

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

CENTRAL VALLEY REGION

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ORDER R5-2012-XXXX

NPDES NO. CA0085171

**WASTE DISCHARGE REQUIREMENTS FOR THE
STATE OF CALIFORNIA
DEPARTMENT OF PARKS AND RECREATION
EMPIRE MINE STATE HISTORIC PARK
NEVADA COUNTY**

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

Table 1. Discharger Information

Discharger	State of California, Department of Parks and Recreation
Name of Facility	Empire Mine State Historic Park
Facility Address	10791 East Empire Street
	Grass Valley, CA 95945
	Nevada 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 the State of California, Department of Parks and Recreation from the discharge points identified below is subject to waste discharge requirements as set forth in this Order:

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Mine Drainage	39° 12' 41.8" N	121° 03' 10.6" W	Magenta Drain Channel

Table 3. Administrative Information

This Order was adopted by the Regional Water Quality Control Board on:	<Adoption Date>
This Order shall become effective on:	<Effective Date>
This Order shall expire on:	<Expiration Date>
The Discharger shall file a Report of Waste Discharge in accordance with title 23, California Code of Regulations, as application for issuance of new waste discharge requirements no later than:	< <u>180 days prior to the Order expiration date</u> OR <u>insert date</u> >

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 **<Adoption Date>**.

PAMELA C. CREEDON, Executive Officer

Table of Contents

I.	Facility Information.....	6
II.	Findings.....	6
III.	Discharge Prohibitions.....	15
IV.	Effluent Limitations and Discharge Specifications.....	15
	A. Effluent Limitations - Discharge Point No. 001.....	15
	B. Land Discharge Specifications - Not Applicable.....	17
	C. Reclamation Specifications - Not Applicable.....	17
V.	Receiving Water Limitations.....	17
	A. Surface Water Limitations.....	17
	B. Groundwater Limitations - Not Applicable.....	20
VI.	Provisions.....	21
	A. Standard Provisions.....	21
	B. Monitoring and Reporting Program Requirements.....	27
	C. Special Provisions.....	27
	1. Reopener Provisions.....	27
	2. Special Studies, Technical Reports and Additional Monitoring Requirements.....	28
	3. Best Management Practices and Pollution Prevention - Not Applicable.....	32
	4. Construction, Operation and Maintenance Specifications.....	32
	5. Special Provisions for Municipal Facilities (POTWs Only) - Not Applicable.....	32
	6. Other Special Provisions.....	32
	7. Compliance Schedules - Not Applicable.....	36
VII.	Compliance Determination.....	37

List of Tables

Table 1.	Discharger Information.....	1
Table 2.	Discharge Location.....	1
Table 3.	Administrative Information.....	2
Table 4.	Facility Information.....	6

Table 5. Basin Plan Beneficial Uses 9
Table 6. Effluent Limitations..... 15

List of Attachments

Attachment A - Definitions	A-1
Attachment B - Maps	B-1
Attachment C - Flow Schematic.....	C-2
Attachment D - Standard Provisions	D-1
Attachment E - Monitoring and Reporting Program.....	E-15
Attachment F - Fact Sheet	F-1
Attachment G - Summary of Reasonable Potential Analysis	G-1
Attachment H - Calculation of WQBELs	H-1
Attachment I - Effluent Characterization Study.....	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	State of California, Department of Parks and Recreation
Name of Facility	Empire Mine State Historic Park
Facility Address	10791 East Empire Street
	Grass Valley, CA 95945
	Nevada County
Facility Contact, Title, and Phone	Dan Millsap, Project Manager, (916) 445-8737
Mailing Address	One Capital Mall, Suite 410, Sacramento, CA 95814
Type of Facility	Industrial, SIC Code 1041
Facility Design Flow	2.3 million gallons per day (MGD)

II. FINDINGS

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

A. Background. The State of California, Department of Parks and Recreation (hereinafter Discharger) is currently discharging pursuant to Order No. R5-2006-0058 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0085171. The Discharger submitted a Report of Waste Discharge, dated 29 June 2011, and applied for a NPDES permit renewal to discharge up to 2.3 MGD (1,600 gallons per minute or gpm) of treated mine drainage from Empire Mine State Historic Park, hereinafter Facility. The application was deemed complete on 5 August 2011.

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

- B. Facility Description.** The Discharger owns and operates the Facility, a State park that includes a historic gold mine. The treatment system consists of a water collection structure and pump station, conveyance piping, settling pond, and two aerobic free-water surface wetlands. Wastewater is discharged from Discharge Point No. 001 (see table on cover page) to Magenta Drain Channel, a water of the United States, and a tributary to the Bear River via South Fork Wolf Creek and Wolf Creek within the Upper Bear watershed. Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the Facility.
- C. Legal Authorities.** This Order is issued pursuant to section 402 of the Clean Water Act (CWA) and implementing regulations adopted by USEPA and chapter 5.5, division 7 of the California Water Code (Water Code; commencing with section 13370). It shall serve as a NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the Water Code (commencing with section 13260).
- D. Background and Rationale for Requirements.** The 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 Order requirements, is hereby incorporated into this Order and constitutes part of the Findings for this Order. Attachments A through E and G through I are also incorporated into this Order.
- E. California Environmental Quality Act (CEQA).** Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA, Public Resources Code sections 21100-21177.
- F. Technology-based Effluent Limitations.** Section 301(b) of the CWA and implementing USEPA permit regulations at section 122.44, title 40 of the Code of Federal Regulations (40 CFR 122.44), require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. Technology-based effluent

limitations are not applicable to the discharge authorized by this Order. 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, Fourth Edition (Revised October 2011)*, for the Sacramento and San Joaquin River Basins (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. 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 Magenta Drain Channel, but does identify present and potential uses for the Bear River, to which Magenta Drain Channel, via South Fork Wolf Creek and Wolf Creek, is tributary. In addition, the Basin Plan implements State Water Resources Control Board (State Water Board) Resolution No. 88-63, which established

state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. Thus, as discussed in detail in the Fact Sheet, beneficial uses applicable to Magenta Drain Channel are as follows:

Table 5. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Magenta Drain Channel	<p><u>Existing:</u> Municipal and domestic supply (MUN); Agricultural supply, including irrigation and stock watering (AGR); Hydropower generation (POW); Water contact recreation, including canoeing and rafting (REC-1); Non-contact water recreation (REC-2); Warm freshwater habitat (WARM); Cold freshwater habitat (COLD); and Wildlife habitat (WILD).</p> <p><u>Potential:</u> Migration of aquatic organisms, warm and cold (MIGR); and Spawning, reproduction, and/or early development, warm and cold (SPWN).</p>
--	Groundwater	<p><u>Existing:</u> Municipal and domestic supply (MUN); Agricultural supply, including irrigation and stock watering (AGR); Industrial process supply (PROC); and Industrial service supply (IND).</p>

The Basin Plan includes a list of Water Quality Limited Segments (WQLSs), which are defined as “...those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources (40 CFR 130, et seq.)” The Basin Plan also states, “Additional treatment beyond minimum federal standards will be imposed on dischargers to WQLSs. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment.” Magenta Drain Channel and South Fork Wolf Creek are not listed on the 303(d) list of impaired water bodies. Wolf Creek is listed on the 303(d)

list as impaired for fecal coliform. The Upper Bear River, from Combie Lake to Camp Far West Reservoir in Nevada and Placer Counties, is listed on the 303(d) list as impaired for mercury.

Requirements of this Order implement the Basin Plan.

- I. National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on 22 December 1992, and later amended it on 4 May 1995 and 9 November 1999. About 40 criteria in the NTR applied in California. On 18 May 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on 13 February 2001. These rules contain water quality criteria for priority pollutants.
- J. State Implementation Policy.** On 2 March 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on 28 April 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 - Not Applicable**
- 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. Technology-based effluent limitations are not applicable to the discharge. The WQBELs consist of restrictions on arsenic, color, dissolved oxygen, iron, manganese, pH, and turbidity. ~~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.

- Ø. Anti-Backsliding Requirements.** Sections 303(d)(4) and 402(o)(2) of the CWA and federal regulations at 40 CFR 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions. All effluent limitations in this Order are at least as stringent as the effluent limitations in Order R5-2006-0058. ~~Some effluent limitations in this Order are less stringent than those in Order No. R5-2006-0058. 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 limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.
- Q. Monitoring and Reporting.** 40 CFR 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. 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 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. Some special provisions require submittal of technical reports. All technical reports are required in accordance with Water Code section 13267. The rationale for the special provisions and need for technical reports required in this Order is provided in the Fact Sheet.
- S. Provisions and Requirements Implementing State Law.** The provisions/requirements in sections VI.A.2.o 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 ~~No.~~ R5-2006-0058 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.

III. DISCHARGE PROHIBITIONS

- A. Discharge of wastewater at a location or in a manner different from that described in the Findings is prohibited.
- B. The by-pass or overflow of wastes to surface waters is prohibited, except as allowed by Federal Standard Provisions I.G. and I.H. (Attachment D).
- C. Neither the discharge nor its treatment shall create a nuisance as defined in section 13050 of the Water Code.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations - Discharge Point No. 001

1. Final Effluent Limitations - Discharge Point No. 001

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

Table 6. Effluent Limitations

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
<i>Conventional Pollutants</i>					
pH	standard units	--	--	6.5	8.5
<i>Priority Pollutants</i>					
Arsenic, Total Recoverable	µg/L	10	29	--	--

- b. **Acute Whole Effluent Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:
 - i. 70%, minimum for any one bioassay; and
 - ii. 90%, median for any three consecutive bioassays.

- c. **Chronic Whole Effluent Toxicity.** There shall be no chronic toxicity in the effluent discharge.
- d. **Color.** For a calendar year, the annual average value in the effluent shall not exceed 15 color units.
- e. **Dissolved Oxygen.** Dissolved oxygen in the discharge shall be no less than:
 - i. 85 percent of saturation as a monthly median of the mean daily dissolved oxygen concentration;
 - ii. 75 percent of saturation as the 95th percentile dissolved oxygen concentration within a calendar month; and
 - iii. 7.0 mg/L at any time.
- f. **Iron, Total Recoverable.** For a calendar year, the annual average effluent concentration shall not exceed 300 µg/L.
- g. **Manganese, Total Recoverable.** For a calendar year, the annual average effluent concentration shall not exceed 50 µg/L.
- h. **Turbidity.** For a calendar year, the annual average effluent concentration shall not exceed 5 NTUs.

2. Interim Effluent Limitations - Not Applicable

B. Land Discharge Specifications - Not Applicable

C. Reclamation Specifications - Not Applicable

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

Receiving water limitations are based on water quality objectives contained in the Basin Plan and are a required part of this Order. The discharge shall not cause the following in Magenta Drain Channel, South Fork Wolf Creek, or downstream waters:

1. **Bacteria.** The fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, to exceed a geometric mean of 200 MPN/100 mL, nor more than 10 percent of the total number of fecal coliform samples taken during any 30-day period to exceed 400 MPN/100 mL.
2. **Biostimulatory Substances.** Water to contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.
3. **Chemical Constituents.** Chemical constituents to be present in concentrations that adversely affect beneficial uses.
4. **Color.** Discoloration that causes nuisance or adversely affects beneficial uses.
5. **Dissolved Oxygen:**
 - a. The monthly median of the mean daily dissolved oxygen concentration to fall below 85 percent of saturation in the main water mass;
 - b. The 95 percentile dissolved oxygen concentration to fall below 75 percent of saturation; nor

- c. The dissolved oxygen concentration to be reduced below 7.0 mg/L at any time.
- 6. Floating Material.** Floating material to be present in amounts that cause nuisance or adversely affect beneficial uses.
 - 7. Oil and Grease.** Oils, greases, waxes, or other materials to be present in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.
 - 8. pH.** The pH to be depressed below 6.5 nor raised above 8.5.
 - 9. Pesticides:**
 - a. Pesticides to be present, individually or in combination, in concentrations that adversely affect beneficial uses;
 - b. Pesticides to be present in bottom sediments or aquatic life in concentrations that adversely affect beneficial uses;
 - c. Total identifiable persistent chlorinated hydrocarbon pesticides to be present in the water column at concentrations detectable within the accuracy of analytical methods approved by USEPA or the Executive Officer;
 - d. Pesticide concentrations to exceed those allowable by applicable antidegradation policies (see State Water Board Resolution No. 68-16 and 40 CFR 131.12.);
 - e. Pesticide concentrations to exceed the lowest levels technically and economically achievable;
 - f. Pesticides to be present in concentration in excess of the maximum contaminant levels set forth in CCR, Title 22, division 4, chapter 15; nor
 - g. Thiobencarb to be present in excess of 1.0 µg/L.

10. Radioactivity:

- a. Radionuclides to be present in concentrations that are harmful to human, plant, animal, or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.
 - b. Radionuclides to be present in excess of the maximum contaminant levels specified in Table 64442 of Section 64442 and Table 64443 of Section 64443 of Title 22 of the California Code of Regulations.
11. **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.
12. **Settleable Substances.** Substances to be present in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.
13. **Suspended Material.** Suspended material to be present in concentrations that cause nuisance or adversely affect beneficial uses.
14. **Taste and Odors.** Taste- or odor-producing substances to be present in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.
15. **Temperature.** The natural temperature to be increased by more than 5°F.
Compliance to be determined based on the difference in temperature at RSW-002 and RSW-003.
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

- a. Shall not exceed 2 Nephelometric Turbidity Units (NTU) where natural turbidity is less than 1 NTU;
- b. Shall not increase more than 1 NTU where natural turbidity is between 1 and 5 NTUs;
- c. Shall not increase more than 20 percent where natural turbidity is between 5 and 50 NTUs;
- d. Shall not increase more than 10 NTU where natural turbidity is between 50 and 100 NTUs; nor
- e. Shall not increase more than 10 percent where natural turbidity is greater than 100 NTUs.

B. Groundwater Limitations - Not Applicable

VI. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all Standard Provisions (federal NPDES standard conditions from 40 CFR Part 122) included in Attachment D of this Order.
2. The Discharger shall comply with the following provisions:
 - a. If the Discharger's wastewater treatment plant is publicly owned or subject to regulation by California Public Utilities Commission, it shall be supervised and operated by persons possessing certificates of appropriate grade according to Title 23, CCR, division 3, chapter 26.
 - b. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to:
 - i. violation of any term or condition contained in this Order;
 - ii. obtaining this Order by misrepresentation or by failing to disclose fully all relevant facts;
 - iii. a change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge; and
 - iv. a material change in the character, location, or volume of discharge.

The causes for modification include:

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

- *Land application plans.* When required by a permit condition to incorporate a land application plan for beneficial reuse of sewage sludge, to revise an existing land application plan, or to add a land application plan.
- *Change in sludge use or disposal practice.* Under 40 CFR 122.62(a)(1), a change in the Discharger's sludge use or disposal practice is a cause for modification of the permit. It is cause for revocation and reissuance if the Discharger requests or agrees.

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

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

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

- d. This Order shall be modified, or alternately revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the CWA, if the effluent standard or limitation so issued or approved:
- i. Contains different conditions or is otherwise more stringent than any effluent limitation in the Order; or
 - ii. Controls any pollutant limited in the Order.

- The Order, as modified or reissued under this paragraph, shall also contain any other requirements of the CWA then applicable.
- e. The provisions of this Order are severable. If any provision of this Order is found invalid, the remainder of this Order shall not be affected.
 - f. The Discharger shall take all reasonable steps to minimize any adverse effects to waters of the State or users of those waters resulting from any discharge or sludge use or disposal in violation of this Order. Reasonable steps shall include such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge or sludge use or disposal.
 - g. The Discharger shall ensure compliance with any existing or future pretreatment standard promulgated by USEPA under section 307 of the CWA, or amendment thereto, for any discharge to the municipal system.
 - h. A copy of this Order shall be maintained at the discharge facility and be available at all times to operating personnel. Key operating personnel shall be familiar with its content.
 - i. Safeguard to electric power failure:
 - i. The Discharger shall provide safeguards to assure that, should there be reduction, loss, or failure of electric power, the discharge shall comply with the terms and conditions of this Order.
 - ii. Upon written request by the 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.
- j. The Discharger, upon written request of the Central Valley Water Board, shall file with the Board a technical report on its preventive (failsafe) and contingency (cleanup) plans for controlling accidental discharges, and for minimizing the effect of such events. This report may be combined with that required under Regional Water Board Standard Provision contained in section VI.A.2.i. of this Order.

The technical report shall:

- i. Identify the possible sources of spills, leaks, untreated waste by-pass, and contaminated drainage. Loading and storage areas, power outage, waste treatment unit outage, and failure of process equipment, tanks and pipes should be considered.
- ii. Evaluate the effectiveness of present facilities and procedures and state when they became operational.
- iii. Predict the effectiveness of the proposed facilities and procedures and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational.

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

- k. A publicly owned treatment works whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment and disposal facilities. The projections shall be made in January, based on the last 3 years' average dry weather flows, peak wet weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in 4 years, the Discharger shall notify the Central Valley Water Board by 31 January. A copy of the notification shall be sent to appropriate local elected officials, local permitting agencies and the press. Within 120 days of the notification, the Discharger shall submit a technical report showing how it will prevent flow volumes from exceeding capacity or how it will increase capacity to handle the larger flows. The Central Valley Water Board may extend the time for submitting the report.
- l. The Discharger shall submit technical reports as directed by the Executive Officer. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code, sections 6735, 7835, and 7835.1. To demonstrate compliance with Title 16, CCR, sections 415 and 3065, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.

- m. The Central Valley Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.
- n. For publicly owned treatment works, prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater that results in a permanent decrease of flow in any portion of a watercourse, the Discharger must file a petition with the State Water Board, Division of Water Rights, and receive approval for such a change. (Water Code section 1211).
- o. In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, maximum daily effluent limitation, 1-hour average effluent limitation, or receiving water limitation contained in this Order, the Discharger shall notify the Central Valley Water Board by telephone (916) 464-3291 within 24 hours of having knowledge of such noncompliance, and shall confirm this notification in writing within 5 days, unless the 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)].
- p. Failure to comply with provisions or requirements of this Order, or violation of other applicable laws or regulations governing discharges from this facility, may subject the Discharger to administrative or civil liabilities, criminal penalties, and/or other enforcement remedies to ensure compliance. Additionally, certain violations may subject the Discharger to civil or criminal enforcement from appropriate local, state, or federal law enforcement entities.
- q. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the 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. Conditions that necessitate a major modification of a permit are 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, 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 chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if the State Water Board revises the SIP's toxicity control provisions that would require the establishment of numeric chronic toxicity effluent limitations, this Order may be reopened to include a numeric chronic toxicity effluent limitation based on the new provisions.
 - d. **Water Effects Ratios (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating CTR criteria for applicable priority pollutant inorganic constituents. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable when developing effluent limitations. 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. **Constituent Study.** If after review of the study results it is determined that the discharge has reasonable potential to cause or contribute to an exceedance of a water quality objective this Order may be reopened and effluent limitations added for the subject 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 Workplan, and take actions to mitigate the impact of the discharge and prevent recurrence of toxicity. A TRE is a site-specific study conducted in a stepwise process to identify the source(s) of toxicity and the effective control measures for effluent toxicity. TREs are designed to identify the causative agents and sources of effluent toxicity, evaluate the effectiveness of the toxicity control options, and confirm the reduction in effluent toxicity. This Provision includes requirements for the Discharger to develop and submit a TRE Workplan and includes procedures for accelerated chronic toxicity monitoring and TRE initiation.

- i. **Initial Investigative TRE Workplan.** Within 90 days of the effective date of this Order, the Discharger shall submit to the Central Valley Water Board an Initial Investigative TRE Workplan for approval by the Executive Officer. This should be a one to two page document including, at a minimum:
 - (a) A description of the investigation and evaluation techniques that will be used to identify potential causes and sources of effluent toxicity, effluent variability, and treatment system efficiency;
 - (b) A description of the facility's methods of maximizing in-house treatment efficiency and good housekeeping practices, and a list of all chemicals used in operation of the facility; and
 - (c) A discussion of who will conduct the Toxicity Identification Evaluation (TIE), if necessary (e.g., an in-house expert or outside contractor).
- ii. **Accelerated Monitoring and TRE Initiation.** When the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity monitoring, the Discharger shall initiate accelerated monitoring as required in the Accelerated

Monitoring Specifications. The Discharger shall initiate a TRE to address effluent toxicity if any WET testing results exceed the numeric toxicity monitoring trigger during accelerated monitoring.

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

- iv. **Accelerated Monitoring Specifications.** If the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity testing, the Discharger shall initiate accelerated monitoring within 14 days of notification by the laboratory of the exceedance. Accelerated monitoring shall consist of four (4) chronic toxicity tests conducted once every 2 weeks using the species that exhibited toxicity. The following protocol shall be used for accelerated monitoring and TRE initiation:
 - (a) If the results of four (4) consecutive accelerated monitoring tests do not exceed the monitoring trigger, the Discharger may cease accelerated monitoring and resume regular chronic toxicity monitoring. However, notwithstanding the accelerated monitoring results, if there is evidence of effluent toxicity, the Executive Officer may require that the Discharger initiate a TRE.

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

(c) If the result of any accelerated toxicity test exceeds the monitoring trigger, the Discharger shall cease accelerated monitoring and begin a TRE to 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.

Within sixty (60) days of notification by the laboratory of the test results, the Discharger shall submit to the Central Valley Water Board a TRE Workplan for approval by the Executive Officer. The TRE Workplan shall outline the procedures for identifying the source(s) of, and reducing or eliminating effluent toxicity. The TRE Workplan must be developed in accordance with USEPA guidance¹.

b. Constituent Study. There are indications that the discharge may contain constituents that have a reasonable potential to cause or contribute to an exceedance of water quality objectives, including bis (2-ethylhexyl) phthalate and chrysene. The Discharger shall comply with the following time schedule in conducting a study to determine the presence of these pollutants in the effluent:

<u>Task</u>	<u>Compliance Date</u>
i. Conduct monitoring for bis (2-ethylhexyl)	Semi-annually as required by Attachment E for

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

<u>Task</u>	<u>Compliance Date</u>
phthalate and chrysene as outlined in Attachment E	3 years
ii. Submit Study Report Evaluating Results	6 months following completion of final monitoring event during third year of permit term

3. Best Management Practices and Pollution Prevention - Not Applicable

4. Construction, Operation and Maintenance Specifications

- a. The treatment facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

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

6. Other Special Provisions -

a. Settling Pond and Wetlands Operation and Management Specifications

- i. The Settling Pond and Wetlands shall be designed and maintained to prevent washout or inundation from a storm or flood with a return frequency of 100 years.
- ii. **Within 180 days of the permit effective date**, the Discharger shall submit a Settling Pond and Wetlands Operation and Management Plan to the Central Valley Water Board, which shall include at minimum the following items:
 - a) Dimensions of each pond and wetland;
 - b) Description of the liner in each pond and wetland;
 - c) Design volume and depth;

d) Design freeboard; and

e) Mode of operation and maintenance specifications.

- b. Solids Management Specifications.** Solids in this document means precipitated solid metals, semisolid sludge, adsorbed metals, biosolids containing metals, and any other solids removed from the Magenta Drain water by the Passive Treatment System (PTS), primarily in the passive treatment components (Settling Pond and Wetlands 1 and 2).
- i. Precipitated solids, residual sludge, biosolids, and other solids removed from Magenta Drain water 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. Removal for further treatment, storage, or disposal, at sites that are operated in accordance with valid waste discharge requirements issued by a Regional Water Board will satisfy these specifications.
 - ii. Solids shall be removed from screens, sumps, vaults, ponds, wetlands, etc. as needed to ensure optimal PTS performance.
 - iii. The handling of solids generated at the PTS shall be confined to the PTS property and conducted in a manner that precludes infiltration of waste constituents into soils in a mass or concentration that will violate groundwater limitations in section V.B. of this Order. In addition, the storage of solids on PTS property shall be temporary and controlled, and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate groundwater limitations included in section V.B. of this Order.

- iv. The use, disposal, storage, and transportation of solids shall comply with existing federal and state laws and regulations, including permitting requirements and technical standards included in 40 CFR and in the California Code of Regulations.
- v. The Discharger shall comply with Section IX.A of the Monitoring and Reporting Program, Attachment E.
- vi. For determination of waste classification for solids that will be removed from the PTS for disposal, the appropriate California Waste Extraction Test and/or toxicity characteristic leaching procedure and total threshold limit concentration procedures will be performed as the receiving facility requires.
- vii. 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.
- viii. **Within three years of the permit effective date**, the Discharger shall submit a Solids Management, Handling, Storage, and Disposal Plan to the Central Valley Water Board. The plan shall describe at a minimum:
 - (a) Sources and amounts of solids generated annually.
 - (b) Estimated amounts and frequency of solids removal from the Settling Pond, Wetland 1, Wetland 2, and any other source of solids.
 - (c) Location(s) of on-site storage and description of the solids handling and removal methodology, and the solids containment area.
 - (d) Plans for ultimate disposal. For landfill disposal, include the Central Valley Water Board's waste discharge requirement numbers that regulate the particular landfill or waste disposal site; the present classification of the landfill; and the name and location of the landfill.

c. Solids Storage Specifications

Solids shall be considered to be “stored” if they are placed on the ground or in non-mobile containers (i.e. not in a truck or trailer) at an intermediate storage location away from the PTS for more than 48 hours. Solids shall be considered to be “staged” if placed on the ground for brief periods of time solely to facilitate transfer of the solids between transportation and application vehicles.

