CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

CENTRAL VALLEY REGION

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ORDER NO. R5-2008-XXXX
NPDES NO. CA0084905

WASTE DISCHARGE REQUIREMENTS FOR THE U.S. BUREAU OF RECLAMATION, SLIGER MINE EL DORADO COUNTY

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

Table 1. Discharger Information

Discharger	U.S. Department of the Interior, Bureau of Reclamation
Name of Facility	Sliger Mine
Facility Address	Approximately 1,500 feet south of the junction of Sliger Mine Road and Fox Grove Lane
	N/A, CA 95635
	El Dorado 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 U.S. Bureau of Reclamation 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	38º 56’ 26.22” N	120º 56’ 13.10” W	Middle Fork, American River

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:	180 days prior to the Order expiration date

I, PAMELA C. CREEDON, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on **<Adoption Date>**.

PAMELA C. CREEDON, Executive Officer

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I. FACILITY INFORMATION

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

Table 4. Facility Information

Discharger	U.S. Department of the Interior, Bureau of Reclamation
Name of Facility	Sliger Mine
Facility Address	Approximately 1,500 feet south of the junction of Sliger Mine Road and Fox Grove Lane
	El Dorado County, California
	El Dorado County
Facility Contact, Title, and Phone	John Fields, Chief Environmental Monitoring Branch, (916) 978-5280
Mailing Address	2800 Cottage Way Sacramento, CA 95825
Type of Facility	Inactive Mine
Facility Design Flow	0.194 million gallons per day (mgd)

II. FINDINGS

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

A. Background. U.S. Department of the Interior, Bureau of Reclamation (hereinafter Discharger) is currently discharging pursuant to Order No. R5-2003-0001 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0084905. The Discharger submitted a Report of Waste Discharge, dated 25 June 2007**,** and applied for a NPDES permit renewal to discharge up to 0.194 mgd of treated wastewater from Sliger Mine**,** hereinafter Facility. The application was deemed complete on 4 January 2008.

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

B. Facility Description. The Discharger owns and operates Sliger Mine, an inactive mine. The treatment system consists of a "passive" biological treatment system that utilizes sulfide-reducing bacteria. Wastewater is discharged from Discharge Point No. 001 (see table on cover page) to the Middle Fork of the American River, a water of the United States, within the Sacramento River Basin. 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 federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and Chapter 5.5, Division 7 of the California Water Code

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(commencing with Section 13370). It shall serve as a NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to Article 4, Chapter 4, Division 7 of the Water Code (commencing with Section 13260).

D. **Background and Rationale for Requirements**. The Regional Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for Order requirements, is hereby incorporated into this Order and constitutes part of the Findings for this Order. Attachments A through E and G 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 Title 40 of the Code of Federal Regulations (CFR)[1], Part 122.44 (40 CFR 122.44) require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Best Professional Judgment (BPJ) in accordance with 40 CFR 125.3. A detailed discussion of the technology-based effluent limitations development is included in the Fact Sheet (Attachment F).

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

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

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[1] All further statutory references are to title 40 of the Code of Federal Regulations unless otherwise indicated.

H. Water Quality Control Plans. The Regional Water Board adopted a *Water Quality Control Plan, Fourth Edition (Revised February 2007), for the Sacramento and San Joaquin River Basins* (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, the Basin Plan implements State Water Resources Control Board (State Water Board) Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. Beneficial uses applicable to the Middle Fork of the American River are as follows:

Table 5. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Middle Fork, American River	Existing: Municipal and domestic supply (MUN); agricultural supply, including irrigation and stock watering; hydropower generation (POW); water contact recreation (REC-1); other non-contact water recreation (REC-2); cold freshwater aquatic habitat (COLD); cold spawning habitat (SPWN); and wildlife habitat (WILD). Potential: Warm freshwater habitat (WARM).

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

J. State Implementation Policy. On 2 March 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on 28 April 2000 with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Board in the Basin Plan. The SIP became effective on 18 May 2000 with respect to the priority pollutant criteria promulgated by the USEPA through the CTR. The State Water Board adopted amendments to the SIP on 24 February 2005 that became effective on 13 July 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

K. Compliance Schedules and Interim Requirements. In general, an NPDES permit must include final effluent limitations that are consistent with Clean Water Act section

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301 and with 40 CFR 122.44(d). There are exceptions to this general rule. The State Water Board has concluded that where the Regional Water Board's Basin Plan allows for schedules of compliance and the Regional Water Board is newly interpreting a narrative standard, it may include schedules of compliance in the permit to meet effluent limits that implement a narrative standard. See In the Matter of Waste Discharge Requirements for Avon Refinery (State Water Board Order WQ 2001-06 at pp. 53-55). See also Communities for a Better Environment et al. v. State Water Resources Control Board, 34 Cal.Rptr.3d 396, 410 (2005). The Basin Plan for the Sacramento and San Joaquin Rivers includes a provision that authorizes the use of compliance schedules in NPDES permits for water quality objectives that are adopted after the date of adoption of the Basin Plan, which was 25 September 1995 (see Basin Plan at page IV-16). Consistent with the State Water Board's Order in the CBE matter, the Regional Water Board has the discretion to include compliance schedules in NPDES permits when it is including an effluent limitation that is a "new interpretation" of a narrative water quality objective. This conclusion is also consistent with the United States Environmental Protection Agency policies and administrative decisions. See, e.g., Whole Effluent Toxicity (WET) Control Policy. The Regional Water Board, however, is not required to include a schedule of compliance, but may issue a Time Schedule Order pursuant to Water Code section 13300 or a Cease and Desist Order pursuant to Water Code section 13301 where it finds that the discharger is violating or threatening to violate the permit. The Regional Water Board will consider the merits of each case in determining whether it is appropriate to include a compliance schedule in a permit, and, consistent with the Basin Plan, should consider feasibility of achieving compliance, and must impose a schedule that is as short as practicable to achieve compliance with the objectives, criteria, or effluent limit based on the objective or criteria.

For CTR constituents, Section 2.1 of the SIP provides that, based on a Discharger's request and demonstration that it is infeasible for an existing Discharger to achieve immediate compliance with an effluent limitation derived from a CTR criterion, compliance schedules may be allowed in an NPDES permit. Unless an exception has been granted under section 5.3 of the SIP, a compliance schedule may not exceed 5 years from the date that the permit is issued or reissued, nor may it extend beyond 10 years from the effective date of the SIP (or 18 May 2010) to establish and comply with CTR criterion-based effluent limitations. Where a compliance schedule for a final effluent limitation exceeds 1 year, the Order must include interim numeric limitations for that constituent or parameter. Where allowed by the Basin Plan, compliance schedules and interim effluent limitations or discharge specifications may also be granted to allow time to implement a new or revised water quality objective. This Order does not include compliance schedules or interim effluent limitations.

L. Alaska Rule. On 30 March 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards (WQS) become effective for CWA purposes. (40 CFR §131.21; 65 Fed. Reg. 24641 (April 27, 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

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and submitted to USEPA by 30 May 2000 may be used for CWA purposes, whether or not approved by USEPA.

M. Stringency of Requirements for Individual Pollutants. This Order contains both technology-based and WQBELs for individual pollutants. The technology-based effluent limitations consist of restrictions on flow. The WQBELs consist of restrictions on arsenic, boron, iron, manganese, and pH. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements.

WQBELs have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant WQBELs were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR section 131.38. The scientific procedures for calculating the individual WQBELs are based on the CTR-SIP, which was approved by USEPA on 1 May 2001. 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 section 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. Section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 is consistent with the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the state and federal antidegradation policies. As discussed in detail in the Fact Sheet the permitted discharge is consistent with the antidegradation provision of section 131.12 and State Water Board Resolution No. 68-16.

O. Anti-Backsliding Requirements. Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at title 40, Code of Federal Regulations section 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 where limitations may be relaxed. Some effluent limitations in this Order are less stringent that those in the previous Order. 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.

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

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

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

S. Provisions and Requirements Implementing State Law. The provisions/requirements in subsections VI.A.2.v of this Order are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.

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

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

IT IS HEREBY ORDERED, that Order No. R5-2003-0001 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act (CWA) and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

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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 California Water Code.

D. The Discharger shall not allow pollutant-free wastewater to be discharged into the collection, treatment, and disposal system in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.

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IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point No. 001

1. Final Effluent Limitations from 1 June to 30 November – Discharge Point No. 001

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 attached MRP (Attachment E).

a. From 1 June to 30 November, ~~The~~ the Discharger shall maintain compliance with the effluent limitations specified in Table 6.

