Policy. This Order may be reopened to incorporate monitoring of drinking water constituents to implement the Drinking Water Policy.

**f. Dilution/Mixing Zone Study.** In order to allow dilution credits for the calculation of WQBELs for CTR constituents, the Discharger must submit an approved Dilution/Mixing Zone Study in accordance with a work plan submitted to and approved by the Central Valley Water Board and, which meets all of the requirements in Section 1.4.2.2. of the SIP. Should the Discharger submit an approved Dilution/Mixing Zone Study that meets the requirements in Section 1.4.2.2. of the SIP, including sufficient data demonstrating that assimilative capacity is available and that granting the mixing zone would not adversely impact biologically sensitive aquatic life resources or critical habitats, or produce undesirable or nuisance conditions, the Central Valley Water Board may reopen this Order to include effluent limitations based on appropriate dilution factors for CTR constituents.

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

**a. Chronic Whole Effluent Toxicity.** For compliance with the Basin Plan's narrative toxicity objective, this Order requires the Discharger to conduct chronic

whole effluent toxicity (WET) testing, as specified in the Monitoring and Reporting Program (Attachment E, section V). Furthermore, this Provision requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity. If the discharge exhibits toxicity, as described in subsection ii below, the Discharger is required to initiate a TRE in accordance with an approved TRE work plan, and take actions to mitigate the impact of the discharge and prevent recurrence of toxicity. A TRE is a site-specific study conducted in a stepwise process to identify the source(s) of toxicity and the effective control measures for effluent toxicity. TREs are designed to identify the causative agents and sources of 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. **TRE Work Plan.** By **6 March 2014**, the Discharger shall submit to the Central Valley Water Board a TRE Work Plan for approval by the Executive Officer. The TRE Work Plan shall outline the procedures for identifying the source(s) of, and reducing or eliminating effluent toxicity. The TRE Work Plan must be developed in accordance with USEPA guidance[1] and be of adequate detail to allow the Discharger to immediately initiate a TRE as required in this Provision.

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

iii. **Numeric Toxicity Monitoring Trigger.** The numeric toxicity monitoring trigger to initiate a TRE is > **1 $TU_C$** (where $TU_C$ = 100/NOEC)(NOEC = No Observed Effect Concentration). The monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to begin accelerated monitoring and initiate a TRE when the effluent exhibits toxicity.

iv. **Accelerated Monitoring Specifications.** If the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity testing, the Discharger shall initiate accelerated monitoring within 14 days of notification by the laboratory of the exceedance. Accelerated monitoring shall consist of four (4) chronic toxicity tests in a six-week period (i.e., one test every two weeks) using the

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

species that exhibited toxicity. The following protocol shall be used for accelerated monitoring and TRE initiation:

**(a)** If the results of four (4) consecutive accelerated monitoring tests do not exceed the monitoring trigger, the Discharger may cease accelerated monitoring and resume regular chronic toxicity monitoring. However, notwithstanding the accelerated monitoring results, if there is evidence of effluent toxicity, the Executive Officer may require that the Discharger initiate a TRE.

**(b)** If the source(s) of the toxicity is easily identified (e.g., temporary Facility upset), the Discharger shall make necessary corrections to the Facility and shall continue accelerated monitoring until four (4) consecutive accelerated tests do not exceed the monitoring trigger. Upon confirmation that the effluent toxicity has been removed, the Discharger may cease accelerated monitoring and resume regular chronic toxicity monitoring.

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

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

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

**(3)** A schedule for these actions.

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

**a. Salinity Evaluation and Minimization Plan.** The Discharger shall prepare and implement a salinity evaluation and minimization plan to identify and address sources of salinity from the Facility. The plan shall be completed and submitted to the Central Valley Water Board by **5 September 2014** for approval by the Executive Officer. The Discharger shall submit an annual report evaluating the effectiveness of the plan in accordance with the Monitoring and Reporting Program (Attachment E, Section X.D.1.)

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

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

### 6. Other Special Provisions

**a.** Collected screenings, sludges, and other solids removed from liquid wastes shall be disposed of in a manner approved by the Executive Officer, and consistent with *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste*, as set forth in Title 27, CCR, Division 2, Subdivision 1, Section 20005, et seq.

**b.** Any proposed change in solids use or disposal practice from a previously approved practice shall be reported to the Executive Officer and USEPA Regional Administrator at least 90 days in advance of the change.

### 7. Compliance Schedules – Not Applicable

## VII. COMPLIANCE DETERMINATION

**A. Priority Pollutant Effluent Limitations.** Compliance with effluent limitations for priority pollutants shall be determined in accordance with Section 2.4.5 of the SIP, as follows:

**1.** Dischargers shall be deemed out of compliance with an effluent limitation, if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).

**2.** Dischargers shall be required to conduct a Pollutant Minimization Program (PMP) in accordance with Section 2.4.5.1 of the SIP when there is evidence that the priority pollutant is present in the effluent above an effluent limitation and either:

**a.** A sample result is reported as detected, but not quantified (DNQ) and the effluent limitation is less than the RL; or

**b.** A sample result is reported as non-detect (ND) and the effluent limitation is less than the method detection limit (MDL).

**3.** When determining compliance with an average monthly effluent limitation (AMEL) and more than one sample result is available in a month, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of DNQ or ND. In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

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

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

the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

**4.** If a sample result, or the arithmetic mean or median of the multiple sample results, is below the RL, and there is evidence that the priority pollutant is present in the effluent above an effluent limitation and the Discharger conducts a PMP (as described in Section 2.4.5.1 of the SIP), the Discharger shall not be deemed out of compliance.

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

## ATTACHMENT A – DEFINITIONS

### Arithmetic Mean ($\mu$)

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: $\Sigma x$ 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.

### Best Practicable Treatment or Control (BPTC)

BPTC is a requirement of State Water Resources Control Board Resolution No. 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 California Water Code section 13050(l). In general, an exceedance of a water quality objective in the Basin Plan constitutes "pollution".

### Bioaccumulative

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

### Carcinogenic

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

### Coefficient of Variation (CV)

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

### Daily Discharge

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

The daily discharge may be determined by the analytical results of a composite sample taken over the course of 1 day (a calendar day or other 24-hour period defined as a day) or by the

arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

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

**Detected, but Not Quantified (DNQ)**
DNQ are those sample results less than the reporting level (RL), but greater than or equal to the laboratory's MDL.

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

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

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

**Estimated Chemical Concentration**
The estimated chemical concentration that results from the confirmed detection of the substance by the analytical method below the Minimum Level (ML) value and above the MDL. Same as Detected, but not Quantified

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

and appropriate areas of the Smith, Mad, Eel, Noyo, Russian, Klamath, San Diego, and Otay rivers. Estuaries do not include inland surface waters or ocean waters.

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

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

**LC50**
The concentration of effluent that is lethal to 50% of the exposed test organisms, measured in a dilution series ranging from 100% effluent to 0% effluent.

**Lowest Observed Effect Concentration (LOEC)**
The lowest concentration of an effluent at which adverse effects are observed on an aquatic test organism.

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

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

**Method Detection Limit (MDL)**
MDL is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in 40 CFR Part 136, Appendix B.

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

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

**No Observed Effect Concentration (NOEC)**
The highest concentration of toxicant to which organisms are exposed in a full life-cycle or partial life-cycle (short-term) test, that causes no observable adverse effects on the test organisms (i.e., the highest concentration of toxicant in which the values for the observed responses are not statistically significantly different from the controls).

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

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

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

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

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

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

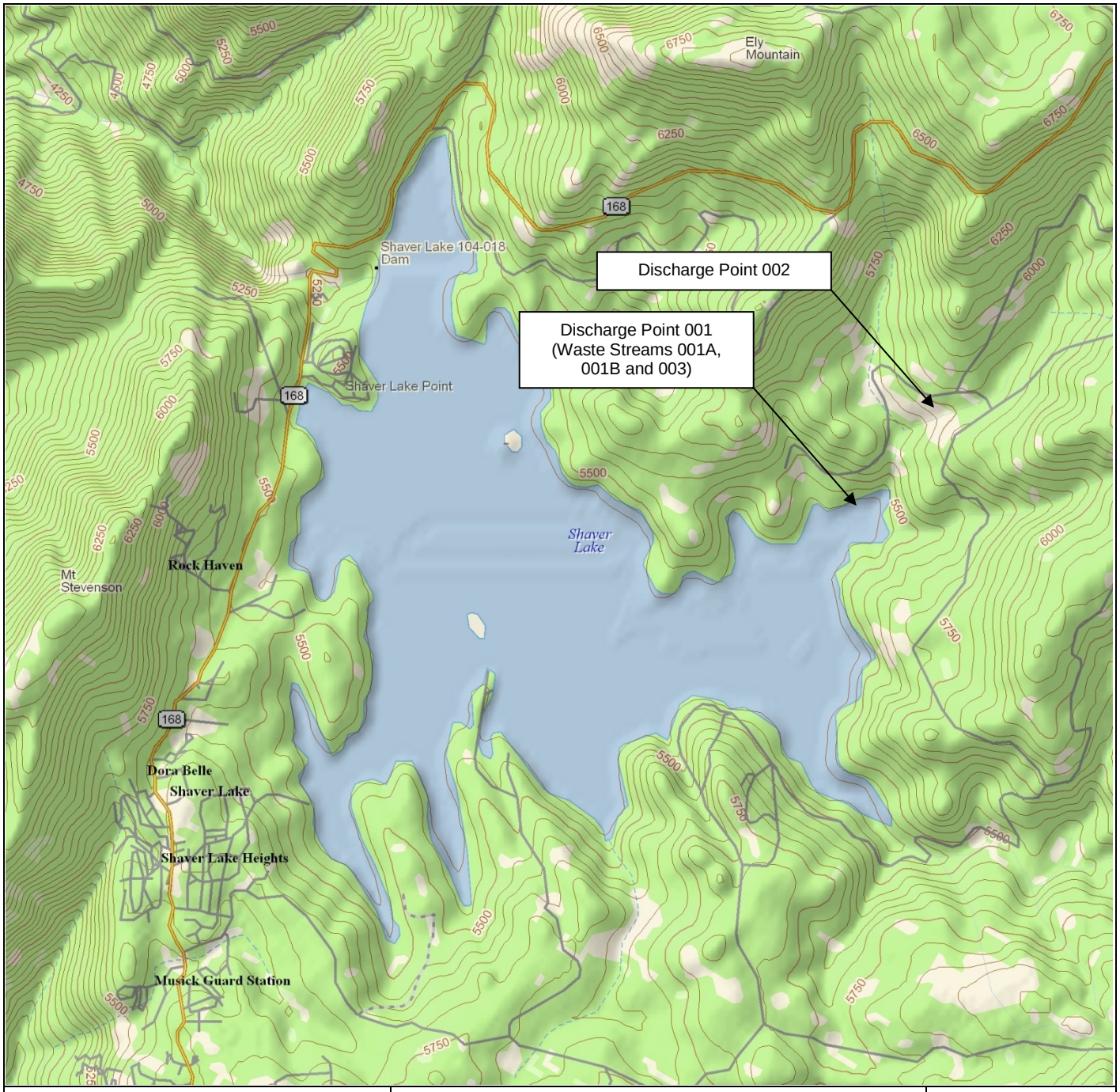
**Standard Deviation ($\sigma$)**
Standard deviation is a measure of variability that is calculated as follows:

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

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

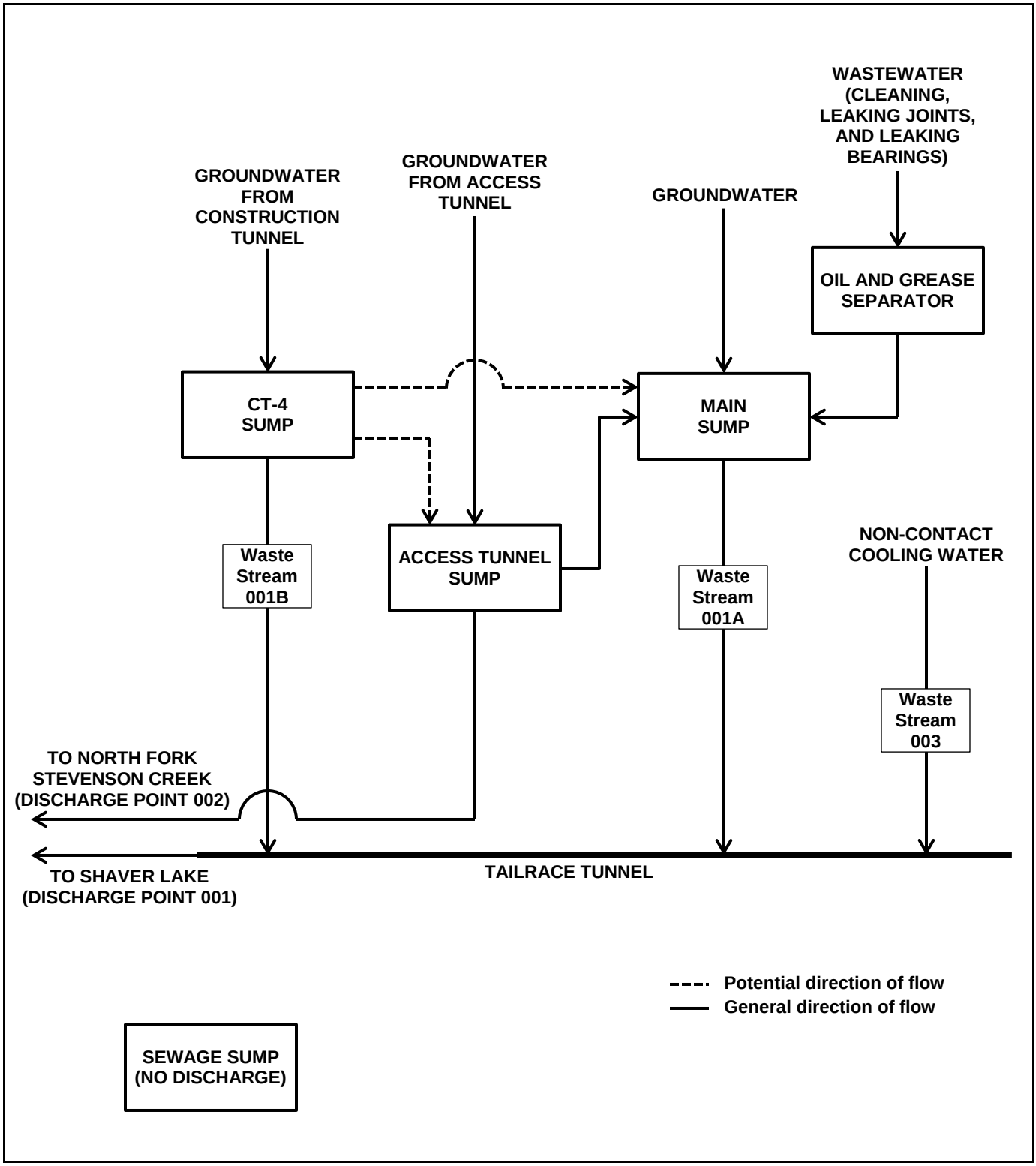
**Toxicity Reduction Evaluation (TRE)**
TRE is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first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

## ATTACHMENT B – MAP




| | | |
|---|---|---|
| Drawing Reference:<br>Shaver Lake, California | SITE LOCATION MAP<br>Southern California Edison Company<br>Balsam Meadows Hydroelectric Project<br>Eastwood Powerhouse Facility | N<br>W E<br>S |

## ATTACHMENT C – FLOW SCHEMATIC



# ATTACHMENT D – STANDARD PROVISIONS

## I. STANDARD PROVISIONS – PERMIT COMPLIANCE

### A. Duty to Comply

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

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

### B. Need to Halt or Reduce Activity Not a Defense

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

### C. Duty to Mitigate

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

### D. Proper Operation and Maintenance

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

### E. Property Rights

**1.** This Order does not convey any property rights of any sort or any exclusive privileges. (40 CFR 122.41(g).)

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

## F. Inspection and Entry

The Discharger shall allow the Central Valley Regional Water Quality Control Board (Central Valley Water Board), State Water Resources Control Board (State Water Board), United States Environmental Protection Agency (USEPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (40 CFR 122.41(i); Water Code section 13383):

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

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

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

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

## G. Bypass

**1.** Definitions

**a.** "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. (40 CFR 122.41(m)(1)(i).)

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

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

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

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

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

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

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

**5.** Notice

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

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

## H. Upset

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

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

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

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

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

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

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

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

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

## II. STANDARD PROVISIONS – PERMIT ACTION

### A. General

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

### B. Duty to Reapply

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

### C. Transfers

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

## III. STANDARD PROVISIONS – MONITORING

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

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

## IV. STANDARD PROVISIONS – RECORDS

**A.** Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least 5 years (or longer as required by 40 CFR Part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Central Valley Water Board Executive Officer at any time. (40 CFR 122.41(j)(2).)

**B. Records of monitoring information shall include:**

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

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

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

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

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

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

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

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

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

## V. STANDARD PROVISIONS – REPORTING

### A. Duty to Provide Information

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

### B. Signatory and Certification Requirements

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

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

**3.** All reports required by this Order and other information requested by the Central Valley Water Board, State Water Board, or USEPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

**a.** The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 CFR 122.22(b)(1));

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

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

**c.** The written authorization is submitted to the Central Valley Water Board and State Water Board. (40 CFR 122.22(b)(3).)

**4.** If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 above must be submitted to the Central Valley Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 CFR 122.22(c).)

**5.** Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:

"*I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*" (40 CFR 122.22(d).)

## C. Monitoring Reports

**1.** Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 CFR 122.22(l)(4).)

**2.** Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Central Valley Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 CFR 122.41(l)(4)(i).)

**3.** If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Central Valley Water Board. (40 CFR 122.41(l)(4)(ii).)

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

## D. Compliance Schedules

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

## E. Twenty-Four Hour Reporting

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

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

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

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

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

## F. Planned Changes

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

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

**2.** The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (40 CFR 122.41(l)(1)(ii).)

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

### G. Anticipated Noncompliance

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

### H. Other Noncompliance

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

### I. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Central Valley Water Board, State Water Board, or USEPA, the Discharger shall promptly submit such facts or information. (40 CFR 122.41(l)(8).)

## VI. STANDARD PROVISIONS – ENFORCEMENT

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

## VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

### A. Non-Municipal Facilities

Existing manufacturing, commercial, mining, and silvicultural Dischargers shall notify the Central Valley Water Board as soon as they know or have reason to believe (40 CFR 122.42(a)):

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

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

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

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

**d.** The level established by the Central Valley Water Board in accordance with 40 CFR 122.44(f). (40 CFR 122.42(a)(1)(iv).)

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

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

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

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

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

# ATTACHMENT E – MONITORING AND REPORTING PROGRAM

## Table of Contents

I. General Monitoring Provisions ..... E-2
II. Monitoring Locations ..... E-3
III. Influent Monitoring Requirements – Not Applicable ..... E-4
IV. Effluent Monitoring Requirements ..... E-4
  A. Monitoring Location EFF-001A ..... E-4
  B. Monitoring Location EFF-001B ..... E-5
  C. Monitoring Location EFF-001C ..... E-5
  D. Monitoring Location EFF-002 ..... E-6
V. Whole Effluent Toxicity Testing Requirements ..... E-7
VI. Land Discharge Monitoring Requirements – Not Applicable ..... E-10
VII. Reclamation Monitoring Requirements – Not Applicable ..... E-10
VIII. Receiving Water Monitoring Requirements – Surface Water ..... E-10
  A. Monitoring Locations RSW-001 and RSW-002 ..... E-10
  B. Monitoring Locations RSW-003 and RSW-004 ..... E-11
IX. Other Monitoring Requirements – Not Applicable ..... E-12
X. Reporting Requirements ..... E-12
  A. General Monitoring and Reporting Requirements ..... E-12
  B. Self-Monitoring Reports (SMRs) ..... E-13
  C. Discharge Monitoring Reports (DMRs) – Not Applicable ..... E-16
  D. Other Reports ..... E-16

## List of Tables

Table E-1. Monitoring Station Locations ..... E-3
Table E-2. WS 001A Effluent Monitoring ..... E-4
Table E-3. WS 001B Effluent Monitoring ..... E-5
Table E-4. WS 003 Effluent Monitoring ..... E-5
Table E-5. EFF-002 Effluent Monitoring ..... E-6
Table E-6. Chronic Toxicity Testing Dilution Series ..... E-9
Table E-7. Receiving Water Monitoring Requirements at RSW-001 and RSW-002 ..... E-10
Table E-8. Receiving Water Monitoring Requirements at RSW-003 and RSW-004 ..... E-11
Table E-9. Monitoring Periods and Reporting Schedule ..... E-13
Table E-10. Reporting Requirements for Special Provisions ..... E-16

## ATTACHMENT E – MONITORING AND REPORTING PROGRAM

Title 40 of the Code of Federal Regulations (CFR), section 122.48 (40 CFR 122.48) requires that all NPDES permits specify monitoring and reporting requirements. California Water Code (Water Code) sections 13267 and 13383 also authorize the Regional Water Quality Control Board, Central Valley Region (Central Valley 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 the Central Valley Water Board.