- i. Solids shall not be stored directly on the ground.
- ii. Facilities for the storage of solids shall be located, designed and maintained to restrict public access.
- iii. Solids storage facilities shall be designed and maintained to prevent washout or inundation from a storm or flood with a return frequency of 100 years.
- iv. Solids storage facilities shall be designed and maintained to contain all storm water falling on the solids storage area during a rainfall year with a return frequency of 100 years.
- v. Solids placed on site for more than 24 hours shall be covered.
- vi. Solids storage facilities shall be designed, maintained and operated to minimize the generation of leachate and the effects of erosion.
- vii. If solids are to be stored at the PTS, a plan describing the storage program and means of complying with the specifications contained in this Order shall be submitted for the Central Valley Water Board’s staff approval. The storage plan shall also include an adverse weather plan.
- viii. The Discharger shall operate the solids storage facilities in accordance with the approved solids storage plan.
- ix. The Discharger shall immediately remove and relocate any solids stored on site in violation of this Order.

- x. All solids shall be transported in covered vehicles capable of containing the designated load.
- xi. All solids having a water content that is capable of leaching liquids shall be transported in leak proof vehicles.
- xii. Each solids transport driver shall be trained as to the nature of its load and the proper response to accidents or spill events and shall carry a copy of an approved spill response plan.
- xiii. The Discharger shall avoid the use of haul routes near residential land uses to the extent possible. If the use of haul routes near residential land uses cannot be avoided, the Discharger shall limit project-related truck traffic to daylight hours.

7. Compliance Schedules - Not Applicable

VII.COMPLIANCE DETERMINATION

- A. Priority Pollutant Effluent Limitations (Section IV.A.1.a).** Compliance with effluent limitations for priority pollutants shall be determined using sample reporting protocols defined in Attachment A and Attachment E of this Order. For purposes of reporting and administrative enforcement by the Central Valley Water Board and the State Water Board, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).
- 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.
- C. Turbidity Receiving Water Limitation (Section V.A.17).** Compliance with the effluent limitation for turbidity in section IV.A.1.h, as measured at Monitoring Location EFF-001, shall constitute compliance with the receiving water limitation for turbidity in Magenta Drain Channel and South Fork Wolf Creek.

ATTACHMENT A - DEFINITIONS

Arithmetic Mean (μ)

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

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

Average Monthly Effluent Limitation (AMEL)

The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Effluent Limitation (AWEL)

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

Bioaccumulative

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

Carcinogenic

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

Coefficient of Variation (CV)

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

Daily Discharge

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

The daily discharge may be determined by the analytical results of a composite sample taken over the course of 1 day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

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

Detected, but Not Quantified (DNQ)

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

Dilution Credit

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

Effluent Concentration Allowance (ECA)

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

Enclosed Bays

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

Estimated Chemical Concentration

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

Estuaries

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

Inland Surface Waters

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

Instantaneous Maximum Effluent Limitation

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

Instantaneous Minimum Effluent Limitation

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

Maximum Daily Effluent Limitation (MDEL)

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

Median

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

Method Detection Limit (MDL)

MDL is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in 40 CFR Part 136, Attachment B, revised as of 3 July 1999.

Minimum Level (ML)

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

Mixing Zone

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

Not Detected (ND)

Sample results which are less than the laboratory's MDL.

Ocean Waters

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

Persistent Pollutants

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

Pollutant Minimization Program (PMP)

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

Pollution Prevention

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

Reporting Level (RL)

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

Satellite Collection System

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

Source of Drinking Water

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

Standard Deviation (σ)

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

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

where:

x is the observed value;

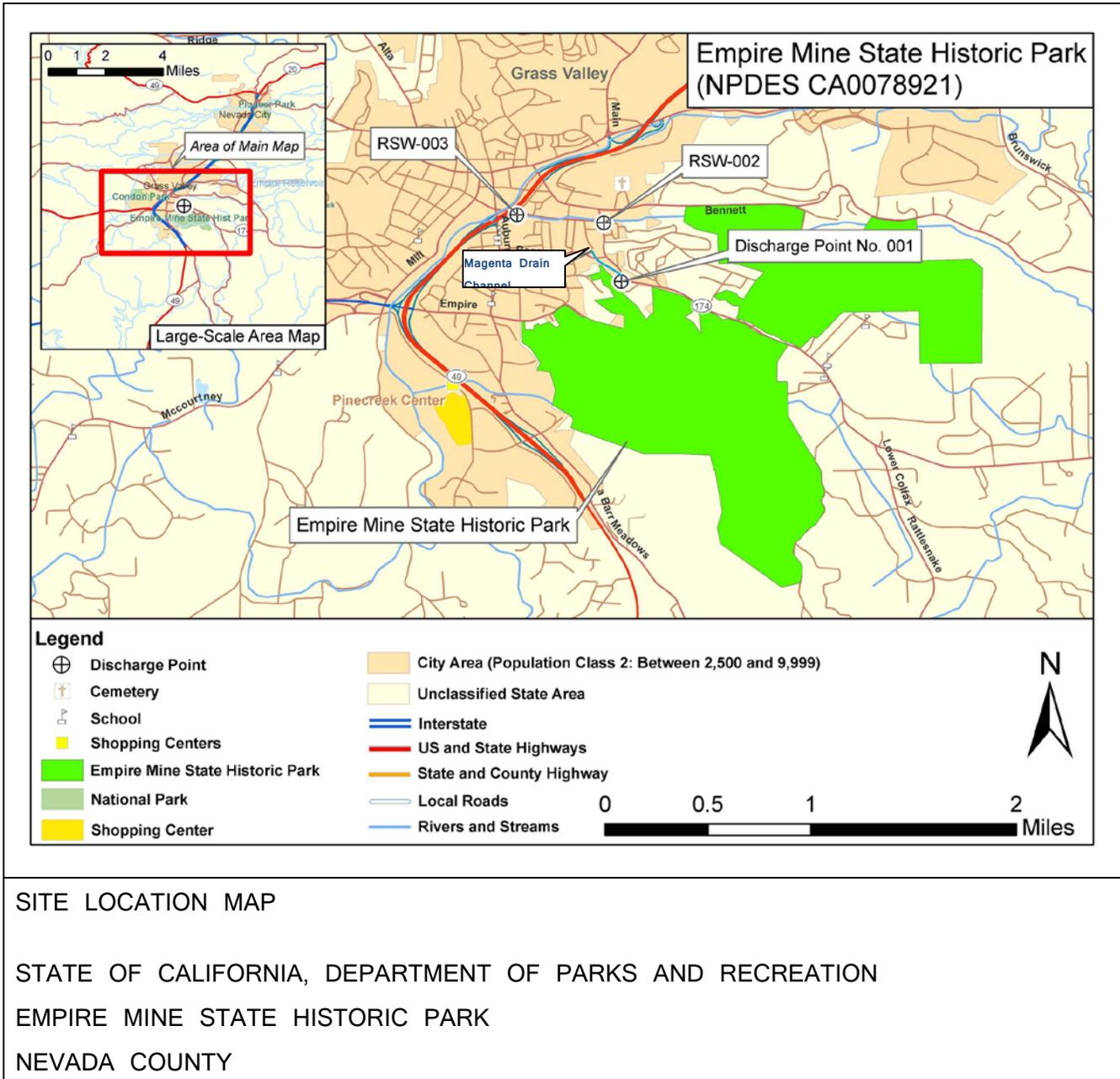
μ is the arithmetic mean of the observed values; and

n is the number of samples.

Toxicity Reduction Evaluation (TRE)

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

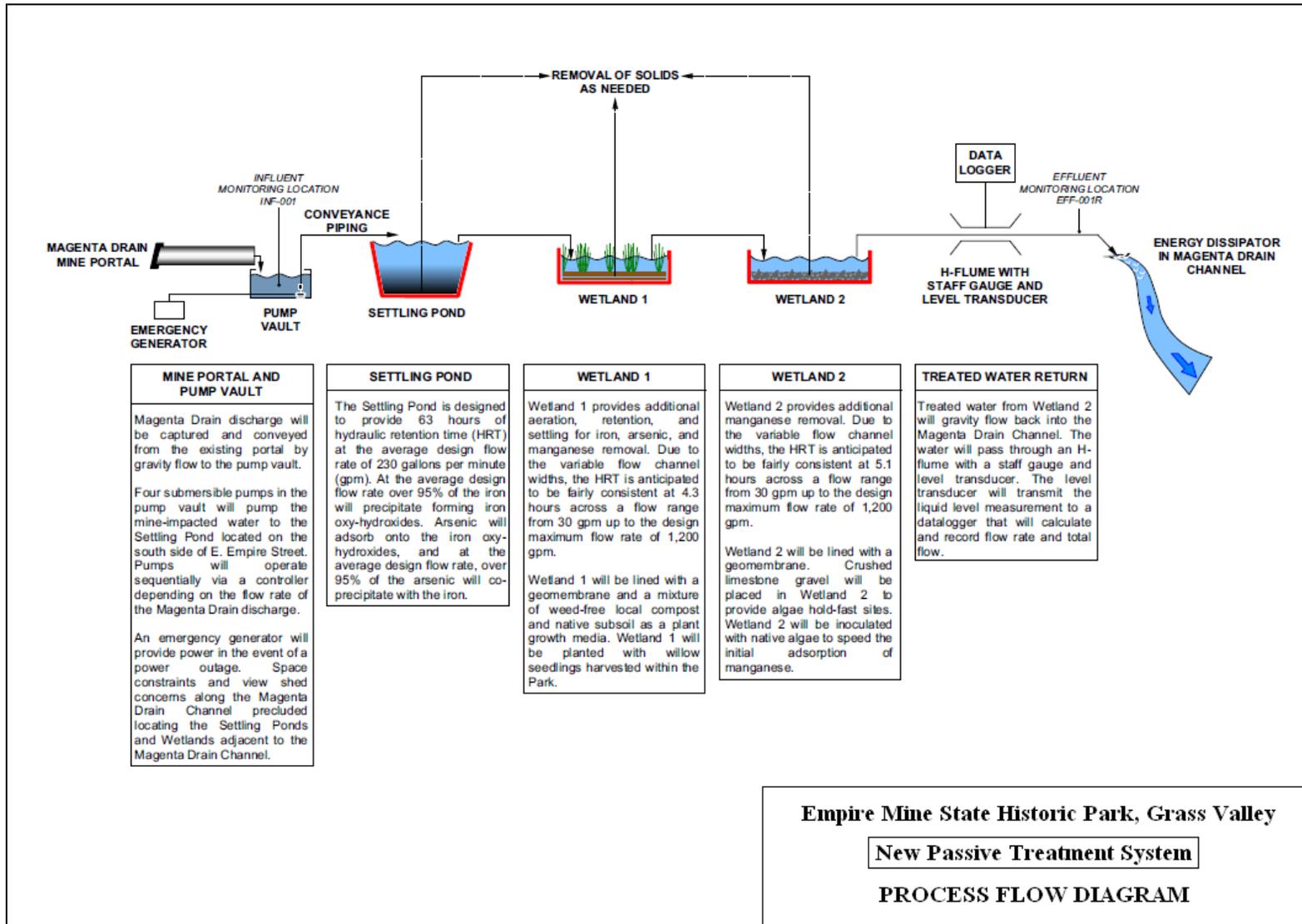
ATTACHMENT B - MAPS



SITE LOCATION MAP

STATE OF CALIFORNIA, DEPARTMENT OF PARKS AND RECREATION
 EMPIRE MINE STATE HISTORIC PARK
 NEVADA COUNTY

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 Regional Water Board, State Water Board, United States Environmental Protection Agency (USEPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (40 CFR 122.41(i); 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 Regional Water Board may take enforcement action against a Discharger for bypass, unless (40 CFR 122.41(m)(4)(i)):
 - a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 CFR 122.41(m)(4)(i)(A));

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions - Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 CFR 122.41(n)(2))
2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 CFR 122.41(n)(3)):
 - a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 CFR 122.41(n)(3)(i));
 - b. The permitted facility was, at the time, being properly operated (40 CFR 122.41(n)(3)(ii));
 - c. The Discharger submitted notice of the upset as required in Standard Provisions - Reporting V.E.2.b below (24-hour notice) (40 CFR 122.41(n)(3)(iii)); and
 - d. The Discharger complied with any remedial measures required under Standard Provisions - Permit Compliance I.C above. (40 CFR 122.41(n)(3)(iv))
3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 CFR 122.41(n)(4))

II. STANDARD PROVISIONS - PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or

termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition. (40 CFR 122.41(f))

B. Duty to Reapply

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

C. Transfers

This Order is not transferable to any person except after notice to the Regional Water Board. The Regional Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the 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

- D.** Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least 5 years (or longer as required by 40 CFR Part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring

instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Water Board Executive Officer at any time. (40 CFR 122.41(j)(2))

E. 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))

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

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

V. STANDARD PROVISIONS - REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Regional Water Board, State Water Board, or USEPA within a reasonable time, any information which the Regional Water Board, State Water Board, or USEPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Regional Water Board, State Water Board, or USEPA copies of records required to be kept by this Order. (40 CFR 122.41(h); Wat. Code, § 13267)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or USEPA shall be signed and certified in accordance with Standard Provisions - Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below.
(40 CFR 122.41(k))
2. All permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of USEPA).
(40 CFR 122.22(a)(3)).
3. All reports required by this Order and other information requested by the Regional Water Board, State Water Board, or USEPA shall be signed by a person described in Standard Provisions - Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:
 - a. The authorization is made in writing by a person described in Standard Provisions - Reporting V.B.2 above (40 CFR 122.22(b)(1));
 - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility

- for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 CFR 122.22(b)(2)); and
- c. The written authorization is submitted to the Regional Water Board and State Water Board. (40 CFR 122.22(b)(3))
4. If an authorization under Standard Provisions - Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions - Reporting V.B.3 above must be submitted to the Regional Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 CFR 122.22(c))
5. Any person signing a document under Standard Provisions - Reporting V.B.2 or V.B.3 above shall make the following certification:

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

(40 CFR 122.22(d))

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 CFR 122.22(l)(4))
2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or State Water Board

for reporting results of monitoring of sludge use or disposal practices.

(40 CFR 122.41(l)(4)(i))

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

(40 CFR 122.41(l)(4)(ii))

4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order.

(40 CFR 122.41(l)(4)(iii))

D. Compliance Schedules

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

E. Twenty-Four Hour Reporting

1. The Discharger shall notify the Office of Emergency Services of any noncompliance that may endanger health or the environment within two (2) hours from the time the Discharger becomes aware of the circumstances. The Discharger shall notify the Central Valley Water Board of the noncompliance by telephone or fax 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 Regional Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 CFR 122.41(l)(6)(iii))

F. Planned Changes

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

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b)
(40 CFR 122.41(l)(1)(i)); or
2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are subject neither to effluent limitations in this Order nor to notification requirements under 40 CFR 122.42(a)(1) (see Additional Provisions—Notification Levels VII.A.1).
(40 CFR 122.41(l)(1)(ii))
3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing

permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 CFR 122.41(l)(1)(iii))

G. Anticipated Noncompliance

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

H. Other Noncompliance

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

I. Other Information

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

VI. STANDARD PROVISIONS - ENFORCEMENT

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

VII.ADDITIONAL PROVISIONS - NOTIFICATION LEVELS

A. Non-Municipal Facilities

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

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

(40 CFR 122.42(a)(1)):

- a. 100 micrograms per liter ($\mu\text{g/L}$) (40 CFR 122.42(a)(1)(i));
- b. 200 $\mu\text{g/L}$ for acrolein and acrylonitrile; 500 $\mu\text{g/L}$ for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and 1 milligram per liter (mg/L) for antimony (40 CFR 122.42(a)(1)(ii));
- c. Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 CFR 122.42(a)(1)(iii)); or
- d. The level established by the Regional Water Board in accordance with 40 CFR 122.44(f). (40 CFR 122.42(a)(1)(iv))

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

(40 CFR 122.42(a)(2)):

- a. 500 micrograms per liter ($\mu\text{g/L}$) (40 CFR 122.42(a)(2)(i));
- b. 1 milligram per liter (mg/L) for antimony (40 CFR 122.42(a)(2)(ii));
- c. Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 CFR 122.42(a)(2)(iii)); or
- d. The level established by the Regional Water Board in accordance with section 122.44(f). (40 CFR 122.42(a)(2)(iv))

ATTACHMENT E - MONITORING AND REPORTING PROGRAM

Table of Contents

I.	General Monitoring Provisions.....	E-16
II.	Monitoring Locations.....	E-18
III.	Influent Monitoring Requirements - not applicable	E-18
IV.	Effluent Monitoring Requirements	E-18
	A. Monitoring Location EFF-001.....	E-18
V.	Whole Effluent Toxicity Testing Requirements	E-21
VI.	Land Discharge Monitoring Requirements - Not Applicable.....	E-26
VII.	Reclamation Monitoring Requirements - Not Applicable	E-26
VIII.	Receiving Water Monitoring Requirements - Surface Water and Groundwater	E-26
	A. Monitoring Locations RSW-002 and RSW-003	E-26
IX.	Other Monitoring Requirements.....	E-27
	A. Solids	E-27
X.	Reporting Requirements.....	E-28
	A. General Monitoring and Reporting Requirements.....	E-28
	B. Self Monitoring Reports (SMRs).....	E-28
	C. Discharge Monitoring Reports (DMRs) - Not Applicable.....	E-33
	D. Other Reports	E-33

List of Tables

Table E-1.	Monitoring Station Locations	E-18
Table E-2.	Effluent Monitoring	E-18
Table E-3.	Chronic Toxicity Testing Dilution Series	E-24
Table E-4.	Receiving Water Monitoring Requirements.....	E-26
Table E-5.	Monitoring Periods and Reporting Schedule	E-29

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 Water Board) to require technical and monitoring reports. This Monitoring and Reporting Program establishes monitoring and reporting requirements, which implement the federal and California regulations.

I. GENERAL MONITORING PROVISIONS

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

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

- C.** Chemical, bacteriological, and bioassay analyses of any material required by this Order shall be conducted by a laboratory certified for such analyses by the Department of Public Health (DPH). Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Central Valley Water Board. In the event a certified laboratory is not available to the Discharger for any onsite field measurements such as pH, turbidity, temperature and residual chlorine, such analyses performed by a noncertified laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program for any onsite field measurements such as pH, DO, turbidity, temperature and residual chlorine must be kept onsite in the treatment facility laboratory and shall be

available for inspection by Central Valley Water Board staff. The Discharger must demonstrate sufficient capability (qualified and trained employees, properly calibrated and maintained field instruments, etc.) to adequately perform these field measurements. The Quality Assurance-Quality Control Program must conform to 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 establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
001	EFF-001	Downstream of Wetland 2 prior to discharge to Magenta Drain Channel. (39° 12' 41.8" N, 121° 03' 10.6" W)
--	RSW-002	South Fork of Wolf Creek at intersection of Ophir Street and Highway 174 (previously known as RWS-002). (39° 12' 56" N, 121° 03' 15" W)
--	RSW-003	South Fork of Wolf Creek near the intersection of Highways 20 and 174 (previously known as RWS-003). (39° 12' 58" N, 121° 03' 37" W)
--	SLD-001	Solids

III. INFLUENT MONITORING REQUIREMENTS - NOT APPLICABLE

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

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

Table E-2. Effluent Monitoring

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

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
<i>Conventional Pollutants</i>				
pH	standard units	Grab	1/Week	1
Total Suspended Solids	mg/L	24-hr Composite	1/Quarter	1
<i>Priority Pollutants</i>				
Antimony, Total Recoverable	µg/L	24-hr Composite	1/Quarter	1, 2
Arsenic, Total Recoverable	µg/L	24-hr Composite	1/Month	1,2
Bis (2-ethylhexyl) phthalate	µg/L	24-hr Composite	2/Year ³	1,2,4
Cadmium, Total Recoverable	µg/L	24-hr Composite	1/Quarter	1,2
Total Chromium, Total Recoverable	µg/L	24-hr Composite	1/Quarter	1, 2
Chrysene	µg/L	24-hr Composite	2/Year ³	1,2
Copper, Total Recoverable	µg/L	24-hr Composite	1/Quarter	1,2
Lead, Total Recoverable	µg/L	24-hr Composite	1/Quarter	1,2
Mercury, Total Recoverable	µng/L	Grab	1/Quarter	1,2,5
<u>Methylmercury</u>	<u>ng/L</u>	<u>Grab</u>	<u>1/Quarter</u>	<u>1,2,5</u>
Nickel, Total Recoverable	µg/L	24-hr Composite	1/Quarter	1, 2
Zinc, Total Recoverable	µg/L	24-hr Composite	1/Quarter	1,2
Priority Pollutants and Other Constituents of Concern ⁶	µg/L	24-hr Composite ⁷	8	1,2,4

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
<i>Non-Conventional Pollutants</i>				
Aluminum, Total Recoverable	µg/L	24-hr Composite	1/Quarter	1
Barium, Total Recoverable	µg/L	24-hr Composite	1/Quarter	1
Chromium III, Total Recoverable	µg/L	24-hr Composite	1/Quarter	1
Cobalt, Total Recoverable	µg/L	24-hr Composite	1/Quarter	1
Color	color units	Grab	1/Month	1,9
Dissolved Oxygen	mg/L	Grab	1/Day	1
	% saturation	Grab	1/Day	1
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Month	1
Hardness (as CaCO ₃)	mg/L	24-hr Composite	1/Month	1
Iron, Total Recoverable	µg/L	24-hr Composite	1/Month	1
Manganese, Total Recoverable	µg/L	24-hr Composite	1/Month	1
Temperature	°F	Grab	1/Month	1
Thallium, Total Recoverable	µg/L	24-hr Composite	1/Quarter	1
Total Dissolved Solids	mg/L	Grab	1/Month	1
Turbidity	NTU	Grab	1/Week	1
Vanadium, Total Recoverable	µg/L	24-hr Composite	1/Quarter	1

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
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- ¹ Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.
- ² For priority pollutant constituents with effluent limitations, detection limits shall be below the effluent limitations. If the lowest minimum level (ML) published in Appendix 4 of the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Plan or SIP) is not below the effluent limitation, the detection limit shall be the lowest ML. For priority pollutant constituents without effluent limitations, the detection limits shall be equal to or less than the lowest ML published in Appendix 4 of the SIP.
- ³ Monitoring shall be conducted two times per year for the first 3 years following the effective date of this Order.
- ⁴ In order to verify if bis (2-ethylhexyl) phthalate is truly present in the effluent discharge, the Discharger shall take steps to assure that sample containers, sampling apparatus, and analytical equipment are not sources of the detected contaminant.
- ⁵ Total mercury and methylmercury samples shall be taken using clean hands/dirty hands procedures, as described in USEPA method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels, for collection of equipment blanks (section 9.4.4.2), and shall be analyzed by USEPA method 1630/1631 (Revision E) with a method detection limit of 0.2 ng/L for total mercury.
- ⁶ See list of Priority Pollutants and Other Constituents of Concern in Attachment I.
- ⁷ Volatile constituents shall be sampled in accordance with 40 CFR Part 136.
- ⁸ Priority pollutants and other constituents of concern shall be sampled quarterly during the third or fourth year following the date of permit adoption at Monitoring Location EFF-001, and shall be conducted concurrently with upstream receiving water sampling in South Fork Wolf Creek at Monitoring Location RSW-002 for hardness (as CaCO₃) and pH. The Discharger is not required to conduct effluent monitoring for priority pollutants that have already been sampled in a given quarter, as required in Table E-2. See Attachment I for more detailed requirements related to performing the priority pollutant monitoring.
- ⁹ Color samples shall measure “real color” using a filtered sample.

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

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

1. Monitoring Frequency - The Discharger shall perform semi-annual acute toxicity testing.

2. Sample Types - For static non-renewal and static renewal testing, the samples shall be 24-hour composites and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at Monitoring Location EFF-001.
3. Test Species - Test species shall be rainbow trout (*Oncorhynchus mykiss*).
4. Methods - The acute toxicity testing samples shall be analyzed using EPA-821-R-02-012, Fifth Edition. Temperature and pH shall be recorded at the time of sample collection. No pH adjustment may be made unless approved by the Executive Officer.
5. Test Failure - If an acute toxicity test does not meet all test acceptability criteria, as specified in the test method, the Discharger must re-sample and re-test as soon as possible, not to exceed 7 days following notification of test failure.