Table 6. Effluent Limitations from 1 June to 30 November

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Arsenic, Total Recoverable	µg/L	10	--	--	--
~~Boron, Total Recoverable~~	~~µg/L~~	~~700~~	~~--~~	~~--~~	~~--~~
pH	standard units	--	--	6.5	8.5

b. **Average Daily Discharge Flow.** The average daily discharge flow shall not exceed 0.194 million gallons per day (mgd).

c. **Iron, Total Recoverable.** For period from 1 June to 30 November, the 6-month ~~For a calendar year, the annual~~ average effluent concentration shall not exceed 300 µg/L.

~~d. **Manganese, Total Recoverable.** For a calendar year, the annual average effluent concentration shall not exceed 50 µg/L.~~

d. **Electrical Conductivity.** The annual average electrical conductivity ~~concentration~~ in the effluent shall not exceed ~~950~~ 1,200 µmhos/cm.

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

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

2. Final Effluent Limitations from 1 December to 31 May – Discharge Point No. 001

The Discharger shall maintain compliance with the following effluent limitations at Discharge Point No. 001, with compliance measured at Monitoring Location EFF-002 as described in the attached MRP (Attachment E).

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a. From 1 December to 31 May, the Discharger shall maintain compliance with the effluent limitations specified in Table 7.

Table 7. Effluent Limitations from 1 December to 31 May

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Arsenic, Total Recoverable	µg/L	--	--115	--	--
Iron, Total Recoverable	µg/L	--	415	--	--
pH	standard units	--	--	6.5	8.5

~~**Iron, Total Recoverable.** For period from 1 December to 31 May, the 6-month average effluent concentration shall not exceed 3,800 µg/L.~~

f. **Electrical Conductivity.** The annual average electrical conductivity in the effluent shall not exceed 1,200 µmhos/cm.

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

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

B. Land Discharge Specifications – NOT APPLICABLE

C. Reclamation Specifications – NOT APPLICABLE

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V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

Receiving water limitations are based on water quality objectives contained in the Basin Plan and are a required part of this Order. The discharge shall not cause the following in the Middle Fork of the American River:

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

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

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

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

5. **Dissolved Oxygen**:

   a. The monthly median of the mean daily dissolved oxygen concentration to fall below 85 percent of saturation in the main water mass
   b. The 95 percentile dissolved oxygen concentration to fall below 75 percent of saturation; nor
   c. The dissolved oxygen concentration to be reduced below 5.0 mg/L at any time.

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

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

8. **pH**. The pH to be depressed below 6.5, raised above 8.5, nor changed by more than 0.5.

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;

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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 California Code of Regulations, Title 22, Division 4, Chapter 15; and
g. Thiobencarb to be present in excess of 1.0 µg/L.

10. **Radioactivity**:

    a. Radionuclides to be present in concentrations that are harmful to human, plant, animal, or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.
    b. Radionuclides to be present in excess of the maximum contaminant levels specified in Table 4 (MCL Radioactivity) of Section 64443 of Title 22 of the California Code of Regulations.

11. **Salinity.** The total dissolved solids in the Middle Fork of the American River shall not exceed 125 mg/L as a 90th percentile.

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

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

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

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

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

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

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

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

B. Groundwater Limitations – NOT APPLICABLE

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VI. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all Standard Provisions included in Attachment D of this Order.

2. The Discharger shall comply with the following provisions:

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

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

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

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

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

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

      The causes for modification include:

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

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

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

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

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

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

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

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

   ii. controls any pollutant limited in the Order.

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

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

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

g. The Discharger shall ensure compliance with any existing or future pretreatment standard promulgated by USEPA under Section 307 of the CWA, or amendment thereto, for any discharge to the municipal system.

h. The discharge of any radiological, chemical or biological warfare agent or high-level, radiological waste is prohibited.

i. 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.

j. Safeguard to electric power failure:

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

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

iii. Should the treatment works not include safeguards against reduction, loss, or failure of electric power, or should the Regional Water Board not approve the existing safeguards, the Discharger shall, within 90 days of having been advised in writing by the Regional Water Board that the existing safeguards are inadequate, provide to the Regional Water Board and USEPA a schedule of compliance for providing safeguards such that in the event of reduction, loss, or failure of electric power, the Discharger shall comply with the terms and conditions of this Order. The schedule of compliance shall, upon approval of the Regional Water Board, become a condition of this Order.

k. The Discharger, upon written request of the Regional Water Board, shall file with the Board a technical report on its preventive (failsafe) and contingency (cleanup) plans for controlling accidental discharges, and for minimizing the effect of such events. This report may be combined with that required under Regional Water Board Standard Provision VI.A.2.m.

The technical report shall:

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

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

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

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

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l. A publicly owned treatment works (POTW) whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment and disposal facilities. The projections shall be made in January, based on the last 3 years' average dry weather flows, peak wet weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in 4 years, the Discharger shall notify the Regional Water Board by 31 January. A copy of the notification shall be sent to appropriate local elected officials, local permitting agencies and the press. Within 120 days of the notification, the Discharger shall submit a technical report showing how it will prevent flow volumes from exceeding capacity or how it will increase capacity to handle the larger flows. The Regional Water Board may extend the time for submitting the report.

m. 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.

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

o. 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.

p. 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.

q. All monitoring and analysis instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary, at least yearly, to ensure their continued accuracy.

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

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

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

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

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

B. Monitoring and Reporting Program (MRP) Requirements

1. The Discharger shall comply with the MRP, and future revisions thereto, in Attachment E of this Order.

C. Special Provisions

1. Reopener Provisions

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

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

i. If new or amended applicable water quality standards are promulgated or approved pursuant to Section 303 of the CWA, or amendments thereto, this

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permit may be reopened and modified in accordance with the new or amended standards.

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

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

2. Special Studies, Technical Reports and Additional Monitoring Requirements

a. **Chronic Whole Effluent Toxicity.** For compliance with the Basin Plan's narrative toxicity objective, this Order requires the Discharger to conduct chronic whole effluent toxicity testing, as specified in the Monitoring and Reporting Program (Attachment E, Section V). Furthermore, this Provision requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity. If the discharge exceeds the toxicity numeric monitoring trigger established in this Provision, the Discharger is required to initiate a Toxicity Reduction Evaluation (TRE), in accordance with an approved TRE Work Plan, and take actions to mitigate the impact of the discharge and prevent reoccurrence of toxicity. A TRE is a site-specific study conducted in a stepwise process to identify the source(s) of toxicity and the effective control measures for effluent toxicity. TREs are designed to identify the causative agents and sources of whole effluent toxicity, evaluate the effectiveness of the toxicity control options, and confirm the reduction in effluent toxicity. This Provision includes requirements for the Discharger to develop and submit a TRE Work Plan and includes procedures for accelerated chronic toxicity monitoring and TRE initiation.

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

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

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

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

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

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

iv. **Accelerated Monitoring Specifications.** If the monitoring trigger is exceeded during regular chronic toxicity testing, within 14 days of notification by the laboratory of the test results, the Discharger shall initiate accelerated monitoring. Accelerated monitoring shall consist of four (4) chronic toxicity tests in a 6-week period (i.e., one test every 2 weeks) using the species that exhibited toxicity. The following protocol shall be used for accelerated monitoring and TRE initiation:

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

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

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

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

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

3) A schedule for these actions.

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

b. **Lead, Manganese, and Mercury Study at Monitoring Location EFF-001.** The Discharger shall monitor for lead, manganese, and mercury at Monitoring Locations EFF-001 and RSW-001 annually, during the annual effluent sampling for EFF-001, until two consecutive samples show that each pollutant is not present in the discharge at levels that have reasonable potential to exceed water quality objectives. The Discharger shall submit the results of the sampling to the Regional Water Board with the annual operations report required in section X.D.2 of the Monitoring and Reporting Program (Attachment E). Upon completion of the sampling requirements, the Discharger shall submit a brief report to the Regional Water Board summarizing the results of the monitoring for lead, manganese, and mercury at EFF-001. If any sample results indicate that levels of lead, manganese, or mercury are greater than applicable water quality objectives the Discharger shall notify the Regional Water ~~b~~Board.

c. **Lead, Manganese, and Mercury Study at Monitoring Location EFF-002.** The Discharger shall monitor for lead, manganese, and mercury at Monitoring Locations EFF-002 and RSW-001 annually, during the annual effluent sampling for EFF-002, until two consecutive samples show that each pollutant is not present in the discharge at levels that have reasonable potential to exceed water quality objectives. The Discharger shall submit the results of the sampling to the Regional Water Board with the annual operations report required in section X.D.2 of the Monitoring and Reporting Program (Attachment E). Upon completion of the sampling requirements, the Discharger shall submit a brief report to the Regional Water Board summarizing the results of the monitoring for lead, manganese, and mercury at EFF-002. If any sample results indicate that levels of lead, manganese, or mercury are greater than applicable water quality objectives the Discharger shall notify the Regional Water Board.