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

**C.** Chemical, bacteriological, and bioassay analyses of any material required by this Order shall be conducted by a laboratory certified for such analyses by the California Department of Public Health (DPH). Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Central Valley Water Board. In the event a certified laboratory is not available to the Discharger for any onsite field measurements such as dissolved oxygen, electrical conductivity, pH, temperature, and turbidity, such analyses performed by a noncertified laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program must be kept onsite in the laboratory and shall be available for inspection by Central Valley Water Board staff, State Water Resources Control Board (State Water Board) staff, United States Environmental Protection Agency (USEPA) staff, and/or their authorized representatives. The Discharger must demonstrate sufficient capability (qualified and trained employees, properly calibrated and maintained field instruments, etc.) to adequately perform these field measurements. The Quality Assurance-Quality Control Program must conform to USEPA guidelines or to procedures approved by the Central Valley Water Board.

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

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

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

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

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

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

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

## II. MONITORING LOCATIONS

The Discharger shall monitor the following locations to demonstrate compliance with the effluent limitations and other requirements in this Order:

**Table E-1. Monitoring Station Locations**

| Discharge Point Name | Monitoring Location Name | Monitoring Location Description |
|---|---|---|
| 001 | EFF-001A | Waste Stream (WS) 001A. Monitoring location is at the Main Sump. |
| 001 | EFF-001B | WS 001B. Monitoring location is at the construction tunnel (CT-4) Sump. |
| 001 | EFF-001C | WS 003. A location where a representative sample of non-contact cooling water flow from the Powerhouse to the Tailrace Tunnel can be collected. |
| 002 | EFF-002 | Discharge Point 002. Monitoring location is at the access tunnel sump. |
| -- | RSW-001 | A location not to exceed 250 feet upstream of Discharge Point 002. |
| -- | RSW-002 | A location not to exceed 250 feet downstream of Discharge Point 002. |
| -- | RSW-003 | A location greater than 25 feet, and not to exceed 125 feet from the point of discharge from the Tailrace Tunnel to Shaver Lake. |
| -- | RSW-004 | A location within 25 feet of the point of discharge from the Tailrace Tunnel to Shaver Lake. |

## III. INFLUENT MONITORING REQUIREMENTS – NOT APPLICABLE

## IV. EFFLUENT MONITORING REQUIREMENTS

### A. Monitoring Location EFF-001A

1. The Discharger shall monitor internal WS 001A, which consists of treated wastewater from the oil and grease separator and groundwater seepage, at EFF-001A as follows.

**Table E-2. WS 001A Effluent Monitoring**

| Parameter | Units | Sample Type | Minimum Sampling Frequency | Required Analytical Test Method |
|---|---|---|---|---|
| Flow | MGD | Meter | Continuous | -- |
| ***Conventional Pollutants*** | | | | |
| pH | standard units | Grab | 1/Quarter | [1,2] |
| Total Suspended Solids | mg/L | Grab | 1/Quarter | [1] |
| ***Priority Pollutants*** | | | | |
| Zinc, Total Recoverable | µg/L | Grab | 1/Quarter | [1,3] |
| Priority Pollutants | vary | Grab | 1/Permit Cycle[4,5] | [1,3] |
| ***Non-Conventional Pollutants*** | | | | |
| Electrical Conductivity @ 25°C | µmhos/cm | Grab | 1/Quarter | [1,2] |
| Hardness (as $CaCO_3$) | mg/L | Grab | 2/Year[5,7] | [1] |
| Oil and Grease | mg/L | Grab | 1/Quarter[6] | [1] |
| Settleable Solids | mL/L | Grab | 1/Quarter | [1] |
| Temperature | °C | Grab | 1/Quarter | [1,2] |
| Whole Effluent Toxicity (see Section V. below) | -- | -- | -- | -- |

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

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

[3] Reporting levels shall be equal to the reporting levels specified in Attachment I of this Order. If more than one analytical test method is listed for a given parameter in Attachment I, the Discharger may select from the listed methods and corresponding reporting level.

[4] Priority pollutants shall be sampled **during the second year of the permit term**. <u>If any constituents are detected above their corresponding reporting level, the Discharger shall collect and analyze quarterly (1/Quarter) samples for the detected constituents for four quarters.</u>

[5] Concurrent with receiving water monitoring for the same parameters at monitoring location RSW-003.

[6] If the concentration of the constituent exceeds the maximum daily effluent limitation of 15 mg/L, the sampling frequency shall be increased to **monthly (1/Month)** until three consecutive months show that the discharge is consistently in compliance with the effluent limitation.

[7] The Discharger shall ensure that samples are collected a minimum of 3 months apart.

## B. Monitoring Location EFF-001B

1. The Discharger shall monitor internal WS 001B, which consists of groundwater seepage, at EFF-001B as follows.

### Table E-3. WS 001B Effluent Monitoring

| Parameter | Units | Sample Type | Minimum Sampling Frequency | Required Analytical Test Method |
|---|---|---|---|---|
| Flow | MGD | Meter | Continuous | -- |
| ***Conventional Pollutants*** | | | | |
| pH | standard units | Grab | 1/Quarter | [1,2] |
| ***Priority Pollutants*** | | | | |
| Arsenic, Total Recoverable | µg/L | Grab | 1/Quarter | [1,3] |
| Lead, Total Recoverable | µg/L | Grab | 1/Quarter | [1,3] |
| Priority Pollutants | vary | Grab | 1/Permit Cycle[4,5] | [1,3] |
| ***Non-Conventional Pollutants*** | | | | |
| Electrical Conductivity @ 25°C | µmhos/cm | Grab | 1/Quarter | [1,2] |
| Hardness (as $CaCO_3$) | mg/L | Grab | 2/Year[5,6] | [1] |
| Temperature | °C | Grab | 1/Quarter | [1,2] |
| Whole Effluent Toxicity (see Section V. below) | -- | -- | -- | -- |

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

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

[3] Reporting levels shall be equal to the reporting levels specified in Attachment I of this Order. If more than one analytical test method is listed for a given parameter in Attachment I, the Discharger may select from the listed methods and corresponding reporting level.

[4] Priority pollutants shall be sampled **during the second year of the permit term**. <u>If any constituents are detected above their corresponding reporting level, the Discharger shall collect and analyze quarterly (1/Quarter) samples for the detected constituents for four quarters.</u>

[5] Concurrent with receiving water monitoring for the same parameters at monitoring location RSW-003.

[6] The Discharger shall ensure that samples are collected a minimum of 3 months apart.

## C. Monitoring Location EFF-001C

1. The Discharger shall monitor internal WS 003, which consists of non-contact cooling water, at EFF-001C as follows.

### Table E-4. WS 003 Effluent Monitoring

| Parameter | Units | Sample Type | Minimum Sampling Frequency | Required Analytical Test Method |
|---|---|---|---|---|
| Flow | MGD | Meter | Continuous | -- |
| ***Priority Pollutants*** | | | | |
| Copper, Total Recoverable | µg/L | Grab | 1/Quarter | [1,2] |

| Parameter | Units | Sample Type | Minimum Sampling Frequency | Required Analytical Test Method |
|---|---|---|---|---|
| Priority Pollutants | vary | Grab | 1/Permit Cycle[3,4] | [1,2] |
| ***Non-Conventional Pollutants*** | | | | |
| Hardness (as $CaCO_3$) | mg/L | Grab | 2/Year[4,5] | [1] |

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

[2] Reporting levels shall be equal to the reporting levels specified in Attachment I of this Order. If more than one analytical test method is listed for a given parameter in Attachment I, the Discharger may select from the listed methods and corresponding reporting level.

[3] Priority pollutants shall be sampled **during the second year of the permit term**. <u>If any constituents are detected above their corresponding reporting level, the Discharger shall collect and analyze quarterly (1/Quarter) samples for the detected constituents for four quarters.</u>

[4] Concurrent with receiving water monitoring for the same parameters at monitoring location RSW-003.

[5] The Discharger shall ensure that samples are collected a minimum of 3 months apart.

## D. Monitoring Location EFF-002

**1.** The Discharger shall monitor EFF-002 when discharging to North Fork Stevenson Creek (Discharge Point 002) as specified in Table E-5, below. If the discharge is intermittent rather than continuous, the Discharger shall monitor and record data for all constituents listed below on the first day of each intermittent discharge and thereafter the frequencies of analysis given in the schedule shall apply. The Discharger is not required to monitor and record data more often than twice the frequencies listed in Table E-5.

### Table E-5. EFF-002 Effluent Monitoring

| Parameter | Units | Sample Type | Minimum Sampling Frequency | Required Analytical Test Method |
|---|---|---|---|---|
| Flow | MGD | Meter | Continuous | -- |
| ***Conventional Pollutants*** | | | | |
| pH | standard units | Grab | 1/Month | [1,2] |
| ***Priority Pollutants*** | | | | |
| Priority Pollutants | vary | Grab | 1/Permit Cycle[4,5] | [1,3] |
| ***Non-Conventional Pollutants*** | | | | |
| Electrical Conductivity @ 25°C | µmhos/cm | Grab | 1/Month | [1,2] |
| Hardness (as $CaCO_3$) | mg/L | Grab | 1/Month | [1] |
| Temperature | °C | Grab | 1/Month | [1,2] |
| Whole Effluent Toxicity (see Section V. below) | -- | -- | -- | -- |

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

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

[3] Reporting levels shall be equal to the reporting levels specified in Attachment I of this Order. If more than one

| Parameter | Units | Sample Type | Minimum Sampling Frequency | Required Analytical Test Method |
|---|---|---|---|---|

analytical test method is listed for a given parameter in Attachment I, the Discharger may select from the listed methods and corresponding reporting level.

[4] Priority pollutants shall be sampled at least once per permit cycle during the first day of discharge whenever discharge to North Fork Stevenson Creek occurs. <u>If any constituents are detected above their corresponding reporting level, the Discharger shall collect and analyze quarterly (1/Quarter) samples for the detected constituents for four quarters, only if there is a discharge at Discharge Point 002.</u>

[5] Concurrent with receiving water monitoring for the same parameters at monitoring location RSW-001.

## 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. *<u>Monitoring Frequency</u>* – The Discharger shall perform acute toxicity testing at EFF-001A and EFF-001B **once during the second year of the permit (1/permit term)**. If the results of the testing at either location exceed the effluent limitations, the Discharger shall conduct two additional acute toxicity tests for the location in which the effluent limitation was exceeded. The additional testing shall be conducted monthly for two consecutive months. The Discharger shall perform acute toxicity testing at EFF-002 **once per permit cycle whenever discharge to North Fork Stevenson Creek occurs**. If the acute toxicity test at EFF-002 exceeds the effluent limitation, the Discharger shall conduct two additional acute toxicity tests for the next two months when discharge at Discharge Point 002 occurs.

2. *<u>Sample Types</u>* – Samples shall be grab samples. The effluent samples shall be taken at the effluent monitoring locations EFF-001A, EFF-001B, and EFF-002 as specified in this Monitoring and Reporting Program. The effluent samples shall be taken at effluent monitoring location EFF-002 only if a discharge occurs during the permit cycle.

3. *<u>Test Species</u>* – Test species shall be rainbow trout (*Oncorhynchus mykiss*).

4. *<u>Test Type and Duration</u>* – Test type shall be static renewal, and the test duration shall be 96 hours.

5. *<u>Dilutions</u>* – The acute toxicity testing shall be performed using undiluted effluent.

6. *<u>Test Method</u>* – The acute toxicity testing samples shall be analyzed using *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 (Method Manual). Temperature and pH shall be recorded at the time of sample collection. No pH adjustment may be made unless approved by the Executive Officer.

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

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

1. *Monitoring Frequency* – The Discharger shall perform **annual (1/year)** three species chronic toxicity testing at EFF-001A and EFF-001B. The Discharger shall perform three species chronic toxicity testing at EFF-002 **once during the permit cycle whenever there is a discharge to North Fork Stevenson Creek**.

2. *Sample Types* – Effluent samples shall grab samples. The effluent samples shall be taken at the effluent monitoring locations EFF-001A, EFF-001B, and EFF-002. The receiving water control for effluent monitoring locations EFF-001A and EFF-001B shall be taken from the RSW-003 sampling location, as identified in this Monitoring and Reporting Program. The receiving water control for effluent monitoring location EFF-002 shall be taken from the RSW-001 sampling location, as identified in this Monitoring and Reporting Program. The effluent samples shall be taken at effluent monitoring location EFF-002 only if a discharge occurs during the permit cycle.

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. *Test 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 (Method Manual).

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

7. *Dilutions* – For regular and accelerated chronic toxicity testing, it is not necessary to perform the test using a dilution series. The test may be performed using 100% effluent and two controls. For Toxicity Reduction Evaluation (TRE) monitoring, the

chronic toxicity testing shall be performed using the full dilution series identified in Table E-6, below. The receiving water at RSW-003 (for EFF-001A and EFF-001B) and at RSW-001 (for EFF-002) shall be used as the diluent (unless the receiving water is toxic).

**Table E-6. Chronic Toxicity Testing Dilution Series**

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

**8.** *Test Failure* – The Discharger must re-sample and re-test as soon as possible, but no later than fourteen (14) days after receiving notification of a test failure. A test failure is defined as follows:

**a.** The reference toxicant test or the effluent test does not meet all test acceptability criteria as specified in the Method Manual, and its subsequent amendments or revisions; or

**b.** The percent minimum significant difference (PMSD) measured for the test exceeds the upper PMSD bound variability criterion in Table 6 on page 52 of the Method Manual. A retest is only required in this case if the test results do not exceed the monitoring trigger specified in the Special Provision VI.C.2.a.iii. of this Order.

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

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

**1. Chronic WET Reporting.** Regular chronic toxicity monitoring results shall be reported to the Central Valley Water Board **within 30 days** following completion of the test, and shall contain, at minimum:

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

**b.** The results compared to the numeric toxicity monitoring trigger.

Additionally, the quarterly Discharger self-monitoring reports shall contain an updated chronology of chronic toxicity test results expressed in $TU_c$, and organized

by test species, type of test (survival, growth or reproduction), and monitoring frequency, i.e., either quarterly, monthly, accelerated, or TRE.

2. **Acute WET Reporting.** Acute toxicity test results shall be submitted **with the quarterly report during which the sample was collected**, following completion of the test and reported as percent survival.

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

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

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

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

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

## VI. LAND DISCHARGE MONITORING REQUIREMENTS – NOT APPLICABLE

## VII. RECLAMATION MONITORING REQUIREMENTS – NOT APPLICABLE

## VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER

### A. Monitoring Locations RSW-001 and RSW-002

1. The Discharger shall monitor North Fork Stevenson Creek at RSW-001 and RSW-002 only when the Facility is discharging at Discharge Point 002, as follows:

**Table E-7. Receiving Water Monitoring Requirements at RSW-001 and RSW-002**

| Parameter | Units | Sample Type | Minimum Sampling Frequency | Required Analytical Test Method |
|---|---|---|---|---|
| Flow | MGD | Meter | 1/Month[1] | -- |
| pH | standard units | Grab | 1/Month | [2,3] |
| Priority Pollutants | vary | Grab | 1/Permit Cycle[1,4] | [2,5] |
| Dissolved Oxygen | mg/L | Grab | 1/Month | [2,3] |
| Electrical Conductivity @ 25°C | µmhos/cm | Grab | 1/Month | [2,3] |
| Hardness (as $CaCO_3$) | mg/L | Grab | 2/Year[1] | [2] |
| Temperature | °F/°C | Grab | 1/Month | [2,3] |
| Turbidity | NTU | Grab | 1/Month | [2,3] |

[1] Monitoring is required only at monitoring location RSW-001 and shall be conducted concurrent with effluent

| Parameter | Units | Sample Type | Minimum Sampling Frequency | Required Analytical Test Method |
|---|---|---|---|---|

monitoring for the same parameters at EFF-002 (except for flow).

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

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

[4] Priority pollutants shall be sampled when the Facility is discharging at Discharge Point 002 at least once per permit cycle. If any constituents are detected above their corresponding reporting level, the Discharger shall collect and analyze quarterly (1/Quarter) samples for the detected constituents for four quarters, only if there is a discharge at Discharge Point 002.

[5] Reporting levels shall be equal to the reporting levels specified in Attachment I of this Order. If more than one analytical test method is listed for a given parameter in Attachment I, the Discharger may select from the listed methods and corresponding reporting level.

**2.** In conducting the receiving water sampling, a log shall be kept of the receiving water conditions throughout the reach bounded by Monitoring Locations RSW-001 and RSW-002. Monitoring is only required when discharging to Discharge Point 002. Attention shall be given to the presence or absence of:

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

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

## B. Monitoring Locations RSW-003 and RSW-004

**1. Except as noted for priority pollutants and hardness,** the Discharger shall monitor Shaver Lake at RSW-003 and RSW-004 for the constituents listed in Table E-8, below, only when a spill occurs at the Facility with the potential to impact the CT-4 Sump, the Main Sump, and/or the receiving water. Monitoring for the chemical contents of the spill shall be conducted daily for a period of not less than two weeks and shall continue until no further evidence of impact from the spill is detected.

**Table E-8. Receiving Water Monitoring Requirements at RSW-003 and RSW-004**

| Parameter | Units | Sample Type | Minimum Sampling Frequency | Required Analytical Test Method |
|---|---|---|---|---|
| pH | standard units | Grab | Only during spills | [1,2] |
| Priority Pollutants | vary | Grab | 1/Permit Cycle[3,4] | [1,5] |

| Parameter | Units | Sample Type | Minimum Sampling Frequency | Required Analytical Test Method |
|---|---|---|---|---|
| Dissolved Oxygen | mg/L | Grab | Only during spills | [1,2] |
| Electrical Conductivity @ 25°C | µmhos/cm | Grab | Only during spills | [1,2] |
| Hardness (as $CaCO_3$) | mg/L | Grab | 2/Year[3] | [1] |
| Temperature | °F/°C | Grab | Only during spills | [1,2] |
| Turbidity | NTU | Grab | Only during spills | [1,2] |

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

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

[3] Monitoring is required only at monitoring location RSW-003 and shall be conducted concurrent with effluent monitoring for the same parameters at EFF-001A, EFF-001B, and/or EFF-001C.

[4] Priority pollutants shall be sampled **once during the second year of the permit term**. <u>If any constituents are detected above their corresponding reporting level, the Discharger shall collect and analyze quarterly (1/Quarter) samples for the detected constituents for the next four quarters.</u>

[5] Reporting levels shall be equal to the reporting levels specified in Attachment I of this Order. If more than one analytical test method is listed for a given parameter in Attachment I, the Discharger may select from the listed methods and corresponding reporting level.

**2.** In conducting the receiving water sampling, a log shall be kept of the receiving water conditions throughout the reach bounded by Monitoring Locations RSW-003 and RSW-004. Attention shall be given to the presence or absence of:

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

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

## IX. OTHER MONITORING REQUIREMENTS – NOT APPLICABLE

## X. REPORTING REQUIREMENTS

### A. General Monitoring and Reporting Requirements

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

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

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

## B. Self-Monitoring Reports (SMRs)

1. The Discharger shall continue to submit electronic SMRs (eSMRs) using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (http://ciwqs.waterboards.ca.gov/). The CIWQS Web site will provide additional directions for eSMR submittal in the event there will be service interruption for electronic submittal. The Discharger shall maintain sufficient staffing and resources to ensure it submits eSMRs during the effective duration of this Order. This includes provision of training and supervision of individuals (e.g., Discharger personnel or consultant) on how to prepare and submit eSMRs.

2. The Discharger shall report in the eSMRs the results for all monitoring specified in this Monitoring and Reporting Program under sections III through X. The Discharger shall submit quarterly 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 SMRs.

3. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

**Table E-9. Monitoring Periods and Reporting Schedule**

| Sampling Frequency | Monitoring Period Begins On… | Monitoring Period | SMR Due Date |
|---|---|---|---|
| Continuous | Closest of 1 January, 1 April, 1 July, or 1 October following or on permit effective date | All | Submit with quarterly SMR for the reporting period in which the sample was collected |
| 1/Month | Closest of 1 January, 1 April, 1 July, or 1 October following or on permit effective date | First day of calendar month through last day of calendar month | Submit with quarterly SMR for the reporting period in which the sample was collected |
| 1/Quarter | Closest of 1 January, 1 April, 1 July, or 1 October following or on permit effective date | 1 January through 31 March<br>1 April through 30 June<br>1 July through 30 September<br>1 October through 31 December | 1 May<br>1 August<br>1 November<br>1 February |

| Sampling Frequency | Monitoring Period Begins On… | Monitoring Period | SMR Due Date |
|---|---|---|---|
| 2/Year | Closest of 1 January or 1 July following or on permit effective date | 1 January through 30 June<br>1 July through 31 December | Submit with quarterly SMR for the reporting period in which the sample was collected |
| 1/Year | 1 January following (or on) permit effective date | 1 January through 31 December | Submit with quarterly SMR for the reporting period in which the sample was collected |
| 1/Year (Annual Operations Report) | 1 January following (or on) permit effective date | 1 January through 31 December | 1 February of the following year |
| 1/Year (Chronic Toxicity) | 1 January following (or on) permit effective date | 1 January through 31 December | Submit within 30 days following completion of the test |
| 1/Permit Cycle | 6 December 2015 | 6 December 2015 through<br>5 December 2016 | Submit with quarterly SMR for the reporting period in which the sample was collected |
| 1/Permit Cycle (Acute Toxicity) | 6 December 2015 | 6 December 2015 through<br>5 December 2016 | Submit with quarterly SMR for the reporting period in which the sample was collected |

4. **Reporting Protocols.** The Discharger shall report with each sample result the Reporting Level (RL) and the laboratory's 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 RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

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

   For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ 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 Minimum Level (ML) value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve. The Discharger's on-site and/or contract laboratories may, as allowed by the rules governing alterations to ML values in section 2.4.3 of the SIP, employ a calibration standard lower than the ML value in Appendix 4 of the SIP.

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

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

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

6. **Reporting Requirements.** In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible.

   **a.** The data shall be summarized to clearly illustrate whether the Facility is operating in compliance with final effluent limitations or with other waste discharge requirements (e.g., discharge specifications, receiving water limitations, special provisions, etc.).

   **b.** Reports must clearly show when discharging to Discharge Point 001, Discharge Point 002, or other permitted discharge locations. Reports must show the date that the discharge started and stopped at each location.

7. **Calculation Requirements.** The following shall be calculated and reported once per month in the quarterly eSMRs, only when the Discharger conducts at monitoring at RSW-001, RSW-002, RSW-003, and/or RSW-004:

   **a. Dissolved Oxygen Receiving Water Limitations.** The Discharger shall calculate and report: i) the dissolved oxygen concentration, ii) the percent of saturation in the main water mass, and iii) the 95th percentile dissolved oxygen concentration (when more than one sample is collected during the month).

b. **Turbidity Receiving Water Limitations.** The Discharger shall calculate and report the turbidity increase in the receiving water applicable to the natural turbidity condition specified in Section V.A.17.a-e. of the Limitations and Discharge Requirements.

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

**8.** The Discharger shall submit eSMRs in accordance with the following requirements:

**a.** When 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 under the Attachments tab. The Discharger is not required to duplicate the submittal of data that is entered in tabular format within CIWQS.

**b.** The Discharger shall attach all laboratory analysis sheets, including all quality assurance/quality control information, with all its eSMRs for which sample analyses were performed.

**c.** The Discharger shall attach or enter a cover letter with each eSMR. The information contained in the cover letter shall clearly identify violations of this Order; 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. Violations must also be entered into the CIWQS Web site under the Violations tab for the reporting period in which the violation occurred.

**d.** eSMRs must be submitted to the Central Valley Water Board, signed and certified as required by the Standard Provisions (Attachment D), through the CIWQS Web site.

## C. Discharge Monitoring Reports (DMRs) – Not Applicable

## D. Other Reports

**1. Progress Reports.** The Discharger shall submit a progress report that includes the status of its salinity evaluation and minimization.

**Table E-10. Reporting Requirements for Special Provisions**

| Special Provision | Reporting Requirement |
|---|---|
| Salinity Evaluation and Minimization Plan (Section VI.C.3.a.) | 1 August, annually, after submittal of plan |

**2. Reporting Levels Report.** By **4 February 2014**, the Discharger shall submit a report outlining Reporting Levels (RLs), method detection limits, and analytical methods for approval. The Discharger shall comply with the monitoring and reporting requirements for CTR constituents as outlined in sections 2.3 and 2.4 of the SIP. The maximum required RLs for priority pollutant constituents shall be

based on the Minimum Levels (MLs) contained in Appendix 4 of the SIP, determined in accordance with Section 2.4.2 and Section 2.4.3 of the SIP. In accordance with Section 2.4.2 of the SIP, when there is more than one ML value for a given substance, the Central Valley Water Board shall include as RLs, in the permit, all ML values, and their associated analytical methods, listed in Appendix 4 that are below the calculated effluent limitation. The Discharger may select any one of those cited analytical methods for compliance determination. If no ML value is below the effluent limitation, then the Central Valley Water Board shall select as the RL, the lowest ML value, and its associated analytical method, listed in Appendix 4 of the SIP for inclusion in the permit. Table I-1 in Attachment I provides required RLs in accordance with the SIP.

3. **Annual Operations Report.** By **1 February** of each year, the Discharger shall submit a written report through the CIWQS Web site to the Executive Officer containing the following:

   **a.** The names and general responsibilities of all persons employed at the Facility.

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

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

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

   **e.** The Discharger may also be requested to submit an annual report to the Central Valley Water Board with both tabular and graphical summaries of the monitoring data obtained during the previous year. Any such request shall be made in writing. The report shall discuss the compliance record. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with the waste discharge requirements.

## ATTACHMENT F – FACT SHEET

### Table of Contents

I. Permit Information ..... F-4
II. Facility Description ..... F-5
A. Description of Wastewater and Biosolids Treatment or Controls ..... F-5
B. Discharge Points and Receiving Waters ..... F-6
C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data ..... F-6
D. Compliance Summary ..... F-7
E. Planned Changes ..... F-7
III. Applicable Plans, Policies, and Regulations ..... F-8
A. Legal Authorities ..... F-8
B. California Environmental Quality Act (CEQA) ..... F-8
C. State and Federal Regulations, Policies, and Plans ..... F-8
D. Impaired Water Bodies on CWA 303(d) List ..... F-9
E. Other Plans, Polices, and Regulations – Not Applicable ..... F-9
IV. Rationale For Effluent Limitations and Discharge Specifications ..... F-9
A. Discharge Prohibitions ..... F-11
B. Technology-Based Effluent Limitations ..... F-11
1. Scope and Authority ..... F-11
2. Applicable Technology-Based Effluent Limitations ..... F-12
C. Water Quality-Based Effluent Limitations (WQBELs) ..... F-14
1. Scope and Authority ..... F-14
2. Applicable Beneficial Uses and Water Quality Criteria and Objectives ..... F-14
3. Determining the Need for WQBELs ..... F-26
4. WQBELs Calculations ..... F-33
5. Whole Effluent Toxicity (WET) ..... F-35
D. Final Effluent Limitations ..... F-37
1. Mass-based Effluent Limitations – Not Applicable ..... F-37
2. Averaging Periods for Effluent Limitations ..... F-38
3. Satisfaction of Anti-Backsliding Requirements ..... F-38
4. Satisfaction of Antidegradation Policy ..... F-38
5. Stringency of Requirements for Individual Pollutants ..... F-40
6. Effluent Limitations at Internal Wastes Streams ..... F-40
E. Interim Effluent Limitations – Not Applicable ..... F-42
F. Land Discharge Specifications – Not Applicable ..... F-42
G. Reclamation Specifications– Not Applicable ..... F-42
V. Rationale for Receiving Water Limitations ..... F-42
A. Surface Water ..... F-43
B. Groundwater ..... F-45
VI. Rationale for Monitoring and Reporting Requirements ..... F-45
A. Influent Monitoring – Not Applicable ..... F-46
B. Effluent Monitoring ..... F-46
C. Whole Effluent Toxicity Testing Requirements ..... F-48
D. Receiving Water Monitoring ..... F-49

1. Surface Water ..... F-49
2. Groundwater – Not Applicable ..... F-49
E. Other Monitoring Requirements – Not Applicable ..... F-49
VII. Rationale for Provisions ..... F-49
A. Standard Provisions ..... F-49
B. Special Provisions ..... F-49
1. Reopener Provisions ..... F-49
2. Special Studies and Additional Monitoring Requirements ..... F-50
3. Best Management Practices and Pollution Prevention ..... F-54
4. Construction, Operation, and Maintenance Specifications – Not Applicable ..... F-54
5. Special Provisions for Municipal Facilities (POTWs Only) – Not Applicable ..... F-54
6. Other Special Provisions ..... F-54
7. Compliance Schedules – Not Applicable ..... F-54
VIII. Public Participation ..... F-54
A. Notification of Interested Parties ..... F-54
B. Written Comments ..... F-54
C. Public Hearing ..... F-55
D. Waste Discharge Requirements Petitions ..... F-55
E. Information and Copying ..... F-55
F. Register of Interested Persons ..... F-56
G. Additional Information ..... F-56

## List of Tables

Table F-1. Facility Information ..... F-4
Table F-2a. WS-001A Historic Effluent Limitations and Monitoring Data ..... F-7
Table F-2b. WS-001B Historic Effluent Limitations and Monitoring Data ..... F-7
Table F-2c. WS-003 Historic Effluent Limitations and Monitoring Data ..... F-7
Table F-3. Effluent Exceedances at WS 003 ..... F-7
Table F-4a. Summary of Technology-based Effluent Limitations at WS 001A ..... F-13
Table F-4b. Summary of Technology-based Effluent Limitations at WS 001B ..... F-13
Table F-4c. Summary of Technology-based Effluent Limitations at WS 003 ..... F-13
Table F-5. Summary of Technology-based Effluent Limitations at Discharge Point 002 ..... F-14
Table F-6. Basin Plan Beneficial Uses ..... F-15
Table F-7a. Copper ECA Evaluation at WS 001A ..... F-21
Table F-7b. Copper ECA Evaluation at WS 001B ..... F-21
Table F-7c. Copper ECA Evaluation at WS 003 ..... F-22
Table F-8a. Lead ECA Evaluation at WS 001A ..... F-23
Table F-8b. Lead ECA Evaluation at WS 001B ..... F-24
Table F-8c. Lead ECA Evaluation at WS 003 ..... F-25
Table F-9a. ECA Evaluations for CTR Hardness-dependent Metals at WS 001A ..... F-25
Table F-9b. ECA Evaluations for CTR Hardness-dependent Metals at WS 001B ..... F-26
Table F-9c. ECA Evaluations for CTR Hardness-dependent Metals at WS 003 ..... F-26
Table F-10a. Summary of WQBELs at WS 001A ..... F-34
Table F-10b. Summary of WQBELs at WS 001B ..... F-34
Table F-10c. Summary of WQBELs at WS 003 ..... F-34
Table F-11. Summary of WQBELs at Discharge Point 002 ..... F-35

Table F-12. Chronic Toxicity Test Results ..... F-36
Table F-13a. Summary of Final Effluent Limitations at WS 001A ..... F-41
Table F-13b. Summary of Final Effluent Limitations at WS 001B ..... F-41
Table F-13c. Summary of Final Effluent Limitations at WS 003 ..... F-41
Table F-14. Summary of Final Effluent Limitations at Discharge Point 002 ..... F-42

# ATTACHMENT F – FACT SHEET

As described in the Findings in section II of this Order, this Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order. This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for dischargers in California. Only those sections or subsections of this Order that are specifically identified as "not applicable" have been determined not to apply to this Discharger. Sections or subsections of this Order not specifically identified as "not applicable" are fully applicable to this Discharger.

## I. PERMIT INFORMATION

The following table summarizes administrative information related to the Facility.

**Table F-1. Facility Information**

| | |
|---|---|
| **WDID** | 5C102009007 |
| **Discharger** | Southern California Edison Company |
| **Name of Facility** | Balsam Meadows Hydroelectric Project, Eastwood Powerhouse Facility |
| **Facility Address** | 45795 Tollhouse Road |
| | Shaver Lake, CA 93664 |
| | Fresno County |
| **Facility Contact, Title and Phone** | Michael Murphy, Environmental Compliance Supervisor (559) 893-3633 |
| **Authorized Person(s) to Sign and Submit Reports** | Michael Murphy;<br>Enrique Martinez, Vice President-Power Production (909) 394-8667 |
| **Mailing Address** | P.O. Box 100, Big Creek, CA 93605 |
| **Billing Address** | P.O. Box 100, Big Creek, CA 93605 |
| **Type of Facility** | Hydroelectric power facility (SIC Code 4911 – Electric Services) |
| **Major or Minor Facility** | Minor |
| **Threat to Water Quality** | 2 |
| **Complexity** | B |
| **Pretreatment Program** | Not Applicable |
| **Reclamation Requirements** | Not Applicable |
| **Facility Permitted Flow** | 3.11 MGD at Waste Stream 003 (Discharge Point 001) |
| **Facility Design Flow** | Not Applicable |
| **Watershed** | San Joaquin River Hydrologic Unit, Redinger Hydrologic Area (No. 540.30) |
| **Receiving Water(s)** | Shaver Lake and North Fork Stevenson Creek |
| **Receiving Water Type(s)** | Inland Surface Waters |

**A.** Southern California Edison Company is the owner and operator of Balsam Meadows Hydroelectric Project, Eastwood Powerhouse Facility (hereinafter Facility), a hydroelectric power facility. United States Forest Service owns the property at 45795 Tollhouse Road, Shaver Lake on which the Facility is located. This Order names Southern California Edison Company as Discharger.

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

**B.** The Facility discharges wastewater to Shaver Lake and North Fork Stevenson Creek, both waters of the United States, and is currently regulated by Order R5-2005-0093 which was adopted on 24 June 2005 and expired on 23 June 2010. The terms and conditions of the current Order have been automatically continued and remain in effect until new Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit are adopted pursuant to this Order.

**C.** The Discharger filed a Report of Waste Discharge (RWD) and submitted an application for renewal of its WDRs and NPDES permit on 22 December 2009. Supplemental priority pollutant monitoring information was requested and received on 25 March 2010.

## II. FACILITY DESCRIPTION

### A. Description of Wastewater and Biosolids Treatment or Controls

The Discharger owns and operates an underground hydroelectric powerhouse. The Facility generates hydroelectric power through a single pump-turbine connected to a motor/generator and it is part of the Balsam Meadows Hydroelectric Project (Balsam Project). The Balsam Project includes a 5,900-foot diversion tunnel connecting the existing Huntington-Pitman-Shaver Conduit, a 4,320-foot power tunnel, an access tunnel, a construction tunnel used to store equipment and access different levels of the Facility, and a 7,500-foot tailrace tunnel with a 16-foot horseshoe section leading to Shaver Lake. The Balsam Project also includes the Balsam Meadows Forebay, a 2,100 acre-foot storage reservoir from which water flows to the Facility. During off-peak electrical consumption hours, water from Shaver Lake may be pumped into the forebay for power generation use the following day.

The Discharger's effluent consists of treated wastes from an oil and grease separator, untreated groundwater, and untreated non-contact cooling water. There are two discharge points from the Facility. Discharge Point 001 is from the Tailrace Tunnel to Shaver Lake and Discharge Point 002 is from the Access Tunnel Sump to North Fork Stevenson Creek. Discharge Point 001 is the primary discharge point for the Facility and consists of the commingled waste streams described below. Discharge Point 002 is used only when the powerhouse is not operating and the discharge consists only of untreated groundwater.

Discharge Point 001 – Discharges from the Tailrace Tunnel to Shaver Lake. The discharge consists of commingled flows from three separate waste streams (WSs) as described below:

WS 001A – Discharges from the Main Sump to the Tailrace Tunnel. The Main Sump collects flow from three different sources: (1) treated wastewater from the oil and grease separator, which collects and treats wastewater from equipment and floor cleaning operations, leaking pipe joints, and leaking bearings, (2) untreated

groundwater that seeps into the Main Sump, and (3) untreated groundwater from the Access Tunnel that collects in the Access Tunnel Sump and is siphoned to the Main Sump. Occasionally, untreated groundwater from the CT-4 Sump is pumped to the Main Sump during times when the equipment and structures of the construction tunnel require maintenance. Sludge from the oil and grease separator is disposed of off-site by a licensed operator.

WS 001B – Discharges from the CT-4 Sump to the Tailrace Tunnel. The CT-4 Sump collects groundwater that seeps into the construction tunnel, which is then pumped to the Tailrace Tunnel. Water from the CT-4 Sump can also be routed to the Access Tunnel Sump, but this only happens when discharging to North Fork Stevenson Creek (Discharge Point 002).

WS 003 – Discharges of up to 3.11 MGD of non-contact cooling water from the Powerhouse to the Tailrace Tunnel. The water is used to cool the turbine and generator pumping equipment.

Discharge Point 002 – Discharges of untreated groundwater from the construction tunnel and Access Tunnel to North Fork Stevenson Creek. This discharge occurs on rare occasions, usually when the Powerhouse is down and the Tailrace Tunnel requires maintenance. This discharge did not occur during the term of Order R5-2005-0093.

## B. Discharge Points and Receiving Waters

1. The Facility is located in Section 20, T9S, R25E, MDB&M, as shown in Attachment B, a part of this Order.

2. The discharge from Discharge Point 001 to Shaver Lake, a water of the United States and tributary to the San Joaquin River from its sources to Millerton Lake, occurs at a point in Section 20, T9S, R25E, MDB&M (latitude 37° 7’ 44.65” North and longitude 119° 16’ 1.38” West). The discharge from Discharge Point 002 to North Fork Stevenson Creek, a water of the United States and tributary to the San Joaquin River from its sources to Millerton Lake, occurs at a point in Section 21, T9S, R25E, MDB&M (latitude 37° 8’ 7.08” North and longitude 119° 15’ 32.15” West).

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

Effluent limitations contained in Order R5-2005-0093 for discharges from Discharge Point 001 (Monitoring Locations EFF-001A, EFF-001B, EFF-001C) (WS 001A, WS 001B, and WS 003, respectively) and representative monitoring data from the term of Order R5-2005-0093 are as follows:

**Table F-2a. WS-001A Historic Effluent Limitations and Monitoring Data**

| Parameter | Units | Effluent Limitations | | Monitoring Data July 2005 - December 2009 | |
|---|---|---|---|---|---|
| | | Average Monthly | Maximum Daily | Highest Average Monthly Discharge | Highest Daily Discharge |
| Total Suspended Solids | mg/L | 5 | 10 | ND | ND |
| Settleable Solids | mL/L | 0.1 | 0.2 | 0.1 | 0.1 |
| Oil and Grease | mg/L | -- | 15 | -- | ND |
| pH | standard units | -- | 6.0-9.0(1) | -- | 6.02-8.78(1)(2) |

1 Minimum to maximum range
2 The Discharger reported a maximum pH of 9.22 but determined this value was due to a calibration error.
ND – Non-Detect

**Table F-2b. WS-001B Historic Effluent Limitations and Monitoring Data**

| Parameter | Units | Effluent Limitations | | Monitoring Data July 2005 - December 2009 | |
|---|---|---|---|---|---|
| | | Average Monthly | Maximum Daily | Highest Average Monthly Discharge | Highest Daily Discharge |
| pH | standard units | -- | 6.0-9.0(1) | -- | 6.5-8.52(1) |

1 Minimum to maximum range

**Table F-2c. WS-003 Historic Effluent Limitations and Monitoring Data**

| Parameter | Units | Effluent Limitation | | Monitoring Data July 2005 - December 2009 | |
|---|---|---|---|---|---|
| | | Average Monthly | Maximum Daily | Highest Average Monthly Discharge | Highest Daily Discharge |
| Flow | MGD | -- | 2.5 | -- | 2.8 |

No discharges at Discharge Point 002 occurred during the term of Order R5-2005-0093.

## D. Compliance Summary

**1.** During the monitoring period of July 2005 through December 2009, the Discharger exceeded the following effluent limitation established by Order R5-2005-0093 for Discharge Point 001 at WS 003.

**Table F-3. Effluent Exceedances at WS 003**

| Parameter | Units | Effluent Limitation | | Number of Violations | |
|---|---|---|---|---|---|
| | | Average Monthly | Maximum Daily | Average Monthly Exceedances | Maximum Daily Exceedances |
| Flow | MGD | -- | 2.5 | -- | 1 |

## E. Planned Changes

The Discharger requested to increase its flow effluent limitation for WS 003 from 2.5 mgd to 3.11 mgd. The Discharger stated that due to new regulations by the

California Independent System Operator, operation of the generator now requires more cooling than before. This has caused the Discharger to come close to exceeding its flow effluent limitation at WS 003. This Order includes the higher flow limitation at WS 003, as requested by the Discharger. Anti-degradation and backsliding are addressed in Sections IV.D.4. and IV.D.3., respectively, in this Fact Sheet.

## III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

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

### A. Legal Authorities

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

### B. California Environmental Quality Act (CEQA)

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

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

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

   a. *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins*, Fourth Edition, revised October 2011 (Basin Plan).

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

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

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

5. **Antidegradation Policy.** As specified in the Finding contained at section II.N of this Order and as discussed in detail in the Fact Sheet (Attachment F, Section IV.D.4.), the discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board (State Water Board) Resolution No. 68-16.

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

7. **Emergency Planning and Community Right to Know Act.** This Order requires the Discharger to report any spills or releases to the State Emergency Response Commission in accordance with the Emergency Planning and Community Right to Know Act of 1986.