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

1. Monitoring Frequency - The Discharger shall perform semi-annual three species chronic toxicity testing. Chronic toxicity testing may be discontinued after 2 years of semi-annual monitoring if all testing results from the passive treatment system show no chronic toxicity. If the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity testing and the results of four (4) consecutive accelerated monitoring tests do not exceed the monitoring trigger, or if there is a test failure and re-testing does not show chronic toxicity, the Discharger may still discontinue chronic toxicity monitoring after the 2 year period if the remaining testing results show no chronic toxicity.
2. Sample Types - Effluent samples shall be 24-hour composites and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at Monitoring Location EFF-001, as identified in this Monitoring and Reporting Program.

3. Sample Volumes - Adequate sample volumes shall be collected to provide renewal water to complete the test in the event that the discharge is intermittent.
4. Test Species - Chronic toxicity testing measures sublethal (e.g., reduced growth, reproduction) and/or lethal effects to test organisms exposed to an effluent compared to that of the control organisms. The Discharger shall conduct chronic toxicity tests with:
 - The cladoceran, water flea, *Ceriodaphnia dubia* (survival and reproduction test);
 - The fathead minnow, *Pimephales promelas* (larval survival and growth test); and
 - The green alga, *Selenastrum capricornutum* (growth test).
5. Methods - The presence of chronic toxicity shall be estimated as specified in *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*, EPA/821-R-02-013, October 2002.
6. Reference Toxicant - As required by the SIP, all chronic toxicity tests shall be conducted with concurrent testing with a reference toxicant and shall be reported with the chronic toxicity test results.
7. Dilutions - For regular and accelerated chronic toxicity monitoring, it is not necessary to perform the test using a dilution series. The test may be performed using 100% effluent and one control. For TRE monitoring, the chronic toxicity testing shall be performed using the dilution series identified in Table E-3, below. Laboratory water may be used as the diluent.

Table E-3. Chronic Toxicity Testing Dilution Series

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

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

- a. The reference toxicant test or the effluent test does not meet all test acceptability criteria as specified in the *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*, EPA/821-R-02-013, October 2002 (Method Manual), and its subsequent amendments or revisions; or
- b. The percent minimum significant difference (PMSD) measured for the test exceeds the upper PMSD bound variability criterion in Table 6 on page 52 of the Method Manual. (A retest is only required in this case if the test results do not exceed the monitoring trigger specified in the Special Provision at section VI. 2.a.iii. of the Order.)

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

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

1. **Chronic WET Reporting.** Regular chronic toxicity monitoring results shall be reported to the Central Valley Water Board within 30 days following completion of the test, and shall contain, at minimum:
 - a. The results expressed in TU_c, measured as 100/NOEC, and also measured as 100/LC50, 100/EC25, 100/IC25, and 100/IC50, as appropriate.
 - b. The statistical methods used to calculate endpoints;
 - c. The statistical output page, which includes the calculation of the percent minimum significant difference (PMSD);
 - d. The dates of sample collection and initiation of each toxicity test; and
 - e. The results compared to the numeric toxicity monitoring trigger.

Additionally, the monthly discharger self-monitoring reports shall contain an updated chronology of chronic toxicity test results expressed in TU_c, and organized by test species, type of test (survival, growth or reproduction), and monitoring frequency, i.e., either quarterly, monthly, accelerated, or Toxicity Reduction Evaluation (TRE).

2. **Acute WET Reporting.** Acute toxicity test results shall be submitted with the monthly discharger self-monitoring reports and reported as percent survival.
3. **TRE Reporting.** Reports for TREs shall be submitted in accordance with the schedule contained in the Discharger's approved TRE Workplan.
4. **Quality Assurance (QA).** The Discharger must provide the following information for QA purposes:
 - a. Results of the applicable reference toxicant data with the statistical output page giving the species, NOEC, LOEC, type of toxicant, dilution water used, concentrations used, PMSD, and dates tested.
 - b. The reference toxicant control charts for each endpoint, which include summaries of reference toxicant tests performed by the contracting laboratory.

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

VI. LAND DISCHARGE MONITORING REQUIREMENTS - NOT APPLICABLE

VII. RECLAMATION MONITORING REQUIREMENTS - NOT APPLICABLE

VIII. RECEIVING WATER MONITORING REQUIREMENTS - SURFACE WATER AND GROUNDWATER

A. Monitoring Locations RSW-002 and RSW-003

- 1. The Discharger shall monitor South Fork Wolf Creek at Monitoring Locations RSW-002 and RSW-003 as follows:

Table E-4. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
<i>Conventional Pollutants</i>				
pH	standard units	Grab	1/Month	1,2
<i>Non-Conventional Pollutants</i>				
Color	color units	Grab	1/Month	1,3
Dissolved Oxygen	mg/L	Grab	1/Month	1,2
	% saturation	Grab	1/Month	1,2
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Month	1,2
Hardness (as CaCO ₃)	mg/L	Grab	1/Month	1
Temperature	°F	Grab	1/Month	1,2
Turbidity	NTU	Grab	1/Month	1,2

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
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- ¹ Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.
- ² A hand-held field meter may be used, provided the meter utilizes a USEPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.
- ³ Color samples shall measure "real color" using a filtered sample.

2. In conducting the receiving water sampling, a log shall be kept of the receiving water conditions throughout the reach of South Fork Wolf Creek bounded by Monitoring Locations RSW-002 and RSW-003 and throughout the length of Magenta Drain Channel downstream of the discharge. Attention shall be given to the presence or absence of:

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

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

IX. OTHER MONITORING REQUIREMENTS

A. Solids

1. Monitoring Location SLD-001

- a. A composite sample of solids shall be collected when solids are removed for disposal at Monitoring Location SLD-001 and tested for the metals listed in Title 22.

- b. Sampling records shall be retained for a minimum of 5 years. A log shall be maintained of sludge quantities generated and of handling and disposal activities. The frequency of entries is discretionary; however, the log must be complete enough to serve as a basis for part of the annual report.

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. **Compliance Time Schedules.** For compliance time schedules included in the Order, the Discharger shall submit to the Central Valley Water Board, on or before each compliance due date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Central Valley Water Board by letter when it returns to compliance with the compliance time schedule.
4. The Discharger shall report to the Central Valley Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "*Emergency Planning and Community Right to Know Act*" of 1986.

B. Self Monitoring Reports (SMRs)

1. At any time during the term of this permit, the State Water Board or the Central Valley Water Board may notify the Discharger to electronically submit Self-Monitoring

Reports (SMRs) using the State Water Board’s California Integrated Water Quality System (CIWQS) Program Web site (<http://www.waterboards.ca.gov/ciwqs/index.html>). Until such notification is given, the Discharger shall submit hard copy SMRs. The CIWQS Web site will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal. Upon notification directing the Discharger to submit electronic SMRs (eSMRs) and discontinue submitting hard copy SMRs, the Discharger shall maintain sufficient staffing and resources to ensure it submits eSMRs for 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 SMR the results for all monitoring specified in this Monitoring and Reporting Program under sections III through IX. The Discharger shall submit monthly SMRs including the results of all required monitoring using USEPA-approved test methods or other test methods specified in this Order. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR.

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

Table E-5. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period	SMR Due Date
Continuous	Permit effective date	All	First day of second calendar month following month of sampling.
1/Week	Permit effective date	Sunday through Saturday	First day of second calendar month following month of sampling.
1/Month	Permit effective date	First day of calendar month through last day of calendar month	First day of second calendar month following month of sampling.

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

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

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

- a. Sample results greater than or equal to the reported ML shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).
- b. Sample results less than the RL, but greater than or equal to the laboratory’s MDL, shall be reported as “Detected, but Not Quantified,” or DNQ. The estimated chemical concentration of the sample shall also be reported.

For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words “Estimated Concentration” (may be shortened to “Est. Conc.”). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (+ a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

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

- 7. Reporting Requirements.** In reporting the monitoring data, the Discharger shall arrange the data in a 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 interim and/or 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 EFF-001 or other permitted discharge locations. Reports must show the date and time that the discharge started and stopped at each location.
 - c. The highest daily maximum for the month and monthly and weekly averages shall be determined and recorded as needed to demonstrate compliance.

- 8. Calculation Requirements.** The following shall be calculated and reported in the SMRs:
 - a. **Annual Average Limitations.** For constituents with effluent limitations specified as “calendar annual average” (color, iron, manganese, and turbidity) the Discharger shall report the calendar annual average in the December SMR. The annual average shall be calculated as the average of the samples gathered for the calendar year.
 - b. **Dissolved Oxygen Effluent and Receiving Water Limitations.** The Discharger shall calculate and report monthly in the self-monitoring report i) the dissolved oxygen concentration, ii) the percent of saturation in the main water mass, and iii) the 95th percentile dissolved oxygen concentration.

- 9.** The Discharger shall submit SMRs in accordance with the following requirements:

- a. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS.
- b. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the WDRs; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.
- c. SMRs must be submitted to the Central Valley Water Board, signed and certified as required by the Standard Provisions (Attachment D), to the address listed below:

Regional Water Quality Control Board
Central Valley Region
NPDES Compliance and Enforcement Unit
11020 Sun Center Dr., Suite #200
Rancho Cordova, CA 95670-6114

C. Discharge Monitoring Reports (DMRs) - Not Applicable

D. Other Reports

1. The Discharger shall report the results of any special studies, acute and chronic toxicity testing, TRE/TIE, PMP, and Pollution Prevention Plan required by Special Provisions VI.C of this Order. The Discharger shall submit reports with the first monthly SMR scheduled to be submitted on or immediately following the report due date.
2. Within 60 days of permit adoption, the Discharger shall submit a report outlining minimum levels, method detection limits, and analytical methods for approval, with a

goal to achieve detection levels below applicable water quality criteria. At a minimum, the Discharger shall comply with the monitoring requirements for CTR constituents as outlined in section 2.3 and 2.4 of the SIP.

- 3. Effluent Characterization Study.** An effluent monitoring study is required to ensure adequate information is available for the next permit renewal. During the third or fourth year of this permit term, the Discharger shall conduct quarterly monitoring of the effluent at Monitoring Location EFF-001 for all priority pollutants and other constituents of concern as described in Attachment I. The report shall be completed in conformance with the following schedule.

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

- 4. Annual Operations Report.** By 30 January of each year, the Discharger shall submit a written report to the Executive Officer containing the following:
- a. The names, certificate grades, and general responsibilities of all persons employed at the Facility.
 - b. The names and telephone numbers of persons to contact regarding the plant for emergency and routine situations.
 - c. A statement certifying when the flow meter(s) and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration.
 - d. A statement certifying whether the current operation and maintenance manual, and contingency plan, reflect the wastewater treatment plant as currently

constructed and operated, and the dates when these documents were last revised and last reviewed for adequacy.

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

ATTACHMENT F - FACT SHEET

Table of Contents

I. Permit Information..... F-4

II. Facility Description..... F-6

 A. Description of Wastewater and Biosolids Treatment or Controls F-7

 B. Discharge Points and Receiving Waters F-8

 C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data F-9

 D. Compliance Summary F-11

 E. Planned Changes - Not Applicable..... F-13

III. Applicable Plans, Policies, and Regulations..... F-13

 A. Legal Authorities..... F-13

 B. California Environmental Quality Act (CEQA) F-13

 C. State and Federal Regulations, Policies, and Plans..... F-13

 D. Impaired Water Bodies on CWA 303(d) List..... F-14

 E. Other Plans, Polices and Regulations..... F-15

IV. Rationale For Effluent Limitations and Discharge Specifications..... F-16

 A. Discharge Prohibitions..... F-18

 B. Technology-Based Effluent Limitations..... F-19

 1. Scope and Authority F-19

 2. Applicable Technology-Based Effluent Limitations F-20

 C. Water Quality-Based Effluent Limitations (WQBELs)..... F-21

 1. Scope and Authority F-21

 2. Applicable Beneficial Uses and Water Quality Criteria and Objectives F-21

 3. Determining the Need for WQBELs F-37

 4. WQBEL Calculations F-66

 5. Whole Effluent Toxicity (WET) F-69

 D. Final Effluent Limitations..... F-73

 1. Mass-based Effluent Limitations..... F-73

2. Averaging Periods for Effluent Limitations	F-73
3. Satisfaction of Anti-Backsliding Requirements.....	F-74
4. Satisfaction of Antidegradation Policy	F-76
5. Stringency of Requirements for Individual Pollutants	F-77
E. Interim Effluent Limitations - Not Applicable.....	F-79
F. Land Discharge Specifications - Not Applicable.....	F-79
G. Reclamation Specifications - Not Applicable	F-79
V. Rationale for Receiving Water Limitations	F-79
A. Surface Water.....	F-80
B. Groundwater	F-84
VI. Rationale for Monitoring and Reporting Requirements.....	F-85
A. Influent Monitoring - Not Applicable.....	F-85
B. Effluent Monitoring.....	F-85
C. Whole Effluent Toxicity Testing Requirements.....	F-88
D. Receiving Water Monitoring	F-89
1. Surface Water	F-89
2. Groundwater - Not Applicable	F-90
E. Other Monitoring Requirements.....	F-90
VII. Rationale for Provisions.....	F-90
A. Standard Provisions	F-90
B. Special Provisions	F-91
1. Reopener Provisions.....	F-91
2. Special Studies and Additional Monitoring Requirements.....	F-92
3. Best Management Practices and Pollution Prevention.....	F-96
4. Construction, Operation, and Maintenance Specifications	F-96
5. Special Provisions for Municipal Facilities (POTWs Only) - Not Applicable.....	F-96
6. Other Special Provisions - Not Applicable.....	F-96
7. Compliance Schedules - Not Applicable.....	F-97
VIII. Public Participation	F-97
A. Notification of Interested Parties.....	F-97
B. Written Comments.....	F-97

C. Public Hearing	F-98
D. Waste Discharge Requirements Petitions	F-98
E. Information and Copying	F-99
F. Register of Interested Persons	F-99
G. Additional Information.....	F-99

List of Tables

Table F-1.Facility Information.....	F-4
Table F-2.Historic Effluent Limitations and Monitoring Data.....	F-9
Table F-3.Basin Plan Beneficial Uses	F-23
Table F-4.Copper ECA Evaluation.....	F-34
Table F-5.Lead ECA Evaluation.....	F-36
Table F-6.Summary of ECA Evaluations for CTR Hardness-dependent Metals.....	F-37
Table F-7.Salinity Water Quality Criteria/Objectives.....	F-47
Table F-8.Summary of Water Quality-Based Effluent Limitations.....	F-68
Table F-9.Chronic Whole Effluent Toxicity Testing Results.....	F-70
Table F-10. Summary of Final Effluent Limitations	F-78

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	5A29NP00006
Discharger	State of California, Department of Parks and Recreation
Name of Facility	Empire Mine State Historic Park
Facility Address	10791 East Empire Street
	Grass Valley, CA 95945
	Nevada County
Facility Contact, Title and Phone	Dan Millsap, Project Manager, (916) 445-8737
Authorized Person to Sign and Submit Reports	Dan Millsap, Project Manager, (916) 445-8737
Mailing Address	One Capital Mall, Suite 410, Sacramento, CA 95814
Billing Address	Same as Mailing Address
Type of Facility	Industrial, SIC Code 1041
Major or Minor Facility	Minor
Threat to Water Quality	1
Complexity	A

Pretreatment Program	Not Applicable
Reclamation Requirements	Not Applicable
Facility Permitted Flow	Not Applicable
Facility Design Flow	2.3 MGD
Watershed	Upper Bear
Receiving Water	Magenta Drain Channel
Receiving Water Type	Inland Surface Water

A. The State of California, Department of Parks and Recreation (hereinafter Discharger) is the owner and operator of Empire Mine State Historic Park (hereinafter Facility), a State park that includes a historic gold mine.

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 Magenta Drain Channel, a tributary to South Fork Wolf Creek and a water of the United States, and was previously regulated by Order R5-2006-0058 which was adopted on 23 June 2006 and expired on 31 July 2011. The terms and conditions of the previous Order were continued and remained in effect until new Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit were adopted pursuant to this Order.

C. The Discharger filed a report of waste discharge (ROWD) and submitted an application for renewal of its WDRs and NPDES permit on 29 June 2011. Supplemental information was requested on 29 June 2011 and 27 July 2011 and received on 11 July 2011 and 4 August 2011. A site visit was conducted on 18 May 2011, to observe operations and collect additional data to develop permit limitations and conditions.

II. FACILITY DESCRIPTION

The Facility consists of 856 acres of historic mine workings and buildings, a Visitor Center, and forested backcountry, with 8 miles of trails. There have been no active industrial mining or mine processing activities since the mine closed in 1956.

During the operating life of the mine, waste rock and slurry from the milling process was stockpiled south of the former Cyanide Plant or allowed to runoff in the drainage below the Cyanide Plant. Piles of waste rock were deposited, and still remain, in several areas of the site.

Processing at the plant consisted of adding sodium cyanide to crushed ore to dissolve and separate the gold from sulfides, and deposit it as a coating on zinc chips. The resulting material was mixed with purifying chemicals and heated in the furnace at the Empire Mine Refinery. The mill tailings were also stockpiled adjacent to the Cyanide Plant and also washed into the adjacent drainage leading to the Sand Dam impoundment.

There is a distinction between mine spoils from underground mining activities and mill tailings that have been processed through the stamp mill and Cyanide Plant. Mill tailings are fine grained, resulting in a greater surface area for leaching of metals. The presence of naturally occurring sulfides can lead to the formation of sulfuric acid, creating acid conditions that increase the leaching of metals (arsenic, iron, lead, etc.) from the mill tailings material. Mine spoils contain the non-ore bearing rocks and soil that are removed during mining and tunneling operations. This material was not processed, and is generally coarser-grained than the mill tailings.

In 2002, residents from the City of Grass Valley complained that Wolf Creek was running orange. The City staff investigated the source of the discharge and traced it upstream to the Facility. On 17 December 2004, the Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) issued an order requiring the Discharger to apply for an NPDES permit for discharges from the Magenta Drain Tunnel. The Central

Valley Water Board adopted Order No. R5-2006-0058 on 23 June 2006 to regulate the discharge of mine drainage to Magenta Drain Channel.

A. Description of Wastewater and Biosolids Treatment or Controls

Mine drainage from Magenta Drain Tunnel, a man-made tunnel, is discharged to Magenta Drain Channel, a tributary to South Fork Wolf Creek. The mine drainage previously did not receive treatment, and discharges to Magenta Drain Channel have caused discoloration of the streambed and contain high levels of pollutants such as arsenic, iron, and manganese. Low concentrations of other metals, including aluminum, antimony, barium, cadmium, chromium, cobalt, copper, lead, mercury, nickel, thallium, vanadium, and zinc have been detected below water quality criteria. The discharge is continuous; however the rate of flow is lower in the summer and fall than in winter and spring. The average annual flow rate from Magenta Drain Tunnel is 230 gallons per minute (gpm).

The Discharger constructed a new passive treatment system, which began operation in November 2011. The new passive treatment system at the Facility consists of a water collection structure and pump station, conveyance piping, settling pond, and two aerobic free-water surface wetlands. Mine drainage from the Magenta Drain portal is captured in a pipe affixed to the concrete portal headwall and conveyed by gravity flow to a pump vault located south of and adjacent to the drainage channel approximately 85 feet downstream of the portal. Four submersible pumps in the pump vault convey the mine-impacted water through an above ground pipeline southward to the settling pond. The mine drainage enters a settling pond and flows by gravity through two aerobic wetlands, operated in series, and treated water from the second wetland gravity flows back into the Magenta Drain Channel. The design flow of the treatment system is 2.3 MGD, or 1,600 gpm.

The new passive treatment system is designed to remove arsenic, iron, and manganese. The system is also expected to result in reductions in color, turbidity and

other metals. The settling pond and two wetlands are completely lined with plastic geomembrane liners.

Section 5.1 of the ROWD states that the bottom of the settling pond will be sounded annually and precipitated solids will be periodically removed and disposed of at a disposal facility. The ponds were sized assuming space for approximately 500 cubic yards of precipitate material with an assumed density of about 8 pounds per gallon per cubic foot (i.e., 5% solids). Based on the average design flow rate and iron concentration of the mine drainage, the Discharger estimates that precipitated solids will need to be removed from the settling pond every 4 to 10 years and from the wetlands every 20 to 50 years.

B. Discharge Points and Receiving Waters

1. The Facility is located in Section 35, T16N, R8E, MDB&M, as shown in Attachment B, a part of this Order.
2. Treated mine drainage is discharged to Magenta Drain Channel at Discharge Point No. 001. Magenta Drain Channel, a water of the United States, is tributary to the Bear River via South Fork Wolf Creek and Wolf Creek at a point latitude 39° 12' 41.8" N and longitude 121° 03' 10.6" W.
3. Upon completion of the passive treatment system, the discharge location was re-located approximately 85 feet downstream of the Magenta Drain portal, where untreated mine drainage was previously discharged. The Central Valley Water Board approved a Water Quality Certification pursuant to section 401 of the CWA on 5 December 2011 for this streambed modification.
4. Discharger representatives noted that Order No. R5-2006-0058 and other enforcement orders identify the receiving water by several terms, including "an unnamed tributary to South Fork Wolf Creek", "Woodpecker Ravine", "Magenta Drain", and "Magenta Creek", but prefer that the receiving water be referred to as Magenta Drain Channel to avoid confusion. Woodpecker Ravine is the term given to the catchment area for storm water where the channel is located and Magenta

Drain Tunnel is within the mine itself, and is not the receiving water. Therefore, the receiving water is referred to as Magenta Drain Channel within this Order.

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

Effluent limitations contained in Order No. R5-2006-0058 for discharges from Discharge Point No. 001 (Monitoring Location EFF-001) and representative monitoring data from the term of Order No. R5-2006-0058 are as follows:

Table F-2. Historic Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitation		Monitoring Data (From August 2006 To April 2011)	
		Average Monthly	Maximum Daily	Highest Average Monthly Discharge	Highest Daily Discharge
Total Suspended Solids	mg/L	20	30	5,000	5,000
Settleable Solids	mL/L	0.1	0.2	7.48	7.48
pH	standard units	--	6.5 - 8.5	--	5.51 - 7.4
Turbidity	NTU	5	--	41	--
Color	color units	15	--	160	--
Aluminum	µg/L	71	140	32	32
Antimony, Total Recoverable	µg/L	6	--	0.24	--
Arsenic, Total Recoverable	µg/L	10	--	840	--
Barium, Total Recoverable	µg/L	1,000	--	67	--
Cadmium,	µg/L	2,100 ¹	4,200 ¹	0.28 ²	0.28 ²

Parameter	Units	Effluent Limitation		Monitoring Data (From August 2006 To April 2011)	
		Average Monthly	Maximum Daily	Highest Average Monthly Discharge	Highest Daily Discharge
Total Recoverable		0.26 ³	0.53 ³	<0.1 ⁴	<0.1 ⁴
Chromium III, Total Recoverable	µg/L	220 ¹	450 ¹	11 ^{2,5}	11 ^{2,5}
		36 ³	72 ³	0.82 ^{3,5}	0.82 ^{3,5}
Cobalt, Total Recoverable	µg/L	50	--	3.1	--
Copper, Total Recoverable	µg/L	170 ¹	350 ¹	20 ²	20 ²
		1.2 ³	2.3 ³	0.36 ⁴	0.36 ⁴
Iron, Total Recoverable	µg/L	300	--	86,000	--
Lead, Total Recoverable	µg/L	560 ¹	1,100 ¹	1.1 ²	1.1 ²
		0.23 ³	0.47 ³	0.26 ⁴	0.26 ⁴
Manganese, Total Recoverable	µg/L	50	--	5,800	--
Mercury, Total Recoverable	µg/L	4.9 ¹	9.2 ¹	0.0253 ²	0.0253 ²
		0.050 ³	0.10 ³	0.0026 ⁴	0.0026 ⁴
Nickel, Total Recoverable	µg/L	65 ¹	130 ¹	6.2 ²	6.2 ²
		8.6 ³	17 ³	2.7 ⁴	2.7 ⁴
Thallium, Total Recoverable	µg/L	5,900 ¹	20,000 ¹	0.45 ²	0.45 ²
		1.7 ³	5.6 ³	<0.1 ⁴	<0.1 ⁴
Vanadium, Total Recoverable	µg/L	100	--	5.6	--
Zinc, Total Recoverable	µg/L	3,700 ¹	7,400 ¹	1,300 ²	1,300 ²
		12 ³	24 ³	7.2 ⁴	7.2 ⁴

Parameter	Units	Effluent Limitation		Monitoring Data (From August 2006 To April 2011)	
		Average Monthly	Maximum Daily	Highest Average Monthly Discharge	Highest Daily Discharge
Acute Toxicity	% Survival	--	6	--	100 ⁷
Dissolved Oxygen	mg/L	--	7.0 ⁸	--	2.81 ⁷
	% Saturation	--	9	--	26.8 ⁷

- ¹ Interim effluent limitation effective until 18 May 2010.
- ² Represents monitoring data collected 1 August 2006 to 18 May 2010.
- ³ Final effluent limitation effective 19 May 2010.
- ⁴ Represents monitoring data collected 19 May 2010 to 30 April 2011.
- ⁵ Represents total chromium data.
- ⁶ 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%
- ⁷ Represents the minimum observed value.
- ⁸ Applied as a daily minimum effluent limitation.
- ⁹ Dissolved oxygen in the discharge shall be no less than 85 percent of saturation as the monthly median of the mean daily dissolved oxygen concentration and 75 percent of saturation as the 95 percentile dissolved oxygen concentration.