3. Best Management Practices and Pollution Prevention – NOT APPLICABLE

4. Construction, Operation and Maintenance Specifications ~~– NOT APPLICABLE~~

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

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a. The sediments and soils at the Facility have the potential to contain levels of pollutants that may contribute to exceedances of applicable water quality objectives. Therefore, the Discharger shall not conduct activities at the Facility that have the potential to cause significant amounts of soils or sediments to become entrained in the discharge.

5. Special Provisions for Municipal Facilities (POTWs Only) – NOT APPLICABLE

6. Other Special Provisions

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

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

7. Compliance Schedules – NOT APPLICABLE

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VII. COMPLIANCE DETERMINATION – NOT APPLICABLE

Compliance with the effluent limitations contained in section IV of this Order will be determined as specified below:

A. **Average Daily Discharge Flow Effluent Limitations**. The Average Daily Discharge Flow represents the daily average flow when groundwater is at or near normal and runoff is not occurring. Compliance with the Average Daily Discharge Flow effluent limitations will be measured at times when groundwater is at or near normal and runoff is not occurring.

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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.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Method Detection Limit (MDL) is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in title 40 of the Code of Federal Regulations, Part 136, Attachment B, revised as of 3 July 1999.

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

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

Not Detected (ND) are those sample results less than the laboratory's MDL.

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

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

Pollutant Minimization Program (PMP) means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The

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goal of the PMP shall be to reduce all potential sources of a priority pollutant(s) through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The Regional Water Board may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to Water Code section 13263.3(d), shall be considered to fulfill the PMP requirements.

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

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

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

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

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

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

where:

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

Toxicity Reduction Evaluation (TRE) is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity,

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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.)

90th PERCENTILE OF OBSERVED DATA is the measurement in the ordered set of data (lowest to highest) where 90 percent of the reported measurements are less than or equal to that value.

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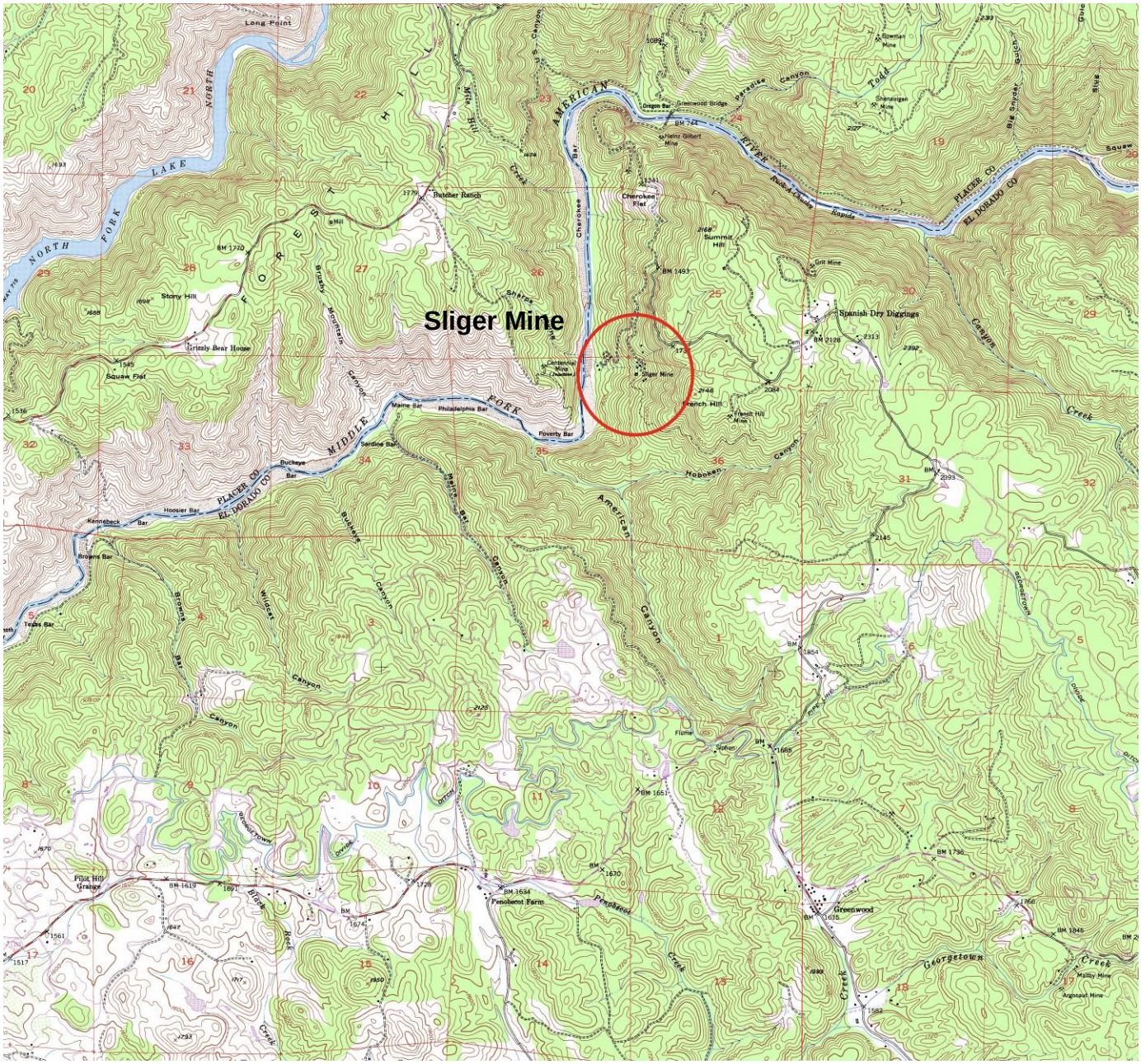
ATTACHMENT B – MAP



Drawing Reference: **GREENWOOD, CALIF.** U.S.G.S TOPOGRAPHIC MAP 7.5 MINUTE QUADRANGLE *Photorevised 1973* *Not to scale*	SITE LOCATION MAP U.S. D.O.I. BUREAU OF RECALAMATION SLIGER MINE EL DORADO COUNTY	N W E S

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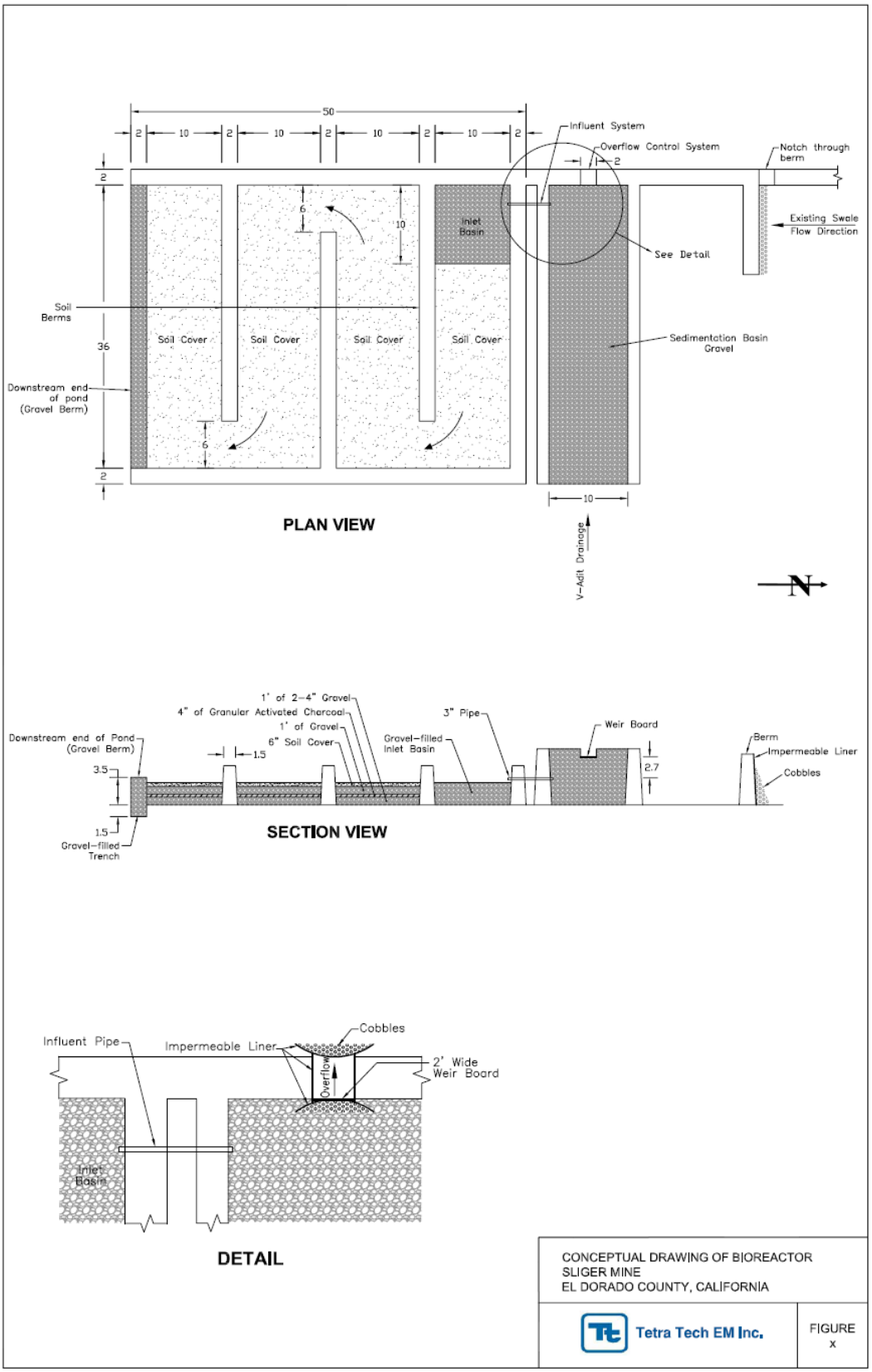
ATTACHMENT C – FLOW SCHEMATIC