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

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

1. Under section 303(d) of the 1972 CWA, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On 11 October 2011, USEPA gave final approval to California's 2008-2010 Section 303(d) List of Water Quality Limited Segments. The Basin Plan references this list of Water Quality Limited Segments (WQLSs), which are defined as "…*those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources (40 CFR 130, et seq.)*." The Basin Plan also states, "*Additional treatment beyond minimum federal requirements 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*." Shaver Lake, North Fork Stevenson Creek, and the San Joaquin River from its sources to Millerton Lake are not listed as impaired water bodies under California's section 303(d) List of Water Quality Limited Segments.

2. **Total Maximum Daily Loads (TMDLs).** USEPA requires the Central Valley Water Board to develop TMDLs for each 303(d) listed pollutant and water body combination. There are no applicable TMDLs for Shaver Lake, North Fork Stevenson Creek, and the San Joaquin River from its sources to Millerton Lake because these water bodies are not 303(d)-listed.

### E. Other Plans, Polices, and Regulations – Not Applicable

## IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

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

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

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the Code of Federal Regulations: 40 CFR 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 CFR 122.44(d) requires that permits include Water Quality-based Effluent Limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water where numeric water quality objectives have not been established. The Basin Plan at page IV-16.00 contains an implementation policy, "*Policy for Application of Water Quality Objectives*", that specifies that the Central Valley Water Board "*will, on a case-by-case basis, adopt numerical limitations in orders which will implement the narrative objectives*." This policy complies with 40 CFR 122.44(d)(1). With respect to narrative objectives, the Central Valley Water Board must establish effluent limitations using one or more of three specified sources, including: (1) USEPA's published water quality criteria, (2) a proposed state criterion (i.e., water quality objective) or an explicit state policy interpreting its narrative water quality criteria (i.e., the Central Valley Water Board's "*Policy for Application of Water Quality Objectives*")(40 CFR 122.44(d)(1)(vi)(A), (B) or (C)), or (3) an indicator parameter.

The Basin Plan includes numeric site-specific water quality objectives and narrative objectives for toxicity, chemical constituents, discoloration, radionuclides, and tastes and odors. The narrative toxicity objective states: "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*." (Basin Plan at III-8.01) The Basin Plan states that material and relevant information, including numeric criteria, and recommendations from other agencies and scientific literature will be utilized in evaluating compliance with the narrative toxicity objective. The narrative chemical constituents objective states that waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At minimum, "…*water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs)…*" in Title 22 of the CCR. The Basin Plan further states that, to protect all

beneficial uses, the Central Valley Water Board may apply limits more stringent than MCLs. The narrative tastes and odors objective states: "*Water shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.*"

## A. Discharge Prohibitions

1. Prohibition III.A. concerns a change in manner or location of the discharge, or a change in its character, from what was provided in the RWD and evaluated for compliance with the Water Code and CWA.

2. Prohibition III.B. prohibits bypass pursuant to 40 CFR 122.41(m)(4), with federal allowance for exceptions set forth in Section I.G. of Attachment D, Federal Standard Provisions. It also prohibits overflows, which concerns release of untreated and partially treated wastewater to surface waters.

3. Prohibition III.C. is based on Water Code section 13050, which requires water quality objectives be established for the prevention of nuisance within a specific area. The Basin Plan prohibits conditions that create a nuisance. Prohibition III.C. also reflects general situations that, if created, justify cleanup and abatement enforcement activities and assessment of administrative civil liabilities.

4. Prohibition III.D. concerns a category of waste that is subject to full containment as prescribed by Title 23 and Title 27 of the CCR and, if discharged, has high potential for creating a condition that would violate Prohibition III.C. as well.

## B. Technology-Based Effluent Limitations

### 1. Scope and Authority

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

The CWA requires that technology-based effluent limitations (TBELs) be established based on several levels of controls:

a. Best practicable control technology currently available (BPT) represents the average of the best performance by facilities within an industrial category or subcategory. BPT standards apply to toxic, conventional, and non-conventional pollutants.

**b.** Best available technology economically achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. BAT standards apply to toxic and non-conventional pollutants.

**c.** Best conventional pollutant control technology (BCT) represents the control from existing industrial point sources of conventional pollutants including BOD, TSS, fecal coliform, pH, and oil and grease. The BCT standard is established after considering the "cost reasonableness" of the relationship between the cost of attaining a reduction in effluent discharge and the benefits that would result, and also the cost effectiveness of additional industrial treatment beyond BPT.

**d.** New source performance standards (NSPS) represent the best available demonstrated control technology standards. The intent of NSPS guidelines is to set limitations that represent state-of-the-art treatment technology for new sources.

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

**2. Applicable Technology-Based Effluent Limitations**

**a. Flow.** Order R5-2005-0093 established a maximum daily effluent limitation of 2.5 MGD for flow at WS 003, which is a TBEL developed using BPJ. This Order establishes a new maximum daily effluent limitation of 3.11 MGD. The Discharger requested an increase in flow at WS 003 due to changes in operations to address requirements by the California Independent System Operator, which requires operating the generator in a manner that needs more cooling than before. The Discharger calculated an average flow for non-contact cooling water and added a 10% safety factor to its calculation due to uncertainty in how much cooling water is needed and because the Discharger had not operated the generator in the new manner required. The new flow limitation is set as a TBEL developed using BPJ. Antidegradation and backsliding are addressed in section IV.D. of this Fact Sheet. Special Order 5-01-047 removed effluent flow limitations that pertain to discharges of untreated groundwater. Therefore, flow limitations for WS 001A, WS 001B, and Discharge Point 002 are not included in this Order.

**b. Settleable Solids.** Order R5-2005-0093 established an average monthly effluent limitation of 0.1 mL/L and a maximum daily effluent limitation of 0.2 mL/L for settleable solids at WS 001A, which are TBELs developed using BPJ. This Order carries over the TBELs established by Order R5-2005-0093.

c. **Total Suspended Solids.** Order R5-2005-0093 established an average monthly effluent limitation of 5 mg/L and a maximum daily effluent limitation of 10 mg/L for total suspended solids (TSS) at WS 001A, which are TBELs developed using BPJ. This Order carries over the TBELs established by Order R5-2005-0093.

d. **Oil and Grease.** Order R5-2005-0093 established a maximum daily effluent limitation of 15 mg/L for oil and grease at WS 001A, which is a TBEL developed using BPJ. This Order carries over the TBEL established by Order R5-2005-0093.

e. **pH.** Order R5-2005-0093 established limitations of no less than 6.0 or greater than 9.0 standard units for pH at WS 001A, WS 001B and Discharge Point 002, which are TBELs developed using BPJ. However, as discussed in section IV.C.3. of this Fact Sheet, this Order establishes more stringent water quality-based effluent limitations for pH at Discharge Point 002. WS 003 consists only of non-contact cooling water and is not expected to pose a significant threat to water quality. Therefore, a pH limitation for WS 003 is not included in this Order.

**Summary of Technology-based Effluent Limitations**
**Discharge Point 001**

**Table F-4a. Summary of Technology-based Effluent Limitations at WS 001A**

| Parameter | Units | Effluent Limitations | | | |
|---|---|---|---|---|---|
| | | Average Monthly | Maximum Daily | Instantaneous Minimum | Instantaneous Maximum |
| pH | standard units | -- | -- | 6.0 | 9.0 |
| Total Suspended Solids | mg/L | 5.0 | 10. | -- | -- |
| Oil and Grease | mg/L | -- | 15 | -- | -- |
| Settleable Solids | mL/L | 0.1 | 0.2 | -- | -- |

**Table F-4b. Summary of Technology-based Effluent Limitations at WS 001B**

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

**Table F-4c. Summary of Technology-based Effluent Limitations at WS 003**

| Parameter | Units | Effluent Limitations | | | |
|---|---|---|---|---|---|
| | | Average Monthly | Maximum Daily | Instantaneous Minimum | Instantaneous Maximum |
| Flow | MGD | -- | 3.11 | -- | -- |

**Summary of Technology-based Effluent Limitations**
**Discharge Point 002**

**Table F-5. Summary of Technology-based Effluent Limitations at Discharge Point 002**

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

## C. Water Quality-Based Effluent Limitations (WQBELs)

### 1. Scope and Authority

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

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

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

### 2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

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

The Basin Plan on page II-1.00 states: "*Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning…*" and with respect to disposal of wastewaters states that "...*disposal of wastewaters is [not] a*

*prohibited use of waters of the State; it is merely a use which cannot be satisfied to the detriment of beneficial uses.*"

The federal CWA section 101(a)(2), states: "*it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides 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 be 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. Federal regulation, 40 CFR 131(e), defines existing beneficial uses as those uses actually attained after 28 November 1975, whether or not they are included in the water quality standards. Federal regulation, 40 CFR 131.10, requires that uses be obtained by implementing effluent limitations, requires that all downstream uses be protected and states that in no case shall a state adopt waste transport or waste assimilation as a beneficial use for any waters of the United States.

a. **Receiving Water and Beneficial Uses.** Effluent from the Facility is discharged through the Tailrace Tunnel to Shaver Lake or through the Access Tunnel Sump to North Fork Stevenson Creek.

   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 Shaver Lake and North Fork Stevenson Creek, but does identify present and potential uses for San Joaquin River from its sources to Millerton Lake, to which Shaver Lake and North Fork Stevenson Creek are tributaries. Thus, beneficial uses applicable to Shaver Lake and North Fork Stevenson Creek are as follows:

**Table F-6. Basin Plan Beneficial Uses**

| Discharge Point | Receiving Water Name | Beneficial Use(s) |
|---|---|---|
| 001 | Shaver Lake | Municipal and domestic supply (MUN); agricultural supply (AGR); hydropower generation (POW); water contact recreation (REC-1); non-contact water recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); and wildlife habitat (WILD). |
| 002 | North Fork Stevenson Creek | |
| -- | Groundwater | MUN; AGR; industrial service supply (IND); and industrial process supply (PRO). |

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 July 2005 through December 2009 and some data from June through August 2011, which includes effluent and ambient background data submitted in SMRs and the RWD.

c. **Assimilative Capacity/Mixing Zone.** 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.

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.

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

This Order has established the criteria for hardness-dependent metals based on the reasonable worst-case ambient hardness as required by the SIP[1], the CTR[2] and State Water Board Order WQ 2008-0008 (City of Davis). The SIP and the CTR require the use of "receiving water" or "actual ambient" hardness, respectively, to determine effluent limitations for these metals. (SIP § 1.2; 40 CFR 131.38(c)(4)) The CTR does not define whether the term "ambient," as applied in the regulations, necessarily requires the consideration of background as opposed to downstream hardness conditions. Therefore, where reliable, representative data are available, the hardness value for calculating criteria can be the downstream receiving water hardness, after mixing with the effluent (Order WQ 2008-0008, p. 11). The Central Valley Water Board thus has considerable discretion in determining ambient hardness (*Id*., p. 10.).

As discussed below, scientific literature provides a reliable method for calculating protective hardness-dependent CTR criteria, considering all discharge conditions. This methodology produces hardness-dependent CTR criteria based on the reasonable worst-case downstream ambient hardness that ensure these metals do not cause receiving water toxicity under any downstream receiving water condition. Under this methodology, the Central Valley Water Board considers all hardness conditions that could occur in the ambient downstream receiving water after the effluent has mixed with the water body. This ensures that effluent limitations are fully protective of aquatic life in all areas of the

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

[2] The CTR requires that, for waters with a hardness of 400 mg/L (as $CaCO_3$), or less, the actual ambient hardness of the surface water must be used. It further requires that the hardness values used must be consistent with the design discharge conditions for design flows and mixing zones.

receiving water affected by the discharge under all flow conditions, at the fully mixed location, and throughout the water body including at the point of discharge into the water body.

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

**(a)** The SIP requires WQBELs if the MEC is equal to or exceeds the applicable criterion, adjusted for hardness. For comparing the MEC to the applicable criterion, the "fully mixed" reasonable worst-case receiving water ambient hardness was used to adjust the criterion. In this evaluation, the portion of the receiving water affected by the discharge is analyzed. For hardness-dependent criteria, the hardness of the effluent has an impact on the determination of the applicable criterion in areas in the receiving water affected by the discharge. Therefore, for comparing the MEC to the applicable criterion, the reasonable worst-case mixed receiving water ambient hardness was used to adjust the criterion. For this situation, it is necessary to consider the hardness of the effluent in determining the applicable hardness to adjust the criterion. The procedures for determining the applicable criterion after proper adjustment using the reasonable worst-case mixed receiving water ambient hardness is outlined in subsection ii, below.

**(b)** The SIP requires WQBELs if the background receiving water is impaired (outside the influence) of the discharge, i.e., if the maximum ambient background concentration of a pollutant exceeds the applicable criterion, adjusted for hardness.[3] For comparing the maximum ambient background concentration to the applicable criterion, the reasonable worst-case background receiving water hardness was used to adjust the criteria. This is appropriate because this area is outside the influence of the discharge. Since the discharge does not impact the background receiving water hardness, the effect of the effluent hardness was not included in this evaluation.

**ii. Calculating WQBELs.** The remaining discussion in this section relates to the development of WQBELs when it has been determined that the discharge

[3] The pollutant must also be detected in the effluent.

has reasonable potential to cause or contribute to an exceedance of the CTR hardness-dependent metals criteria in the receiving water.

A 2006 Study[4] developed procedures for calculating the effluent concentration allowance (ECA)[5] for CTR hardness-dependent metals. The 2006 Study demonstrated that it is necessary to evaluate all discharge conditions (e.g., high and low flow conditions) and the hardness and metals concentrations of the effluent and receiving water when determining the appropriate ECA for these hardness-dependent metals. This method is superior to relying on mixed receiving water samples alone because it captures all possible mixed conditions in the receiving water. Both receiving water and effluent hardness vary based on flow and other factors, but the variability of receiving water and effluent hardness is sometimes independent. Using a calculated hardness value ensures that the Central Valley Water Board considers all possible mixed receiving water values that may result from these two independent variables. Relying on receiving water sampling alone is less likely to capture all possible mixed receiving water conditions.

The equation describing the total recoverable regulatory criterion, as established in the CTR[6], is as follows:

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

Where:

H = hardness (as $CaCO_3$)[7]
WER = water-effect ratio
m, b = metal- and criterion-specific constants

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

The equation for the ECA is defined in Section 1.4, Step 2, of the SIP and is as follows:

$$\text{ECA} = C \text{ (when } C \leq B)^{8} \qquad \text{(Equation 2)}$$

[4] Emerick, R.W.; Borroum, Y.; & Pedri, J.E., 2006. California and National Toxics Rule Implementation and Development of Protective Hardness Based Metal Effluent Limitations. WEFTEC, Chicago, Ill.
[5] The ECA is defined in Appendix 1 of the SIP (page Appendix 1-2). The ECA is used to calculate WQBELs in accordance with Section 1.4 of the SIP.
[6] 40 CFR 131.38(b)(2)
[7] For this discussion, all hardness values are in mg/L as $CaCO_3$.
[8] The 2006 Study assumes the ambient background metals concentration is equal to the CTR criterion (i.e., C ≤ B).

Where:

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

The 2006 Study demonstrated that the relationship between hardness and the calculated criteria is the same for some metals, so the same procedure for calculating the ECA may be used for these metals. The same procedure can be used for chronic cadmium, chromium III, copper, nickel, and zinc. These metals are hereinafter referred to as "Concave Down Metals". "Concave Down" refers to the shape of the curve represented by the relationship between hardness and the CTR criteria in Equation 1. Another similar procedure can be used for determining the ECA for acute cadmium, lead, and acute silver, which are referred to hereafter as "Concave Up Metals".

***ECA for Chronic Cadmium, Chromium III, Copper, Nickel, and Zinc*** – For Concave Down Metals (i.e., chronic cadmium, chromium III, copper, nickel, and zinc) the 2006 Study demonstrates that when the effluent is in compliance with the CTR criteria and the background receiving water is in compliance with the CTR criteria, any mixture of the effluent and receiving water will always be in compliance with the CTR criteria.[9] The 2006 Study proves that regardless of whether the effluent hardness is lower or greater than the background receiving water hardness, the reasonable worst-case flow condition is the effluent dominated condition (i.e., no receiving water flow).[10] Consequently, for Concave Down Metals, the CTR criteria have been calculated using the fully mixed receiving water ambient hardness under this condition.

The effluent hardness at WS 001A ranged from 5.5 mg/L to 26 mg/L, based on 15 samples from January 2007 to December 2009. The effluent hardness at WS 001B ranged from 29 mg/L to 34 mg/L, based on 14 samples from December 2006 to December 2009. There is no effluent hardness available for WS 003; however, hardness for the Balsam Forebay, the water source for WS 003, ranged from 3.3 mg/L and 3.6 mg/L based on six samples collected between June and August 2011. The background receiving water hardness at RSW-003 was 4.6 mg/L, based on one sample from December 2009. Under the effluent dominated condition, the reasonable worst-case mixed receiving water ambient hardness is 5.5 mg/L at WS 001A, 29 mg/L at WS 001B, and 3.3 mg/L at WS 003. As demonstrated in the example shown in Tables F-7a, F-7b, and F-7c, below, using these hardness values to

[9] 2006 Study, p. 5700
[10] There are two typographical errors in the 2006 Study in the discussion of Concave Down Metals when the effluent hardness is less than the receiving water hardness. The effluent and receiving water hardness were transposed in the discussion, but the correct hardness values were used in the calculations. The typographical errors were confirmed by the author of the 2006 Study, by email dated 1 April 2011, from Dr. Robert Emerick to Mr. James Marshall, Central Valley Water Board.

calculate the ECAs for all Concave Down Metals at WS 001A, WS 001B, and WS 003 will result in water quality-based effluent limitations that are protective under all flow conditions, from the effluent dominated condition to the high flow condition. This example assumes the following conservative conditions for the background receiving water:

- Background receiving water is always at the lowest observed background receiving water hardness (i.e., 4.6 mg/L)
- Background receiving water copper concentration is always at the CTR criteria (i.e., no assimilative capacity).

Using these reasonable worst-case receiving water conditions, a simple mass balance (as shown in Equation 3, below) accounts for all possible mixtures of effluent and receiving water under all flow conditions.

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

Where:

$C_{MIX}$ = Mixed concentration (e.g., metals or hardness)
$C_{RW}$ = Background receiving water concentration
$C_{Eff}$ = Effluent concentration
EF = Effluent Fraction

In this example for copper, for any receiving water flow condition (high flow to low flow), the fully-mixed receiving water ambient copper concentrations is in compliance with the CTR criteria for all waste streams.[11]

[11] This method considers the actual lowest background receiving water hardness and actual lowest effluent hardness to determine the reasonable worst-case mixed receiving water ambient hardness under all possible receiving water flow conditions. Tables F-7a, F-7b, and F-7c demonstrate that the receiving water is always in compliance with the CTR criteria at the fully-mixed location in the receiving water. It also demonstrates that the receiving water is in compliance with the CTR criteria for all mixtures from the point of discharge to the fully-mixed location. Therefore, a mixing zone is not used for compliance.

## Table F-7a. Copper ECA Evaluation at WS 001A

| | | | | | |
|---|---|---|---|---|---|
| **Lowest Observed Effluent Hardness** | | | | | **5.5 mg/L** |
| **Lowest Observed Background Receiving Water Hardness** | | | | | **4.6 mg/L** |
| **Highest Assumed Background Receiving Water Copper Concentration** | | | | | **0.67 µg/L[1]** |
| **Copper ECA$_{chronic}$[2]** | | | | | **0.78 µg/L** |
| **Effluent Fraction[6]** | | **Fully Mixed Receiving Water Ambient Concentration** | | | |
| | | **Hardness[3] (mg/L)** | **CTR Criteria[4] (µg/L)** | **Copper[5] (µg/L)** | **Complies with CTR Criteria?** |
| **High Flow** | 1% | 4.6 | 0.67 | 0.67 | Yes |
| | 5% | 4.6 | 0.68 | 0.68 | Yes |
| | 15% | 4.7 | 0.69 | 0.69 | Yes |
| | 25% | 4.8 | 0.70 | 0.70 | Yes |
| | 50% | 5.1 | 0.73 | 0.73 | Yes |
| | 75% | 5.3 | 0.76 | 0.75 | Yes |
| **Low Flow** | 100% | 5.5 | 0.78 | 0.78 | Yes |

1 Highest assumed background receiving water copper concentration calculated using Equation 1 for chronic criterion at a hardness of 4.6 mg/L.
2 ECA calculated using Equation 1 for chronic criterion at a hardness of 5.5 mg/L.
3 Fully mixed receiving water ambient hardness is the mixture of the receiving water and effluent hardness at the applicable effluent fraction.
4 Fully mixed receiving water ambient criteria are the chronic criteria calculated using Equation 1 at the mixed hardness.
5 Fully mixed receiving water ambient copper concentration is the mixture of the receiving water and effluent copper concentrations at the applicable effluent fraction.
6 The effluent fraction ranges from 1% at the high receiving water flow condition to 100% at the lowest receiving water flow condition (i.e., effluent dominated).