D. Compliance Summary

- 1. On 1 October 2010, the Central Valley Water Board issued the Discharger a Notice of Violation and draft Record of Violations for violations of effluent limitations for arsenic, color, dissolved oxygen, iron, manganese, pH, settleable solids, total suspended solids (TSS), and turbidity for the period 1 August 2006 through 31 July 2010. On 4 November 2010, the Executive Officer issued Administrative Civil Liability (ACL) Complaint No. R5-2010-0544, which proposed to assess \$84,000 in mandatory minimum penalties (MMPs). The Discharger did not pay the penalty and waived its right to have a hearing conducted within 90 days after being served with the complaint. The Central Valley Water Board issued ACL Order No. R5-2011-

0001 on 3 February 2011 which assessed an administrative civil liability in the amount of \$84,000 in MMPs. The Discharger paid the MMP of \$84,000.

2. On 15 November 2010, the Central Valley Water Board issued the Discharger a Notice of Violation and draft Record of Violations for violations of effluent limitations for arsenic, color, dissolved oxygen, iron, manganese, pH, TSS, and turbidity for the period of 1 August 2010 through 30 September 2010. On 7 January 2011, the Executive Officer issued ACL Complaint No. R5-2011-0501, which proposed to assess \$54,000 in MMPs. The Discharger waived the right to a hearing and paid the MMP of \$54,000.
3. On 28 March 2011, the Central Valley Water Board issued the Discharger a Notice of Violation and draft Record of Violations for violations of effluent limitations for arsenic, color, dissolved oxygen, iron, manganese, pH, settleable solids, TSS, and turbidity for the period 1 October 2010 through 31 December 2010. On 6 May 2011, the Executive Officer issued ACL Complaint No. R5-2011-0567, which proposed to assess \$120,000 in MMPs. The Discharger waived the right to a hearing and paid the MMP of \$120,000.
4. The Central Valley Water Board and the Department of Toxic Substances Control (DTSC) entered into a Cleanup and Abatement Order, Imminent and/or Substantial Endangerment Determination and Partial Consent Order in November 2006 with the Discharger (Order No. R5-2006-0731), which was amended in September 2007 and March 2009, to address contamination at the former cyanide plant and sand dam and from mill tailings. The Central Valley Water Board and the DTSC entered into another Cleanup and Abatement Order, Imminent and/or Substantial Endangerment Determination and Partial Consent Order in July 2009 with the Discharger.

E. Planned Changes - Not Applicable

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 plans as specified in the Finding contained at section II.H of this Order.
 - a. *Water Quality Control Plan, Fourth Edition (Revised October 2011), for the Sacramento and San Joaquin River Basins* (Basin Plan)
2. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** This Order implements the NTR and CTR as specified in the Finding contained at section II.I of this Order.
3. **State Implementation Policy (SIP).** This Order implements the SIP as specified in the Finding contained at section II.J of this Order.
4. **Alaska Rule.** This Order is consistent with the Alaska Rule as specified in the Finding contained at section II.L of this Order.

5. **Antidegradation Policy.** As specified in the Finding contained at section II.N of this Order and as discussed in detail in the Fact Sheet (Attachment F, Section IV.D.4.), the discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board (State Water Board) Resolution 68-16.
6. **Anti-Backsliding Requirements.** This Order is consistent with anti-backsliding policies as specified in the Finding contained at section II.O of this Order. Compliance with the anti-backsliding requirements is discussed in the Fact Sheet (Attachment F, Section IV.D.3).
7. **Storm Water Requirements.** USEPA promulgated federal regulations for storm water on 16 November 1990 in 40 CFR Parts 122, 123, and 124. The NPDES Industrial Storm Water Program regulates storm water discharges from inactive mine facilities. Inactive mine facilities are applicable industries under the storm water program and are obligated to comply with the federal regulations. The Facility submitted its NOI to be covered under the General Industrial Storm Water Permit on 28 June 2005.
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 12 November 2010, USEPA gave partial approval to California's 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 Part 130, et seq.).” The Basin

Plan also states, *“Additional treatment beyond minimum federal standards will be imposed on dischargers to [WQLSs]. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment.”* Magenta Drain Channel and South Fork Wolf Creek are not listed on the 303(d) list of impaired water bodies. Wolf Creek is listed on the 303(d) list as impaired for fecal coliform. The Upper Bear River, from Combie Lake to Camp Far West Reservoir in Nevada and Placer Counties, is listed on the 303(d) list as impaired for mercury.

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. TMDLs have not been adopted for Wolf Creek or the Upper Bear River.
3. The 303(d) listings and TMDLs have been considered in the development of the Order. A pollutant-by-pollutant evaluation of each pollutant of concern is described in section VI.C.3. of this Fact Sheet.

E. Other Plans, Polices and Regulations

1. **Title 27, California Code of Regulations (CCR), section 20005 et seq. (hereafter Title 27).** Discharges of wastewater to land, including but not limited to evaporation ponds or percolation ponds, may be exempt from the requirements of Title 27, CCR, based on section 20090 et seq. Title 27 CCR section 20090(b) contains an exemption for discharges of wastewater to land where the discharge is covered by WDRs, the discharge is in compliance with the Basin Plan, and the discharge does not need to be managed as a hazardous waste. The passive treatment system contains a settling pond and two wetlands where a determination has been made by the Central Valley Water Board whether the facilities meet the exemptions from Title 27. This Order serves as WDRs for the discharge and the discharge does not need to be managed as hazardous waste. In order to qualify for an exemption from Title 27 under section 20090(b), the Discharger must demonstrate compliance with the Basin Plan, which includes meeting BPTC and complying with water quality

objectives for groundwater. The settling pond and wetlands are completely lined with a plastic geomembrane liner. Therefore, discharges to groundwater are not expected and Central Valley Water Board finds that the pond and wetlands meet the conditions for the Title 27 wastewater exemption. This Order does not require installation of groundwater monitoring wells to verify this finding because seepage water from the mine (i.e., the wastewater) is groundwater.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

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

The CWA mandates the implementation of effluent limitations that are as stringent as necessary to meet water quality standards established pursuant to state or federal law [33 U.S.C., §1311(b)(1)(C); 40 CFR 122.44(d)(1)]. NPDES permits must incorporate discharge limits necessary to ensure that water quality standards are met. This requirement applies to narrative criteria as well as to criteria specifying maximum amounts of particular pollutants. Pursuant to federal regulations, 40 CFR 122.44(d)(1)(i), NPDES permits must contain limits that control all pollutants that *“are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality.”*

Federal regulations, 40 CFR 122.44(d)(1)(vi), further provide that *“[w]here a state has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits.”*

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in

the Code of Federal Regulations: 40 CFR 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 CFR 122.44(d) requires that permits include 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-17.00, contains an implementation policy, "*Policy for Application of Water Quality Objectives*", that specifies that the Central Valley Water Board "*will, on a case-by-case basis, adopt numerical limitations in orders which will implement the narrative objectives.*" This Policy complies with 40 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-8.00) The Basin Plan states that material and relevant information, including numeric criteria, and recommendations from other agencies and scientific literature will be utilized in evaluating compliance with the narrative toxicity objective. The narrative chemical constituents objective states that waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At a minimum, "*...water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs)*" in Title 22 of CCR. The Basin Plan further states that, to protect all beneficial uses, the Central Valley Water Board may apply limits more stringent than 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 (Discharge of wastewater at a location or in a manner different from that described in the Findings is prohibited).** This prohibition is based on Water Code Section 13260 that requires filing of a ROWD before discharges can occur. The Discharger submitted a ROWD for the discharges described in this Order; therefore, discharges not described in this Order are prohibited.

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

- 3. Prohibition III.C (Neither the discharge nor its treatment shall create a nuisance as defined in section 13050 of the Water Code).** This prohibition is based on Water Code Section 13050 that requires water quality objectives established for the prevention of nuisance within a specific area. The Basin Plan prohibits conditions that create a nuisance.

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

- a.** Best practicable treatment control technology (BPT) represents the average of the best performance by plants within an industrial category or subcategory. BPT standards apply to toxic, conventional, and non-conventional pollutants.
- b.** Best available technology economically achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. BAT standards apply to toxic and non-conventional pollutants.
- c.** Best conventional pollutant control technology (BCT) represents the control from existing industrial point sources of conventional pollutants including biochemical oxygen demand (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 BPJ to derive technology-based effluent limitations on a case-by-case basis where ELGs are not available for certain industrial categories and/or pollutants of concern. Where BPJ is used, the permit writer must consider specific factors outlined in 40 CFR 125.3.

2. Applicable Technology-Based Effluent Limitations

ELGs were established at 40 CFR Part 440, Subpart J for the Copper, Lead, Zinc, Gold, Silver, and Molybdenum Ores Subcategory of the Ore Mining and Dressing Point Source Category, which is applicable to discharges from mines that produce gold bearing ores from open-pit or underground operations, among others. For the purposes of 40 CFR Part 440, "mine" is defined as an active mining area used in or resulting from the work of extracting metal ore or minerals from their natural deposits by any means or method, and "active mining area" is defined as a place where work or other activity related to the extraction, removal, or recovery of metal ore is being conducted. The Facility consists of land and property previously used in and resulting from the work of extracting metal ore or minerals, specifically gold, from their natural deposits by any means or method. The discharge from the Magenta Drain is water drained from Empire Mine, an inactive mine. Therefore, the Facility is not an "active mining area" as defined in 40 CFR Part 440. Order No. R5-2006-0058 established effluent limitations for total suspended solids (TSS) based on BPJ and applied the ELGs from 40 CFR Part 440. Because the Facility is not an active mining area as defined in 40 CFR Part 440 and the Discharger has installed a passive treatment system designed to remove TSS, the effluent limitations representing BPT and BAT for an active mine are not applicable and this Order does not contain effluent limitations for the constituents contained in the ELGS at 40 CFR Part 440. This Order does, however, require monitoring for these constituents which include cadmium, copper, lead, mercury, pH, TSS, and zinc.

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

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

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

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

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

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

The Basin Plan on page II-1.00 states: “*Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning...*” and with respect to disposal of wastewaters states that “*...disposal of wastewaters is [not] a prohibited use of waters of the State; it is merely a use which cannot be satisfied to the detriment of beneficial uses.*”

The federal CWA section 101(a)(2), states: “*it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water be achieved by July 1, 1983.*” Federal Regulations, developed to implement the requirements of the CWA, create a rebuttable presumption that all waters be designated as fishable and swimmable. Federal Regulations, 40 CFR 131.2 and 131.10, require that all waters of the State regulated to protect the beneficial uses of public water supply, protection and propagation of fish, shell fish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation. 40 CFR 131.3(e) defines existing beneficial uses as those uses actually attained after 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. The Basin Plan at 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 Magenta Drain Channel, but does identify present and potential uses for the Bear River, to which Magenta Drain Channel, via South Fork Wolf Creek and Wolf Creek, is tributary. Thus, beneficial uses applicable to Magenta Drain Channel are as follows:

Table F-3. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Magenta Drain Channel	<p><u>Existing:</u> Municipal and domestic supply (MUN); Agricultural supply, including irrigation and stock watering (AGR); Hydropower generation (POW); Water contact recreation, including canoeing and rafting (REC-1); Non-contact water recreation (REC-2); Warm freshwater habitat (WARM); Cold freshwater habitat (COLD); and Wildlife habitat (WILD).</p> <p><u>Potential:</u> Migration of aquatic organisms, warm and cold (MIGR); and Spawning, reproduction, and/or early development, warm and cold (SPWN).</p>
--	Groundwater	<p><u>Existing:</u> Municipal and domestic supply (MUN); Agricultural supply, including irrigation and stock watering (AGR); Industrial process supply (PROC); and Industrial service supply (IND).</p>

In reviewing whether the existing and/or potential uses of the Bear River apply to the unnamed tributary to South Fork Wolf Creek, the Central Valley Water Board has considered the following facts:

i. Domestic Supply and Agricultural Supply

The Central Valley Water Board is required to apply the beneficial uses of municipal and domestic supply to the unnamed tributary to South Fork Wolf Creek based on State Water Board Resolution No. 88-63 which was incorporated in the Basin Plan pursuant to Central Valley Water Board Resolution No. 89-056. In addition, the State Water Board has issued water rights to existing water users along Wolf Creek downstream of the discharge for domestic and stock watering uses and along both Wolf Creek and the

Bear River downstream of the discharge for irrigation uses. Since South Fork Wolf Creek is an ephemeral/low-flow stream, South Fork Wolf Creek likely provides groundwater recharge during periods of low flow. The groundwater is a source of drinking water. In addition to the existing water uses, growth in the area, downstream of the discharge, is expected to continue. This situation presents a potential for increased domestic and agricultural uses of Magenta Drain Channel, South Fork Wolf Creek, and Wolf Creek.

ii. Water Contact and Noncontact Recreation and Esthetic Enjoyment

The Central Valley Water Board finds that the discharge flows through residential areas and State and City parks and there is ready public access to Magenta Drain Channel. Therefore, exclusion of the public is unrealistic and contact recreational activities currently exist along Magenta Drain Channel and downstream waters and these uses are likely to increase as the population in the area grows. Wolf Creek and the Bear River also offer recreational opportunities.

iii. Freshwater Replenishment

When water is present in Magenta Drain Channel, there is hydraulic continuity between Magenta Drain Channel, South Fork Wolf Creek, Wolf Creek, and the Bear River. During periods of hydraulic continuity, Magenta Drain Channel adds to the water quantity and may impact the quality of water flowing downstream in South Fork Wolf Creek, Wolf Creek, and the Bear River.

iv. Preservation and Enhancement of Fish, Wildlife, and Other Aquatic Resources

The California Department of Fish and Game (DFG) has verified that the fish species present in Wolf Creek and downstream waters are consistent with both cold and warm water fisheries and that rainbow and brown trout, both cold water species, have been found in the vicinity of the City of Grass

Valley Wastewater Treatment Plant. The Basin Plan (Table II-1) designates the Bear River as being both a cold and warm freshwater habitat. Therefore, pursuant to the Basin Plan (Table II-1, Footnote (2)), the cold designation applies to Wolf Creek, South Fork Wolf Creek, and Magenta Drain Channel. The cold-water habitat designation necessitates that the in-stream dissolved oxygen concentration be maintained at, or above, 7.0 mg/L.

Upon review of the flow conditions, habitat values, and beneficial uses of Magenta Drain Channel, and the facts described above, the Central Valley Water Board finds that the beneficial uses identified in the Basin Plan for the Bear River are applicable to Magenta Drain Channel.

- b. Effluent and Ambient Background Data.** The reasonable potential analysis (RPA), as described in section IV.C.3 of this Fact Sheet, was based on data from May 2008 through April 2011, which includes effluent data submitted in SMRs and the ROWD. In this case, Central Valley Water Board staff believes that using the most recent three years of monitoring data is representative of the discharge conditions. Generally, the use of more recent monitoring data is preferred as it is more representative of current discharge conditions and because data quality assurance/quality control (QA/QC) improves with time. A new lab was selected after adoption of Order R5-2006-0058. Lab analyses were conducted at lower detection levels which improves analytical quality. Because of the improved data QA/QC, it is appropriate to use only monitoring results obtained since adoption of Order R5-2006-0058. However, additional data outside of this range was also analyzed where there was inadequate data to perform an analysis. For priority pollutants and other constituents of concern that were not monitored on a routine basis, the RPA was based on quarterly monitoring data submitted between November 2006 and August 2007/2011. Since the discharge constitutes the headwaters of Magenta Drain Channel, there is no physical upstream receiving water monitoring location. Therefore, only effluent data was used for the RPA.

- c. Assimilative Capacity/Mixing Zone.** The Central Valley Water Board finds that based on the available information and on the Discharger's application, that Magenta Drain Channel, absent the discharge, is an ephemeral/low-flow stream. The ephemeral nature of Magenta Drain Channel means that the designated beneficial uses must be protected, but that no credit for receiving water dilution is available. Although the discharge, at times, maintains the aquatic habitat, constituents may not be discharged that may cause harm to aquatic life. At other times, natural flows within Magenta Drain Channel help support the aquatic life. Both conditions may exist within a short time span, where Magenta Drain Channel would be dry without the discharge and periods when sufficient background flows provide hydraulic continuity with South Fork Wolf Creek, Wolf Creek, and the Bear River. Dry conditions occur primarily in the summer months, but dry conditions may also occur throughout the year, particularly in low rainfall years. Significant dilution may occur during and immediately following high rainfall events. The lack of dilution results in more stringent effluent limitations to protect contact recreational uses, drinking water standards, agricultural water quality goals and aquatic life.
- 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 SIP¹, the CTR² and State Water Board Order No. WQO 2008-0008 (City of Davis). The SIP and the CTR require the use of “receiving water” or “actual ambient” hardness, respectively, to determine effluent limitations for these metals. (SIP, § 1.2; 40 CFR § 131.38(c)(4), Table 4, note 4.) The CTR does not define whether the term “ambient,” as applied in the regulations, necessarily requires the consideration of upstream as opposed to downstream hardness conditions. Therefore, where reliable, representative data are available, the hardness value for calculating criteria can be the downstream receiving water hardness, after mixing with the effluent (Order WQO 2008-0008, p. 11). The Central Valley Water Board thus has considerable discretion in determining ambient hardness (*Id.*, p.10). Guidance on the selection of the appropriate ambient hardness was provided by the State Water Board in Order No. WQO 2008-0008 (City of Davis).

The State Water Board allows, where reliable, representative data are available, the hardness value for calculating criteria can be the downstream receiving water hardness, after mixing with the effluent. (Order WQO 2008-0008, p. 11.) Regional water boards have considerable discretion in determining ambient hardness as long as the hardness values are protective under all flow conditions. (*Id.*, pp. 10-11.)

As discussed below, scientific literature provides a reliable method for calculating protective hardness-dependent CTR criteria, considering all discharge conditions. This methodology produces hardness-dependent CTR criteria based on 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 CaCO₃), or less, the actual ambient hardness of the surface water must be used. It further requires that the hardness values used must be consistent with the design discharge conditions for design flows and mixing zones.

reasonable 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 body¹. This ensures that effluent limitations are fully protective of aquatic life in all areas of the 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 Reasonable Potential Analysis (RPA).** The SIP in Section 1.3 states, *“The RWQCB shall...determine whether a discharge may: (1) cause, (2) have a reasonable potential to cause, or (3) contribute to an excursion above any applicable priority pollutant criterion or objective.”* Section 1.3 provides a step-by-step procedure for conducting the RPA. The procedure requires the comparison of the maximum effluent concentration (MEC) and maximum ambient background concentration to the applicable criterion that has been properly adjusted for hardness. Unless otherwise noted, for the hardness-dependent CTR metals criteria the following procedures were followed for properly adjusting the criterion for hardness when conducting the RPA.

(a) The SIP requires a WQBEL if the MEC exceeds the applicable criterion, adjusted for hardness. For comparing the MEC to the applicable criterion, the “fully mixed” reasonable worst-case downstream 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

¹ All effluent discharges will change the ambient downstream metals concentration and hardness. It is not possible to change the metals concentration without also changing the hardness.

water affected by the discharge. Therefore, for comparing the MEC to the applicable criterion, the reasonable worst-case downstream 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 downstream hardness is outlined in subsection ii, below.

- (b) The SIP requires a WQBEL if the receiving water is impaired upstream (outside the influence) of the discharge, i.e., if the maximum ambient background concentration of a pollutant exceeds the applicable criterion, adjusted for hardness¹. Since the discharge constitutes the headwaters of Magenta Drain Channel, there is no physical upstream receiving water to compare to the applicable criterion for the purposes of the RPA.

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

A 2006 Study² developed procedures for calculating the effluent concentration allowance (ECA)³ 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

¹ The pollutant must also be detected in the effluent.

² 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.

³ 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.

these hardness-dependent metals. This method is superior to relying on downstream 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 downstream values that may result from these two independent variables. Relying on receiving water sampling alone is less likely to capture all possible mixed downstream conditions.

The equation describing the total recoverable regulatory criterion, as established in the CTR¹, is as follows:

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

Where:

H = hardness (as CaCO₃)²

WER = water-effect ratio

m, b = metal- and criterion-specific constants

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

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

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

¹ 40 CFR 131.38(b)(2).

² For this discussion, all hardness values are in mg/L as CaCO₃.

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 upstream receiving water is in compliance with the CTR criteria, any mixture of the effluent and receiving water will always be in compliance with the CTR criteria². The 2006 Study proves that regardless of whether the effluent hardness is lower or greater than the upstream hardness, the reasonable worst-case flow condition is the effluent dominated condition (i.e., no receiving water flow)³. Consequently, for

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

² 2006 Study, p. 5700

³ 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

Concave Down Metals, the CTR criteria have been calculated using the downstream ambient hardness under this condition.

The effluent hardness ranged from 95 mg/L to 360 mg/L, based on 36 samples from May 2008 to April 2011. Since the discharge constitutes the headwaters of Magenta Drain Channel, there is no physical upstream receiving water monitoring location. Therefore, hardness data for South Fork Wolf Creek upstream of the confluence of Magenta Drain Channel was used for this evaluation. The hardness in South Fork Wolf Creek upstream of the confluence with Magenta Drain Channel varied from 38 mg/L to 160 mg/L, based on 36 samples from May 2008 to April 2011. Under the receiving water dominated (or high flow) condition, the worst-case downstream ambient hardness is 38 mg/L. Under the effluent dominated condition, the reasonable worst-case downstream ambient hardness is 95 mg/L. As demonstrated in the example shown in Table F-4, below, using this hardness to calculate the ECA for all Concave Down Metals will result in WQBELs that are protective under all flow conditions, from the effluent dominated condition to high flow condition. This example for copper assumes the following conservative conditions for the upstream receiving water:

- Upstream receiving water **always** at the lowest observed upstream receiving water hardness (i.e., 38 mg/L)
- Upstream receiving water copper concentration **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.

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.

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

Where:

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

C_{RW} = Upstream receiving water concentration

C_{Eff} = Effluent concentration

EF = Effluent Fraction

In this example, for copper, for any receiving water flow condition (high flow to low flow), the fully-mixed downstream ambient copper concentration is in compliance with the CTR criteria.¹

¹ This method considers the actual lowest upstream hardness and actual lowest effluent hardness to determine the reasonable worst-case ambient downstream hardness under all possible receiving water flow conditions. Table F-4 demonstrates 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-4. Copper ECA Evaluation

		Lowest Observed Effluent Hardness		95 mg/L (as CaCO₃)	
		Lowest Observed Upstream Receiving Water Hardness		38 mg/L (as CaCO₃)	
		Highest Assumed Upstream Receiving Water Copper Concentration		4.1 µg/L¹	
		Copper ECA_{chronic}²		8.9 µg/L	
		Fully Mixed Downstream Ambient Concentration			
Effluent Fraction⁶		Hardness³ (mg/L)	CTR Criteria⁴ (µg/L)	Copper⁵ (µg/L)	Complies with CTR Criteria
High Flow ↓ Low Flow	1%	39	4.1	4.1	Yes
	5%	41	4.3	4.3	Yes
	15%	47	4.9	4.8	Yes
	25%	52	5.4	5.3	Yes
	50%	67	6.6	6.5	Yes
	75%	81	7.8	7.7	Yes
	100%	95	8.9	8.9	Yes

- ¹ Highest assumed upstream receiving water copper concentration calculated using Equation 1 for chronic criterion at a hardness of 38 mg/L.
- ² ECA calculated using Equation 1 for chronic criterion at a hardness of 95 mg/L.
- ³ Fully mixed downstream ambient hardness is the mixture of the receiving water and effluent hardness at the applicable effluent fraction using Equation 3.
- ⁴ Fully mixed downstream ambient criteria are the chronic criteria calculated using Equation 1 at the mixed hardness.
- ⁵ Fully mixed downstream ambient copper concentration is the mixture of the receiving water and effluent copper concentrations at the applicable effluent fraction using Equation 3.
- 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 upstream 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 (see Equation 4, below).

The ECA, as calculated using Equation 4, is based on the reasonable worst-case upstream 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 downstream of the discharge at all discharge and flow conditions to ensure the ECA is protective (e.g., see Table F-5).