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ATTACHMENT D – STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

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

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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); Wat. Code, §13383):

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

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

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

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

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

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

5. Notice

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

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

H. Upset

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

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

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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); § 122.61.)

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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 Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503 unless other test procedures have been specified in this Order. (40 CFR §122.41(j)(4); §122.44(i)(1)(iv).)

IV. STANDARD PROVISIONS – RECORDS

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

B. Records of monitoring information shall include:

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

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

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

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

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

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

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

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

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

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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).)

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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 Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Water Board. (40 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).)

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E. Twenty-Four Hour Reporting

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

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

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

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

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

F. Planned Changes

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

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

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

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

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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 (µg/L) (40 CFR §122.42(a)(1)(i));

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

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

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

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

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

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

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

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

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

The Code of Federal Regulations section 122.48 requires that all NPDES permits specify monitoring and reporting requirements. Water Code Sections 13267 and 13383 also authorize the Regional Water Quality Control Board (Regional Water Board) to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements, which implement the federal and state regulations.

I. GENERAL MONITORING PROVISIONS

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

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

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

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 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.

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II. MONITORING LOCATIONS

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

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description (include Latitude and Longitude when available)
001	EFF-001	Downstream from the last connection through which treated effluent from the V-adit can be admitted into the outfall, prior to discharge to the receiving water (latitude 38º 56' 26.22" N; longitude 120º 56' 13.10" W)
001	EFF-002	As close to the V-Adit opening as possible. Prior to the treatment system and upstream of where the discharge has the potential to mix with storm water~~.~~
--	RSW-001	50 feet upstream from the point of discharge into the Middle Fork of the American River
--	RSW-002	100 feet downstream from the point of discharge into the Middle Fork of the American River

III. INFLUENT MONITORING REQUIREMENTS – NOT APPLICABLE

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

1. The Discharger shall monitor Discharge Point No. 001 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-2a. Effluent Monitoring from 1 June to 30 November

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	mgd	Meter	Continuous	--
pH	pH Units	Grab	[1]~~1/Quarter~~	~~1~~[2]
~~Temperature~~[2]Temperature[3]	°F (°C)	Grab	[1]~~1/Quarter~~	[2]~~1~~
Dissolved Oxygen	mg/L	Grab	[1]~~1/Quarter~~	[2]~~1~~
Chloride	mg/L	Grab	[1]~~1/Quarter~~	[2]~~1~~
Electrical Conductivity @ 25°C	µmhos/cm	Grab	[1]~~1/Quarter~~	[2]~~1~~
Total Dissolved Solids	mg/L	Grab	[1]~~1/Quarter~~	[2]~~1~~

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Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Arsenic, Total Recoverable	µg/L	Grab	[1,4]~~1/Quarter~~	~~1,4~~2,5
~~Boron, Total Recoverable~~	~~µg/L~~	~~Grab~~	~~1/Quarter~~	~~1~~
Iron, Total Recoverable	µg/L	Grab	[1]~~1/Quarter~~	2~~1~~
~~Manganese, Total Recoverable~~	~~µg/L~~	~~Grab~~	~~1/Quarter~~	~~1~~
Silver, Total Recoverable	µg/L	Grab	[1,4]~~1/Quarter~~	2,5~~1,4~~
Hardness (as $CaCO_3$)	mg/L	Grab	[1,4]~~1/Quater~~	2,5~~1~~
Priority Pollutants	µg/L	Grab	~~3~~1,4	2,5~~1,4~~

[1] Once per year during the period from 1 June to 30 November.

[2] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136. 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. [Where no methods are specified for a given pollutant, by methods approved by this Regional Water Board or the State Water Board.]

[2~~3~~] Effluent temperature monitoring shall be at the outfall location.

[3~~4~~] Priority pollutants shall be sampled once during the third year following the date of permit adoption and shall be conducted concurrently with effluent and up stream receiving water monitoring (see Section VIII.A below) for hardness (as $CaCO_3$) and pH.

[4~~5~~] Concurrent with receiving surface water sampling.

B. Monitoring Location EFF-002

1. The Discharger shall monitor Discharge Point No. 001 at Monitoring Location EFF-002 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-2b. Effluent Monitoring from 1 December to 31 May

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
pH	pH Units	Grab	[1]	[2]
Temperature[3]	°F (°C)	Grab	[1]	[2]
Dissolved Oxygen	mg/L	Grab	[1]	[2]
Chloride	mg/L	Grab	[1]	[2]
Electrical Conductivity @ 25°C	µmhos/cm	Grab	[1]	[2]
Total Dissolved Solids	mg/L	Grab	[1]	[2]

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Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Arsenic, Total Recoverable	µg/L	Grab	[1]	[2,4]
Iron, Total Recoverable	µg/L	Grab	[1]	[2]
Silver, Total Recoverable	µg/L	Grab	[1]	[2,4]

[1] Once per year during the period from 1 December to 31 May.

[2] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136. 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. [Where no methods are specified for a given pollutant, by methods approved by this Regional Water Board or the State Water Board.]

[3] Effluent temperature monitoring shall be at the outfall location.

[4] Concurrent with receiving surface water sampling.

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. Acute toxicity shall be monitored at Monitoring Location EFF-002 during the 1 December to 31 May monitoring period. The Discharger shall meet the following acute toxicity testing requirements:

1. *Monitoring Frequency* – The Discharger shall perform ~~quarterly~~ annual acute toxicity testing.

2. *Sample Types* – For static non-renewal and static renewal testing, the samples shall be grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent Monitoring Location EFF-001.

3. *Test Species* – Test species shall be fathead minnows (*Pimephales promelas*).

4. *Methods* – The acute toxicity testing samples shall be analyzed using EPA-821-R-02-012, Fifth Edition. Temperature, total residual chlorine, ammonia, 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. Chronic toxicity shall be monitored at Monitoring Location EFF-002 during the 1

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December to 31 May monitoring period. The Discharger shall meet the following chronic toxicity testing requirements:

1. *Monitoring Frequency* –The Discharger shall perform annual three species chronic toxicity testing.

2. *Sample Types* – Effluent samples shall be grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent monitoring location specified in the Monitoring and Reporting Program. The receiving water control shall be a grab sample obtained from the RSW-001 sampling location, as identified in the Monitoring and Reporting Program.

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

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

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

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

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

7. *Dilutions* – The chronic toxicity testing shall be performed using 100% effluent and two controls. If toxicity is found in any effluent test, the Discharger must immediately retest using the dilution series identified in Table E-5, below. The receiving water control shall be used as the diluent (unless the receiving water is toxic).

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

   a. The reference toxicant test or the effluent test does not meet all test acceptability criteria as specified in the *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*, EPA/821-R-02-013, October 2002 (Method Manual), and its subsequent amendments or revisions; or

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

Table E-3. Chronic Toxicity Testing Dilution Series

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

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

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

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

   a. The results expressed in TUc, measured as 100/NOEC, and also measured as $100/LC_{50}$, $100/EC_{25}$, $100/IC_{25}$, and $100/IC_{50}$, as appropriate.

   b. The statistical methods used to calculate endpoints;

   c. The statistical output page, which includes the calculation of the percent minimum significant difference (PMSD);

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

   e. The results compared to the numeric toxicity monitoring trigger.