## Table F-7b. Copper ECA Evaluation at WS 001B

| | | | | | |
|---|---|---|---|---|---|
| **Lowest Observed Effluent Hardness** | | | | | **29 mg/L** |
| **Lowest Observed Background Receiving Water Hardness** | | | | | **4.6 mg/L** |
| **Highest Assumed Background Receiving Water Copper Concentration** | | | | | **0.67 µg/L[1]** |
| **Copper ECA$_{chronic}$[2]** | | | | | **3.2 µg/L** |
| **Effluent Fraction[6]** | | **Fully Mixed Receiving Water Ambient Concentration** | | | |
| | | **Hardness[3] (mg/L)** | **CTR Criteria[4] (µg/L)** | **Copper[5] (µg/L)** | **Complies with CTR Criteria?** |
| **High Flow** | 1% | 4.8 | 0.70 | 0.70 | Yes |
| | 5% | 5.8 | 0.82 | 0.80 | Yes |
| | 15% | 8.3 | 1.1 | 1.1 | Yes |
| | 25% | 11 | 1.4 | 1.3 | Yes |
| | 50% | 17 | 2.0 | 2.0 | Yes |
| | 75% | 23 | 2.6 | 2.6 | Yes |
| **Low Flow** | 100% | 29 | 3.2 | 3.2 | Yes |

1 Highest assumed background receiving water copper concentration calculated using Equation 1 for chronic criterion at a hardness of 4.6 mg/L.
2 ECA calculated using Equation 1 for chronic criterion at a hardness of 29 mg/L.
3 Fully mixed receiving water ambient hardness is the mixture of the receiving water and effluent hardness at the applicable effluent fraction.
4 Fully mixed receiving water ambient criteria are the chronic criteria calculated using Equation

1 at the mixed hardness.

[5] Fully mixed receiving water ambient copper concentration is the mixture of the receiving water and effluent copper concentrations at the applicable effluent fraction.

[6] The effluent fraction ranges from 1% at the high receiving water flow condition to 100% at the lowest receiving water flow condition (i.e., effluent dominated).

### Table F-7c. Copper ECA Evaluation at WS 003

| | | | | | |
|---|---|---|---|---|---|
| **Lowest Observed Effluent Hardness** | | | | | **3.3 mg/L** |
| **Lowest Observed Background Receiving Water Hardness** | | | | | **4.6 mg/L** |
| **Highest Assumed Background Receiving Water Copper Concentration** | | | | | **0.67 µg/L[1]** |
| **Copper $ECA_{chronic}$[2]** | | | | | **0.51 µg/L** |
| **Effluent Fraction[6]** | | **Fully Mixed Receiving Water Ambient Concentration** | | | |
| | | **Hardness[3] (mg/L)** | **CTR Criteria[4] (µg/L)** | **Copper[5] (µg/L)** | **Complies with CTR Criteria?** |
| **High Flow** ↓ **Low Flow** | 1% | 4.6 | 0.67 | 0.67 | Yes |
| | 5% | 4.5 | 0.66 | 0.66 | Yes |
| | 15% | 4.4 | 0.65 | 0.65 | Yes |
| | 25% | 4.3 | 0.63 | 0.63 | Yes |
| | 50% | 4.0 | 0.59 | 0.59 | Yes |
| | 75% | 3.6 | 0.55 | 0.55 | Yes |
| | 100% | 3.3 | 0.51 | 0.51 | Yes |

[1] Highest assumed background receiving water copper concentration calculated using Equation 1 for chronic criterion at a hardness of 4.6 mg/L.

[2] ECA calculated using Equation 1 for chronic criterion at a hardness of 3.3 mg/L.

[3] Fully mixed receiving water ambient hardness is the mixture of the receiving water and effluent hardness at the applicable effluent fraction.

[4] Fully mixed receiving water ambient criteria are the chronic criteria calculated using Equation 1 at the mixed hardness.

[5] Fully mixed receiving water ambient copper concentration is the mixture of the receiving water and effluent copper concentrations at the applicable effluent fraction.

[6] The effluent fraction ranges from 1% at the high receiving water flow condition to 100% at the lowest receiving water flow condition (i.e., effluent dominated).

***ECA for Acute Cadmium, Lead, and Acute Silver*** – For Concave Up Metals (i.e., acute cadmium, lead, and acute silver), the relationship between hardness and the metals criteria is different than for Concave Down Metals. The 2006 Study demonstrates that for Concave Up Metals, the effluent and background receiving water can be in compliance with the CTR criteria, but the resulting mixture may contain metals concentrations that exceed the CTR criteria and could cause toxicity. For these metals, the 2006 Study provides a mathematical approach to calculate the ECA that is protective of aquatic life, in all areas of the receiving water affected by the discharge, under all discharge and receiving water flow conditions (see Equation 4, below).

The ECA, as calculated using Equation 4, is based on the reasonable worst-case background receiving water hardness, the lowest observed effluent hardness, and assuming no receiving water assimilative capacity for metals (i.e., ambient background metals concentrations are at their respective CTR

criterion). Equation 4 is not used in place of the CTR equation (Equation 1). Rather, Equation 4 which is derived using the CTR equation, is used as a direct approach for calculating the ECA. This replaces an iterative approach for calculating the ECA. The CTR equation has been used to evaluate the receiving water mixed with the discharge at all discharge and flow conditions to ensure the ECA is protective (e.g., see Tables F-8a, F-8b, and F-8c).

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

Where:

m, b = criterion specific constants (from CTR)
$H_e$ = lowest observed effluent hardness
$H_{rw}$ = reasonable worst-case background receiving water hardness

An example similar to the Concave Down Metals is shown for lead, a Concave Up Metal, in Tables F-8a, F-8b, and F-8c, below. As previously mentioned, the lowest effluent hardness values are 5.5 mg/L and 29 mg/L at WS 001A and WS 001B, respectively, while the background receiving water hardness was 4.6 mg/L, and the lowest effluent hardness value used for WS 003 was 3.3 mg/L. In this case, the reasonable worst-case background receiving water hardness to use in Equation 4 to calculate the ECA is 4.6 mg/L.

Using the procedures discussed above to calculate the ECAs for all Concave Up Metals will result in water quality-based effluent limitations that are protective under all potential effluent/receiving water flow conditions (high flow to low flow) and under all known hardness conditions, as demonstrated in Tables F-8a, F-8b, and F-8c for lead.

**Table F-8a. Lead ECA Evaluation at WS 001A**

| | | | | | |
|---|---|---|---|---|---|
| | | | | **Lowest Observed Effluent Hardness** | **5.5 mg/L** |
| | | | | **Reasonable Worst-case Background Receiving Water Hardness** | **4.6 mg/L** |
| | | | | **Reasonable Worst-case Background Receiving Water Lead Concentration** | **0.063 µg/L[1]** |
| | | | | **Lead $ECA_{chronic}$[2]** | **0.079 µg/L** |
| **Effluent Fraction[6]** | | **Fully Mixed Receiving Water Ambient Concentration** | | | |
| | | **Hardness[3] (mg/L)** | **CTR Criteria[4] (µg/L)** | **Lead[5] (µg/L)** | **Complies with CTR Criteria?** |
| **High Flow** | 1% | 4.6 | 0.063 | 0.063 | Yes |
| | 5% | 4.6 | 0.064 | 0.064 | Yes |
| | 15% | 4.7 | 0.066 | 0.066 | Yes |
| | 25% | 4.8 | 0.067 | 0.067 | Yes |
| | 50% | 5.1 | 0.071 | 0.071 | Yes |
| | 75% | 5.3 | 0.075 | 0.075 | Yes |
| **Low Flow** | 100% | 5.5 | 0.079 | 0.079 | Yes |

[1] Reasonable worst-case background receiving water lead concentration calculated using Equation 1 for chronic criterion at a hardness of 4.6 mg/L.
[2] ECA calculated using Equation 4 for chronic criterion.
[3] Fully mixed receiving water ambient hardness is the mixture of the receiving water and effluent hardness at the applicable effluent fraction.
[4] Fully mixed receiving water ambient criteria are the chronic criteria calculated using Equation 1 at the mixed hardness.
[5] Fully mixed receiving water ambient lead concentration is the mixture of the receiving water and effluent lead concentrations at the applicable effluent fraction.
[6] The effluent fraction ranges from 1% at the high receiving water flow condition to 100% at the lowest receiving water flow condition (i.e., effluent dominated).

## Table F-8b. Lead ECA Evaluation at WS 001B

| | | | | | |
|---|---|---|---|---|---|
| | | | | **Lowest Observed Effluent Hardness** | **29 mg/L** |
| | | | | **Reasonable Worst-case Background Receiving Water Hardness** | **4.6 mg/L** |
| | | | | **Reasonable Worst-case Background Receiving Water Lead Concentration** | **0.063 µg/L[1]** |
| | | | | **Lead $ECA_{chronic}$[2]** | **0.49 µg/L** |
| **Effluent Fraction[6]** | | **Fully Mixed Receiving Water Ambient Concentration** | | | |
| | | **Hardness[3] (mg/L)** | **CTR Criteria[4] (µg/L)** | **Lead[5] (µg/L)** | **Complies with CTR Criteria?** |
| **High Flow** | 1% | 4.8 | 0.067 | 0.067 | Yes |
| | 5% | 5.8 | 0.085 | 0.084 | Yes |
| | 15% | 8.3 | 0.13 | 0.13 | Yes |
| | 25% | 11 | 0.18 | 0.17 | Yes |
| | 50% | 17 | 0.33 | 0.28 | Yes |
| **Low Flow** | 75% | 23 | 0.49 | 0.38 | Yes |
| | 100% | 29 | 0.66 | 0.49 | Yes |

[1] Reasonable worst-case background receiving water lead concentration calculated using Equation 1 for chronic criterion at a hardness of 4.6 mg/L.
[2] ECA calculated using Equation 4 for chronic criterion.
[3] Fully mixed receiving water ambient hardness is the mixture of the receiving water and effluent hardness at the applicable effluent fraction.
[4] Fully mixed receiving water ambient criteria are the chronic criteria calculated using Equation 1 at the mixed hardness.
[5] Fully mixed receiving water ambient lead concentration is the mixture of the receiving water and effluent lead concentrations at the applicable effluent fraction.
[6] The effluent fraction ranges from 1% at the high receiving water flow condition to 100% at the lowest receiving water flow condition (i.e., effluent dominated).

### Table F-8c. Lead ECA Evaluation at WS 003

| | | | | | |
|---|---|---|---|---|---|
| **Lowest Observed Effluent Hardness** | | | | | **3.3 mg/L** |
| **Reasonable Worst-case Background Receiving Water Hardness** | | | | | **4.6 mg/L** |
| **Reasonable Worst-case Background Receiving Water Lead Concentration** | | | | | **0.063 µg/L[1]** |
| **Lead $ECA_{chronic}$[2]** | | | | | **0.040 µg/L** |
| **Effluent Fraction[6]** | | **Fully Mixed Receiving Water Ambient Concentration** | | | |
| | | **Hardness[3] (mg/L)** | **CTR Criteria[4] (µg/L)** | **Lead[5] (µg/L)** | **Complies with CTR Criteria?** |
| **High Flow** | 1% | 4.6 | 0.063 | 0.063 | Yes |
| | 5% | 4.5 | 0.062 | 0.062 | Yes |
| | 15% | 4.4 | 0.060 | 0.060 | Yes |
| | 25% | 4.3 | 0.058 | 0.057 | Yes |
| | 50% | 4.0 | 0.052 | 0.052 | Yes |
| **Low Flow** | 75% | 3.6 | 0.047 | 0.046 | Yes |
| | 100% | 3.3 | 0.041 | 0.040 | Yes |

1 Reasonable worst-case background receiving water lead concentration calculated using Equation 1 for chronic criterion at a hardness of 4.6 mg/L.
2 ECA calculated using Equation 4 for chronic criterion.
3 Fully mixed receiving water ambient hardness is the mixture of the receiving water and effluent hardness at the applicable effluent fraction.
4 Fully mixed receiving water ambient criteria are the chronic criteria calculated using Equation 1 at the mixed hardness.
5 Fully mixed receiving water ambient lead concentration is the mixture of the receiving water and effluent lead concentrations at the applicable effluent fraction.
6 The effluent fraction ranges from 1% at the high receiving water flow condition to 100% at the lowest receiving water flow condition (i.e., effluent dominated).

Based on the procedures discussed above, Tables F-9a, F-9b, and F-9c list all the CTR hardness-dependent metals and the associated ECAs used in this Order.

### Table F-9a. ECA Evaluations for CTR Hardness-dependent Metals at WS 001A

| **CTR Metals** | **ECA (µg/L, total recoverable)** | |
|---|---|---|
| | **acute** | **chronic** |
| Cadmium | 0.17 | 0.25 |
| Chromium III | 160 | 19 |
| Copper | 0.91 | 0.78 |
| Lead | 2.0 | 0.079 |
| Nickel | 40 | 4.5 |
| Silver | 0.027 | -- |
| Zinc | 10 | 10 |

**Table F-9b. ECA Evaluations for CTR Hardness-dependent Metals at WS 001B**

| CTR Metals | ECA (µg/L, total recoverable) | |
|---|---|---|
| | acute | chronic |
| Cadmium | 0.98 | 0.93 |
| Chromium III | 630 | 75 |
| Copper | 4.4 | 3.2 |
| Lead | 13 | 0.49 |
| Nickel | 160 | 18 |
| Silver | 0.21 | -- |
| Zinc | 42 | 42 |

**Table F-9c. ECA Evaluations for CTR Hardness-dependent Metals at WS 003**

| CTR Metals | ECA (µg/L, total recoverable) | |
|---|---|---|
| | acute | chronic |
| Cadmium | 0.095 | 0.17 |
| Chromium III | 110 | 13 |
| Copper | 0.56 | 0.51 |
| Lead | 1.0 | 0.040 |
| Nickel | 26 | 2.9 |
| Silver | 0.010 | -- |
| Zinc | 6.7 | 6.7 |

### 3. Determining the Need for WQBELs

**a.** The RPA procedures from section 1.3 of the SIP were used in this Order to evaluate reasonable potential for CTR/NTR constituents based on information submitted as part of the RWD, in studies, and as directed by monitoring and reporting programs. Non-CTR constituents were evaluated on an individual basis. Estimated concentrations (J-flags) are not quantifiable but do confirm the presence of a substance below the analytical method's reporting level. Section 1.3, Step 8 of the SIP allows Central Valley Water Board to require additional monitoring for a pollutant in place of an effluent limitation if data are unavailable or insufficient. Additionally, section 2.4 of the SIP allows the Central Valley Water Board to require in the permit that the Discharger shall report the reporting level (RL) selected from the minimum levels (MLs) listed in Appendix 4 of the SIP.

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

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

**i. Arsenic**

**(a) WQO.** The California Department of Public Health (DPH) has adopted a Primary Maximum Contaminant Level (MCL) for arsenic of 10 µg/L, which is protective of the Basin Plan's chemical constituents objective.

**(b) RPA Results.** The maximum effluent concentration (MEC) for arsenic at WS 001A was 0.8 µg/L while the maximum observed background receiving water concentration was 0.51 µg/L. Therefore, arsenic in WS 001A does not have a reasonable potential to cause or contribute to an in-stream excursion above the Primary MCL.

**ii. Zinc**

**(a) WQO.** The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for zinc. Using the default conversion factors and reasonable worst-case measured hardness, as described in section IV.C.2.e of this Fact Sheet, the applicable acute (1-hour average) and chronic (4-day average) criteria are 42 µg/L at WS 001B, as total recoverable.

**(b) RPA Results.** The MEC for zinc at WS 001B was 1.4 µg/L (as total recoverable) while the maximum observed background receiving water concentration was a non-detect. Therefore, zinc in WS 001B does not have a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for the protection of freshwater aquatic life.

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

**i. Chromium (III).** Chromium (III) was not sampled in the Facility effluent and receiving water. Due to the absence of effluent and receiving water data, the Central Valley Water Board is unable to complete the reasonable potential analysis. This Order requires the Discharger to perform priority pollutant monitoring of the effluent and receiving water once during the second year of the permit to gather data.

### ii. Lead

**(a) WQO.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for lead. Using the default conversion factors and reasonable worst-case measured hardness, as described in section IV.C.2.e of this Fact Sheet, the applicable acute (1-hour average) criterion is 2.0 µg/L and the applicable chronic (4-day average) criterion is 0.079 µg/L for WS 001A, as total recoverable.

**(b) RPA Results.** The MEC at WS 001A for lead was 0.26 µg/L (as total recoverable) while the maximum observed background receiving water concentration was a non-detect. The lowest Minimum Level (ML) in the SIP for lead is 0.5 µg/L. Section 1.2 of the SIP requires that the Central Valley Water Board use all available, valid, relevant, representative data and information, as determined by the Central Valley Water Board, to implement the SIP. Section 1.2 further states that the Central Valley Water Board has the discretion to consider if any data are inappropriate or insufficient for use in implementing the SIP. The only lead detection in the effluent was reported below the lowest SIP ML. Section 2.4.5 of the SIP (Compliance Determination) supports the insufficiency of data reported below the ML or RL. In part, it states, "*Dischargers shall be deemed out of compliance with an effluent limitation, if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the RL.*" Thus, if submitted data are below the ML or RL, that data cannot be used to determine compliance with effluent limitations. Similarly, data reported below the ML or RL are considered insufficient for use in determining reasonable potential. In accordance with section 1.2 of the SIP, the Central Valley Water Board has determined that data reported below the SIP ML are inappropriate and insufficient to be used for determining reasonable potential. In implementing its discretion, the Central Valley Water Board is not finding that reasonable potential does not exist; rather the Central Valley Water Board cannot make such a determination given the insufficient data.

### iii. Zinc

**(a) WQO.** The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for zinc. Using the default conversion factors and reasonable worst-case measured hardness, as described in section IV.C.2.e of this Fact Sheet, the applicable acute (1-hour average) and chronic (4-day average) criteria are 6.7 µg/L at WS 003, as total recoverable.

**(b) RPA Results.** The MEC for zinc at WS 003 was 34 µg/L (as total recoverable), which was reported as an estimated concentration with a RL of 50 µg/L and MDL of 23 µg/L, while the maximum observed background receiving water concentration was a non-detect. Section 1.2 of the SIP

requires that the Central Valley Water Board use all available, valid, relevant, representative data and information, as determined by the Central Valley Water Board, to implement the SIP. Section 1.2 further states that the Central Valley Water Board has the discretion to consider if any data are inappropriate or insufficient for use in implementing the SIP. The only zinc detection in WS 003 was reported as an estimated concentration (detected, not quantified). Estimated concentrations do not provide an adequate level of scientific certainty to use as evidence that the effluent or receiving water exceed their respective criteria. In accordance with section 1.2 of the SIP, the Central Valley Water Board has determined that data reported as detected, not quantified are inappropriate and insufficient to be used for determining reasonable potential. In implementing its discretion, the Central Valley Water Board is not finding that reasonable potential does not exist; rather the Central Valley Water Board cannot make such a determination given the insufficient data.

**d. Constituents with Reasonable Potential.** The Central Valley Water Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for pH, arsenic, copper, lead, and zinc. WQBELs for these constituents are included in this Order. A summary of the RPA is provided in Attachment G, and a detailed discussion of the RPA for each constituent is provided below.

**i. Arsenic**

**(a) WQO.** The California DPH has adopted a Primary MCL for arsenic of 10 µg/L, which is protective of the Basin Plan's chemical constituents objective.

**(b) RPA Results.** The MEC for arsenic at WS 001B was 35 µg/L while the maximum observed background receiving water concentration was 0.51 µg/L. Therefore, arsenic in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Primary MCL at WS 001B.

**(c) WQBELs.** This Order contains an average monthly effluent limitation (AMEL) and maximum daily effluent limitation (MDEL) at WS 001B for arsenic of 10 µg/L and 20 µg/L, respectively, based on the Basin Plan's narrative chemical constituents objective for protection of the MUN beneficial use.

**(d) Plant Performance and Attainability.** Analysis of the effluent data shows that the MEC of 35 µg/L at WS 001B is greater than applicable WQBELs. Based on the sample results for the effluent, the limitations appear to put the Discharger in immediate non-compliance at WS 001B. New or modified control measures may be necessary in order to comply

with the arsenic effluent limitations at WS 001B, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. Furthermore, the effluent limitations at WS 001B for arsenic are a new regulatory requirement within this permit, which becomes applicable to the waste discharge with the adoption of this Order, which was adopted after 1 July 2000. Therefore, a compliance time schedule for compliance with the arsenic effluent limitations at WS 001B is established in Time Schedule Order (TSO) R5-2013-0159 in accordance with Water Code section 13300, which requires preparation and implementation of a pollution prevention plan in compliance with Water Code section 13263.3.