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

(Equation 4)

Where:

m, b = criterion specific constants (from CTR)

H_e = lowest observed effluent hardness

H_{rw} = reasonable worst-case upstream receiving water hardness

An example similar to the Concave Down Metals is shown for lead, a Concave Up Metal, in Table F-5, below. As previously mentioned, the lowest effluent hardness is 95 mg/L, while the hardness in South Fork Wolf Creek upstream of the confluence with Magenta Drain Channel ranged from 38 mg/L to 160 mg/L. In this case, the reasonable worst-case upstream

receiving water hardness to use in Equation 4 to calculate the ECA is 38 mg/L.

Using the procedures discussed above to calculate the ECA for all Concave Up Metals will result in WQBELs 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 Table F-5, for lead.

Table F-5. Lead ECA Evaluation

		Lowest Observed Effluent Hardness			95 mg/L
		Reasonable Worst-case Upstream Receiving Water Hardness			38 mg/L
		Reasonable Worst-case Upstream Receiving Water Lead Concentration			0.93 µg/L¹
		Lead ECA_{chronic}²			2.7 µg/L
		Fully Mixed Downstream Ambient Concentration			
		Hardness³ (mg/L) (as CaCO₃)	CTR Criteria⁴ (µg/L)	Lead⁵ (µg/L)	Complies with CTR Criteria
↓ High Flow Low Flow	1%	39	0.95	0.95	Yes
	5%	41	1.0	1.0	Yes
	15%	47	1.2	1.2	Yes
	25%	52	1.4	1.4	Yes
	50%	67	1.9	1.8	Yes
	75%	81	2.4	2.3	Yes
	100%	95	3.0	2.7	Yes

¹ Reasonable worst-case upstream receiving water lead concentration calculated using Equation 1 for chronic criterion at a hardness of 38 mg/L.

² ECA calculated using Equation 4 for chronic criteria.

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

⁴ Fully mixed downstream ambient criteria are the chronic criteria calculated using Equation 1 at the mixed hardness.

⁵ Fully mixed downstream 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, Table F-6 lists all the CTR hardness-dependent metals and the associated ECAs used in this Order.

Table F-6. Summary of ECA Evaluations for CTR Hardness-dependent Metals

CTR Metals	ECA (µg/L, total recoverable)	
	Acute	Chronic
Copper	13	8.9
Chromium III	1,665	198
Cadmium	4.1	2.4
Lead	69	2.7
Nickel	449	50
Silver	2.7	--
Zinc	115	115

3. Determining the Need for WQBELs

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

- b. **Constituents with No Reasonable Potential.** WQBELs are not included in this Order for constituents that do not demonstrate reasonable potential; however, monitoring for those pollutants is established in this Order as required by the

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

SIP. If the results of effluent monitoring demonstrate reasonable potential, this Order may be reopened and modified by adding an appropriate effluent limitation.

i. Aluminum

(a) WQO. USEPA developed National Recommended Ambient Water Quality Criteria (NAWQC) for protection of freshwater aquatic life for aluminum. The recommended 4-day average (chronic) and 1-hour average (acute) criteria for aluminum are 87 µg/L and 750 µg/L, respectively, for waters with a pH of 6.5 to 9.0. The Secondary MCL - Consumer Acceptance Limit for aluminum is 200 µg/L. Order No. R5-2006-0058 established effluent limitations for aluminum based on the chronic criterion.

(b) RPA Results. Based on more than 36 samples collected between August 2006 and April 2011, the MEC for aluminum was 22.332 µg/L. This data was obtained prior to completed construction of the treatment system, and therefore, is not representative of the mine discharge that will occur during the duration of this Order. The Discharger's newly constructed passive treatment system is designed to remove solids, and thus, is expected to further reduce metals (including aluminum) in the mine discharge. Therefore, aluminum in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the chronic criterion of 87 µg/L, and the effluent limitations for aluminum have not been retained in this Order. However, this Order requires effluent monitoring to continue to characterize the effluent quality from the passive treatment system. Removal of these effluent limitations is in accordance with federal antibacksliding regulations (see section IV.D.3 of the Fact Sheet).

ii. Antimony

(a) **WQO.** The Department of Public Health (DPH; formerly the Department of Health Services) has adopted a Primary MCL for antimony of 6 µg/L, which is protective of the Basin Plan's chemical constituent objective. Order No. R5-2006-0058 established an effluent limitation for antimony based on the Primary MCL.

(b) **RPA Results.** Based on more than 36 samples collected between August 2006 and April 2011, the MEC for antimony was 0.24 µg/L. This data was obtained prior to completed construction of the treatment system, and therefore, is not representative of the mine discharge that will occur during the duration of this Order. The Discharger's newly constructed passive treatment system is designed to remove solids, and thus, is expected to further reduce metals (including antimony) in the mine discharge. Therefore, antimony in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the Primary MCL of 6 µg/L, and the effluent limitation for antimony has not been retained in this Order. However, this Order requires effluent monitoring to continue to characterize the effluent quality from the passive treatment system. Removal of these effluent limitations is in accordance with federal antibacksliding regulations (see section IV.D.3 of the Fact Sheet).

iii. Barium

(a) **WQO.** DPH has adopted a Primary MCL for barium of 1,000 µg/L, which is protective of the Basin Plan's chemical constituent objective. Order No. R5-2006-0058 established an effluent limitation for barium based on the Primary MCL.

(b) **RPA Results.** Based on more than 36 samples collected between August 2006 and April 2011, the MEC for barium was 67 µg/L. This data was obtained prior to completed construction of the treatment system, and therefore, is not representative of the mine discharge that will occur

during the duration of this Order. The Discharger's newly constructed passive treatment system is designed to remove solids, and thus, is expected to further reduce metals (including barium) in the mine discharge. Therefore, barium in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the Primary MCL of 1,000 µg/L, and the effluent limitation for barium has not been retained in this Order. However, this Order requires effluent monitoring to continue to characterize the effluent quality from the passive treatment system. Removal of these effluent limitations is in accordance with federal antibacksliding regulations (see section IV.D.3 of the Fact Sheet).

iv. Cadmium

(a) **WQO.** The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for cadmium. Order No. R5-2006-0058 included effluent limitations for cadmium based on the CTR acute criterion for the protection of aquatic life. Using the default conversion factors and reasonable worst-case measured hardness as described in section IV.C.2.e, the applicable acute (1-hour average) and chronic (4-day average) criteria for the effluent are 4.1 µg/L and 2.4 µg/L, respectively, as total recoverable.

(b) **RPA Results.** Based on more than 36 samples collected between August 2006 and April 2011, the MEC for cadmium was 0.17 µg/L. This data was obtained prior to completed construction of the treatment system, and therefore, is not representative of the mine discharge that will occur during the duration of this Order. The Discharger's newly constructed passive treatment system is designed to remove solids, and thus, is expected to further reduce metals (including cadmium) in the mine discharge. Therefore, cadmium in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion

above the CTR chronic criterion of 2.4 µg/L, and the WQBELs for cadmium have not been retained in this Order. However, this Order requires effluent monitoring to continue to characterize the effluent quality from the passive treatment system. Removal of these effluent limitations is in accordance with federal antibacksliding regulations (see section IV.D.3 of the Fact Sheet).

v. Chromium III

(a) **WQO.** The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for chromium III. Order No. R5-2006-0058 included effluent limitations for chromium III based on the CTR chronic criterion for the protection of aquatic life. Using the default conversion factors and reasonable worst-case measured hardness as described in section IV.C.2.e, the applicable acute (1-hour average) and chronic (4-day average) criteria for the effluent are 1,665 µg/L and 198 µg/L, respectively, as total recoverable.

(b) **RPA Results.** Order No. R5-2006-0058 required monitoring for total chromium in lieu of monitoring for chromium III. Based on more than 36 samples collected between August 2006 and April 2011, the MEC for total chromium was 0.82 µg/L. This data was obtained prior to completed construction of the treatment system, and therefore, is not representative of the mine discharge that will occur during the duration of this Order. The Discharger's newly constructed passive treatment system is designed to remove solids, and thus, is expected to further reduce metals (including chromium) in the mine discharge. Therefore, chromium III in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR chronic criterion of 198 µg/L, and the effluent limitations for chromium III have not been retained in this Order. However, this Order requires effluent monitoring to continue to characterize the effluent quality from the passive treatment

system. Removal of these effluent limitations is in accordance with federal antibacksliding regulations (see section IV.D.3 of the Fact Sheet).

vi. Cobalt

(a) **WQO.** Order No. R5-2006-0058 established an effluent limitation for cobalt based on the agricultural water quality goal of 50 µg/L to interpret the narrative chemical constituent objective, based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations–Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985).

(b) **RPA Results.** Based on more than 36 samples collected between August 2006 and April 2011, the MEC for cobalt was 2.6 µg/L. This data was obtained prior to completed construction of the treatment system, and therefore, is not representative of the mine discharge that will occur during the duration of this Order. The Discharger's newly constructed passive treatment system is designed to remove solids, and thus, is expected to further reduce metals (including cobalt) in the mine discharge. Therefore, cobalt in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the agricultural water goal, and the effluent limitation for cobalt has not been retained in this Order. However, this Order requires effluent monitoring to continue to characterize the effluent quality from the passive treatment system. Removal of these effluent limitations is in accordance with federal antibacksliding regulations (see section IV.D.3 of the Fact Sheet).

vii. Copper

(a) **WQO.** The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for copper. Order No. R5-2006-0058 included effluent limitations for copper based on the CTR chronic criterion for the protection of aquatic life. Using the default conversion factors and

reasonable worst-case measured hardness as described in section IV.C.2.e, the applicable acute (1-hour average) and chronic (4-day average) criteria for the effluent are 13 µg/L and 8.9 µg/L, respectively, as total recoverable.

(b) RPA Results. Copper concentrations in the effluent ranged from <0.1 µg/L to 2.6 µg/L, with an average of 0.33 µg/L, for 356 samples collected by the Discharger from May 2008 through April 2011. Copper was detected in the effluent at a concentration of 20 µg/L; however, this sample was considered an outlier and was not used in the RPA. The dataset was represented by a standard deviation of 0.46 and a mean of 0.33 µg/L. Therefore, the high sample concentration was 43 standard deviations from the mean, which is considered an outlier (>4 standard deviations is considered an outlier). The next highest copper concentration was 7 µg/L detected in 2006. All data used in the RPA was obtained prior to completed construction of the treatment system, and therefore, is not representative of the mine discharge that will occur during the duration of this Order. The Discharger's newly constructed passive treatment system is designed to remove solids, and thus, is expected to further reduce metals (including copper) in the mine discharge. Therefore, copper in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR chronic criterion, and the WQBELs for copper have not been retained in this Order. However, this Order requires effluent monitoring to continue to characterize the effluent quality from the passive treatment system. Removal of these effluent limitations is in accordance with federal antibacksliding regulations (see section IV.D.3 of the Fact Sheet).

viii. Lead

(a) WQO. The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for lead. Order No. R5-2006-0058 included effluent

limitations for lead based on the CTR chronic criterion for the protection of aquatic life. Using the default conversion factors and reasonable worst-case measured hardness as described in section IV.C.2.e, the applicable acute (1-hour average) and chronic (4-day average) criteria for the effluent are 69 µg/L and 2.7 µg/L, respectively, as total recoverable.

(b) RPA Results. Based on more than 36 samples collected between August 2006 and April 2011, the MEC for lead was 0.731.1 µg/L. This data was obtained prior to completed construction of the treatment system, and therefore, is not representative of the mine discharge that will occur during the duration of this Order. The Discharger's newly constructed passive treatment system is designed to remove solids, and thus, is expected to further reduce metals (including lead) in the mine discharge. Therefore, lead in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR chronic criterion, and the WQBELs for lead have not been retained in this Order. However, this Order requires effluent monitoring to continue to characterize the effluent quality from the passive treatment system. Removal of these effluent limitations is in accordance with federal antibacksliding regulations (see section IV.D.3 of the Fact Sheet).

ix. Mercury

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

of the State's narrative criterion." In the CTR, USEPA reserved the mercury criteria for freshwater and aquatic life and may adopt new criteria at a later date. Order No. R5-2006-0058 included effluent limitations for mercury based on the CTR criterion for protection of human health of 0.050 µg/L.

(b) RPA Results. Based on more than 36 samples collected between August 2006 and April 2011, the MEC for mercury was 0.0082 µg/L, which does not exceed the CTR human health criteria. This data was obtained prior to completed construction of the treatment system, and therefore, is not representative of the mine discharge that will occur during the duration of this Order. The Discharger's newly constructed passive treatment system is designed to remove solids, and thus, is expected to further reduce metals (including mercury) in the mine discharge.

Therefore, mercury in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR human health criterion, and the effluent limitations for mercury have not been retained in this Order. Removal of these effluent limitations is in accordance with federal antibacksliding regulations (see section IV.D.3 of the Fact Sheet).

x. Nickel

(a) WQO. The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for nickel. Order No. R5-2006-0058 included effluent limitations for nickel based on the CTR chronic criterion for the protection of aquatic life. Using the default conversion factors and reasonable worst-case measured hardness as described in section IV.C.2.e, the applicable acute (1-hour average) and chronic (4-day average) criteria for the effluent are 449 µg/L and 50 µg/L, respectively, as total recoverable.

(b) RPA Results. Based on more than 36 samples collected between August 2006 and April 2011, the MEC for nickel was 2.7 µg/L. This data was

obtained prior to completed construction of the treatment system, and therefore, is not representative of the mine discharge that will occur during the duration of this Order. The Discharger's newly constructed passive treatment system is designed to remove solids, and thus, is expected to further reduce metals (including nickel) in the mine discharge. Therefore, nickel in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR chronic criterion, and the effluent limitations for nickel have not been retained in this Order. However, this Order requires effluent monitoring to continue to characterize the effluent quality from the passive treatment system. Removal of these effluent limitations is in accordance with federal antibacksliding regulations (see section IV.D.3 of the Fact Sheet).

xi. Salinity

- (a) **WQO.** The Basin Plan contains a chemical constituent objective that incorporates state MCLs, contains a narrative objective, and contains numeric water quality objectives for certain specified water bodies for electrical conductivity, total dissolved solids, sulfate, and chloride. The USEPA Ambient Water Quality Criteria for Chloride recommends acute and chronic criteria for the protection of aquatic life. There are no USEPA water quality criteria for the protection of aquatic life for electrical conductivity, total dissolved solids, and sulfate. Additionally, there are no USEPA numeric water quality criteria for the protection of agricultural, industrial, and livestock uses. Numeric values for the protection of these uses are typically based on site-specific conditions and evaluations to determine the appropriate constituent threshold necessary to interpret the narrative chemical constituent Basin Plan objective. ~~There are no USEPA water quality criteria for the protection of aquatic organisms for electrical conductivity (EC), total dissolved solids (TDS), sulfate, and chloride. The Basin Plan contains a chemical constituent objective that incorporates~~

~~state MCLs, contains a narrative objective, and contains numeric water quality objectives for EC, TDS, sulfate, and chloride.~~

Table F-7. Salinity Water Quality Criteria/Objectives

Parameter	Agricultural WQ Goal/Objective ¹	Secondary MCL ³	USEPA NAWQC	Effluent	
				Average	Maximum
EC (µmhos/cm)	Varies ²	900, 1600, 2200	N/A	470	1,304
TDS (mg/L)	Varies	500, 1000, 1500	N/A	329	453
Sulfate (mg/L)	Varies	250, 500, 600	N/A	116	150
Chloride (mg/L)	Varies	250, 500, 600	860 1-hr 230 4-day	6.2	6.5

¹ ~~Agricultural water quality goals based on *Water Quality for Agriculture*, Food and Agriculture Organization of the United Nations Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcott, Rome, 1985). Narrative chemical constituent objective of the Basin Plan. Procedures for establishing the applicable numeric limitation to implement the narrative objective can be found in the Policy for Application of Water Quality, Chapter IV, Section 8 of the Basin Plan., However, the Basin Plan does not require improvement over naturally occurring background concentrations. In cases where the natural background concentration of a particular constituent exceeds an applicable water quality objective, the natural background concentration will be considered to comply with the objective.~~

² ~~The EC level in irrigation water that harms crop production depends on the crop type, soil type, irrigation methods, rainfall, and other factors. An EC level of 700 µmhos/cm is generally considered to present no risk of salinity impacts to crops. However, many crops are grown successfully with higher salinities.~~

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

(1) Chloride. The Secondary MCL for chloride is 250 mg/L, as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum. The Central Valley Water Board must determine the applicable numeric limit to implement the narrative objective for the protection of agricultural supply. The recommended-most limiting agricultural water quality goal for chloride, ~~that would apply to interpret~~

the narrative chemical constituent objective, is 106 mg/L as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). The 106 mg/L water quality goal is intended to protect against adverse effects on sensitive crops when irrigated via sprinklers. However, the agricultural water quality goal is not a site-specific goal or objective, but rather a general measure to protect salt-sensitive crops. Site-specific levels of chloride for the receiving waters are necessary to interpret the narrative chemical constituents objective for protection of agricultural supply.

The Central Valley Water Board is currently implementing the CV-SALTS initiative to develop a Basin Plan Amendment that will establish a salt and nitrate Management Plan for the Central Valley. Through this effort the Basin Plan will be amended to define how the narrative water quality objective is to be interpreted for the protection of agricultural use. All studies conducted through this Order to establish an agricultural limit to implement the narrative objective will be reviewed by and consistent with the efforts currently underway by CV-SALTS.

- (2) Electrical Conductivity.** The Secondary MCL for EC is 900 $\mu\text{mhos/cm}$ as a recommended level, 1600 $\mu\text{mhos/cm}$ as an upper level, and 2200 $\mu\text{mhos/cm}$ as a short-term maximum. The Central Valley Water Board must determine the applicable numeric limit to implement the narrative objective for the protection of agricultural supply. The most limiting agricultural water quality goal ~~The agricultural water quality goal, that would apply the narrative chemical constituents objective, is~~ may be as low as 700 $\mu\text{mhos/cm}$ as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S.

Ayers and D.W. Westcot, Rome, 1985). However, tThe 700 $\mu\text{mhos/cm}$ agricultural water quality goal is not a site-specific goal or objective, but rather a general measure of electrical conductivity that was determined to protect intended to prevent reduction in crop yield, i.e. a restriction on use of water, for salt-sensitive crops, such as beans, carrots, turnips, and strawberries under certain soil and climate conditions. These crops are either currently grown in the area or may be grown in the future. Most other crops can tolerate higher EC concentrations without harm. Site-specific levels of EC for the receiving water to interpret the narrative chemical constituents objective in the Basin Plan for protection of agricultural supply are necessary. Overall, however, as the salinity of the agricultural irrigation water increases, more crops are potentially harmed by the EC, or must be maintained at levels at which growers do not need to take extra measures must be taken by the farmer to minimize or eliminate any harmful impacts.

The Central Valley Water Board is currently implementing the CV-SALTS initiative to develop a Basin Plan Amendment that will establish a salt and nitrate Management Plan for the Central Valley. Through this effort the Basin Plan will be amended to define how the narrative water quality objective is to be interpreted for the protection of agricultural use. All studies conducted through this Order to establish an agricultural limit to implement the narrative objective will be reviewed by and consistent with the efforts currently underway by CV-SALTS.

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

(4) Total Dissolved Solids. The Secondary MCL for TDS is 500 mg/L as a recommended level, 1000 mg/L as an upper level, and 1500 mg/L as a short-term maximum. The Central Valley Water Board must determine the applicable numeric limit to implement the narrative objective for the protection of agricultural supply, The most limiting agricultural water quality goal ~~The recommended agricultural water quality goal for TDS, that would apply the narrative chemical constituent objective, is~~ may be as low as 450 mg/L as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). Water Quality for Agriculture evaluates the impacts of salinity levels on crop tolerance and yield reduction, and establishes water quality goals that are protective of the agricultural uses. However, t~~The 450 mg/L water quality goal is not a site-specific goal but rather a general measure of TDS that was determined to protect intended to prevent reduction in crop yield, i.e., a restriction on use of water, for salt-sensitive crops. Only the most salt sensitive crops require irrigation water of 450 mg/L or less to prevent loss of yield. Most other crops can tolerate higher TDS concentrations without harm, however, as the salinity of the irrigation water increases, more crops are potentially harmed by the TDS, or extra measures must be taken by the farmer to minimize or eliminate any harmful impacts~~ Site-specific levels of TDS for the receiving water to interpret the narrative chemical constituents objective are necessary.

The Central Valley Water Board is currently implementing the CV-SALTS initiative to develop a Basin Plan Amendment that will establish a salt and nitrate Management Plan for the Central Valley. Through this effort the Basin Plan will be amended to define how the narrative water quality objective is to be interpreted for the protection of agricultural use. All studies conducted through this Order to

establish an agricultural limit to implement the narrative objective will be reviewed by and consistent with the efforts currently underway by CV-SALTS.

(b) RPA Results.

- (1) Chloride.** The MEC for chloride was 6.5 mg/L, based on four samples collected in November 2006 through August 2007, which does not exceed the ~~agricultural water goal of 106 mg/L~~ Secondary MCL.
- (2) Electrical Conductivity.** A review of the Discharger's monitoring reports shows an average effluent EC of 470 µmhos/cm, based on 153 samples collected in May 2008 through April 2011, with a range from 205 µmhos/cm to 1,304 µmhos/cm. Based on relatively low levels of EC in the discharge, in comparison to the Secondary MCL and the general ~~with only two exceedances above the~~ agricultural water goal, the discharge does not have reasonable potential to cause or contribute to an exceedance of the ~~agricultural water goal~~ Secondary MCL.
- (3) Sulfate.** The MEC for sulfate was 150 mg/L, based on 12 samples collected in May 2008 through February 2011. Receiving water data for sulfate is not available. The MEC for sulfate does not exceed the Secondary MCL for sulfate.
- (4) Total Dissolved Solids.** The average TDS effluent concentration was 329 mg/L with concentrations ranging from 139 mg/L to 453 mg/L. These levels do not exceed the ~~applicable water quality objectives~~ Secondary MCL for TDS.

Based on the relatively low reported salinity, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion of water quality objectives for salinity. Additionally, due to the nature of the mine drainage and the fact that no chemical addition occurs in the

passive treatment system, this Order does not require a salinity evaluation and minimization plan, as it is unnecessary and infeasible.

xii. Settleable Solids

(a) **WQO.** For inland surface waters, the Basin Plan states that “[w]ater shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.” Order No. R5-2006-009658 established an average monthly effluent limitation (AMEL) of 0.1 ml/L and a maximum daily effluent limitation (MDEL) of 0.2 ml/L for settleable solids to implement the Basin Plan’s narrative objective.

(b) **RPA Results.** Settleable solids were detected in four samples at concentrations ranging from 0.115 ml/L to 7.48 ml/L based on 34 samples collected between May 2008 and April 2011. The new passive treatment system is expected to further reduce the potential for settleable solids to be discharged. Based on the limited detections and the improved treatment system, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan’s narrative objective, and the effluent limitations for settleable solids have not been retained in this Order. Removal of these effluent limitations is in accordance with federal antibacksliding regulations (see section IV.D.3 of the Fact Sheet).

xiii. Thallium

(a) **WQO.** The CTR includes a criterion of 1.7 µg/L for thallium for the protection of human health for waters from which both water and organisms are consumed. Order No. R5-2006-0058 established an effluent limitation for thallium based on the CTR human health criterion.

(b) **RPA Results.** Based on more than 36 samples collected between August 2006 and April 2011, the MEC for thallium was 0.33 µg/L. This data

was obtained prior to completed construction of the treatment system, and therefore, is not representative of the mine discharge that will occur during the duration of this Order. The Discharger's newly constructed passive treatment system is designed to remove solids, and thus, is expected to further reduce metals (including thallium) in the mine discharge. Therefore, thallium in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR human health criterion, and the effluent limitations for thallium have not been retained in this Order. However, this Order requires effluent monitoring to continue to characterize the effluent quality from the passive treatment system. Removal of these effluent limitations is in accordance with federal antibacksliding regulations (see section IV.D.3 of the Fact Sheet).

xiv. Vanadium

(a) **WQO.** Order No. R5-2006-0058 established an effluent limitation for vanadium based on the agricultural water quality goal of 100 µg/L to interpret the narrative chemical constituent objective, based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985).