   Additionally, the monthly discharger self-monitoring reports shall contain an updated chronology of chronic toxicity test results expressed in TUc, and organized by test species, type of test (survival, growth or reproduction), and monitoring frequency, i.e., either quarterly, monthly, accelerated, or TRE. (Note: items a through c, above, are only required when testing is performed using the full dilution series.)

2. **Acute WET Reporting.** Acute toxicity test results shall be submitted with the monthly discharger self-monitoring reports and reported as percent survival.

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

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

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

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

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

VI. LAND DISCHARGE MONITORING REQUIREMENTS – NOT APPLICABLE

VII. RECLAMATION MONITORING REQUIREMENTS – NOT APPLICABLE

VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER

A. Monitoring Location RSW-001

1. The Discharger shall monitor the Middle Fork of the American River at Monitoring Location RSW-001 as follows:

Table E-4a. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	mgd	[1]	[5]~~1/Quarter~~	--
pH	pH Units	Grab	[5]~~1/Quarter~~	[2]
Temperature	°F (°C)	Grab	[5]~~1/Quarter~~	[2]
Dissolved Oxygen	mg/L	Grab	[5]~~1/Quarter~~	[2]
Chloride	mg/L	Grab	[5]~~1/Quarter~~	[2]
Electrical Conductivity @ 25°C	µmhos/cm	Grab	[5]~~1/Quarter~~	[2]
Total Dissolved Solids	mg/L	Grab	[5]~~1/Quarter~~	[2]
Arsenic, Total Recoverable	µg/L	Grab	[5]~~1/Quarter~~	[2]
~~Boron, Total Recoverable~~	~~µg/L~~	~~Grab~~	~~1/Quarter~~	~~[2]~~
Iron, Total Recoverable	µg/L	Grab	[5]~~1/Quarter~~	[2]
~~Manganese, Total Recoverable~~	~~µg/L~~	~~Grab~~	~~1/Quarter~~	~~[2]~~
Silver, Total Recoverable	µg/L	Grab	[5]~~1/Quarter~~	[2]
Hardness (as $CaCO_3$)	mg/L	Grab	~~1/Quarter~~ [3,4,5]	[2]

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Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Priority Pollutants	µg/L	Grab	[3,4,5]	[2]

[1] Estimate of receiving water flow, recorded for each day of sample collection. Use Placer County Water Agency gauging station, hourly measurements at Middle Fork American River near OXBOW PH.

[2] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136. 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. [Where no methods are specified for a given pollutant, by methods approved by this Regional Water Board or the State Water Board.]

[3] Priority pollutants shall be sampled once during the third year following the date of permit adoption and shall be conducted concurrently with effluent monitoring for hardness (as $CaCO_3$) and pH.

[4] Concurrent with effluent sampling.

[5] Samples shall be taken twice per year; once during the period from 1 June to 30 November and once during the period 1 December to 31 May.

B. Monitoring Location RSW-002

1. The Discharger shall monitor the Middle Fork of the American River at Monitoring Location RSW-002 as follows:

Table E-4b. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
pH	pH Units	Grab	[2]~~1/Quarter~~	[1]
Temperature	°F (°C)	Grab	[2]~~1/Quarter~~	[1]
Dissolved Oxygen	mg/L	Grab	[2]~~1/Quarter~~	[1]
Chloride	mg/L	Grab	[2]~~1/Quarter~~	[1]
Electrical Conductivity @ 25°C	µmhos/cm	Grab	[2]~~1/Quarter~~	[1]
Total Dissolved Solids	mg/L	Grab	[2]~~1/Quarter~~	[1]
Arsenic, Total Recoverable	µg/L	Grab	[2]~~1/Quarter~~	[1]
~~Boron, Total Recoverable~~	~~µg/L~~	~~Grab~~	~~1/Quarter~~	~~1~~
Iron, Total Recoverable	µg/L	Grab	[2]~~1/Quarter~~	[1]
~~Manganese, Total Recoverable~~	~~µg/L~~	~~Grab~~	~~1/Quarter~~	~~1~~

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Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method

[1] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136. 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. [Where no methods are specified for a given pollutant, by methods approved by this Regional Water Board or the State Water Board.]

[2] Samples shall be taken twice per year; once during the period from 1 June to 30 November and once during the period 1 December to 31 May. Samples shall be taken concurrent with samples taken at Monitoring Location RSW-001.

IX. OTHER MONITORING REQUIREMENTS ~~– NOT APPLICABLE~~

A. The Discharger shall conduct monitoring for lead, manganese, and mercury as specified in the special provisions of the Order (sections VI.C.2.b and VI.C.2.c of the Limitations and Discharge Requirements).

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

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

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

3. **Compliance Time Schedules.** For compliance time schedules included in the Order, the Discharger shall submit to the Regional Water Board, on or before each compliance due date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Water Board by letter when it returns to compliance with the compliance time schedule.

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

5. **Reporting Protocols.** The Discharger shall report with each sample result the applicable Reporting Level (RL) and the current Method Detection Limit (MDL), as determined by the procedure in Part 136.

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

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

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

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

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

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

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

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

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

B. Self Monitoring Reports (SMRs)

1. At any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit Self-Monitoring Reports (SMRs) using

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the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (http://www.waterboards.ca.gov/ciwqs/index.html). Until such notification is given, the Discharger shall submit hard copy SMRs. The CIWQS Web site will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.

2. Monitoring results shall be submitted to the Regional Water Board by the **first day** of the second month following sample collection. Quarterly and annual monitoring results shall be submitted by the **first day of the second month following each calendar quarter, semi-annual period, and year**, respectively.

3. In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner to illustrate clearly whether the discharge complies with waste discharge requirements. The highest daily maximum for the month, monthly and weekly averages, and medians, and removal efficiencies (%) for BOD and Total Suspended Solids, shall be determined and recorded as needed to demonstrate compliance.

4. With the exception of flow, all constituents monitored on a continuous basis (metered), shall be reported as daily maximums, daily minimums, and daily averages; flow shall be reported as the total volume discharged per day for each day of discharge.

5. If the Discharger monitors any pollutant at the locations designated herein more frequently than is required by this Order, the results of such monitoring shall be included in the calculation and reporting of the values required in the discharge monitoring report form. Such increased frequency shall be indicated on the discharge monitoring report form.

6. A letter transmitting the self-monitoring reports shall accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain the penalty of perjury statement by the Discharger, or the Discharger's authorized agent, as described in the Standard Provisions.

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

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

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8. 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	First day of the calendar month following the Permit effective date	All	Submit with ~~quarterly~~ semiannual SMR
~~1/Quarter~~	~~Closest of 1 January, 1 April, 1 July, or 1 October following (or on) permit effective date~~	~~1 January through 31 March~~ ~~1 April through 30 June~~ ~~1 July through 30 September~~ ~~1 October through 31 December~~	~~1 May~~ ~~1 August~~ ~~1 November~~ ~~1 February~~
2/Year	1 June following permit effective date 1 December following permit effective date	1 June through 30 November 1 December through 31 May	30 days from the end of the monitoring period
1/Year (1 June to 30 November)	1 June following permit effective date	1 June through 30 November	30 days from the end of the monitoring period
1/Year (1 December to 31 May)	1 December following permit effective date	1 December through 31 May	30 days from the end of the monitoring period
~~1/Year (Annually)~~	~~1 January following permit effective date~~	~~1 January through 31 December~~	~~30 days from the end of the monitoring period~~
Once during the 3rd year following permit adoption	1 January at least 3 years following (or on) permit effective date	1 January through 31 December	1 February

C. Discharge Monitoring Reports (DMRs) – NOT APPLICABLE

D. Other Reports

1. 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 *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California*, adopted 2 March 2000 by the State Water Resources Control Board. All peaks identified by analytical methods shall be reported.

2. **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 and telephone numbers of persons to contact regarding the plant for emergency and routine situations.

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

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

d. Tabular and graphical summaries of the monitoring data obtained during the previous year for lead, manganese, and mercury at Monitoring Locations EFF-001 and EFF-002 in accordance with Special Provisions VI.C.2.b and VI.C.2.c.contained in the Limitations and Discharge Requirements.

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ATTACHMENT F – FACT SHEET

As described in section II of this Order, this Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for Dischargers in California. Only those sections or subsections of this Order that are specifically identified as "not applicable" have been determined not to apply to this Discharger. Sections or subsections of this Order not specifically identified as "not applicable" are fully applicable to this Discharger.

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I. PERMIT INFORMATION

The following table summarizes administrative information related to the Facility.