**ii. Copper**

**(a) WQO.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for copper. Using the default conversion factors and reasonable worst-case measured hardness, as described in section IV.C.2.e of this Fact Sheet, the applicable acute (1-hour average) criterion is 0.56 µg/L and the applicable chronic (4-day average) criterion is 0.51 µg/L for WS 003, as total recoverable.

**(b) RPA Results.** The MEC at WS 003 for copper was 7.2 µg/L (as total recoverable) while the maximum observed background receiving water concentration was an estimated concentration of 0.22 µg/L (as total recoverable). Therefore, copper in WS 003 has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for the protection of freshwater aquatic life.

**(c) WQBELs.** This Order contains a final AMEL and MDEL at WS 003 for copper of 0.28 µg/L and 0.56 µg/L, respectively, based on the CTR criterion for the protection of freshwater aquatic life.

**(d) Plant Performance and Attainability.** Analysis of the effluent data shows that the MEC at WS 003 of 7.2 µg/L is greater than applicable WQBELs. Based on the sample results for the effluent, the limitations appear to put the Discharger in immediate non-compliance at WS 003. New or modified control measures may be necessary in order to comply with the effluent limitations at WS 003, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. Furthermore, the effluent limitations at WS 003 for copper are a new regulatory requirement within this permit, which becomes applicable to the waste discharge with the adoption of this Order, which was adopted after 1 July 2000. Therefore, a compliance time schedule for compliance with the copper effluent limitations at WS 003 is established in TSO R5-2013-0159 in accordance with Water Code section 13300, which requires preparation and implementation of a pollution prevention plan in compliance with Water Code section 13263.3.

### iii. Lead

**(a) WQO.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for lead. Using the default conversion factors and reasonable worst-case measured hardness, as described in section IV.C.2.e of this Fact Sheet, the applicable acute (1-hour average) criterion is 13 µg/L and the applicable chronic (4-day average) criterion is 0.49 µg/L for WS 001B, as total recoverable.

**(b) RPA Results.** The MEC at WS 001B for lead was 0.69 µg/L (as total recoverable) while the maximum observed background receiving water concentration was a non-detect. Therefore, lead in WS 001B has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for the protection of freshwater aquatic life.

**(c) WQBELs.** This Order contains a final AMEL and MDEL at WS 001B for lead of 0.40 µg/L and 0.80 µg/L, respectively, based on the CTR criterion for the protection of freshwater aquatic life.

**(d) Plant Performance and Attainability.** Analysis of the effluent data shows that the MEC at WS 001B of 0.69 µg/L is greater than applicable WQBELs. Based on the sample results for the effluent, the limitations appear to put the Discharger in immediate non-compliance at WS 001B. New or modified control measures may be necessary in order to comply with the effluent limitations at WS 001B, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. Furthermore, the effluent limitations at WS 001B for lead are a new regulatory requirement within this permit, which becomes applicable to the waste discharge with the adoption of this Order, which was adopted after 1 July 2000. Therefore, a compliance time schedule for compliance with the lead effluent limitations at WS 001B is established in TSO R5-2013-0159 in accordance with Water Code section 13300, which requires preparation and implementation of a pollution prevention plan in compliance with Water Code section 13263.3.

### iv. pH

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

**(b) RPA Results.** The discharge of groundwater at Discharge Point 002 has a reasonable potential to cause or contribute to an excursion above the Basin Plan's numeric objectives for pH. While the Discharger did not discharge at Discharge Point 002 during the term of Order R5-2005-0093, pH data from WS 001A and WS 001B show that the pH may be elevated

above 8.5. Discharges at Discharge Point 002 are not diluted by other waste streams, such as non-contact cooling water, prior to discharge.

**(c) WQBELs.** Effluent limitations for pH of 6.5 as an instantaneous minimum and 8.5 as an instantaneous maximum at Discharge Point 002 are included in this Order based on protection of the Basin Plan objectives for pH.

**(d) Plant Performance and Attainability.** The Discharger did not discharge at Discharge Point 002 during the term of previous Order R5-2005-0093; therefore, the Discharger's ability to comply with the new pH effluent limitations at Discharge Point 002 cannot be determined at this time.

**v. Zinc**

**(a) WQO.** The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for zinc. Using the default conversion factors and reasonable worst-case measured hardness, as described in section IV.C.2.e of this Fact Sheet, the applicable acute (1-hour average) and chronic (4-day average) criteria are 10 µg/L at WS 001A, as total recoverable.

**(b) RPA Results.** The MEC for zinc at WS 001A was 17 µg/L (as total recoverable) while the maximum observed background receiving water concentration was a non-detect. Therefore, zinc in WS 001A has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for the protection of freshwater aquatic life.

**(c) WQBELs.** This Order contains a final AMEL and MDEL at WS 001A for zinc of 5.0 µg/L and 10 µg/L, respectively, based on the CTR criterion for the protection of freshwater aquatic life.

**(d) Plant Performance and Attainability.** Analysis of the effluent data shows that the MEC of 17 µg/L at WS 001A is greater than applicable WQBELs. Based on the sample results for the effluent, the limitations appear to put the Discharger in immediate non-compliance at WS 001A. New or modified control measures may be necessary in order to comply with the zinc effluent limitations at WS 001A, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. Furthermore, the effluent limitations at WS 001A for zinc are a new regulatory requirement within this permit, which becomes applicable to the waste discharge with the adoption of this Order, which was adopted after 1 July 2000. Therefore, a compliance time schedule for compliance with the zinc effluent limitations at WS 001A is established in TSO R5-2013-0159 in accordance with Water Code section 13300, which requires preparation and implementation of a pollution prevention plan in compliance with Water Code section 13263.3.

### 4. WQBELs Calculations

**a.** This Order includes WQBELs for acute toxicity, chronic toxicity, and zinc at WS 001A, for acute toxicity, chronic toxicity, arsenic, and lead at WS 001B, copper at WS 003, and for acute toxicity and pH at Discharge Point 002. The general methodology for calculating WQBELs based on the different criteria/objectives is described in subsections IV.C.4.b through e, below. See Attachment H for the WQBELs calculations.

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

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

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

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

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

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

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

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

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

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

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

**Summary of Water Quality-Based Effluent Limitations**
**Discharge Point 001**

**Table F-10a. Summary of WQBELs at WS 001A**

| Parameter | Units | Effluent Limitations | | | |
|---|---|---|---|---|---|
| | | Average Monthly | Maximum Daily | Instantaneous Minimum | Instantaneous Maximum |
| Zinc, Total Recoverable | µg/L | 5.0 | 10. | -- | -- |

**Table F-10b. Summary of WQBELs at WS 001B**

| Parameter | Units | Effluent Limitations | | | |
|---|---|---|---|---|---|
| | | Average Monthly | Maximum Daily | Instantaneous Minimum | Instantaneous Maximum |
| Arsenic, Total Recoverable | µg/L | 10. | 20. | -- | -- |
| Lead, Total Recoverable | µg/L | 0.40 | 0.80 | -- | -- |

**Table F-10c. Summary of WQBELs at WS 003**

| Parameter | Units | Effluent Limitations | | | |
|---|---|---|---|---|---|
| | | Average Monthly | Maximum Daily | Instantaneous Minimum | Instantaneous Maximum |
| Copper, Total Recoverable | µg/L | 0.28 | 0.56 | -- | -- |

**a. Acute Whole Effluent Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste at WS 001A and WS 001B shall be no less than:

**i.** Minimum for any one bioassay ---------- 70%
**ii.** Median for any three consecutive bioassays ---------- 90%

## Summary of Water Quality-Based Effluent Limitations
## Discharge Point 002

**Table F-11. Summary of WQBELs at Discharge Point 002**

| Parameter | Units | Effluent Limitations | | | |
|---|---|---|---|---|---|
| | | Average Monthly | Maximum Daily | Instantaneous Minimum | Instantaneous Maximum |
| pH | standard units | -- | -- | 6.5 | 8.5 |

**a. Acute Whole Effluent Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste at Discharge Point 002 shall be no less than:

**i.** Minimum for any one bioassay ---------- 70%
**ii.** Median for any three consecutive bioassays ---------- 90%

### 5. Whole Effluent Toxicity (WET)

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

**a. Acute Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*." (Basin Plan at page III-8.01) The Basin Plan also states that, "…*effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate*…" (Basin Plan at page III-9.00).

For priority pollutants, the SIP dictates the procedures for conducting the RPA. Acute toxicity is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA . USEPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "*State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available… A permitting authority might also determine that WQBELs are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBELs for pathogens in all permits for POTWs discharging to contact recreational waters).*" Monitoring data for acute toxicity are not available as Order R5-2005-0093 did not require acute toxicity testing. Acute toxicity effluent limitations are required to ensure compliance with the Basin Plan's narrative toxicity objective.

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 $TU_c$.*" This Order carries over the acute toxicity effluent limitations from Order R5-2005-0093 at WS 001A, WS 001B, and Discharge Point 002, as follows:

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

Minimum for any one bioassay ---------- 70%
Median for any three consecutive bioassays ---------- 90%

b. **Chronic Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*." (Basin Plan at page III-8.01) As shown in Table F-12, below, the chronic whole effluent toxicity testing completed in December 2009 demonstrates that the discharge has reasonable potential to cause or contribute to an exceedance of the Basin Plan's narrative toxicity objective.

**Table F-12. Chronic Toxicity Test Results**

| Date | WS | Chronic Toxicity Unit ($TU_c$) | | | | |
|---|---|---|---|---|---|---|
| | | *Ceriodaphnia dubia* | | *Pimephales promelas* | | *Selenastrum capricornutum* |
| | | Survival | Reproduction | Survival | Growth | Growth |
| 8 December 2009 | 001A | 1 | 1 | 1 | >1 | >1 |
| 8 December 2009 | 001B | 1 | >1 | 1 | >1 | >1 |

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

Numeric chronic WET effluent limitations have not been included in this Order. The SIP contains implementation gaps regarding the appropriate form and implementation of chronic toxicity limits. This has resulted in the petitioning of a

NPDES permit in the Los Angeles Region[12] that contained numeric chronic toxicity effluent limitations. To address the petition, the State Water Board adopted WQO 2003-0012 directing its staff to revise the toxicity control provisions in the SIP. The State Water Board states the following in WQO 2003-0012, "*In reviewing this petition and receiving comments from numerous interested persons on the propriety of including numeric effluent limitations for chronic toxicity in NPDES permits for publicly-owned treatment works that discharge to inland waters, we have determined that this issue should be considered in a regulatory setting, in order to allow for full public discussion and deliberation. We intend to modify the SIP to specifically address the issue. We anticipate that review will occur within the next year. We therefore decline to make a determination here regarding the propriety of the final numeric effluent limitations for chronic toxicity contained in these permits.*" The process to revise the SIP is currently underway. Proposed changes include clarifying the appropriate form of effluent toxicity limits in NPDES permits and general expansion and standardization of toxicity control implementation related to the NPDES permitting process. Since the toxicity control provisions in the SIP are under revision it is infeasible to develop numeric effluent limitations for chronic toxicity. Therefore, this Order requires that the Discharger meet best management practices for compliance with the Basin Plan's narrative toxicity objective, as allowed under 40 CFR 122.44(k).

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

## D. Final Effluent Limitations

### 1. Mass-based Effluent Limitations – Not Applicable

[12] 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).

### 2. Averaging Periods for Effluent Limitations

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

### 3. Satisfaction of Anti-Backsliding Requirements

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

The effluent limitations in this Order are at least as stringent as the effluent limitations in Order R5-2005-0093, with the exception of the effluent limitation for flow at WS 003. This relaxation of the effluent limitation is consistent with the anti-backsliding requirements of the CWA and federal regulations.

**a. CWA section 402(o)(2).** CWA section 402(o)(2) provides several exceptions to the anti-backsliding regulations. CWA 402(o)(2)(B)(i) allows a renewed, reissued, or modified permit to contain a less stringent effluent limitation for a pollutant if information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance. CWA 402(o)(2)(C) allows for a renewed, reissued, or modified permit to contain a less stringent effluent limitation for a pollutant if a the less stringent effluent limitation is necessary because of events over which the Discharger had no control and for which there is no reasonably available remedy.

As described in further detail in section IV.D.4. of this Fact Sheet, the Discharger is required to operate its powerhouse in a manner which necessitates additional cooling, resulting in additional flow at WS 003. The requirement is new, within the term of Order R5-2005-0093, and is necessary for the Discharger to comply with regulations pertaining to energy production.

Order R5-2005-0093 requires that flow at WS 003 not exceed 2.5 MGD, as a maximum daily. The relaxation of the flow effluent limitation at WS 003 is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16. Any impact on existing water quality will be insignificant.

### 4. Satisfaction of Antidegradation Policy

The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16. This Order provides for an increase in the volume and mass of pollutants discharged from WS 003. The increase will not have significant impacts on aquatic life, which is the beneficial use

most likely affected by the pollutants discharged (copper). The increase will not cause a violation of water quality objectives. The increase in the discharge allows necessary power generation and is considered to be a benefit to the people of the State. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge.

The Discharger requested to increase the effluent flow limitation at WS 003 due to operational changes required by the California Independent System Operator. The changes resulted in the use of more non-contact cooling water than was previously necessary, which put the Discharger at higher risk of exceeding the effluent flow limitation in Order R5-2005-0093 for WS 003. The Discharger requested a new maximum daily effluent flow limitation of 3.11 MGD, which was calculated by estimating an average worst-case flow for non-contact cooling water and adding a 10% peak flow factor.

As part of the flow increase request, Central Valley Water Board staff discussed with Discharger staff the possibility of obtaining samples that were representative of the non-contact cooling water. The Discharger voluntarily installed a sampling port for WS 003 and collected samples from WS 003 and from Balsam Forebay, which supplies the non-contact cooling water. The results indicate that copper was detected in concentrations above criteria in WS 003. Balsam Forebay samples were not analyzed for copper. Central Valley Water Board staff discussed copper concentrations with Discharger staff and determined that the sampling port may have contributed to the concentrations. Copper samples for Shaver Lake and North Fork Stevenson Creek indicate copper was not detected above a reporting level of 0.5 µg/L. The copper concentrations in WS 003 were higher than expected given the pristine quality of water in the area, as evidenced by Shaver Lake and North Fork Stevenson Creek data, and the fact that WS 003 is made up solely of non-contact cooling water.

The Discharger was given an opportunity to investigate whether the sampling port was the cause of detectable copper concentrations, and to provide an antidegradation analysis for the increase in flow. The Discharger did not provide any information pertaining to the suspect copper data. As such, the information currently available indicates there is reasonable potential for copper in WS 003, and this Order includes effluent limitations for copper at WS 003. Southern California Edison Company provides power, which is a benefit to the people of the State. The higher effluent flow limitation is to allow compliance with other regulatory requirements. Generally, the waste streams in the Tailrace Tunnel are diluted with high flows from power generation, which averaged 265 MGD between September 2005 and September 2013, before reaching Shaver Lake. An increase in flow at WS 003 is not expected to significantly change water quality in Shaver Lake. An increase in flow will not increase the time of exposure with possible sources of copper, will not result in an increase in mass of pollutants, and may actually decrease concentrations discharged to Shaver Lake.

### 5. Stringency of Requirements for Individual Pollutants

This Order contains both technology-based effluent limitations and WQBELs for individual pollutants. The technology-based effluent limitations consist of restrictions on flow, settleable solids, total suspended solids, oil and grease, and pH. The WQBELs consist of restrictions on acute toxicity, chronic toxicity, pH, arsenic, copper, lead, and zinc. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements.

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

### 6. Effluent Limitations at Internal Wastes Streams

Pursuant to 40 CFR 122.45(h)(1), effluent limitations or standards for discharges of pollutants may be imposed on internal waste streams before mixing with other waste streams when effluent limitations or standards at the point of discharge are impractical or infeasible. Discharge Point 001 is located approximately 30 feet below the surface of Shaver Lake. Effluent discharge samples from the Facility at Discharge Point 001 are collected from internal wastes streams (WS 001A, WS 001B, and WS 003), which are more accessible than the discharge point.

Although effluent samples at Discharge Point 002 can physically be collected, samples are drawn from the Access Tunnel Sump. The Access Tunnel Sump is a safer location and representative of the discharge at Discharge Point 002 because no waste streams commingle with the groundwater waste stream prior to discharge to North Fork Stevenson Creek.

## Summary of Final Effluent Limitations
## Discharge Point 001

### Table F-13a. Summary of Final Effluent Limitations at WS 001A

| Parameter | Units | Effluent Limitations | | | | Basis[1] |
|---|---|---|---|---|---|---|
| | | Average Monthly | Maximum Daily | Instantaneous Minimum | Instantaneous Maximum | |
| pH | standard units | -- | -- | 6.0 | 9.0 | PO, BPJ |
| Total Suspended Solids | mg/L | 5.0 | 10 | -- | -- | PO, BPJ |
| Zinc, Total Recoverable | µg/L | 5.0 | 10. | -- | -- | CTR |
| Oil and Grease | mg/L | -- | 15 | -- | -- | PO, BPJ |
| Settleable Solids | mL/L | 0.1 | 0.2 | -- | -- | PO, BPJ |
| Acute Toxicity | % survival | -- (see below) | | | | PO, BP |
| Chronic Toxicity | $TU_C$ | -- (see below) | | | | BP |

1 BP – Based on water quality objectives contained in the Basin Plan
BPJ – Based on Best Professional Judgment
CTR – Based on water quality criteria contained in the California Toxics Rule and applied as specified in the SIP
PO – Based on previous Order R5-2005-0093

### Table F-13b. Summary of Final Effluent Limitations at WS 001B

| Parameter | Units | Effluent Limitations | | | | Basis[1] |
|---|---|---|---|---|---|---|
| | | Average Monthly | Maximum Daily | Instantaneous Minimum | Instantaneous Maximum | |
| pH | standard units | -- | -- | 6.0 | 9.0 | PO, BPJ |
| Arsenic, Total Recoverable | µg/L | 10. | 20. | -- | -- | MCL |
| Lead, Total Recoverable | µg/L | 0.40 | 0.80 | -- | -- | CTR |
| Acute Toxicity | % survival | -- (see below) | | | | PO, BP |
| Chronic Toxicity | $TU_C$ | -- (see below) | | | | BP |

1 BP – Based on water quality objectives contained in the Basin Plan
BPJ – Based on Best Professional Judgment
CTR – Based on water quality criteria contained in the California Toxics Rule and applied as specified in the SIP
MCL – Based on the Primary Maximum Contaminant Level
PO – Based on previous Order R5-2005-0093

### Table F-13c. Summary of Final Effluent Limitations at WS 003

| Parameter | Units | Effluent Limitations | | | | Basis[1] |
|---|---|---|---|---|---|---|
| | | Average Monthly | Maximum Daily | Instantaneous Minimum | Instantaneous Maximum | |
| Flow | MGD | -- | 3.11 | -- | -- | BPJ |
| Copper, Total Recoverable | µg/L | 0.28 | 0.56 | -- | -- | CTR |

1 BPJ – Based on Best Professional Judgment
CTR – Based on water quality criteria contained in the California Toxics Rule and applied as specified in the SIP

a. **Acute Whole Effluent Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste at WS 001A and WS 001B shall be no less than:

   i. Minimum for any one bioassay ---------- 70%
   ii. Median for any three consecutive bioassays ---------- 90%

b. **Chronic Whole Effluent Toxicity.** There shall be no chronic toxicity in the effluent at WS 001A and WS 001B.

**Summary of Final Effluent Limitations**
**Discharge Point 002**

**Table F-14. Summary of Final Effluent Limitations at Discharge Point 002**

| Parameter | Units | Effluent Limitations | | | | Basis[(1)] |
|---|---|---|---|---|---|---|
| | | Average Monthly | Maximum Daily | Instantaneous Minimum | Instantaneous Maximum | |
| pH | standard units | -- | -- | 6.5 | 8.5 | BP |
| Acute Toxicity | % survival | -- (see below) | | | | PO, BP |

1 BP – Based on water quality objectives contained in the Basin Plan
PO – Based on previous Order R5-2005-0093

a. **Acute Whole Effluent Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste at Discharge Point 002 shall be no less than:

   i. Minimum for any one bioassay ---------- 70%
   ii. Median for any three consecutive bioassays ---------- 90%

### E. Interim Effluent Limitations – Not Applicable

### F. Land Discharge Specifications – Not Applicable

### G. Reclamation Specifications– Not Applicable

## V. RATIONALE FOR RECEIVING WATER LIMITATIONS

Basin Plan water quality objectives to protect the beneficial uses of surface water and groundwater include numeric objectives and narrative objectives, including objectives for chemical constituents, toxicity, and tastes and odors. The toxicity objective requires that surface water and groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituents objective requires that surface water and groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use or that exceed the 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 Central Valley Water Board adopted water quality criteria as water quality objectives in the Basin Plan. The Basin Plan states that "*[t]he numerical and narrative water quality objectives define the least stringent standards that the Regional Water board will apply to regional waters in order to protect beneficial uses.*" The Basin Plan includes numeric and narrative water quality objectives for various beneficial uses and water bodies. This Order contains receiving surface water limitations based on the Basin Plan numerical and narrative water quality objectives for bacteria, biostimulatory substances, color, chemical constituents, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, settleable material, suspended sediment, suspended material, tastes and odors, temperature, toxicity, and turbidity.