(b) **RPA Results.** Based on more than 36 samples collected between August 2006 and April 2011, tThe MEC for vanadium was 5.6 µg/L. This data was obtained prior to completed construction of the treatment system, and therefore, is not representative of the mine discharge that will occur during the duration of this Order. The Discharger's newly constructed passive treatment system is designed to remove solids, and thus, is expected to further reduce metals (including vanadium) in the mine discharge. Therefore, vanadium in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion

above the agricultural water goal, and the effluent limitation for vanadium has not been retained in this Order. However, this Order requires effluent monitoring to continue to characterize the effluent quality from the passive treatment system. Removal of these effluent limitations is in accordance with federal antibacksliding regulations (see section IV.D.3 of the Fact Sheet).

xv. Zinc

- (a) **WQO.** The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for zinc. Order No. R5-2006-0058 included effluent limitations for zinc based on the CTR chronic criterion for the protection of aquatic life of 24 µg/L, which was determined using a hardness value of 15 mg/L, based on hardness data collected by the City of Grass Valley from Wolf Creek. Using the default conversion factors and reasonable worst-case measured hardness as described in section IV.C.2.e, the applicable acute (1-hour average) and chronic (4-day average) criteria for the effluent are both 115 µg/L, as total recoverable.
- (b) **RPA Results.** Based on more than 36 samples collected between August 2006 and April 2011, the MEC for zinc was 1300 µg/L; all other analytical results either did not show concentrations of zinc, or detected concentrations below water quality criterion, in the effluent discharge. All data used in the RPA was obtained prior to completed construction of the treatment system, and therefore, is not representative of the mine discharge that will occur during the duration of this Order. The Discharger's newly constructed passive treatment system is designed to remove solids, and thus, is expected to further reduce metals (including zinc) in the mine discharge. Therefore, zinc in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR chronic criterion, and the WQBELs for zinc have not been retained in this Order. However, this Order requires

effluent monitoring to continue to characterize the effluent quality from the passive treatment system. Removal of these effluent limitations is in accordance with federal antibacksliding regulations (see section IV.D.3 of the Fact Sheet).

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

i. Bis (2-ethylhexyl) Phthalate

- (a) WQO.** The CTR includes a criterion of 1.8 µg/L for bis (2-ethylhexyl) phthalate for the protection of human health for waters from which both water and organisms are consumed.
- (b) RPA Results.** Bis (2-ethylhexyl) phthalate was detected, but not quantified (DNQ), in the effluent twice out of four monitoring events between November 2006 and August 2007 with an MEC of 1.8 µg/L. Bis (2-ethylhexyl) phthalate was not detected in four samples collected on the same dates in the downstream receiving water. Bis (2-ethylhexyl) phthalate is a common contaminant of sample containers, sampling apparatus, and analytical equipment, and sources of the detected bis (2-ethylhexyl) phthalate may be from plastics used for sampling or analytical equipment. Bis (2-ethylhexyl) phthalate is not expected to be present in the mine drainage. Section 1.3, Step 8 of the SIP allows the Central Valley Water Board to require additional monitoring for a pollutant in place of an effluent limitation if data are unavailable or insufficient. Therefore, the Central Valley Water Board is not establishing effluent limitations for bis (2-ethylhexyl) phthalate at this time. Instead of limitations, additional

monitoring has been established for bis (2-ethylhexyl) phthalate using “clean” techniques to ensure that sample containers, sampling apparatus, and analytical equipment are not sources of the detected pollutant. Additionally, this Order requires the Discharger to determine potential sources of the pollutant in the effluent. Should monitoring results indicate that the discharge has the reasonable potential to cause or contribute to an exceedance of a water quality standard, then this Order may be reopened and modified by adding an appropriate effluent limitation.

ii. Chrysene

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

(b) RPA Results. Chrysene was detected in the effluent once out of four monitoring events between November 2006 and August 2007 at a concentration of 1.4 µg/L. Chrysene was not detected in the downstream receiving water in four samples collected on the same dates. The source of chrysene in the mine drainage is uncertain. Section 1.3, Step 8 of the SIP allows the Central Valley Water Board to require additional monitoring for a pollutant in place of an effluent limitation if data are unavailable or insufficient. Therefore, the Central Valley Water Board is not establishing effluent limitations for chrysene at this time. Instead of limitations, additional monitoring has been established for chrysene. Additionally, this Order requires the Discharger to conduct a study to determine potential sources of the pollutant in the effluent. Should monitoring results indicate that the discharge has the reasonable potential to cause or contribute to an exceedance of a water quality standard, then this Order may be reopened and modified by adding an appropriate effluent limitation.

iii. 2,3,7,8-TCDD and TCDD-Equivalents

(a) **WQO.** The CTR includes a criterion of 1.3×10^{-8} µg/L for 2,3,7,8-TCDD for the protection of human health for waters from which both water and organisms are consumed. No applicable water quality criteria have been developed for the remaining dioxin and furan congeners.

(b) **RPA Results.** The only dioxin and furan congener with an applicable CTR criterion (i.e., 2,3,7,8-TCDD) was not detected in the effluent or downstream receiving water. Three congeners¹ were detected in the effluent on 6 February 2007 and two congeners² were detected in the effluent on 14 August 2007. No congeners were detected in the effluent on 17 May 2008 and 7 February 2008. Two congeners³ were detected in the downstream receiving water on 6 February 2007 and one congener⁴ was detected, but not quantified (j-flagged) in the downstream receiving water on 14 August 2007. No congeners were detected in the downstream receiving water on 16 May 2008 and 7 February 2008. The source of these dioxin and furan congeners in the effluent is uncertain. Because there is no applicable water quality criterion for TCDD-equivalents and the SIP does not contain an implementation plan for TCDD-equivalents, this Order does not establish effluent limitations for TCDD-equivalents. If applicable criteria are promulgated or the SIP is revised to include an implementation plan for TCDD-equivalents, and monitoring data indicates reasonable potential to cause or contribute to an exceedance of the criteria, this Order may be reopened to include effluent limitations for TCDD-equivalents.

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-

¹ 1,2,3,4,6,7,8-HpCDD, OCDD, and OCDF.

² 1,2,3,4,6,7,8-HpCDD and OCDD.

³ OCDD and OCDF.

⁴ 1,2,3,4,7,8,9-HpCDF.

stream excursion above a water quality standard for arsenic, color, dissolved oxygen, iron, manganese, pH, and turbidity. 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. DPH has adopted a Primary MCL for arsenic of 10 µg/L, which is protective of the Basin Plan's chemical constituent objective.

(b) RPA Results. Based on 36 samples collected between May 2008 and April 2011, the MEC for arsenic was 840 µg/L. Therefore, arsenic in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the primary MCL.

(c) WQBELs. This Order contains a final AMEL and MDEL for arsenic of 10 µg/L and 29 µg/L, respectively, based on the Primary MCL.

(d) Plant Performance and Attainability. The Discharger provided an infeasibility analysis on 4 January 2012 requesting a compliance schedule for arsenic. Due to the nature of the passive treatment system, the Discharger anticipates that additional time is necessary for wetland vegetation and biogenic processes to become established and for the system to reach its design capacity. New or modified control measures may be necessary in order to comply with the effluent limitations, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. Therefore, a compliance time schedule for compliance with the arsenic effluent limitations is established in TSO No. R5-2012-XXXX in accordance with Water Code section 13300, that requires preparation and implementation of a pollution prevention plan in compliance with Water Code section 13263.3.

ii. Color

- (a) **WQO.** The Secondary MCL - Consumer Acceptance Limit for color is 15 units, which is used to implement the Basin Plan's chemical constituent objective for the protection of municipal and domestic supply.
- (b) **RPA Results.** Based on 36 samples collected between May 2008 and April 2011, tThe MEC for color was 160 units. The maximum observed annual average effluent value for color was 83 units. The discharge was discovered by the Central Valley Water Board and the City of Grass Valley following an investigation into a complaint by downstream residents that Wolf Creek was discolored. The discharge contains arsenic and iron in elevated concentrations that may contribute to discoloration of the receiving water. Because the discharge constitutes the headwaters of Magenta Drain Channel, Order No. R5-2006-0058 established effluent limitations, in addition to receiving water limitations, because no upstream receiving water monitoring location exists and comparison of results in South Fork Wolf Creek upstream and downstream of the confluence with Magenta Drain Channel may not accurately reflect the impact of the discharge on the receiving water. Based on monitoring data and the nature of the discharge, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Secondary MCL for color.
- (c) **WQBELs.** This Order contains an annual average effluent limitation for color of 15 µg/L based on the Basin Plan's narrative chemical constituents objective and the Secondary MCL. Secondary MCLs are drinking water standards contained in Title 22 of the California Code of Regulations. For Secondary MCLs, Title 22 requires compliance with these standards on an annual average basis, when sampling at least quarterly. Since water that meets these requirements on an annual average basis is suitable for drinking, it is impracticable to calculate average weekly and average monthly effluent limitations because such limits would be more stringent than necessary to protect the MUN beneficial use. The Central

Valley Water Board has determined that an averaging period similar to what is used by the DPH for those parameters regulated by Secondary MCLs is appropriate, and that using shorter averaging periods is impracticable because it sets more stringent limits than necessary.

- (d) Plant Performance and Attainability.** The new passive treatment system is designed to remove iron precipitates, which should provide significant reductions in color to levels that comply with the applicable effluent limitation. The Central Valley Water Board concludes, therefore, that immediate compliance with this effluent limitation is feasible.

iii. Dissolved Oxygen

- (a) WQO.** For water bodies designated as having COLD as a beneficial use, the Basin Plan includes a water quality objective of maintaining a minimum of 7.0 mg/L of dissolved oxygen. For surface water bodies outside of the Delta, the Basin Plan includes the water quality objective that *"...the monthly median of the mean daily dissolved oxygen (DO) concentration shall not fall below 85 percent of saturation in the main water mass, and the 95 percentile concentration shall not fall below 75 percent of saturation."*
- (b) RPA Results.** The minimum observed dissolved oxygen concentration in the effluent was 3.67 mg/L and the maximum was 10.1 mg/L in 154 samples collected between May 2008 and April 2011. Because the discharge constitutes the headwaters of Magenta Drain Channel, Order No. R5-2006-0058 established effluent limitations, in addition to receiving water limitations, because no upstream receiving water monitoring location exists and comparison of results in South Fork Wolf Creek upstream and downstream of the confluence with Magenta Drain Channel may not accurately reflect the impact of the discharge on the receiving water. Based on effluent monitoring data, which is below the minimum water quality objective, the discharge has a reasonable potential to cause or

contribute to an exceedance of the Basin Plan objective for dissolved oxygen.

(c) **WQBELs.** This Order contains a final instantaneous minimum effluent limitation for dissolved oxygen of 7.0 µg/L and percent saturation effluent limitations based on the CTR criterion for the protection of freshwater aquatic life.

(d) **Plant Performance and Attainability.** The Discharger provided an infeasibility analysis on 4 January 2012 requesting a compliance schedule for dissolved oxygen. Due to the nature of the passive treatment system, the Discharger anticipates that additional time is necessary for wetland vegetation and biogenic processes to become established and for the system to reach its design capacity. Additionally, the Discharger is concerned that the discharge may not be able to comply with the concentration-based effluent limitation for dissolved oxygen during the summer when the effluent flow is low and ambient heat could raise the temperature of the discharge within the conveyance pipe from the wetlands to the drainage channel, which could reduce the dissolved oxygen concentration. New or modified control measures may be necessary in order to comply with the effluent limitation, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. Therefore, a compliance time schedule for compliance with the dissolved oxygen effluent limitation is established in TSO No. R5-2012-XXXX in accordance with Water Code section 13300, that requires preparation and implementation of a pollution prevention plan in compliance with Water Code section 13263.3.

iv. Iron

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

- (b) RPA Results.** Based on 36 samples collected between May 2008 and April 2011, the MEC for iron was 86,000 µg/L. The maximum observed annual average effluent iron concentration was 11,333 µg/L. Therefore, iron in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Secondary MCL.
- (c) WQBELs.** This Order contains an annual average effluent limitation for iron of 300 µg/L based on the Basin Plan's narrative chemical constituents objective and the Secondary MCL. Secondary MCLs are drinking water standards contained in Title 22 of the California Code of Regulations. For Secondary MCLs, Title 22 requires compliance with these standards on an annual average basis, when sampling at least quarterly. Since water that meets these requirements on an annual average basis is suitable for drinking, it is impracticable to calculate average weekly and average monthly effluent limitations because such limits would be more stringent than necessary to protect the MUN beneficial use. Central Valley Water Board has determined that an averaging period similar to what is used by the DPH for those parameters regulated by Secondary MCLs is appropriate, and that using shorter averaging periods is impracticable because it sets more stringent limits than necessary.
- (d) Plant Performance and Attainability.** The Discharger provided an infeasibility analysis on 4 January 2012 requesting a compliance schedule for iron. Due to the nature of the passive treatment system, the Discharger anticipates that additional time is necessary for wetland vegetation and biogenic processes to become established and for the system to reach its design capacity. New or modified control measures may be necessary in order to comply with the effluent limitation, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. Therefore, a compliance time schedule for compliance with the iron effluent limitation is established in TSO No. R5-2012-XXXX in accordance with Water Code section 13300,

that requires preparation and implementation of a pollution prevention plan in compliance with Water Code section 13263.3.

v. Manganese

- (a) **WQO.** The Secondary MCL - Consumer Acceptance Limit for manganese is 50 µg/L, which is used to implement the Basin Plan's chemical constituent objective for the protection of municipal and domestic supply.
- (b) **RPA Results.** Based on 36 samples collected between May 2008 and April 2011, the MEC for manganese was 5,800 µg/L. The maximum observed annual average effluent manganese concentration was 3,023 µg/L. Therefore, manganese in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Secondary MCL.
- (c) **WQBELs.** This Order contains an annual average effluent limitation for manganese of 50 µg/L based on the Basin Plan's narrative chemical constituents objective and the Secondary MCL. Secondary MCLs are drinking water standards contained in Title 22 of the California Code of Regulations. For Secondary MCLs, Title 22 requires compliance with these standards on an annual average basis, when sampling at least quarterly. Since water that meets these requirements on an annual average basis is suitable for drinking, it is impracticable to calculate average weekly and average monthly effluent limitations because such limits would be more stringent than necessary to protect the MUN beneficial use. The Central Valley Water Board has determined that an averaging period similar to what is used by the DPH for those parameters regulated by Secondary MCLs is appropriate, and that using shorter averaging periods is impracticable because it sets more stringent limits than necessary.
- (d) **Plant Performance and Attainability.** The Discharger provided an infeasibility analysis on 4 January 2012 requesting a compliance schedule

for manganese. Due to the nature of the passive treatment system, the Discharger anticipates that additional time is necessary for wetland vegetation and biogenic processes to become established and for the system to reach its design capacity. New or modified control measures may be necessary in order to comply with the effluent limitation, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. Therefore, a compliance time schedule for compliance with the manganese effluent limitation is established in TSO No. R5-2012-XXXX in accordance with Water Code section 13300, that requires preparation and implementation of a pollution prevention plan in compliance with Water Code section 13263.3.

vi. pH

- (a) **WQO.** The Basin Plan includes a water quality objective for surface waters (except for Goose Lake) that the “*pH shall not be depressed below 6.5 nor raised above 8.5.*”
- (b) **RPA Results.** The discharge of mine drainage has a reasonable potential to cause or contribute to an excursion above the Basin Plan’s numeric objectives for pH.
- (c) **WQBELs.** Effluent limitations for pH of 6.5 as an instantaneous minimum and 8.5 as an instantaneous maximum are included in this Order based on protection of the Basin Plan objectives for pH.
- (d) **Plant Performance and Attainability.** The new passive treatment system is designed to ensure compliance with effluent limitations for pH. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

i. Turbidity

(a) WQO. The Secondary MCL - Consumer Acceptance Limit for turbidity is 5 NTU, which is used to implement the Basin Plan's chemical constituent objective for the protection of municipal and domestic supply. Additionally, the Basin Plan includes a narrative objective for turbidity that states “[w]aters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses,” and includes numeric turbidity objectives for varying receiving water conditions.

(b) RPA Results. In 154 samples collected between May 2008 and April 2011, the MEC for turbidity was 147 NTU. The maximum observed annual average effluent turbidity was 21 NTU. The discharge was discovered by the Central Valley Water Board and the City of Grass Valley following an investigation into a complaint by downstream residents that Wolf Creek was discolored. The discharge contains arsenic and iron in elevated concentrations that may contribute to discoloration and increased turbidity of the receiving water. Because the discharge constitutes the headwaters of Magenta Drain Channel, Order No. R5-2006-0058 established effluent limitations, in addition to receiving water limitations, because no upstream receiving water monitoring location exists and comparison of results in South Fork Wolf Creek upstream and downstream of the confluence with Magenta Drain Channel may not accurately reflect the impact of the discharge on the receiving water. Based on monitoring data and the nature of the discharge, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Secondary MCL for turbidity.

(c) WQBELs. This Order contains an annual average effluent limitation for turbidity of 5 NTU based on the Basin Plan's narrative chemical constituents objective and the Secondary MCL. Secondary MCLs are drinking water standards contained in Title 22 of the California Code of

Regulations. For Secondary MCLs, Title 22 requires compliance with these standards on an annual average basis, when sampling at least quarterly. Since water that meets these requirements on an annual average basis is suitable for drinking, it is impracticable to calculate average weekly and average monthly effluent limitations because such limits would be more stringent than necessary to protect the MUN beneficial use. Central Valley Water Board has determined that an averaging period similar to what is used by the DPH for those parameters regulated by Secondary MCLs is appropriate, and that using shorter averaging periods is impracticable because it sets more stringent limits than necessary.

(d) Plant Performance and Attainability. The Discharger provided an infeasibility analysis on 4 January 2012 requesting a compliance schedule for turbidity. Due to the nature of the passive treatment system, the Discharger anticipates that additional time is necessary for wetland vegetation and processes to become established and for the system to reach its design capacity. New or modified control measures may be necessary in order to comply with the effluent limitation, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. Therefore, a compliance time schedule for compliance with the turbidity effluent limitation is established in TSO No. R5-2012-XXXX in accordance with Water Code section 13300, that requires preparation and implementation of a pollution prevention plan in compliance with Water Code section 13263.3.

4. WQBEL Calculations

- a. This Order includes WQBELs for arsenic, color, dissolved oxygen, iron, manganese, pH, and turbidity. 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 WQBEL calculations.

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

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

where:

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

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

- c. Basin Plan Objectives and MCLs.** For WQBELs based on site-specific numeric Basin Plan objectives or MCLs, the effluent limitations are applied directly as the ECA as either an MDEL, AMEL, or average annual effluent limitations, depending on the averaging period of the objective.
- d. Aquatic Toxicity Criteria.** WQBELs based on acute and chronic aquatic toxicity criteria are calculated in accordance with Section 1.4 of the SIP. The ECAs are converted to equivalent long-term averages (i.e., LTA_{acute} and $LTA_{chronic}$) using statistical multipliers and the lowest LTA is used to calculate the AMEL and MDEL using additional statistical multipliers.

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

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

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

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

where:

$mult_{AMEL}$ = 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 No. 001

Table F-8. Summary of Water Quality-Based Effluent Limitations

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants					
pH	standard units	--	--	6.5	8.5
Priority Pollutants					
Arsenic, Total Recoverable	µg/L	10	29	--	--
Non-Conventional Pollutants					

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Color	color units	15 ¹	--	--	--
Dissolved Oxygen	mg/L	--	²	--	--
Iron, Total Recoverable	µg/L	300 ¹	--	--	--
Manganese, Total Recoverable	µg/L	50 ¹	--	--	--
Turbidity	NTU	5 ¹	--	--	--

¹ Applied as an average annual effluent limitation.

² Dissolved oxygen in the discharge shall be no less than 85 percent of saturation as the monthly median of the mean daily dissolved oxygen concentration, 75 percent of saturation as the 95th percentile dissolved oxygen concentration, and 7.0 mg/L at any time.

5. Whole Effluent Toxicity (WET)

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

a. Acute Aquatic Toxicity. The Basin Plan contains a narrative toxicity objective that states, “*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*” (Basin Plan at page III-8.00) The Basin Plan also states that, “*...effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate...*”. USEPA Region 9 provided guidance for the development of acute toxicity effluent limitations in the absence of numeric water quality objectives for toxicity in its document titled "Guidance for NPDES Permit Issuance", dated February 1994. In section B.2. "Toxicity Requirements" (pgs.

14-15) it states that, "*In the absence of specific numeric water quality objectives for acute and chronic toxicity, the narrative criterion 'no toxics in toxic amounts' applies. Achievement of the narrative criterion, as applied herein, means that ambient waters shall not demonstrate for acute toxicity: 1) less than 90% survival, 50% of the time, based on the monthly median, or 2) less than 70% survival, 10% of the time, based on any monthly median. For chronic toxicity, ambient waters shall not demonstrate a test result of greater than 1 TUc.*" The discharge exhibited 100 percent survival in all acute toxicity tests, based on semi-annual acute toxicity testing between February 2008 and August 2010. Consistent with Order No. R5-2006-0058, effluent limitations for acute toxicity have been included in this Order as follows:

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

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

b. Chronic Aquatic Toxicity. The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at page III-8.00) Based on chronic WET testing performed by the Discharger from February 2008 through August 2010, the discharge has reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan’s narrative toxicity objective, as shown in the following table.

Table F-9. Chronic Whole Effluent Toxicity Testing Results

Date	Fathead Minnow <i>Pimephales promelas</i>		Water Flea <i>Ceriodaphnia dubia</i>		Green Algae <i>Selenastrum capricornutum</i>
	Survival (TUc)	Growth (TUc)	Survival (TUc)	Reproduction (TUc)	Growth (TUc)
February 2008	1	1	1	>1	1
August 2008	1	1	1	1	1

Date	Fathead Minnow <i>Pimephales promelas</i>		Water Flea <i>Ceriodaphnia dubia</i>		Green Algae <i>Selenastrum capricornutum</i>
	Survival	Growth	Survival	Reproduction	Growth
	(TUc)	(TUc)	(TUc)	(TUc)	(TUc)
February 2009	1	1	1	1	1
August 2009	1	1	1	1	1
February 2010	1	1	1	>1	1
August 2010	1	1	1	1	1

No dilution has been granted for the chronic condition. Therefore, chronic toxicity testing results exceeding 1 chronic toxicity unit (TUc) demonstrates the discharge has a reasonable potential to cause or contribute to an exceedance of the Basin Plan’s narrative toxicity objective. Therefore, this Order includes a narrative chronic toxicity effluent limitation. However, the discharge from the passive treatment system is expected to improve the effluent quality. Therefore, chronic toxicity testing may be discontinued after 2 years of semi-annual monitoring if all testing results from the passive treatment system show no chronic toxicity. In addition to WET monitoring, the Special Provision in section VI.C.2.a. of the Order requires the Discharger to submit to the Regional Water Board an Initial Investigative TRE Workplan for approval by the Executive Officer, to ensure the Discharger has a plan to immediately move forward with the initial tiers of a TRE, in the event effluent toxicity is encountered in the future. The provision also includes a numeric toxicity monitoring trigger, requirements for accelerated monitoring, and requirements for TRE initiation if toxicity is demonstrated.

Numeric chronic WET effluent limitations have not been included in this Order. The SIP contains implementation gaps regarding the appropriate form and implementation of chronic toxicity limits. This has resulted in the petitioning of a NPDES permit in the Los Angeles Region¹ that contained numeric chronic

¹ In the Matter of the Review of Own Motion of Waste Discharge Requirements Order Nos. R4-2002-0121 [NPDES No. CA0054011] and R4-2002-0123 [NPDES NO. CA0055119] and Time Schedule Order Nos.

toxicity effluent limitations. To address the petition, the State Water Board adopted WQO 2003-012 directing its staff to revise the toxicity control provisions in the SIP. The State Water Board states the following in WQO 2003-012, *“In reviewing this petition and receiving comments from numerous interested persons on the propriety of including numeric effluent limitations for chronic toxicity in NPDES permits for publicly-owned treatment works that discharge to inland waters, we have determined that this issue should be considered in a regulatory setting, in order to allow for full public discussion and deliberation. We intend to modify the SIP to specifically address the issue. We anticipate that review will occur within the next year. We therefore decline to make a determination here regarding the propriety of the final numeric effluent limitations for chronic toxicity contained in these permits.”* The process to revise the SIP is currently underway. Proposed changes include clarifying the appropriate form of effluent toxicity limits in NPDES permits and general expansion and standardization of toxicity control implementation related to the NPDES permitting process. Since the toxicity control provisions in the SIP are under revision it is infeasible to develop numeric effluent limitations for chronic toxicity. Therefore, this Order requires that the Discharger meet best management practices for compliance with the Basin Plan’s narrative toxicity objective, as allowed under 40 CFR 122.44(k).

To ensure compliance with the Basin Plan’s narrative toxicity objective, the Discharger is required to conduct chronic WET testing, as specified in the Monitoring and Reporting Program (Attachment E section V). Furthermore, the Special Provision contained at VI.C.2.a. of this Order requires the Discharger to investigate the causes of, and identify and implement corrective actions to reduce or eliminate effluent toxicity. If the discharge demonstrates toxicity exceeding the numeric toxicity monitoring trigger, the Discharger is required to initiate a Toxicity Reduction Evaluation (TRE) in accordance with an approved

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).

TRE workplan. The numeric toxicity monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to perform accelerated chronic toxicity monitoring, as well as, the threshold to initiate a TRE if effluent toxicity has been demonstrated.