Table F-1. Facility Information

WDID	
Discharger	U.S. Department of the Interior, Bureau of Reclamation
Name of Facility	Sliger Mine
Facility Address	Approximately 1,500 feet south of the junction of Sliger Mine Road and Fox Grove Lane
	El Dorado County, California
	El Dorado County
Facility Contact, Title and Phone	John Fields, Chief Environmental Monitoring Branch, (916) 978-5280
Authorized Person to Sign and Submit Reports	Same as above
Mailing Address	2800 Cottage Way Sacramento, CA 95825
Billing Address	Same as mailing address
Type of Facility	Inactive Mine
Major or Minor Facility	Minor
Threat to Water Quality	2
Complexity	A
Pretreatment Program	N
Reclamation Requirements	Not applicable
Facility Permitted Flow	0.194 million gallons per day (mgd)
Facility Design Flow	0.194 mgd
Watershed	Sacramento River
Receiving Water	Middle Fork, American River
Receiving Water Type	Inland surface water

A. The U.S Bureau of Reclamation (hereinafter Discharger) is the owner of Sliger Mine (hereinafter Facility), an inactive 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 the Middle Fork of the American River, a water of the United States, and is currently regulated by Order R5-2003-0001 which was adopted on 30 January 2003 and expired on 30 January 2008. The terms and conditions of the current Order have been automatically continued and remain in effect until new Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit are adopted pursuant to this Order.

C. The Discharger filed a report of waste discharge and submitted an application for renewal of its WDRs and NPDES permit on 25 June 2007. Supplemental information was requested on 13 February 2008 and received on 14 February 2008.

II. FACILITY DESCRIPTION

The Sliger Mine was founded in 1864. In the 1870s, the ore was crushed in a five-stamp mill. During the early work at the mine, a 300-foot shaft produced approximately $250,000 worth of gold. The milling process consisted of two-stage crushing, flotation, and gravity concentration. The table tailing was sent to a conditioner and treated by flotation. The mine was closed for a period and was inactive until 1922, when the Sliger Gold Mining Company took over the operation. During this time, the shaft was deepened to approximately 2,000 feet and a 15-stamp mill was added. In 1934, the Middle Fork Gold Mining Company took over operation of the mine. In 1937, the Mountain Copper Company leased the mine and did some exploration. From 1938 until 1942, when the mine became finally inactive, the mine was operated by the Middle Fork Gold Mining Company. From 1932 through 1942, 309,000 tons of ore were mined from which $2,625,000 of gold was recovered. By 1953, most of the surface equipment had been sold.

The Facility is currently an inactive historical gold mine located on federal lands administered by the U.S. Department of the Interior, Bureau of Reclamation (USBR). The Facility is located 450 feet east of the Middle Fork American River and more than 200 feet higher in elevation. The mine site consists of underground workings, mine openings, concrete foundations, and waste rock on the east wall of the river canyon. A former mill located on site was used to process ore removed from the Sliger Mine. USBR acquired the property as part of the land acquisition associated with the Auburn Dam site. An adit known as the ventilation adit (V-Adit) was developed during active mining at the site. Water that contains arsenic and other metals is discharged continuously from the V-Adit. The V-adit drains at approximately 0.1 cubic feet per second (cfs). Discharge from the V-Adit flows west in a drainage channel to the Middle Fork American River.

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The disturbed area at the Facility encompasses 6 acres. Significant site features are described below:

- A main production shaft that appears to have collapsed or been buried and is currently recognizable by remnants of the concrete supports.
- An inclined shaft that intersects the V-Adit between the adit portal and the main shaft. The portal of the inclined shaft appears to have collapsed, and an abandoned car remains at what appears to be the former opening.
- An apparent collapsed adit located east (uphill) from the main Sliger Mine area at an elevation of approximately 1,350 feet above sea level that might not be associated with the Sliger Mine.
- An open adit located 500 feet south of the main Sliger Mine area, of which the history is not known. The feature is generally referred to as the "South Sliger Adit."
- Concrete remains of a mine-related building located east (uphill) from the main production shaft, which may have been the former winch house.
- A concrete wall between the main production shaft and the building remnants that retains waste rock to form a flat pad (a presumed working area) on the steep hillside.
- Seven mine waste piles, including waste rock, tailings, and ore that were generated during on-site ore extraction and processing.

The Discharger has applied for coverage under the State Water Board general order for storm water discharges from the disturbed area at the Facility.

A. Description of Wastewater and Biosolids Treatment or Controls

The Discharger ~~is scheduled to~~ recently installed a passive treatment system at the Facility ~~prior to this Order becoming effective~~. The ~~proposed~~ treatment system ~~at the facility~~ consists of a bioreactor designed to use sulfate-reducing bacteria to create an environment where sulfate is reduced to sulfide to precipitate metals in the V-adit drainage water. Metal sulfides of iron and arsenic have much lower solubility than oxides and hydroxides, allowing them to precipitate within the bioreactor. In addition, the growth of plants in the treatment cell is expected to result in consumption of much of the water during low flow periods.

The reactor design consists of a flow control ~~and~~ inlet structure, a reactive medium consisting of granular activated charcoal (GAC) in gravel, and an infiltration trench/berm. The reactor ~~will~~ includes ~~internal earthen berms~~ wooden baffles to direct flow in a sinuous path in order to increase the residence time for treatment. Water ~~will enter~~ enters the bioreactor, flows through the gravel medium and into the trench. Under low flow conditions most of the water is expected be consumed by plants or evaporated prior to reaching the trench.

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Under average flow conditions, the water is expected to infiltrate into the soil underlying the trench, preventing a direct overland discharge. During wet weather, storm water runoff from adjacent areas will infiltrate the treatment system. Under high flow conditions, an influent weir will direct flows ~~above~~ in excess 0.3 cfs away from the reactor to protect the treatment system from exceeding its capacity. The redirected flows, consisting of a portion of the V-Adit drainage mixed with infiltrating storm water, will ~~resulting in the potential for untreated~~ flow directly to the ~~river~~receiving water. High flows are anticipated to occur during significant rainfall events and during high rainfall years. Under these conditions, the flow in the receiving water would also be increased resulting in an increased dilution capacity and minimal if any impact on receiving water quality.

Arsenic and iron will accumulate in the bioreactor matrix (mixture of gravel and GAC). The metal loading to the bioreactor is expected to be low enough that significant accumulation of metals will not occur for several years. For example, at an average concentration of 65 µg/L arsenic and an average flow rate of 0.2 cfs, the annual load of arsenic from V-adit drainage to the bioreactor would be approximately 11.7 kilograms (kg). The mass of the bioreactor matrix is estimated to be approximately 212,000 kg; therefore, the arsenic concentration in the matrix will increase by approximately 55 mg/kg per year. Based on this approximation, the Discharger estimates that the cell matrix would need to be changed every 9 years (at an average flow of 0.2 cfs). The actual average flow from 10 March 2004 to 12 September 2007 was 0.08 cfs and the average concentration of arsenic for the same period was 53 µg/L, so the medium is expected to last much longer before being changed.

B. Discharge Points and Receiving Waters

1. The Facility is located in Section 35 and 36, T13N, R9E, MDB&M, as shown in Attachment B, a part of this Order.

2. Treated adit drainage is discharged at Discharge Point No. 001 to the Middle Fork of the American River, a water of the United States at a point Latitude 38º 56’ 26.22” N and longitude 120º 56’ 13.10” W.

3. The Facility’s discharge is located approximately 5 miles upstream of the confluence of the Middle and North Forks of the American River. Flows in the vicinity of the discharge are controlled by releases from the Hell Hole reservoir, which is managed by the Placer County Water Agency (PCWA). The PCWA is required to maintain a minimum in-stream flow of 75 cfs as measured at the Oxbow Powerhouse gauging station.

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

Effluent limitations and discharge specifications contained in the existing Order for discharges from Discharge Point No. 001 (Monitoring Location 001) and representative monitoring data from the term of the previous Order are as follows:

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Table F-2. Historic Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitation		Monitoring Data (From August 2004 – To September 2007)
		Average Monthly	Maximum Daily	Highest Average Monthly Discharge
Arsenic	µg/L	10	--	100
	lbs/day[1]	0.00539	--	0.0614
Iron	µg/L	300	--	310
	lbs/day[1]	0.162	--	0.501
Manganese	µg/L	50	--	25
	lbs/day[1]	0.0269	--	0.0356
Boron	µg/L	700	--	390
	lbs/day[1]	0.38	--	0.275
pH	standard units	--	6.5 to 8.5 [2]	7.0 to 8.4 [2]
Acute Toxicity	% survival	--	[3]	95[4]

[1] Based on an average flow rate of 0.0646 mgd.
[2] Instantaneous minimum to instantaneous maximum.
[3] 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.
[4] Minimum percent survival reported.