**a. pH.** Order R5-2005-0093 established a receiving water limitation for pH specifying that discharges from the Facility shall not cause the ambient pH to change by more than 0.5 units based on the water quality objective for pH in the Basin Plan. The Central Valley Water Board adopted Resolution R5-2007-0136 on 25 October 2007, amending the Basin Plan to delete the portion of the pH water quality objective that limits the change in pH to 0.5 units and the allowance of averaging periods for pH. The Basin Plan amendment has been approved by the State Water Board, the Office of Administrative Law, and USEPA. Consistent with the revised water quality objective in the Basin Plan, this Order does not include a receiving water limitation for pH change.

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

The relaxation of the pH receiving water limitation will protect aquatic life and other beneficial uses and will not unreasonably affect present and anticipated beneficial uses nor result in water quality less than prescribed in applicable policies. The relaxation of the receiving water limitation is not expected to cause other impacts on water quality. The Central Valley Water Board finds that the relaxation of the pH receiving water limitation in this Order is to the maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial uses of waters, will not result in water quality less than that prescribed in policies, and is consistent with the federal Antidegradation Policy.

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

**b. Turbidity.** Order R5-2005-0093 established a receiving water limitation for turbidity specifying that discharges from the Facility shall not cause the turbidity to increase more than 1 NTU where natural turbidity is between 0 and 5 NTU based on the water quality objective for turbidity in the Basin Plan. The Central Valley Water Board adopted Resolution R5-2007-0136 on 25 October 2007, amending the Basin Plan to limit turbidity to not exceed 2 NTU when the natural turbidity is less than 1 NTU. The State Water Board, the Office of Administrative Law, and the USEPA have approved the Basin Plan amendment. Consistent with the revised water quality objective in the Basin Plan, this Order limits turbidity to 2 NTU when the natural turbidity is less than 1 NTU.

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

This Order includes turbidity monitoring requirements in the receiving water. The relaxation of the turbidity receiving water limitation will protect aquatic life and other beneficial uses and will not unreasonably affect present and anticipated beneficial uses nor result in water quality less than prescribed in applicable policies. The relaxation of the receiving water limitation is not expected to cause other impacts on water quality. The Central Valley Water Board finds that the relaxation of the turbidity receiving water limitation in this Order is to the maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial uses of waters, will not result in water quality less than that prescribed in policies, and is consistent with the federal Antidegradation Policy.

The revised receiving water limitation for turbidity, which is based on the amendment to the Basin Plan's turbidity water quality objective, reflects current

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

### B. Groundwater

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

**3.** Groundwater limitations are required to protect the beneficial uses of the underlying groundwater. Consistent with Order R5-2005-0093, this Order includes a groundwater limitation requiring that the discharge from the Facility shall not cause the underlying groundwater to be degraded.

## VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

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

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

**A. Influent Monitoring – Not Applicable**

**B. Effluent Monitoring**

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

**2.** The effluent discharge samples are collected from internal waste streams at locations that are more accessible than the discharge points (i.e., Discharge Point 001 is approximately 30 feet below the surface of Shaver Lake). An internal monitoring station is established at the Main Sump to collect samples from WS 001A, which consists of treated wastewater from the oil and grease separator commingled with groundwater. A sampling point at the oil and grease separator is not accessible at this time. Samples are also collected from the construction tunnel sump for WS 001B, which consists of groundwater. WS 003 consists of non-contact cooling water from the powerhouse. The non-contact cooling water is directly discharged to the Tailrace Tunnel and commingles with WS 001A and WS 001B prior to discharge to Shaver Lake. The Discharger installed a sampling port for WS 003; however, the sampling port may be causing detectable concentrations of pollutants in effluent samples, which may result in samples that are not representative of WS 003. WS 003 consists only of non-contact cooling water from a high quality source and likely does not pose a significant threat to water quality.

A sample at Discharge Point 002 can physically be collected at the discharge location; however, the sample is drawn from the Access Tunnel Sump. The Access Tunnel Sump is a safer location and representative of the discharge at Discharge Point 002 because no waste streams commingle with the groundwater waste stream prior to discharge to North Fork Stevenson Creek.

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

Water Code section 13176 cannot be interpreted in a manner that would violate federal holding time requirements that apply to NPDES permits pursuant to the CWA. (Water Code sections 13370(c), 13372, 13377) Water Code section 13176 is inapplicable to NPDES permits to the extent it is inconsistent with CWA

requirements. (Water Code section 13372(a)) The holding time requirements are 15 minutes for dissolved oxygen and pH and immediate analysis is required for temperature (40 CFR 136.3(e), Table II). Due to the location of the Facility, it is both legally and factually impossible for the Discharger to comply with Water Code section 13176 for constituents with short holding times.

**4. Monitoring Location EFF-001A (WS 001A)**

**a.** Effluent monitoring frequencies and sample types at monitoring location EFF-001A for flow (continuous), electrical conductivity @ 25°C, settleable solids, temperature, total suspended solids, oil and grease, and pH (quarterly) have been retained from Order R5-2005-0093 to characterize the effluent and determine compliance with applicable effluent limitations. Hardness monitoring has been reduced to semi-annually. Furthermore, if the concentration of the oil and grease exceeds the maximum daily effluent limitation of 15 mg/L, oil and grease sampling frequency shall be increased to monthly until three consecutive months show that the discharge is consistently in compliance with the effluent limitation.

**b.** Monitoring data collected at WS 001A over the term of Order R5-2005-0093 for zinc indicate reasonable potential to exceed water quality criteria and effluent limitations have been established in this Order. Therefore, quarterly effluent monitoring for zinc has been established in this Order to determine compliance with effluent limitations.

**c.** Section 1.3 of the SIP requires the Central Valley Water Board to require periodic monitoring for priority pollutants, at least once prior to the reissuance of a permit, for which criteria or objectives apply and for which no effluent limitations have been established. To comply with the SIP and to adequately characterize the discharge, this Order requires the Discharger to sample its internal waste stream effluent for priority pollutants at least once following permit adoption.

**5. Monitoring Location EFF-001B (WS 001B)**

**a.** Effluent monitoring frequencies and sample types at monitoring location EFF-001B for flow (continuous), electrical conductivity @ 25°C, temperature, and pH (quarterly) have been retained from Order R5-2005-0093 to characterize the effluent and determine compliance with applicable effluent limitations. Hardness monitoring has been established at semi-annually.

**b.** Monitoring data collected at WS 001B over the term of Order R5-2005-0093 for arsenic and lead indicate reasonable potential to exceed water quality criteria and effluent limitations have been established in this Order. Therefore, quarterly effluent monitoring for arsenic and lead has been established in this Order to determine compliance with effluent limitations.

**c.** Section 1.3 of the SIP requires the Central Valley Water Board to require periodic monitoring for priority pollutants, at least once prior to the reissuance of a permit,

for which criteria or objectives apply and for which no effluent limitations have been established. To comply with the SIP and to adequately characterize the discharge, this Order requires the Discharger to sample its internal waste stream effluent for priority pollutants at least once following permit adoption.

**6. Monitoring Location EFF-001C (WS 003)**

**a.** Effluent monitoring frequency and sample type at monitoring location EFF-001C for flow (continuous) has been retained from Order R5-2005-0093 to determine compliance with the applicable effluent limitation for flow. Hardness monitoring has been established at semi-annually.

**b.** Monitoring data collected at WS 003 over the term of Order R5-2005-0093 for copper indicate reasonable potential to exceed water quality criteria and effluent limitations have been established in this Order. Therefore, quarterly effluent monitoring for copper has been established in this Order to determine compliance with effluent limitations.

**c.** Section 1.3 of the SIP requires the Central Valley Water Board to require periodic monitoring for priority pollutants, at least once prior to the reissuance of a permit, for which criteria or objectives apply and for which no effluent limitations have been established. To comply with the SIP and to adequately characterize the discharge, this Order requires the Discharger to sample its internal waste stream effluent for priority pollutants at least once following permit adoption.

**7. Monitoring Location EFF-002**

**a.** Effluent monitoring frequencies and sample types at monitoring location EFF-002 for flow (continuous), electrical conductivity @ 25°C, temperature, pH, and hardness (monthly) have been retained from Order R5-2005-0093 to characterize the effluent and determine compliance with applicable effluent limitations.

**b.** Section 1.3 of the SIP requires the Central Valley Water Board to require periodic monitoring for priority pollutants, at least once prior to the reissuance of a permit, for which criteria or objectives apply and for which no effluent limitations have been established. To comply with the SIP and to adequately characterize the discharge, this Order requires the Discharger to sample its effluent for priority pollutants at least once following permit adoption, only if a discharge to North Fork Stevenson Creek occurs during the term of the permit.

## C. Whole Effluent Toxicity Testing Requirements

**1. Acute Toxicity.** Once during the permit term, 96-hour bioassay testing is required at WS 001A, WS 001B, and Discharge Point 002 (if discharge to North Fork Stevenson Creek occurs) to demonstrate compliance with the effluent limitations for acute toxicity.

2. **Chronic Toxicity.** Annual chronic whole effluent toxicity testing is required at WS 001A and WS 001B in order to demonstrate compliance with the Basin Plan's narrative toxicity objective and narrative effluent limitation. Chronic whole effluent toxicity testing is required at least once per permit cycle at Discharge Point 002 if the Discharger discharges to North Fork Stevenson Creek at any time during the term of this Order.

### D. Receiving Water Monitoring

#### 1. Surface Water

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

#### 2. Groundwater – Not Applicable

### E. Other Monitoring Requirements – Not Applicable

## VII. RATIONALE FOR PROVISIONS

### A. Standard Provisions

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

Federal regulations, 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 Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

### B. Special Provisions

#### 1. Reopener Provisions

a. **Whole Effluent Toxicity.** This Order requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity through a Toxicity Reduction Evaluation (TRE). This Order may be reopened to include a numeric chronic toxicity effluent limitation, new acute toxicity effluent limitations, and/or effluent limitations for specific toxicants identified in the TRE.

Additionally, if a numeric chronic toxicity water quality objective is adopted by the State Water Board, this Order may be reopened to include a numeric chronic toxicity effluent limitation based on that objective.

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

c. **Drinking Water Policy.** The Central Valley Water Board is in the process of developing a Drinking Water Policy. This Order may be reopened to incorporate monitoring of constituents to implement the Drinking Water Policy.

d. **Dilution/Mixing Zone Study.** This Order does not allow for mixing zone and does not include dilution credits. If the Discharger conducts a Dilution/Mixing Zone Study that satisfies the requirements of Section 1.4.2.2 of the SIP, this Order may be reopened to revise applicable effluent limitations for CTR constituents accordingly.

2. **Special Studies and Additional Monitoring Requirements**

a. **Chronic Whole Effluent Toxicity Requirements.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at page III-8.01) Based on whole effluent chronic toxicity testing performed by the Discharger in December 2009, the discharge has reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective.

This provision requires the Discharger to develop a TRE work plan in accordance with USEPA guidance. In addition, the provision provides a numeric toxicity monitoring trigger and requirements for accelerated monitoring, as well as requirements for TRE initiation if effluent toxicity is demonstrated.

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

**Accelerated Monitoring.** The provision requires accelerated WET testing when a regular WET test result exceeds the monitoring trigger. The purpose of accelerated monitoring is to determine, in an expedient manner, whether there is effluent toxicity before requiring the implementation of a TRE. Due to possible

seasonality of the toxicity, the accelerated monitoring should be performed in a timely manner, preferably taking no more than 2 to 3 months to complete.

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

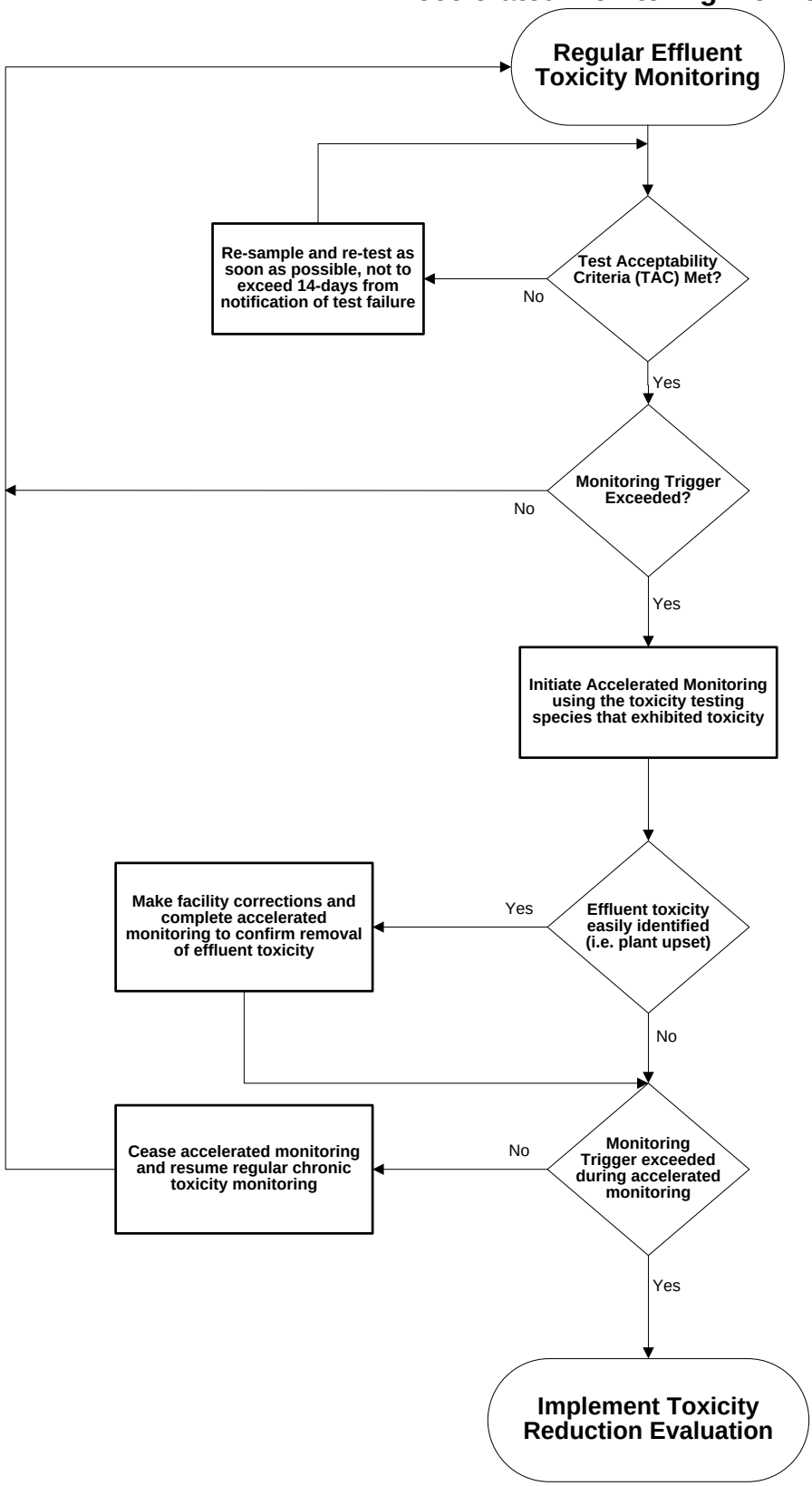
See the WET Accelerated Monitoring Flow Chart (Figure F-1), below, for further clarification of the accelerated monitoring requirements and for the decision points for determining the need for TRE initiation.

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

- *Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants*, EPA/833-B-99/002, August 1999.
- *Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations (TREs)*, EPA/600/2-88/070, April 1989.
- *Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures*, Second Edition, EPA 600/6-91/003, February 1991.
- *Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I*, EPA/600/6-91/005F, May 1992.
- *Methods for Aquatic Toxicity Identification Evaluations: Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity,* Second Edition, EPA/600/R-92/080, September 1993.
- *Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity,* Second Edition, EPA 600/R-92/081, September 1993.

- *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms,* Fifth Edition, EPA-821-R-02-012, October 2002.
- *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms,* Fourth Edition, EPA-821-R-02-013, October 2002.
- *Technical Support Document for Water Quality-based Toxics Control*, EPA/505/2-90-001, March 1991.

**Figure F-1**
**WET Accelerated Monitoring Flow Chart**



### 3. Best Management Practices and Pollution Prevention

a. **Salinity Evaluation and Minimization Plan.** Order R5-2005-0093 included a finding that stated the average EC in WS 001A was 9.0 µmhos/cm between January 2000 and December 2003. The average EC for WS 001B during the same period was 27 µmhos/cm. During the term of Order R5-2005-0093, EC averaged 86 µmhos/cm in WS 001A and 189 µmhos/cm in WS 001B, which indicates that EC has increased over the past ten years in both waste streams. An Evaluation and Minimization Plan for salinity is required in this Order to ensure adequate measures are developed and implemented by the Discharger to reduce the discharge of salinity to Shaver Lake and North Fork Stevenson Creek.

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

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

### 6. Other Special Provisions

a. **Solids Disposal.** The sludge/solids provisions are required to ensure compliance with State disposal requirements (Title 27, CCR, Division 2, Subdivision 1, Section 20005, et seq.).

### 7. Compliance Schedules – Not Applicable

## VIII. PUBLIC PARTICIPATION

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

### A. Notification of Interested Parties

The Central Valley Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through the Central Valley Water Board web site, by posting at the Facility entrance, the nearest City hall or County courthouse, and the nearest post office.

### 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 Central Valley Water Board at the address on the cover page of this Order.

To be fully responded to by staff and considered by the Central Valley Water Board, written comments must be received at the Central Valley Water Board offices by 5:00 p.m. on **1 November 2013**.

## C. Public Hearing

The Central Valley 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: 5/6 December 2013
Time: 9:00 a.m.
Location: Regional Water Quality Control Board, Central Valley Region
11020 Sun Center Dr., Suite #200
Rancho Cordova, CA 95670

Interested persons are invited to attend. At the public hearing, the Central Valley 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 Board to review the decision of the Central Valley Water Board regarding the final WDRs. The petition must be received by the State Water Board within 30 days of the Central Valley Water Board's action, and must be submitted to the following address:

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

## E. Information and Copying

The Report of Waste Discharge, related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the following address at any time between 8:00 a.m. and 4:30 p.m., Monday through Friday. Copying of documents may be arranged through the Central Valley Water Board by calling (559) 445-5116. Our office is at 1685 "E" Street, Fresno, California 93706.

## 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 Central Valley Water Board, reference this Facility, and provide a name, address, and phone number.

## G. Additional Information

Requests for additional information or questions regarding this Order should be directed to Aide Ortiz at (559) 445-6083.

## ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS

### Table G-1. Discharge Point 001 – Waste Stream 001A

| Constituent | Units | MEC | B | C | CMC[1] | CCC[1] | Water & Org | Org. Only | MCL | Reasonable Potential |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | µg/L | 0.8 | 0.51 | 10 | 340 | 150 | -- | -- | 10 | N |
| Copper | µg/L | 0.54 | 0.22[2] | 0.78 | 0.91 | 0.78 | 1300 | -- | 1000 | N |
| Lead | µg/L | 0.26 | ND | 0.079 | 2.0 | 0.079 | -- | -- | 15 | N[3] |
| Mercury | µg/L | 0.00038[2] | 0.00058 | 0.050 | -- | -- | 0.050 | 0.051 | 2 | N |
| Zinc | µg/L | 17 | ND | 10 | 10 | 10 | -- | -- | 5000 | Y, MEC>C |
| Aluminum | µg/L | 25 | 27 | 87 | 750[4] | 87[4] | -- | -- | 200 | N |
| Barium | µg/L | 4 | 3.9 | 1000 | -- | -- | -- | -- | 1000 | N |
| Chloride | mg/L | 1.1 | 1 | 250 | -- | -- | -- | -- | 250 | N |
| EC | µmhos/cm | 244 | 18 | 900 | -- | -- | -- | -- | 900 | N |
| Manganese | µg/L | 3.1 | 5.4 | 50 | -- | -- | -- | -- | 50 | N |
| TDS | mg/L | 20 | 17 | 500 | -- | -- | -- | -- | 500 | N |

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)
MCL = Drinking Water Standards Maximum Contaminant Level
ND = Non-detect
Footnotes:

1 Hardness-dependent criteria based on effluent hardness of 5.5 mg/L (as $CaCO_3$) and receiving water hardness of 4.6 mg/L (as $CaCO_3$)
2 Estimated values
3 The lowest SIP ML is 0.5 µg/L; therefore, reasonable potential will not be asserted at this time.
4 Non-CTR criteria

## Table G-2. Discharge Point 001 – Waste Stream 001B

| Constituent | Units | MEC | B | C | CMC[1] | CCC[1] | Water & Org | Org. Only | MCL | Reasonable Potential |
|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | µg/L | 0.24[2] | ND | 6 | -- | -- | 14 | 4300 | 6 | N |
| Arsenic | µg/L | 33 | 0.51 | 10 | 340 | 150 | -- | -- | 10 | Y, MEC>C |
| Cadmium | µg/L | 0.02[2] | ND | 0.93 | 0.98 | 0.93 | -- | -- | 5 | N |
| Copper | µg/L | 0.41[2] | 0.22[2] | 3.2 | 4.4 | 3.2 | 1300 | -- | 1000 | N |
| Lead | µg/L | 0.69 | ND | 0.49 | 13 | 0.49 | -- | -- | 15 | Y, MEC>C |
| Mercury | µg/L | 0.00575 | 0.00058 | 0.050 | -- | -- | 0.050 | 0.051 | 2 | N |
| Nickel | µg/L | 0.09[2] | 0.01[2] | 18 | 160 | 18 | 610 | 4600 | 100 | N |
| Selenium | µg/L | 1.81 | ND | 5 | 20 | 5 | -- | -- | 50 | N |
| Zinc | µg/L | 1.4 | ND | 42 | 42 | 42 | -- | -- | 5000 | N |
| Chloride | mg/L | 31 | 1 | 250 | -- | -- | -- | -- | 250 | N |
| Chromium | µg/L | 0.07[2] | ND | 50 | -- | -- | -- | -- | 50 | N |
| EC | µmhos/cm | 271 | 18 | 900 | -- | -- | -- | -- | 900 | N |
| Fluoride | µg/L | 1400 | ND | 2000 | -- | -- | -- | -- | 2000 | N |
| Nitrate (as N) | µg/L | 600[2] | ND | 10000 | -- | -- | -- | -- | 10000 | N |
| Nitrite (as N) | µg/L | 30[2] | ND | 1000 | -- | -- | -- | -- | 1000 | N |
| TDS | mg/L | 140 | 17 | 500 | -- | -- | -- | -- | 500 | N |
| Sulfide | µg/L | 400 | 200 | -- | -- | -- | -- | -- | -- | N |

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)
MCL = Drinking Water Standards Maximum Contaminant Level
ND = Non-detect
Footnotes:
1 Hardness-dependent criteria based on effluent hardness of 29 mg/L (as $CaCO_3$) and receiving water hardness of 4.6 mg/L (as $CaCO_3$)
2 Estimated values

## Table G-3. Discharge Point 001 – Waste Stream 003

| Constituent | Units | MEC | B | C | CMC(1) | CCC(1) | Water & Org | Org. Only | MCL | Reasonable Potential |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | µg/L | ND | 0.51 | 10 | 340 | 150 | -- | -- | 10 | N |
| Copper | µg/L | 7.2 | 0.22(2) | 0.51 | 0.56 | 0.51 | 1300 | -- | 1000 | Y, MEC>C |
| Lead | µg/L | ND | ND | 0.040 | 1.0 | 0.040 | -- | -- | 15 | N |
| Zinc | µg/L | 34(2) | ND | 6.7 | 6.7 | 6.7 | -- | -- | 5000 | N |

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)
MCL = Drinking Water Standards Maximum Contaminant Level
ND = Non-detect
Footnotes:
1 Hardness-dependent criteria based on effluent hardness of 3.3 mg/L (as $CaCO_3$) and receiving water hardness of 4.6 mg/L (as $CaCO_3$)
2 Estimated values

## ATTACHMENT H – CALCULATION OF WQBELS

### Table H-1. Discharge Point 001 – Waste Stream 001A

| Parameter | Units | Most Stringent Criteria | | | Dilution Factors | | | HH Calculations | | | Aquatic Life Calculations | | | | | | | | | Final Effluent Limitations | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | HH | CMC | CCC | HH | CMC | CCC | $ECA_{HH}$ = $AMEL_{HH}$ | AMEL/MDEL $Multiplier_{HH}$ | $MDEL_{HH}$ | ECA $Multiplier_{acute}$ | $LTA_{acute}$ | ECA $Multiplier_{chronic}$ | $LTA_{chronic}$ | Lowest LTA | AMEL $Multiplier_{95}$ | $AMEL_{AL}$ | MDEL $Multiplier_{99}$ | $MDEL_{AL}$ | Lowest AMEL | Lowest MDEL |
| Zinc, Total Recoverable | µg/L | 5000 | 10 | 10 | -- | -- | -- | 5000 | 2.01 | 10000 | 0.32 | 3.2 | 0.53 | 5.3 | 3.2 | 1.55 | 5.0 | 3.11 | 10 | 5.0 | 10. |

### Table H-2. Discharge Point 001 – Waste Stream 001B

| Parameter | Units | Most Stringent Criteria | | | Dilution Factors | | | HH Calculations | | | Aquatic Life Calculations | | | | | | | | | Final Effluent Limitations | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | HH | CMC | CCC | HH | CMC | CCC | $ECA_{HH}$ = $AMEL_{HH}$ | AMEL/MDEL $Multiplier_{HH}$ | $MDEL_{HH}$ | ECA $Multiplier_{acute}$ | $LTA_{acute}$ | ECA $Multiplier_{chronic}$ | $LTA_{chronic}$ | Lowest LTA | AMEL $Multiplier_{95}$ | $AMEL_{AL}$ | MDEL $Multiplier_{99}$ | $MDEL_{AL}$ | Lowest AMEL | Lowest MDEL |
| Arsenic, Total Recoverable | µg/L | 10 | 340 | 150 | -- | -- | -- | 10 | 2.01 | 20 | 0.32 | 110 | 0.53 | 79 | 79 | 1.55 | 120 | 3.11 | 250 | 10. | 20. |
| Lead, Total Recoverable | µg/L | 15 | 13 | 0.49 | -- | -- | -- | 15 | 2.01 | 30 | 0.32 | 4.2 | 0.53 | 0.26 | 0.26 | 1.55 | 0.40 | 3.11 | 0.80 | 0.40 | 0.80 |

## Table H-3. Discharge Point 001 – Waste Stream 003

| Parameter | Units | Most Stringent Criteria | | | Dilution Factors | | | HH Calculations | | | Aquatic Life Calculations | | | | | | | | | Final Effluent Limitations | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | HH | CMC | CCC | HH | CMC | CCC | $ECA_{HH}$ = $AMEL_{HH}$ | AMEL/MDEL $Multiplier_{HH}$ | $MDEL_{HH}$ | ECA $Multiplier_{acute}$ | $LTA_{acute}$ | ECA $Multiplier_{chronic}$ | $LTA_{chronic}$ | Lowest LTA | AMEL $Multiplier_{95}$ | $AMEL_{AL}$ | MDEL $Multiplier_{99}$ | $MDEL_{AL}$ | Lowest AMEL | Lowest MDEL |
| Copper, Total Recoverable | µg/L | 1000 | 0.56 | 0.51 | -- | -- | -- | 1000 | 2.01 | 2010 | 0.321 | 0.18 | 0.527 | 0.27 | 0.18 | 1.55 | 0.28 | 3.11 | 0.56 | 0.28 | 0.56 |

# ATTACHMENT I – REPORTING LEVELS FOR CTR CONSTITUENTS

## Table I-1. Reporting Levels for CTR Constituents

| CTR # | Constituent | CAS Number | Associated Analytical Method Type[1] | Reporting Level (µg/L or noted) |
|---|---|---|---|---|
| 1 | Antimony, Total Recoverable | 7440360 | GFAA | 5 |
| | | | ICPMS | 0.5 |
| | | | SPGFAA | 5 |
| | | | HYDRIDE | 0.5 |
| 2 | Arsenic, Total Recoverable | 7440382 | GFAA | 2 |
| | | | ICP | 10 |
| | | | ICPMS | 2 |
| | | | SPGFAA | 2 |
| | | | HYDRIDE | 1 |
| 3 | Beryllium, Total Recoverable | 7440417 | GFAA | 0.5 |
| | | | ICP | 2 |
| | | | ICPMS | 0.5 |
| | | | SPGFAA | 1 |
| 4 | Cadmium, Total Recoverable | 7440439 | ICPMS | 0.25 |
| 5a | Chromium (III), Total Recoverable | 16065831 | -- | -- |
| 5b | Chromium (VI), Total Recoverable | 18540299 | FAA | 5 |
| | | | COLOR | 10 |
| 6 | Copper, Total Recoverable | 7440508 | ICPMS | 0.5 |
| 7 | Lead, Total Recoverable | 7439921 | ICPMS | 0.5 |
| 8 | Mercury, Total Recoverable | 7439976 | CVAA | 0.2 |
| 9 | Nickel, Total Recoverable | 7440020 | ICPMS | 1 |
| 10 | Selenium, Total Recoverable | 7782492 | GFAA | 5 |
| | | | ICPMS | 2 |
| | | | SPGFAA | 5 |
| | | | HYDRIDE | 1 |
| 11 | Silver, Total Recoverable | 7440224 | ICPMS | 0.25 |
| 12 | Thallium, Total Recoverable | 7440280 | ICPMS | 1 |
| 13 | Zinc, Total Recoverable | 7440666 | ICPMS | 1 |
| 14 | Cyanide, Total (as CN) | 57125 | COLOR | 5 |
| 15 | Asbestos (MFL units) | 1332214 | -- (MFL) | -- |
| 16 | 2,3,7,8-TCDD (Dioxin) | 1746016 | -- | -- |
| 17 | Acrolein | 107028 | GC | 2.0 |
| | | | GCMS | 5 |
| 18 | Acrylonitrile | 107131 | GC | 2.0 |
| | | | GCMS | 2 |
| 19 | Benzene | 71432 | GC | 0.5 |
| 20 | Bromoform | 75252 | GC | 0.5 |
| | | | GCMS | 2 |
| 21 | Carbon Tetrachloride | 56235 | GC | 0.5 |

| CTR # | Constituent | CAS Number | Associated Analytical Method Type[1] | Reporting Level (µg/L or noted) |
|---|---|---|---|---|
| 22 | Chlorobenzene | 108907 | GC | 0.5 |
| | | | GCMS | 2 |
| 23 | Chlorodibromomethane (Dibromochloromethane) | 124481 | GC | 0.5 |
| 24 | Chloroethane | 75003 | GC | 0.5 |
| | | | GCMS | 2 |
| 25 | 2-Chloroethylvinyl Ether | 110758 | GC | 1 |
| | | | GCMS | 1 |
| 26 | Chloroform | 67663 | GC | 0.5 |
| | | | GCMS | 2 |
| 27 | Dichlorobromomethane (Bromodichloromethane) | 75274 | GC | 0.5 |
| 28 | 1,1-Dichloroethane | 75343 | GC | 0.5 |
| | | | GCMS | 1 |
| 29 | 1,2-Dichloroethane | 107062 | GC | 0.5 |
| 30 | 1,1-Dichloroethylene | 75354 | GC | 0.5 |
| 31 | 1,2-Dichloropropane | 78875 | GC | 0.5 |
| 32 | 1,3-Dichloropropylene | 542756 | GC | 0.5 |
| 33 | Ethylbenzene | 100414 | GC | 0.5 |
| | | | GCMS | 2 |
| 34 | Methyl Bromide (Bromomethane) | 74839 | GC | 1.0 |
| | | | GCMS | 2 |
| 35 | Methyl Chloride (Chloromethane) | 74873 | GC | 0.5 |
| | | | GCMS | 2 |
| 36 | Methylene Chloride (Dichloromethane) | 75092 | GC | 0.5 |
| | | | GCMS | 2 |
| 37 | 1,1,2,2-Tetrachloroethane | 79345 | GC | 0.5 |
| 38 | Tetrachloroethylene | 127184 | GC | 0.5 |
| 39 | Toluene | 108883 | GC | 0.5 |
| | | | GCMS | 2 |
| 40 | trans-1,2-Dichloroethylene | 156605 | GC | 0.5 |
| | | | GCMS | 1 |
| 41 | 1,1,1-Trichloroethane | 71556 | GC | 0.5 |
| | | | GCMS | 2 |
| 42 | 1,1,2-Trichloroethane | 79005 | GC | 0.5 |
| 43 | Trichloroethylene | 79016 | GC | 0.5 |
| | | | GCMS | 2 |
| 44 | Vinyl Chloride | 75014 | GC | 0.5 |
| 45 | 2-Chlorophenol | 95578 | GC | 2 |
| | | | GCMS | 5 |
| 46 | 2,4-Dichlorophenol | 120832 | GC | 1 |
| | | | GCMS | 5 |
| 47 | 2,4-Dimethylphenol | 105679 | GC | 1 |
| | | | GCMS | 2 |

| CTR # | Constituent | CAS Number | Associated Analytical Method Type[1] | Reporting Level (µg/L or noted) |
|---|---|---|---|---|
| 48 | 2-Methyl-4,6-Dinitrophenol | 534521 | GC | 10 |
| | | | GCMS | 5 |
| 49 | 2,4-Dinitrophenol | 51285 | GC | 5 |
| | | | GCMS | 5 |
| 50 | 2-Nitrophenol | 88755 | GCMS | 10 |
| 51 | 4-Nitrophenol | 100027 | GC | 5 |
| | | | GCMS | 10 |
| 52 | 3-Methyl-4-Chlorophenol | 59507 | GC | 5 |
| | | | GCMS | 1 |
| 53 | Pentachlorophenol | 87865 | GC | 1 |
| 54 | Phenol | 108952 | GC | 1 |
| | | | GCMS | 1 |
| | | | COLOR | 50 |
| 55 | 2,4,6-Trichlorophenol | 88062 | GC | 10 |
| | | | GCMS | 10 |
| 56 | Acenaphthene | 83329 | GC | 1 |
| | | | GCMS | 1 |
| | | | LC | 0.5 |
| 57 | Acenaphthylene | 208968 | GCMS | 10 |
| | | | LC | 0.2 |
| 58 | Anthracene | 120127 | GCMS | 10 |
| | | | LC | 2 |
| 59 | Benzidine | 92875 | GCMS | 5 |
| 60 | Benzo(a)Anthracene | 56553 | GCMS | 5 |
| 61 | Benzo(a)Pyrene | 50328 | LC | 2 |
| 62 | Benzo(b)Fluoranthene | 205992 | GCMS | 10 |
| | | | LC | 10 |
| 63 | Benzo(ghi)Perylene | 191242 | GCMS | 5 |
| | | | LC | 0.1 |
| 64 | Benzo(k)Fluoranthene | 207089 | LC | 2 |
| 65 | Bis(2-Chloroethoxy)Methane | 111911 | GCMS | 5 |
| 66 | Bis(2-Chloroethyl)Ether | 111444 | GCMS | 1 |
| 67 | Bis(2-Chloroisopropyl)Ether | 108601 | GC | 10 |
| | | | GCMS | 2 |
| 68 | Bis(2-Ethylhexyl)Phthalate | 117817 | GCMS | 5 |
| 69 | 4-Bromophenyl Phenyl Ether | 101553 | GC | 10 |
| | | | GCMS | 5 |
| 70 | Butylbenzyl Phthalate | 85687 | GC | 10 |
| | | | GCMS | 10 |
| 71 | 2-Chloronaphthalene | 91587 | GCMS | 10 |
| 72 | 4-Chlorophenyl Phenyl Ether | 7005723 | GCMS | 5 |
| 73 | Chrysene | 218019 | LC | 5 |
| 74 | Dibenzo(a,h)Anthracene | 53703 | LC | 0.1 |

| CTR # | Constituent | CAS Number | Associated Analytical Method Type[1] | Reporting Level (µg/L or noted) |
|---|---|---|---|---|
| 75 | 1,2-Dichlorobenzene | 95501 | GC | 2 |
| | | | GCMS | 2 |
| 76 | 1,3-Dichlorobenzene | 541731 | GC | 2 |
| | | | GCMS | 1 |
| 77 | 1,4-Dichlorobenzene | 106467 | GC | 2 |
| | | | GCMS | 1 |
| 78 | 3,3'-Dichlorobenzidine | 91941 | GCMS | 5 |
| 79 | Diethyl Phthalate | 84662 | GC | 10 |
| | | | GCMS | 2 |
| 80 | Dimethyl Phthalate | 131113 | GC | 10 |
| | | | GCMS | 2 |
| 81 | Di-n-Butyl Phthalate | 84742 | GCMS | 10 |
| 82 | 2,4-Dinitrotoluene | 121142 | GCMS | 5 |
| 83 | 2,6-Dinitrotoluene | 606202 | GCMS | 5 |
| 84 | Di-n-Octyl Phthalate | 117840 | GCMS | 10 |
| 85 | 1,2-Diphenylhydrazine | 122667 | GCMS | 1 |
| 86 | Fluoranthene | 206440 | GC | 10 |
| | | | GCMS | 1 |
| | | | LC | 0.05 |
| 87 | Fluorene | 86737 | GCMS | 10 |
| | | | LC | 0.1 |
| 88 | Hexachlorobenzene | 118741 | GCMS | 1 |
| 89 | Hexachlorobutadiene | 87683 | GCMS | 1 |
| 90 | Hexachlorocyclopentadiene | 77474 | GC | 5 |
| | | | GCMS | 5 |
| 91 | Hexachloroethane | 67721 | GCMS | 1 |
| 92 | Indeno(1,2,3-cd) Pyrene | 193395 | LC | 0.05 |
| 93 | Isophorone | 78591 | GCMS | 1 |
| 94 | Naphthalene | 91203 | GC | 10 |
| | | | GCMS | 1 |
| | | | LC | 0.2 |
| 95 | Nitrobenzene | 98953 | GC | 10 |
| | | | GCMS | 1 |
| 96 | N-Nitrosodimethylamine | 62759 | GCMS | 5 |
| 97 | N-Nitrosodi-n-Propylamine | 621647 | GCMS | 5 |
| 98 | N-Nitrosodiphenylamine | 86306 | GC | 10 |
| | | | GCMS | 1 |
| 99 | Phenanthrene | 85018 | GCMS | 5 |
| | | | LC | 0.05 |
| 100 | Pyrene | 129000 | GCMS | 10 |
| | | | LC | 0.05 |
| 101 | 1,2,4-Trichlorobenzene | 120821 | GC | 1 |
| | | | GCMS | 5 |
| 102 | Aldrin | 309002 | GC | 0.005 |

| CTR # | Constituent | CAS Number | Associated Analytical Method Type[1] | Reporting Level (µg/L or noted) |
|---|---|---|---|---|
| 103 | alpha-BHC | 319846 | GC | 0.01 |
| 104 | beta-BHC | 319857 | GC | 0.005 |
| 105 | gamma-BHC (Lindane) | 58899 | GC | 0.02 |
| 106 | delta-BHC | 319868 | GC | 0.005 |
| 107 | Chlordane | 57749 | GC | 0.1 |
| 108 | 4,4'-DDT | 50293 | GC | 0.01 |
| 109 | 4,4'-DDE | 72559 | GC | 0.05 |
| 110 | 4,4'-DDD | 72548 | GC | 0.05 |
| 111 | Dieldrin | 60571 | GC | 0.01 |
| 112 | alpha-Endosulfan | 959988 | GC | 0.02 |
| 113 | beta-Endosulfan | 33213659 | GC | 0.01 |
| 114 | Endosulfan Sulfate | 1031078 | GC | 0.05 |
| 115 | Endrin | 72208 | GC | 0.01 |
| 116 | Endrin Aldehyde | 7421934 | GC | 0.01 |
| 117 | Heptachlor | 76448 | GC | 0.01 |
| 118 | Heptachlor Epoxide | 1024573 | GC | 0.01 |
| 119 | PCB 1242 | 53469219 | GC | 0.5 |
| 120 | PCB 1254 | 11097691 | GC | 0.5 |
| 121 | PCB 1221 | 11104282 | GC | 0.5 |
| 122 | PCB 1232 | 11141165 | GC | 0.5 |
| 123 | PCB 1248 | 12672296 | GC | 0.5 |
| 124 | PCB 1260 | 11096825 | GC | 0.5 |
| 125 | PCB 1016 | 12674112 | GC | 0.5 |
| 126 | Toxaphene | 8001352 | GC | 0.5 |

[1] GC – Gas Chromatography
GCMS – Gas Chromatography/Mass Spectrometry
HRGCMS – High Resolution Gas Chromatography/Mass Spectrometry (i.e., USEPA 1613, 1624, or 1625)
LC – High Pressure Liquid Chromatography
FAA – Flame Atomic Absorption
GFAA – Graphite Furnace Atomic Absorption
HYDRIDE – Gaseous Hydride Atomic Absorption
CVAA – Cold Vapor Atomic Absorption
ICP – Inductively Coupled Plasma
ICPMS – Inductively Coupled Plasma/Mass Spectrometry
SPGFAA – Stabilized Platform Graphite Furnace Atomic Absorption (i.e., USEPA 200.9)
DCP – Direct Current Plasma
COLOR – Colorimetric