D. Final Effluent Limitations

1. Mass-based Effluent Limitations

40 CFR 122.45(f)(1) requires effluent limitations be expressed in terms of mass, with some exceptions, and 40 CFR 122.45(f)(2) allows pollutants that are limited in terms of mass to additionally be limited in terms of other units of measurement. This Order does not include effluent limitations expressed in terms of mass. Pursuant to the exceptions to mass limitations provided in 40 CFR 122.45(f)(1), some effluent limitations are not expressed in terms of mass, such as pH and temperature, and when the applicable standards are expressed in terms of concentration (e.g., CTR criteria and MCLs) and mass limitations are not necessary to protect the beneficial uses of the receiving water.

2. Averaging Periods for Effluent Limitations

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

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

3. Satisfaction of Anti-Backsliding Requirements

The Clean Water Act 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 Clean Water Act sections 402(o) or 303(d)(4), or, where applicable, 40 CFR 122.44(l).

The effluent limitations in this Order are at least as stringent as the effluent limitations in the existing Order, with the exception of effluent limitations for aluminum, antimony, barium, cadmium, chromium III, cobalt, color, copper, iron, lead, manganese, mercury, nickel, settleable solids, thallium, TSS, turbidity, vanadium, and zinc. The effluent limitations for these pollutants are less stringent than those in Order No. R5-2006-0058. As described in section IV.C.3.b of this Fact Sheet, based on updated monitoring data that was not available at the time Order No. R5-2006-0058 was issued and the installation of the new passive treatment system, aluminum, antimony, barium, cadmium, chromium III, cobalt, copper, lead, mercury, nickel, settleable solids, thallium, vanadium, and zinc do not exhibit reasonable potential to cause or contribute to an exceedance of water quality objectives in the receiving water. For aluminum, antimony, barium, cadmium, chromium III, cobalt, copper lead, nickel, mercury, settleable solids, thallium, vanadium and zinc, effluent limitations are not retained in this Order. The AMELs contained in Order No. R5-~~2005-0139~~2006-0058 for color, iron, manganese, and turbidity have been revised to annual average effluent limitations consistent with input from DPH ~~and the fact that MCLs are designed to protect human health over long exposure periods~~that Title 22 requires compliance with these secondary MCL standards on an annual average basis. This revision is a change in calculation that will not affect water quality; subsequently, water quality will not be lowered. Removal of the WQBELs in the previous permit is in accordance with CWA sections 303(d)(4) and 402(o), which allow for the removal of WQBELs for attainment waters where antidegradation requirements are satisfied. Removal of the WQBELs is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No.

68-16. Therefore, the modifications to these effluent limitations do not violate anti-backsliding requirements. Any impact on existing water quality will be insignificant.

Furthermore, pursuant to CWA section 303(d)(4), backsliding may be allowed for water quality based effluent limits if there is compliance with the federal and state antidegradation policies. In this case, the water quality based effluent limits established for settleable solids, aluminum, antimony, barium, cadmium, chromium III, cobalt, copper, lead, mercury, nickel, thallium, vanadium, and zinc comply with federal antibacksliding requirements because there will be no additional degradation based on a reasonable potential analysis conducted on 34 to 36 sampling events establishing no reasonable potential for these constituents.

Finally, CWA section 402(o)(2)(A) allows for backsliding based on material and substantial alterations or additions to the permitted facility which justify the application of a less stringent effluent limit. Given no reasonable potential for these constituents, backsliding is appropriate because of the material and substantial alterations to the site by construction and implementation of a new treatment system, which justify the application of less stringent effluent limitations.

Order No. R5-2006-0058 established technology-based effluent limitations for TSS based on BPJ and applying the ELGs at 40 CFR Part 440 which applies to active mining areas. As described in section IV.B.2 of this Fact Sheet, the Facility is not an “active mining area” as defined in CFR Part 440, and has not been in operation for many years before the Board’s adoption of Order R5-2006-0058. CWA sections 402(o)(2)(A) and (B)(ii) provide exceptions to anti-backsliding requirements for effluent based on BPJ where material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation and where technical mistakes or mistaken interpretations of law were made. The Discharger has installed a passive treatment system designed to remove TSS, which constitutes a material and substantial alteration to the Facility. Additionally, because the Facility is not an active mining area as defined in 40 CFR Part 440, and has not been an active mining area for

many years prior to the adoption of Order R5-2006-0058, the effluent limitations representing BPT and BAT for an active mine are not applicable to this Facility. Therefore, it is appropriate to discontinue effluent limitations for TSS in accordance with CWA sections 402(o)(2)(B)(ii). This Order discontinues effluent limitations for TSS in accordance with CWA sections 402(o)(2)(A) and (B)(ii).

4. Satisfaction of Antidegradation Policy

- a. **Surface Water.** This Order does not allow for an increase in flow or mass of pollutants to the receiving water. Therefore, a complete antidegradation analysis is not necessary. The Order requires compliance with applicable federal technology-based standards and with WQBELs where the discharge could have the reasonable potential to cause or contribute to an exceedance of water quality standards. The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.
- b. **Groundwater.** The new passive treatment system utilizes a settling pond and two wetlands. Mine drainage contains constituents such as arsenic, iron, and manganese. The increase in the concentration of these constituents in groundwater must be consistent with Resolution No. 68-16. Any increase in pollutant concentrations in groundwater must be shown to be necessary to allow wastewater utility service necessary to accommodate housing and economic expansion in the area and must be consistent with maximum benefit to the people of the State of California. Some degradation of groundwater by the Discharger is consistent with Resolution No. 68-16 provided that:
 - i. the degradation is limited in extent;

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

The settling pond and wetlands are completely lined with a plastic geomembrane liner. Therefore, discharges to groundwater are not expected. Seepage water from the mine (i.e., the wastewater) is also groundwater, and thus any incidental discharges to groundwater would not be expected to cause degradation to existing groundwater quality.

5. Stringency of Requirements for Individual Pollutants

This Order contains both technology-based effluent limitations and WQBELs for individual pollutants. Technology-based effluent limitations are not applicable to the discharge. The WQBELs consist of restrictions on arsenic, color, dissolved oxygen, iron, manganese, pH, and turbidity. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements.

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

30 May 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to 30 May 2000, but not approved by USEPA before that date, are nonetheless “applicable water quality standards for purposes of the CWA” pursuant to 40 CFR 131.21(c)(1). Collectively, this Order’s restrictions on individual pollutants are no more stringent than required to implement the requirements of the CWA.

**Summary of Final Effluent Limitations
Discharge Point No. 001**

Table F-10. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations				Basis ¹
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
<i>Conventional Pollutants</i>						
pH	standard units	--	--	6.5	8.5	BP
<i>Priority Pollutants</i>						
Arsenic, Total Recoverable	µg/L	10	29	--	--	MCL
<i>Non-Conventional Pollutants</i>						
Color	color units	15 ²	--	--	--	SEC MCL
Dissolved Oxygen	mg/L	--	³	--	--	BP
Iron, Total Recoverable	µg/L	300 ²	--	--	--	SEC MCL
Manganese, Total Recoverable	µg/L	50 ²	--	--	--	SEC MCL
Turbidity	NTU	5 ²	--	--	--	SEC MCL

Parameter	Units	Effluent Limitations				Basis ¹
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	

- ¹ BP - Based on water quality objectives contained in the Basin Plan.
 MCL - Based on the Primary Maximum Contaminant Level.
 SEC MCL - Based on the Secondary Maximum Contaminant Level.
- ² Applied as an annual average effluent limitation.
- ³ Dissolved oxygen in the discharge shall be no less than 85 percent of saturation as the monthly median of the mean daily dissolved oxygen concentration, 75 percent of saturation as the 95th percentile dissolved oxygen concentration, and 7.0 mg/L at any time

E. Interim Effluent Limitations - Not Applicable

F. Land Discharge Specifications - Not Applicable

G. Reclamation Specifications - Not Applicable

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

Basin Plan water quality objectives to protect the beneficial uses of surface water and groundwater include numeric objectives and narrative objectives, including objectives for chemical constituents, toxicity, and tastes and odors. The toxicity objective requires that surface water and groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituent objective requires that surface water and groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use or that exceed the 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 the beneficial uses.” The Basin Plan includes numeric and narrative water quality objectives for various beneficial uses and water bodies. This Order contains receiving surface water limitations based on the Basin Plan numerical and narrative water quality objectives for bacteria, biostimulatory substances, color, chemical constituents, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, suspended sediment, settleable substances, suspended material, tastes and odors, temperature, toxicity, and turbidity.

a. **pH.** Order No. R5-2006-0058 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, and allowed a 1-month averaging period for calculating pH change. The Central Valley Water Board adopted Resolution No. R5-2007-0136 on 25 October 2007, amending the Basin Plan to delete the portion of the pH water quality objective that limits the change in pH to 0.5 units and the allowance of averaging periods for pH. The Basin Plan amendment has been approved by the State Water Board, the Office of Administrative Law, and USEPA. Consistent with the revised water quality objective in the Basin Plan, this Order does not require a receiving water limitation for pH change.

In Finding No. 14 of Resolution No. R5-2007-0136 the Central Valley Water Board found that the change in the pH receiving water objective is consistent with the State Water Board Resolution No. 68-16, in that the changes to water quality objectives (i) consider maximum benefit to the people of the State, (ii) will not unreasonably affect present and anticipated beneficial use of waters, and

(iii) will not result in water quality less than that prescribed in policies, and is consistent with the federal Antidegradation Policy (40 CFR 131.12).

There are no other constituents regulated by this Order directly related to pH. Therefore the relaxation of the pH receiving water limitation will protect aquatic life and other beneficial uses and will not unreasonably affect present and anticipated beneficial uses nor result in water quality less than described in applicable policies. The relaxation of the receiving water limitation is not expected to cause other impacts on water quality. The Central Valley Water Board finds that the relaxation of the pH receiving water limitation (i) is to the maximum benefit to the people of the State, (ii) will not unreasonably affect present and anticipated beneficial use of waters, and (iii) will not result in water quality less than that prescribed in policies, and is consistent with the federal Antidegradation Policy (40 CFR 131.12).

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

- b. Temperature.** This Order includes a receiving water limitation for temperature requiring that the natural temperature of the receiving water not be increased by more than 5°F, consistent with the water quality objective for temperature in the

Basin Plan. The Central Valley Water Board generally determines compliance with this requirement based on the difference in temperature at the upstream and downstream receiving water monitoring locations. The discharge constitutes the headwaters of Magenta Drain Channel. Therefore, there is no physical upstream receiving water monitoring location and it is infeasible to collect upstream receiving water samples to determine compliance with this receiving water limitation. However, because the discharge from the Facility is composed of mine drainage, which will be retained in the passive treatment system for an average of 72 hours, the discharge is not expected to cause negative impacts on the beneficial uses in Magenta Drain Channel or South Fork Wolf Creek. This Order requires effluent and receiving water monitoring at Monitoring Locations EFF-001, RSW-002, and RSW-003 for temperature to characterize the impacts of the discharge in Magenta Drain Channel and South Fork Wolf Creek.

- c. **Turbidity.** Order No. R5-2006-0058 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 No. R5-2007-0136 on 25 October 2007, amending the Basin Plan to limit turbidity to 2 NTU when the natural turbidity is less than 1 NTU. The Basin Plan amendment has been approved by the State Water Board, the Office of Administrative Law, and USEPA. Consistent with the revised water quality objective in the Basin Plan, this Order limits turbidity to 2 NTU when the natural turbidity is less than 1 NTU.

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

policies, and is consistent with the federal Antidegradation Policy (40 CFR 131.12).

This Order includes an annual average effluent limitation for turbidity of 5 NTU. The Order will be protective of the receiving water under all natural background conditions as defined in the Basin Plan's revised water quality objective for turbidity. The relaxation of the turbidity receiving water limitation will protect aquatic life and other beneficial uses and will not unreasonably affect present and anticipated beneficial uses nor result in water quality less than described in applicable policies. The relaxation of the receiving water limitation is not expected to cause other impacts on water quality. The Central Valley Water Board finds that the relaxation of the turbidity receiving water limitation is to the maximum benefit to the people of the State, (ii) will not unreasonably affect present and anticipated beneficial use of waters, and (iii) will not result in water quality less than that prescribed in policies, and is consistent with the federal Antidegradation Policy (40 CFR 131.12).

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

The Central Valley Water Board generally determines compliance with this requirement based on the difference in turbidity at the upstream and downstream receiving water monitoring locations. The discharge constitutes the headwaters of Magenta Drain Channel. Therefore, there is no physical upstream receiving water monitoring location and it is infeasible to collect upstream receiving water samples to determine compliance with this receiving water limitation. However, this Order includes an effluent limitation of 5 NTUs, which should be protective of beneficial uses in Magenta Drain Channel and South Fork Wolf Creek. Magenta Drain Channel and South Fork Wolf Creek downstream of the discharge flow through open area prior to the downstream monitoring location and receive flows from several storm drains, which could mask actual impacts of the discharge on Magenta Drain Channel and South Fork Wolf Creek. Therefore, section VII.C of this Order specifies that compliance with the effluent limitation for turbidity in section IV.A.1.h, as measured at Monitoring Location EFF-001, shall constitute compliance with the receiving water limitation for turbidity in Magenta Drain Channel and South Fork Wolf Creek.

B. Groundwater

1. The beneficial uses of the underlying ground water are municipal and domestic supply, industrial service supply, industrial process supply, and agricultural supply.
2. Basin Plan water quality objectives include narrative objectives for chemical constituents, tastes and odors, and toxicity of groundwater. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituent objective states groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use. The tastes and odors objective prohibits taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan also establishes numerical water quality objectives for chemical constituents and radioactivity in groundwaters designated as municipal supply. These include, at a

minimum, compliance with MCLs in Title 22 of the CCR. The bacteria objective prohibits coliform organisms at or above 2.2 MPN/100 mL. The Basin Plan requires the application of the most stringent objective necessary to ensure that waters do not contain chemical constituents, toxic substances, radionuclides, taste- or odor-producing substances, or bacteria in concentrations that adversely affect municipal or domestic supply, agricultural supply, industrial supply or some other beneficial use.

3. The settling pond and wetlands are completely lined with a plastic geomembrane liner. Therefore, discharges to groundwater are not expected and this Order does not require the Discharger to install groundwater monitoring wells. Seepage water from the mine (i.e., the wastewater) is also groundwater, and thus any incidental discharges to groundwater would not be expected to cause degradation to groundwater quality.

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

40 CFR 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorizes the 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. Effluent monitoring frequencies and sample types for flow (continuous), arsenic (monthly), color (monthly), hardness (monthly), iron (monthly), manganese (monthly), temperature (monthly), and total dissolved solids (monthly) have been retained from Order No. R5-2006-0058 to determine compliance with applicable effluent limitations and characterize the effluent.
3. This Order includes effluent limitations for dissolved oxygen in terms of percent saturation and concentration. In order to determine compliance with the effluent limitation for dissolved oxygen, this Order increases the monitoring frequency for dissolved oxygen from monthly to daily.
4. Monitoring data collected over the existing permit term for aluminum, antimony, barium, beryllium, total chromium, chromium VI, cobalt, cyanide, methylmercury, molybdenum, nickel, selenium, settleable solids, sulfate, thallium, and vanadium did not demonstrate reasonable potential to exceed water quality objectives/criteria. Thus, specific monitoring requirements for these parameters have not been retained from Order No. R5-2006-0058.
5. Monitoring data collected over the existing permit term for cadmium, copper, lead, mercury, TSS, and zinc did not demonstrate reasonable potential to exceed water quality objectives/criteria and effluent limitations have not been retained in this Order. However, because these constituents are considered constituents of concern in 40 CFR Part 440 for active mines, this Order requires monitoring to continue to characterize the effluent for these parameters. This Order reduces the monitoring frequency for these constituents from monthly to quarterly. Additionally, this Order requires the Discharger to collect effluent samples for mercury using clean hands/dirty hands procedures, as described in USEPA method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels, for collection of equipment blanks (section 9.4.4.2), and analyze them using USEPA method 1630/1631 (Revision E); therefore, this Order revises the sample type from 24-hour composite samples to grab samples.

6. The Discharger requested in section 4.3.2 of the ROWD that the monitoring frequency for electrical conductivity, pH, and turbidity be reduced from continuous. The effluent from the passive treatment system is not expected to be highly variable, and pollutant concentrations are expected to change slowly. No chemicals are added in the treatment system and no pH adjustment will occur. Therefore, the effluent monitoring frequency for electrical conductivity has been reduced from continuous to monthly and the monitoring frequencies for pH and turbidity have been reduced from continuous to weekly.
7. As discussed in section IV.C.3.c of this Fact Sheet, although bis (2-ethylhexyl) phthalate was detected in the effluent, due to the limited amount of data available and concerns with contamination from plastics in monitoring equipment, it is uncertain whether bis (2-ethylhexyl) phthalate is truly present in the effluent discharge. To collect the data necessary to determine the prevalence in the effluent, this Order establishes semi-annual monitoring for bis (2-ethylhexyl) phthalate and requires the Discharger to conduct a constituent study to determine potential sources of bis (2-ethylhexyl) phthalate.
8. As discussed in section IV.C.3.c of this Fact Sheet, although there was an effluent detection of chrysene, due to the limited amount of data available and the lack of an identified source of chrysene in the mine drainage, it is uncertain whether chrysene is truly present in the effluent discharge. To collect the data necessary to determine the prevalence in the effluent, this Order establishes semi-annual monitoring for chrysene and requires the Discharger to conduct a constituent study to determine potential sources of chrysene.
9. Priority pollutant data for the effluent has been provided by the Discharger and was used to conduct a meaningful RPA. In accordance with Section 1.3 of the SIP, periodic monitoring for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established is required. Consistent with Order No. R5-2005-0008, this Order requires quarterly monitoring during the third or fourth year of the permit term in order to collect data to conduct an RPA for the

next permit renewal. See Attachment I for more detailed requirements related to performing priority pollutant monitoring.

10. California 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 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).

Section 13176 cannot be interpreted in a manner that would violate federal holding time requirements that apply to NPDES permits pursuant to the Clean Water Act. (Wat. Code §§ 13370, subd. (c), 13372, 13377.) Section 13176 is inapplicable to NPDES permits to the extent it is inconsistent with Clean Water Act requirements. (Wat. Code § 13372, subd. (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 section 13176 for constituents with short holding times.

C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Consistent with Order No. R5-2006-0058, semi-annual 96-hour bioassay testing is required to demonstrate compliance with the effluent limitations for acute toxicity.
2. **Chronic Toxicity.** The Discharger requested that the testing frequency be reduced to annually; however, as described further in section IV.C.5.b of this Fact Sheet, the discharge has reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan’s narrative toxicity objective. Therefore, consistent with Order No. R5-2006-0058, semi-annual chronic whole effluent toxicity testing is required in order to demonstrate compliance with the Basin Plan’s narrative toxicity objective and the narrative effluent limitation established in this Order. Because the

discharge from the passive treatment system is expected to improve the effluent quality, chronic toxicity testing may be discontinued after 2 years of semi-annual monitoring if all testing results from the passive treatment system show no chronic toxicity.

D. Receiving Water Monitoring

1. Surface Water

- a. Receiving water monitoring is necessary to assess compliance with receiving water limitations and to assess the impacts of the discharge on the receiving stream.
- b. Order No. R5-2006-0058 required receiving water monitoring in Magenta Drain Channel downstream of the discharge at Monitoring Location RSW-001 and in South Fork Wolf Creek upstream and downstream of the confluence with Magenta Drain Channel at Monitoring Locations RSW-002 and RSW-003. Monitoring Location RSW-001 is approximately 150 feet downstream of the Magenta Drain portal, and Magenta Drain Channel at this location is expected to be comprised only of the effluent, with the exception of periodic storm water flow. The Discharger requested, and the Central Valley Water Board agrees, that monitoring at Monitoring Location RSW-001 be discontinued since it is duplicative of effluent monitoring. Therefore, this Order discontinues monitoring requirements at Monitoring Location RSW-001.
- c. Receiving water monitoring frequencies and sample types for pH (monthly), color (monthly), dissolved oxygen (monthly), electrical conductivity (monthly), hardness (monthly), temperature (monthly), and turbidity (monthly) have been retained from Order No. R5-2006-0058.
- d. Monitoring requirements for radionuclides have not been retained from Order No. R5-2006-0058 as they are not necessary to determine compliance with permit requirements.

2. Groundwater - Not Applicable

E. Other Monitoring Requirements

- 1. Solids Monitoring.** Solids monitoring is required to ensure compliance with the solids disposal requirements of this Order and are retained from Order No. R5-2006-0058.
- 2. Effluent Characterization Study.** An effluent monitoring study is required to ensure adequate information is available for the next permit renewal. During the third or fourth year of this permit term, the Discharger is required to conduct quarterly monitoring of the effluent at Monitoring Location EFF-001 for all priority pollutants and other constituents of concern as described in Attachment I.

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions

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

40 CFR 122.41(a)(1) and (b) through (n) establish conditions that apply to all State-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. 40 CFR 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 CFR 123.25, this Order omits federal conditions that address enforcement authority specified in 40 CFR 122.41(j)(5) and (k)(2) because the enforcement authority under the 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 TRE. This Order may be reopened to include a numeric chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if a numeric chronic toxicity water quality objective is adopted by the State Water Board, this Order may be reopened to include a numeric chronic toxicity limitation based on that objective.
- 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. 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. Constituent Study.** There are indications that the discharge may contain constituents that have a reasonable potential to cause or contribute to an exceedance of water quality objectives, including bis (2-ethylhexyl) phthalate and chrysene. This Order requires the Discharger to complete a study to determine potential sources of the pollutants in the effluent. This reopener provision allows the Central Valley Water Board to reopen this Order for addition of effluent limitations and requirements for these constituents if after review of the study results it is determined that the discharge has reasonable potential to cause or contribute to an exceedance of a water quality objective.

2. Special Studies and Additional Monitoring Requirements

- a. **Chronic Whole Effluent Toxicity Requirements.** The Basin Plan contains a narrative toxicity objective that states, “*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*” (Basin Plan at page III-8.00) Based on whole effluent chronic toxicity testing performed by the Discharger from February 2008 through August 2010, the discharge has reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan’s narrative toxicity objective.

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

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

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

The provision requires accelerated monitoring consisting of four chronic toxicity tests 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.

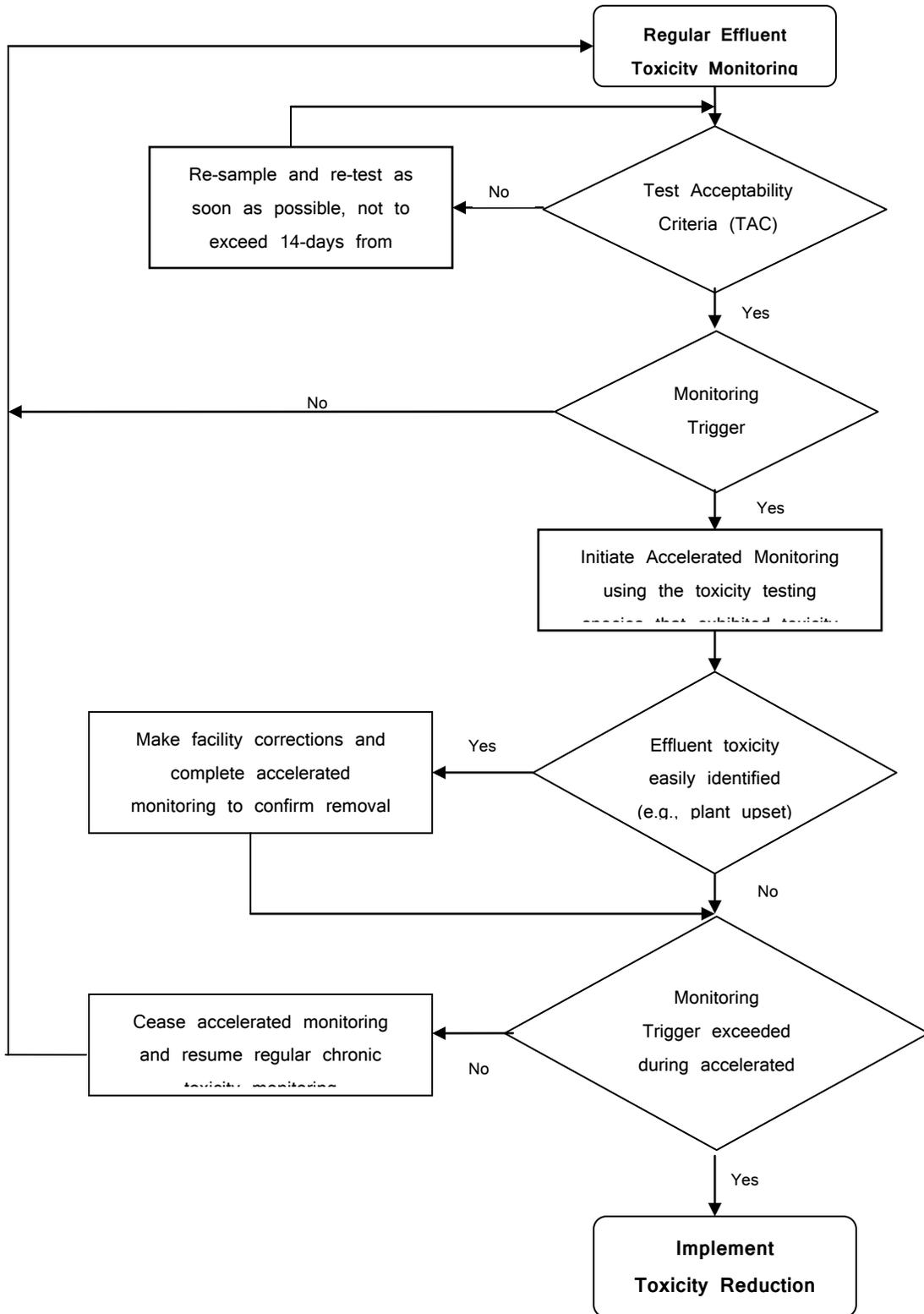
See the WET Accelerated Monitoring Flow Chart (Figure F-1), below, for further clarification of the accelerated monitoring requirements and for the decision points for determining the need for TRE initiation.