D. Compliance Summary

The Discharger has consistently exceeded its effluent limits for arsenic and, on occasion, iron. On 30 January 2003 the Regional Water Board issued Cease and Desist Order (CDO) No. R5-2003-0002, which established a compliance schedule for arsenic, iron, boron, and manganese. CDO No. R5-2003-0002 originally established a compliance deadline of 30 January 2006, but was amended to extend the compliance deadline to 30 January 2008. The Discharger is installing a bioreactor to comply with CDO No. R5-2003-0002. It should be noted that based on recent data the Discharger does not show a reasonable potential to exceed water quality objectives for boron or manganese.

E. Planned Changes –

~~Refer to Section II.A of this Fact Sheet for a description of the Discharger's proposed treatment system.~~**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 section II of the Limitations and Discharge Requirements (Findings). This section provides supplemental information, where appropriate, for the plans, policies, and regulations relevant to the discharge.

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A. Legal Authority

See Limitations and Discharge Requirements - Findings, Section II.C.

B. California Environmental Quality Act (CEQA)

See Limitations and Discharge Requirements - Findings, Section II.E.

C. State and Federal Regulations, Policies, and Plans

1. **Water Quality Control Plans**. The Regional Water Board adopted a *Water Quality Control Plan, Fourth Edition (Revised February 2007), for the Sacramento and San Joaquin River Basins* (Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, State Water Board Resolution No. 88-63 requires that, with certain exceptions, the Regional Water Board assign the municipal and domestic supply use to water bodies that do not have beneficial uses listed in the Basin Plan. The beneficial uses of the Middle Fork of the American River downstream of the discharge are municipal and domestic supply, agricultural irrigation, agricultural stock watering, hydropower generation, water contact recreation, other non-contact water recreation, warm freshwater aquatic habitat, cold freshwater aquatic habitat, cold spawning habitat, and wildlife habitat.

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

   The federal CWA section 101(a)(2), states: "*it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water be achieved by July 1, 1983.*" Federal Regulations, developed to implement the requirements of the CWA, create a rebuttable presumption that all waters be designated as fishable and swimmable. Federal Regulations, 40 CFR sections 131.2 and 131.10, require that all waters of the State regulated to protect the beneficial uses of public water supply, protection and propagation of fish, shell fish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation. Section 131.3(e), 40 CFR, defines existing beneficial uses as those uses actually attained after 28 November 1975, whether or not they are included in the water quality standards. Federal Regulation, 40 CFR section 131.10 requires that uses be obtained by implementing effluent limitations, requires that all downstream uses be protected and states that in no case shall a state adopt waste transport or waste assimilation as a beneficial use for any waters of the United States.

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2. **Antidegradation Policy.** Section 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 water quality be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. As discussed in detail in this Fact Sheet (Section IV.D.4) the discharge is consistent with the antidegradation provisions of 40 CFR section 131.12 and State Water Board Resolution 68-16.

3. **Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at title 40, Code of Federal Regulations section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed. Compliance with the anti-backsliding requirements is discussed in Section IV.D.3.

4. **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.

5. **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 mining activities. Mining activities 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.

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

1. Under Section 303(d) of the 1972 Clean Water Act, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On 30 November 2006 USEPA gave final approval to California's 2006 Section 303(d) List of Water Quality Limited Segments. The Basin Plan references this list of Water Quality Limited Segments (WQLSs), which are defined as "…*those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources (40 CFR 130, et seq.)*." The Basin Plan also

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states, "*Additional treatment beyond minimum federal standards will be imposed on dischargers to [WQLSs]. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment.*" The Middle Fork of the American River is not listed as a water quality limited segment.

2. **Total Maximum Daily Loads.** The Middle Fork of the American River is not listed as a water quality limited segment, and therefore no total maximum daily loads are applicable.

E. Other Plans, Polices and Regulations – NOT APPLICABLE

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

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

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

The CWA requires point source discharges to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations: 40 CFR §122.44(a) requires that permits include applicable technology-based limitations and standards, and 40 CFR §122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water where numeric water quality objectives have not been established. The Regional Water Board's Basin Plan, page IV-17.00, contains an implementation policy ("Policy for Application of Water Quality Objectives") that specifies that the Regional Water Board "*will, on a case-by-case basis, adopt numerical limitations in orders which will*

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implement the narrative objectives." This Policy complies with 40 CFR §122.44(d)(1). With respect to narrative objectives, the Regional Water Board must establish effluent limitations using one or more of three specified sources, including (1) USEPA's published water quality criteria, (2) a proposed state criterion (*i.e*., water quality objective) or an explicit state policy interpreting its narrative water quality criteria (*i.e*., the Regional Water Board's "Policy for Application of Water Quality Objectives")(40 CFR §§122.44(d)(1) (vi) (A), (B) or (C)), or (3) an indicator parameter. The Basin Plan contains a narrative objective requiring that: "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*" (narrative toxicity objective). The Basin Plan requires the application of the most stringent objective necessary to ensure that surface water and groundwater do not contain chemical constituents, discoloration, toxic substances, radionuclides, or taste and odor producing substances that adversely affect beneficial uses. 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 Basin Plan also limits chemical constituents in concentrations that adversely affect surface water beneficial uses. For waters designated as municipal, the Basin Plan specifies that, at a minimum, waters shall not contain concentrations of constituents that exceed Maximum Contaminant Levels (MCL) of CCR Title 22. The Basin Plan further states that, to protect all beneficial uses, the Regional Water Board may apply limits more stringent than MCLs.

A. Discharge Prohibitions

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

B. Technology-Based Effluent Limitations

1. Scope and Authority

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

- 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.

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- 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.

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

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

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

2. Applicable Technology-Based Effluent Limitations

a. Effluent Limitation Guidelines. The Facility is an inactive gold mine and milling operation which previously involved the extraction of gold from primarily one production shaft. When Sliger Mine was active it employed a froth floatation process for the beneficiation of gold ore. On 24 May 1988, ELGs for gold ore mining and dressing operations became effective, establishing effluent limitations for cadmium, copper, lead, mercury, pH, total suspended solids, and zinc. The ELGs applicable to gold ore mines are specified in 40 CFR Part 440, Subpart J. The applicability of the ELGs are specific to the following requirements:

i. mines that produce copper, lead, zinc, gold, silver, or molybdenum bearing ores, or any combination of these ores from open-pit or underground operations other than placer deposits; and

ii. mills that use the froth-flotation process alone or in conjunction with other processes, for the beneficiation of copper, lead, zinc, gold, silver, or molybdenum ores, or any combination of these ores.

The mine site has been inactive since 1942 and is largely revegetated. Most of the equipment associated with the mining operations was sold and removed from the site prior to 1953. Therefore, the ELGs are considered not applicable to the

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Facility and technology-based effluent limitations based on ELGs are not established in this Order.

b. Flow. The Sliger Mine's passive treatment system was designed to provide treatment for up to a design flow of 0.194 mgd. Therefore, this Order contains an average daily discharge flow effluent limit of 0.194 mgd through the treatment system to ensure that the treatment system is not hydraulically overloaded. Compliance for this limitation shall be determined at Monitoring Location EFF-001.

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

As specified in section 122.44(d)(1)(i), permits are required to include WQBELs for pollutants (including toxicity) that are or may be discharged at levels that cause, have reasonable potential to cause, or contribute to an in-stream excursion above any state water quality standard. 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

a. **Receiving Water.** The Facility's discharge into the Middle Fork of the American River is located approximately 5 miles upstream of the confluence of the Middle and North Forks of the American River. Flows in the vicinity of the discharge are controlled by releases from the Hell Hole reservoir. The PCWA is required to maintain a minimum in-stream flow of 75 cfs as measured at the Oxbow Powerhouse gauging station. The beneficial uses of the receiving waters as described above in III.C.1 are as follows:

Table F-3. Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Middle Fork, American River	Existing: Municipal and domestic supply (MUN); agricultural supply, including irrigation and stock watering; hydropower generation (POW); water contact recreation (REC-1); other non-contact water recreation (REC-2); cold freshwater aquatic habitat (COLD); cold spawning habitat (SPWN); and wildlife habitat (WILD). Potential: Warm freshwater habitat (WARM).

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b. **Assimilative Capacity/Mixing Zone.** The CWA directs states to adopt water quality standards to protect the quality of its waters. USEPA's current water quality standards regulation authorizes states to adopt general policies, such as mixing zones, to implement state water quality standards (40 CFR §122.44 and section 122.45). The USEPA allows states to have broad flexibility in designing its mixing zone policies. Primary policy and guidance on determining mixing zone and dilution credits is provided by the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays and Estuaries of California* (State Implementation Policy or SIP) and the Basin Plan. If no procedure applies in the SIP or the Basin Plan, then the Regional Water Board may use the USEPA *Technical Support Document for Water Quality-Based Toxics Control* (EPA/505/2-90-001) (TSD).