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

- Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants, EPA/833-B-99/002, August 1999.
- Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations (TREs), EPA/600/2-88/070, April 1989.
- Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures, Second Edition, EPA 600/6-91/003, February 1991.

- Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I, EPA/600/6-91/005F, May 1992.
- Methods for Aquatic Toxicity Identification Evaluations: Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity, Second Edition, EPA/600/R-92/080, September 1993.
- Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity, Second Edition, EPA 600/R-92/081, September 1993.
- Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, EPA-821-R-02-012, October 2002.
- Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition, EPA-821-R-02-013, October 2002.
- Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991.

Figure F-1
WET Accelerated Monitoring Flow Chart



b. Constituent Study. There are indications that the discharge may contain constituents that have a reasonable potential to cause or contribute to an exceedance of water quality objectives, including bis (2-ethylhexyl) phthalate and chrysene, as described further in section IV.C.3.c of this Fact Sheet. This Order requires the Discharger to complete a study to determine potential sources of the pollutants in the effluent. If after a review of the study results it is determined that the discharge has reasonable potential to cause or contribute to an exceedance of a water quality objective this Order may be reopened and effluent limitations added for the subject constituents.

3. Best Management Practices and Pollution Prevention - Not Applicable

4. Construction, Operation, and Maintenance Specifications

a. Consistent with Order No. R5-2006-0058, this Order requires that the treatment facilities be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

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

6. Other Special Provisions -

a. Solids Management. Section 5.1 of the ROWD states that the bottom of the settling pond will be sounded annually and precipitated solids will be periodically removed and disposed of at a disposal facility. The ponds were sized assuming space for approximately 500 cubic yards of precipitate material with an assumed density of about 8 pounds per gallon per cubic foot (i.e., 5% solids). Based on the average design flow rate and iron concentration of the mine drainage, the Discharger estimates that precipitated solids will need to be removed from the settling pond every 10 years and from the wetlands every 50 years. Consistent with Order No. R5-2006-0058, this Order requires that collected screenings and solids be disposed of in a manner approved by the Executive Officer and

consistent with the *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solids Wastes*, as set forth in 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 an NPDES permit for the Facility. As a step in the WDR adoption process, the Central Valley Water Board staff has developed tentative WDRs. The Central Valley Water Board encourages public participation in the WDR 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 following **[Describe Notification Process (e.g., newspaper name and date)]**

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 above 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 **<DATE>**.

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: 7/8 June 2012

Time: 8:30 a.m.

Location: Regional Water Quality Control Board, Central Valley Region
11020 Sun Center Dr., Suite #200
Rancho Cordova, CA 95670

Interested persons are invited to attend. At the public hearing, the 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 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 submitted within 30 days of the Central Valley Water Board's action to the following address:

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

E. Information and Copying

The Report of Waste Discharge, related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Central Valley Water Board by calling (916) 464-3291.

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the 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 Elizabeth Thayer at (916) 464-4671.

ATTACHMENT G - SUMMARY OF REASONABLE POTENTIAL ANALYSIS

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Aluminum, Total Recoverable	µg/L	22.3	--	87	750 ¹	87 ²	--	--	--	200	No
Antimony, Total Recoverable	µg/L	0.24	--	6	--	--	14	4,300	--	6	No
Arsenic, Total Recoverable	µg/L	840	--	10	340	150	--	--	--	10	Yes
Barium, Total Recoverable	µg/L	67	--	1,000	--	--	--	--	--	1,000	No
Bis (2-Ethylhexyl) Phthalate	µg/L	1.8	--	1.8	--	--	1.8	5.9	--	4	No
Butylbenzyl Phthalate	µg/L	1.7	--	3,000	--	--	3,000	5,200	--	--	No
Cadmium, Total Recoverable	µg/L	0.17	--	2.4 ³ /1.2 ⁴	4.1 ³ /1.5 ⁴	2.4 ³ /1.2 ⁴	--	--	--	5	No
Chloride	mg/L	6.5	--	106 ⁵	--	--	--	--	--	250	No
Chromium, Total Recoverable	µg/L	0.82	--	50	--	--	--	--	--	50	No
Chromium (VI), Total Recoverable	µg/L	3.3	--	11	16	11	--	--	--	50	No
Chrysene	µg/L	1.4	--	0.0044	--	--	0.0044	0.049	--	--	No
Cobalt, Total Recoverable	µg/L	2.6	--	50 ⁵	--	--	--	--	--	--	No
Color	color units	83 ⁶	--	15	--	--	--	--	--	15	Yes
Copper, Total Recoverable	µg/L	2.6	--	8.9 ³ /4.1 ⁴	13 ³ /5.6 ⁴	8.9 ³ /4.1 ⁴	1,300	--	--	1,000	No
Cyanide, Total (as CN)	µg/L	1.2	--	5.2	22	5.2	700	220,000	--	150	No
Diethyl Phthalate	µg/L	0.78	--	23,000	--	--	23,000	120,000	--	--	No
2,4-D	µg/L	0.91	--	70	--	--	--	--	--	70	No

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Di-n-Butyl Phthalate	µg/L	0.96	--	2,700	--	--	2,700	12,000	--	--	No
Di-n-Octyl Phthalate	µg/L	1.6	--	--	--	--	--	--	--	--	No
Electrical Conductivity @ 25°C	µmhos/cm	1,304	--	700 ⁵	--	--	--	--	--	900	No
Fluoride, Total	µg/L	300	--	2,000	--	--	--	--	--	2,000	No
Iron, Total Recoverable	µg/L	11,333 ⁶	--	300	--	--	--	--	--	300	Yes
Lead, Total Recoverable	µg/L	0.73	--	2.7 ³ /0.93 ⁴	69 ³ /24 ⁴	2.7 ³ /0.93 ⁴	--	--	--	15	No
Manganese, Total Recoverable	µg/L	3,023 ⁶	--	50	--	--	--	--	--	50	Yes
Mercury, Total Recoverable	µg/L	0.0082	--	0.050	--	--	0.050	0.051	--	2.0	No
Methylene Blue Activated Substance	µg/L	52 ⁶	--	500	--	--	--	--	--	500	No
Molybdenum, Total Recoverable	µg/L	1.6	--	10 ⁵	--	--	--	--	--	--	No
Nickel, Total Recoverable	µg/L	2.7	--	50 ³ /23 ⁴	449 ³ /207 ⁴	50 ³ /23 ⁴	610	4,600	--	100	No
Nitrate Nitrogen, Total (as N)	mg/L	0.86	--	10	--	--	--	--	--	10	No
Pentachlorophenol	µg/L	0.0081	--	0.28	2.0	1.5	0.28	8.2	--	1	No
Phosphorus, Total (as P)	µg/L	54	--	--	--	--	--	--	--	--	No
Selenium, Total Recoverable	µg/L	0.22	--	5.0	20	5.0	--	--	--	20	No
Sulfate	mg/L	129 ⁶	--	250	--	--	--	--	--	250	No
Sulfide	µg/L	45	--	--	--	--	--	--	--	--	No
TCDD-Equivalents	µg/L	6.34x10 ⁻⁷	--	--	--	--	--	--	--	--	No

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Thallium, Total Recoverable	µg/L	0.33	--	1.7	--	--	1.7	6.3	--	2	No
Total Dissolved Solids	mg/L	453	--	450 ⁵	--	--	--	--	--	500	No
Turbidity	NTU	21 ⁶	--	5	--	--	--	--	--	5	Yes
Vanadium, Total Recoverable	µg/L	5.6	--	100 ⁵	--	--	--	--	--	--	No
Zinc, Total Recoverable	µg/L	12	--	115 ³ /53 ⁴	115 ³ /53 ⁴	115 ³ /53 ⁴	--	--	--	5,000	No

MEC = Maximum Effluent Concentration

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

C = Criterion used for Reasonable Potential Analysis

CMC = Criterion Maximum Concentration (CTR or NTR)

CCC = Criterion Continuous Concentration (CTR or NTR)

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

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

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

MCL = Drinking Water Standards Maximum Contaminant Level

NA = Not Available

ND = Non-detect

Footnotes:

- (1) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 1-hour Average.
- (2) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 4-day Average.
- (3) Criterion to be compared to the maximum effluent concentration.
- (4) Criterion to be compared to the maximum upstream receiving water concentration.
- (5) Water Quality for Agriculture.
- (6) Represents the maximum observed annual average concentration for comparison with the MCL.

ATTACHMENT H - CALCULATION OF WQBELS

Parameter	Units	Most Stringent Criteria			HH Calculations ¹				Aquatic Life Calculations ¹										Final Effluent Limitations	
		HH	CMC	CCC	ECA _{HH} = AMEL _{HH} /MDEL Multiplier _{HH}	MDEL _{HH}	ECA _{acute}	ECA Multiplier _{acute}	LTA _{acute}	ECA _{chronic}	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	2.91	29	340	0.14	48	150	0.26	39	39	2.44	94	7.10	274	10	29

¹ As described in section IV.C.2.c of the Fact Sheet (Attachment F), calculation of effluent limitations for the protection of human health and aquatic life are determined without the allowance of dilution credits.

ATTACHMENT I - EFFLUENT CHARACTERIZATION STUDY

- I. Background.** Sections 2.4.1 through 2.4.4 of the SIP provide minimum standards for analyses and reporting. (Copies of the SIP may be obtained from the State Water Resources Control Board, or downloaded from <http://www.waterboards.ca.gov/iswp/index.html>). To implement the SIP, effluent data are needed for all priority pollutants. Effluent and receiving water pH and hardness are required to evaluate the toxicity of certain priority pollutants (such as heavy metals) where the toxicity of the constituents varies with pH and/or hardness. Section 3 of the SIP prescribes mandatory monitoring of dioxin congeners. In addition to specific requirements of the SIP, the Central Valley Water Board is requiring the following monitoring:
- A. Drinking water constituents.** Constituents for which drinking water Maximum Contaminant Levels (MCLs) have been prescribed in the California Code of Regulation are included in the *Water Quality Control Plan, Fourth Edition, for the Sacramento and San Joaquin River Basins* (Basin Plan). The Basin Plan defines virtually all surface waters within the Central Valley Region as having existing or potential beneficial uses for municipal and domestic supply. The Basin Plan further requires that, at a minimum, water designated for use as domestic or municipal supply shall not contain concentrations of chemical constituents in excess of the MCLs contained in the California Code of Regulations.
- B. Effluent temperature.** This is both a concern for application of certain temperature-sensitive constituents, such as fluoride, and for compliance with the Basin Plan's thermal discharge requirements.
- C. Effluent and receiving water hardness and pH.** These are necessary because several of the CTR constituents are hardness and pH dependent.

II. Monitoring Requirements.

- A. Quarterly Monitoring.** Quarterly priority pollutant samples shall be collected from the effluent (Monitoring Location EFF-001) and analyzed for the constituents listed in Table I-1. Quarterly monitoring shall be conducted for 1 year (four consecutive samples, evenly distributed throughout the year) and the results of such monitoring be submitted to the Central Valley Water Board, during the third or fourth year of the permit term. Each individual monitoring event shall provide representative sample results for the effluent.

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

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

Table I-1. Priority Pollutants

CTR #	Constituent	CAS Number	Criterion Quantitation Limit µg/L or noted	Suggested Test Methods
28	1,1-Dichloroethane	75343	0.5	EPA 8260B
30	1,1-Dichloroethene	75354	0.5	EPA 8260B
41	1,1,1-Trichloroethane	71556	0.5	EPA 8260B
42	1,1,2-Trichloroethane	79005	0.5	EPA 8260B
37	1,1,2,2-Tetrachloroethane	79345	0.5	EPA 8260B
75	1,2-Dichlorobenzene	95501	0.5	EPA 8260B
29	1,2-Dichloroethane	107062	0.5	EPA 8260B
	cis-1,2-Dichloroethene	156592	0.5	EPA 8260B
31	1,2-Dichloropropane	78875	0.5	EPA 8260B
101	1,2,4-Trichlorobenzene	120821	0.5	EPA 8260B
76	1,3-Dichlorobenzene	541731	0.5	EPA 8260B
32	1,3-Dichloropropene	542756	0.5	EPA 8260B
77	1,4-Dichlorobenzene	106467	0.5	EPA 8260B
17	Acrolein	107028	2	EPA 8260B
18	Acrylonitrile	107131	2	EPA 8260B

CTR #	Constituent	CAS Number	Criterion Quantitation Limit µg/L or noted	Suggested Test Methods
19	Benzene	71432	0.5	EPA 8260B
20	Bromoform	75252	0.5	EPA 8260B
34	Bromomethane	74839	1	EPA 8260B
21	Carbon tetrachloride	56235	0.5	EPA 8260B
22	Chlorobenzene (mono chlorobenzene)	108907	0.5	EPA 8260B
24	Chloroethane	75003	0.5	EPA 8260B
25	2- Chloroethyl vinyl ether	110758	1	EPA 8260B
26	Chloroform	67663	0.5	EPA 8260B
35	Chloromethane	74873	0.5	EPA 8260B
23	Dibromochloromethane	124481	0.5	EPA 8260B
27	Dichlorobromomethane	75274	0.5	EPA 8260B
36	Dichloromethane	75092	0.5	EPA 8260B
33	Ethylbenzene	100414	0.5	EPA 8260B
88	Hexachlorobenzene	118741	1	EPA 8260B
89	Hexachlorobutadiene	87683	1	EPA 8260B
91	Hexachloroethane	67721	1	EPA 8260B
94	Naphthalene	91203	10	EPA 8260B
38	Tetrachloroethene	127184	0.5	EPA 8260B
39	Toluene	108883	0.5	EPA 8260B
40	trans-1,2-Dichloroethylene	156605	0.5	EPA 8260B
43	Trichloroethene	79016	0.5	EPA 8260B
44	Vinyl chloride	75014	0.5	EPA 8260B
	Methyl-tert-butyl ether (MTBE)	1634044	0.5	EPA 8260B
	Trichlorofluoromethane	75694	5	EPA 8260B
	1,1,2-Trichloro-1,2,2-Trifluoroethane	76131	10	EPA 8260B
	Styrene	100425	0.5	EPA 8260B
	Xylenes	1330207	0.5	EPA 8260B
60	1,2-Benzanthracene	56553	5	EPA 8270C
85	1,2-Diphenylhydrazine	122667	1	EPA 8270C
45	2-Chlorophenol	95578	2	EPA 8270C
46	2,4-Dichlorophenol	120832	1	EPA 8270C
47	2,4-Dimethylphenol	105679	2	EPA 8270C

CTR #	Constituent	CAS Number	Criterion Quantitation Limit µg/L or noted	Suggested Test Methods
49	2,4-Dinitrophenol	51285	5	EPA 8270C
82	2,4-Dinitrotoluene	121142	5	EPA 8270C
55	2,4,6-Trichlorophenol	88062	10	EPA 8270C
83	2,6-Dinitrotoluene	606202	5	EPA 8270C
50	2-Nitrophenol	25154557	10	EPA 8270C
71	2-Chloronaphthalene	91587	10	EPA 8270C
78	3,3'-Dichlorobenzidine	91941	5	EPA 8270C
62	3,4-Benzofluoranthene	205992	10	EPA 8270C
52	4-Chloro-3-methylphenol	59507	5	EPA 8270C
48	4,6-Dinitro-2-methylphenol	534521	10	EPA 8270C
51	4-Nitrophenol	100027	5	EPA 8270C
69	4-Bromophenyl phenyl ether	101553	10	EPA 8270C
72	4-Chlorophenyl phenyl ether	7005723	5	EPA 8270C
56	Acenaphthene	83329	1	EPA 8270C
57	Acenaphthylene	208968	10	EPA 8270C
58	Anthracene	120127	10	EPA 8270C
59	Benzidine	92875	5	EPA 8270C
61	Benzo(a)pyrene (3,4-Benzopyrene)	50328	0.1	EPA 8270C
63	Benzo(g,h,i)perylene	191242	5	EPA 8270C
64	Benzo(k)fluoranthene	207089	2	EPA 8270C
65	Bis(2-chloroethoxy) methane	111911	5	EPA 8270C
66	Bis(2-chloroethyl) ether	111444	1	EPA 8270C
67	Bis(2-chloroisopropyl) ether	39638329	10	EPA 8270C
68	Bis(2-ethylhexyl) phthalate	117817	3	EPA 8270C
70	Butyl benzyl phthalate	85687	10	EPA 8270C
73	Chrysene	218019	5	EPA 8270C
81	Di-n-butylphthalate	84742	10	EPA 8270C
84	Di-n-octylphthalate	117840	10	EPA 8270C
74	Dibenzo(a,h)-anthracene	53703	0.1	EPA 8270C
79	Diethyl phthalate	84662	2	EPA 8270C
80	Dimethyl phthalate	131113	2	EPA 8270C
86	Fluoranthene	206440	10	EPA 8270C
87	Fluorene	86737	10	EPA 8270C

CTR #	Constituent	CAS Number	Criterion Quantitation Limit µg/L or noted	Suggested Test Methods
90	Hexachlorocyclopentadiene	77474	1	EPA 8270C
92	Indeno(1,2,3-c,d)pyrene	193395	0.05	EPA 8270C
93	Isophorone	78591	1	EPA 8270C
98	N-Nitrosodiphenylamine	86306	1	EPA 8270C
96	N-Nitrosodimethylamine	62759	5	EPA 8270C
97	N-Nitrosodi-n-propylamine	621647	5	EPA 8270C
95	Nitrobenzene	98953	10	EPA 8270C
53	Pentachlorophenol	87865	0.2	EPA 8270C
99	Phenanthrene	85018	5	EPA 8270C
54	Phenol	108952	1	EPA 8270C
100	Pyrene	129000	10	EPA 8270C
	Aluminum	7429905	50	EPA 6020/200.8
1	Antimony	7440360	5	EPA 6020/200.8
2	Arsenic	7440382	0.01	EPA 1632
15	Asbestos	1332214	0.2 MFL >10µm	EPA/600/R-93/116(PCM)
	Barium	7440393	100	EPA 6020/200.8
3	Beryllium	7440417	1	EPA 6020/200.8
4	Cadmium	7440439	0.25	EPA 1638/200.8
5a	Chromium (total)	7440473	2	EPA 6020/200.8
5b	Chromium (VI)	18540299	0.5	EPA 7199/1636
6	Copper	7440508	0.5	EPA 6020/200.8
14	Cyanide	57125	5	EPA 9012A
	Fluoride	7782414	0.1	EPA 300
	Iron	7439896	100	EPA 6020/200.8
7	Lead	7439921	0.5	EPA 1638
8	Mercury	7439976	0.0002 (11)	EPA 1669/1631
	Manganese	7439965	20	EPA 6020/200.8
9	Nickel	7440020	5	EPA 6020/200.8
10	Selenium	7782492	5	EPA 6020/200.8
11	Silver	7440224	1	EPA 6020/200.8
12	Thallium	7440280	1	EPA 6020/200.8
	Tributyltin	688733	0.002	EV-024/025
13	Zinc	7440666	10	EPA 6020/200.8

CTR #	Constituent	CAS Number	Criterion Quantitation Limit µg/L or noted	Suggested Test Methods
110	4,4'-DDD	72548	0.02	EPA 8081A
109	4,4'-DDE	72559	0.01	EPA 8081A
108	4,4'-DDT	50293	0.01	EPA 8081A
112	alpha-Endosulfan	959988	0.02	EPA 8081A
103	alpha-Hexachlorocyclohexane (BHC)	319846	0.01	EPA 8081A
	Alachlor	15972608	1	EPA 8081A
102	Aldrin	309002	0.005	EPA 8081A
113	beta-Endosulfan	33213659	0.01	EPA 8081A
104	beta-Hexachlorocyclohexane	319857	0.005	EPA 8081A
107	Chlordane	57749	0.1	EPA 8081A
106	delta-Hexachlorocyclohexane	319868	0.005	EPA 8081A
111	Dieldrin	60571	0.01	EPA 8081A
114	Endosulfan sulfate	1031078	0.05	EPA 8081A
115	Endrin	72208	0.01	EPA 8081A
116	Endrin Aldehyde	7421934	0.01	EPA 8081A
117	Heptachlor	76448	0.01	EPA 8081A
118	Heptachlor Epoxide	1024573	0.01	EPA 8081A
105	Lindane (gamma-Hexachlorocyclohexane)	58899	0.019	EPA 8081A
119	PCB-1016	12674112	0.5	EPA 8082
120	PCB-1221	11104282	0.5	EPA 8082
121	PCB-1232	11141165	0.5	EPA 8082
122	PCB-1242	53469219	0.5	EPA 8082
123	PCB-1248	12672296	0.5	EPA 8082
124	PCB-1254	11097691	0.5	EPA 8082
125	PCB-1260	11096825	0.5	EPA 8082
126	Toxaphene	8001352	0.5	EPA 8081A
	Atrazine	1912249	1	EPA 8141A
	Bentazon	25057890	2	EPA 643/ 515.2
	Carbofuran	1563662	5	EPA 8318
	2,4-D	94757	10	EPA 8151A
	Dalapon	75990	10	EPA 8151A

CTR #	Constituent	CAS Number	Criterion Quantitation Limit µg/L or noted	Suggested Test Methods
	1,2-Dibromo-3-chloropropane (DBCP)	96128	0.01	EPA 8260B
	Di(2-ethylhexyl)adipate	103231	5	EPA 8270C
	Dinoseb	88857	2	EPA 8151A
	Diquat	85007	4	EPA 8340/ 549.1/HPLC
	Endothal	145733	45	EPA 548.1
	Ethylene Dibromide	106934	0.02	EPA 8260B/504
	Glyphosate	1071836	25	HPLC/EPA 547
	Methoxychlor	72435	10	EPA 8081A
	Molinate (Ordram)	2212671	2	EPA 634
	Oxamyl	23135220	20	EPA 8318/632
	Picloram	1918021	1	EPA 8151A
	Simazine (Princep)	122349	1	EPA 8141A
	Thiobencarb	28249776	1	HPLC/EPA 639
16	2,3,7,8-TCDD (Dioxin)	1746016	5.00E-06	EPA 8290 (HRGC) MS
	2,4,5-TP (Silvex)	93765	1	EPA 8151A
	Diazinon	333415	0.25	EPA 8141A/GCMS
	Chlorpyrifos	2921882	1	EPA 8141A/GCMS
	Ammonia (as N)	7664417		EPA 350.1
	Chloride	16887006		EPA 300.0
	Flow			
	Hardness (as CaCO ₃)			EPA 130.2
	Foaming Agents (MBAS)			SM5540C
	Nitrate (as N)	14797558	2,000	EPA 300.0
	Nitrite (as N)	14797650	400	EPA 300.0
	pH		0.1	EPA 150.1
	Phosphorus, Total (as P)	7723140		EPA 365.3
	Specific conductance (EC)			EPA 120.1
	Sulfate		500	EPA 300.0
	Sulfide (as S)			EPA 376.2
	Sulfite (as SO ₃)			SM4500-SO3
	Temperature			

CTR #	Constituent	CAS Number	Criterion Quantitation Limit µg/L or noted	Suggested Test Methods
	Total Dissolved Solids (TDS)			EPA 160.1

III. Additional Study Requirements

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

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

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

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

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

1. Sample results greater than or equal to the reported RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).
2. Sample results less than the reported RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.
3. For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may shortened to "Est. Conc."). The laboratory, if such information is available, may include numerical estimates of the data quantity for the reported result. Numerical estimates of data quality may be percent accuracy (+ or - a percentage of the reported value), numerical ranges (low and high), or any other means considered appropriate by the laboratory.
4. Sample results that are less than the laboratory's MDL shall be reported as "Not Detected" or ND.

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

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