The allowance of mixing zones by the Regional Water Board is discussed in the Basin Plan, Policy for Application of Water Quality Objectives, which states in part, "*In conjunction with the issuance of NPDES and storm water permits, the Regional Board may designate mixing zones within which water quality objectives will not apply provided the discharger has demonstrated to the satisfaction of the Regional Board that the mixing zone will not adversely impact beneficial uses. If allowed, different mixing zones may be designated for different types of objectives, including, but not limited to, acute aquatic life objectives, chronic aquatic life objectives, human health objectives, and acute and chronic whole effluent toxicity objectives, depending in part on the averaging period over which the objectives apply. In determining the size of such mixing zones, the Regional Board will consider the applicable procedures and guidelines in the EPA's Water Quality Standards Handbook and the [TSD]. Pursuant to EPA guidelines, mixing zones designated for acute aquatic life objectives will generally be limited to a small zone of initial dilution in the immediate vicinity of the discharge.*"

Section 1.4.2 of the SIP states, in part, "…*with the exception of effluent limitations derived from TMDLs, in establishing and determining compliance with effluent limitations for applicable human health, acute aquatic life, or chronic aquatic life priority pollutant criteria/objectives or the toxicity objective for aquatic life protection in a basin plan, the Regional Board may grant mixing zones and dilution credits to dischargers ... The applicable priority pollutant criteria and objectives are to be met throughout a water body except within any mixing zone granted by the Regional Board. The allowance of mixing zones is discretionary and shall be determined on a discharge-by-discharge basis. The Regional Board may consider allowing mixing zones and dilution credits only for discharges with a physically identifiable point of discharge that is regulated through an NPDES permit issued by the Regional Board.*"

Section 1.4.2.1 of the SIP defines a dilution credit as, "*a numerical value associated with the mixing zone that accounts for the receiving water entrained into the discharge. The dilution credit is a value used in the calculation of effluent limitations. Dilution credits may be limited or denied on a pollutant-by-pollutant*

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basis, which may result in a dilution credit for all, some or no priority pollutants in a discharge." Section 1.4.2 of the SIP states that when establishing and determining compliance with effluent limitations for applicable human health, acute or chronic aquatic life priority pollutant criteria/objectives, or the narrative toxicity objective for aquatic life protection contained in a Basin Plan, that the Regional Water Board has the discretion to grant mixing zones and dilution credits on a discharge-by-discharge basis. In granting a mixing zone, the SIP states that a mixing zone shall be as small as practicable, and meet the conditions provided in Section 1.4.2.2 of the SIP.

Regarding mixing zones, the SIP states, "*A mixing zone shall be as small as practicable. The following conditions must be met in allowing a mixing zone:*

A: A mixing zone shall not:

(1) compromise the integrity of the entire water body;

(2) cause acutely toxic conditions to aquatic life passing through the mixing zone;

(3) restrict the passage of aquatic life;

(4) adversely impact biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under federal or State endangered species laws;

(5) produce undesirable or nuisance aquatic life;

(6) result in floating debris, oil, or scum;

(7) produce objectionable color, odor, taste, or turbidity;

(8) cause objectionable bottom deposits;

(9) cause nuisance;

(10) dominate the receiving water body or overlap a mixing zone from different outfalls; or

(11) be allowed at or near any drinking water intake. A mixing zone is not a source of drinking water. To the extent of any conflict between this determination and the Sources of Drinking Water Policy (Resolution No. 88-63), this SIP supersedes the provisions of that policy."

The mixing zone is thus an administrative construct defined as an area around the outfall that may exceed water quality objectives, but is otherwise protective of the beneficial uses. Dilution is defined as the amount of mixing that has occurred at the edge of this mixing zone under critical conditions, thus protecting the beneficial uses at the concentration and for the duration and frequency required.

The Discharger originally requested consideration for a mixing zone for discharges from the Facility in a submittal dated 22 December 2006. The submittal also outlined several treatment alternatives for the Facility. The request

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was based on applying dilution in lieu of other alternatives to control or treat the effluent from the Facility. The Regional Water Board denied this request and required that treatment of the Facility's discharge was necessary if a mixing zone was to be granted. In March 2008 the Discharger installed a passive treatment system (see Attachment F, Section II.C.A for a description of the treatment system) thereby satisfying the Board's requirement for treatment prior to allowing a mixing zone. The Discharger brought the treatment system online on 22 March 2008.

As described in Attachment F, Section II.C.A, during wet weather the treatment system receives storm water infiltration from the surrounding area. During large storm events there is a potential for the combined flow of V Adit drainage and infiltrating storm water to exceed the treatment system's peak flow capacity of 0.3 cfs. Flows in excess of 0.3 cfs bypass the treatment system via a weir, and flow directly to the receiving water.

The Discharger requested that a mixing zone be allowed and dilution credits be applied to the discharge from 1 December through 31 May of each year. The mixing zone and dilution credits are intended to account for events when infiltrating storm water and a portion of the V Adit drainage might not flow through the treatment system. Because individual events when this might occur are unpredictable, and access to the Facility is limited, the Discharger is requesting that the mixing zone and dilution credits apply from December through May of each year.

The Discharger defines a site-specific wet season as 1 December through 31 May of each year during which the dilution credits should be applied. The time frame is based on the fact that the V-Adit flows are dependent on groundwater levels in the vicinity of the V-Adit. The hydraulic conditions in the groundwater level near the V-Adit lag behind annual precipitation events because water must accumulate in the groundwater channels before the levels are high enough to affect the flows from the V-Adit. The Regional Water Board has determined that the Discharger's estimation of a site-specific wet season lasting from 1 December to 31 May of each year is appropriate,

The Discharger based its mixing zone and dilution credit estimates on data collected during dyes studies conducted on 27 October 2005 and 28 -September 2006. Results from these dye studies were included in the 22 December 2006 mixing zone submittal. The October 2005 dye study included monitoring for arsenic, boron, and EC in the effluent, at several locations within the proposed mixing zone, and in the receiving water outside of the proposed mixing zone. The September 2006 study included monitoring for ~~electrical conductivity~~EC and rhodamine (a component of the dye) within the mixing zone to determine the available dilution. The September 2006 study also included monitoring for a large number of constituents in the discharge and at upstream and downstream receiving water sampling locations. Both dye studies were conducted under low flow conditions in the receiving water and the discharge.

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i. **Mixing Zone.** Based on the dye studies and the associated sampling the Discharger concludes in its ROWD that the mixing zone extends from the point of discharge upstream for 25 feet and away from shore for 5 feet. The dye studies also concluded that the proposed mixing zone is incompletely mixed, meaning there is potential for significant variation in the concentration of constituents within the mixing zone. The maximum concentration of arsenic within the mixing zone during the October 2005 dye study was 8.5 µg/L, which is well below the CTR freshwater aquatic life acute criterion (340 µg/L) and chronic criterion (150 µg/L). The maximum concentration of boron within the mixing zone during the October 2005 study was 34 µg/L, which is below the recommended lowest observed toxicity effect level for boron of 1,000 µg/L. The maximum level of EC within the mixing zone during the October 2005 study was 173 µmhos/cm, which is below the lowest associated water quality objective of 700 µmhos/cm. In addition, the lowest acute toxicity measurement of pure effluent in the data reviewed for this Order was 95 % survival, indicating that the discharge does not exhibit acutely toxic properties. These data show that the mixing zone meets the SIP requirements 1 through 5 listed above. Observations and photos from the Discharger show that the mixing zone meets SIP requirements 6 through 9. Finally, there are no other mixing zones in the vicinity of the discharge, the discharge flow is significantly smaller than the receiving water flow, and the nearest drinking water intake is more than 7 miles downstream of the discharge. Therefore, the Regional Water Board concludes that the mixing zone requested by the Discharger is protective of the beneficial uses and applicable water quality objectives for the American River. Because the Discharger did not specify the vertical characteristics of the mixing zone, and the receiving water is relatively shallow in the vicinity of the discharge, the mixing zone is assumed to extend from the surface to bottom of the receiving water throughout the entire 25 foot by 5 foot area.

ii. **Dilution Credits.** The Discharger requested a dilution credit of 27 for arsenic, iron, and EC. This represents a dilution ratio of 27 : 1 (receiving water : discharge). The Discharger determined the dilution factor based on rhodamine probe readings taken during the September 2006 dye study. According to the Discharger, the rhodamine probe used during the September 2006 dye study had a sensitivity range of 0.5 parts per billion (ppb) to 500 ppb. The concentrations of rhodamine measured during the dye study ranged from 5.26 ppb to 7.72 ppb, which are well within the probe's sensitivity range. By contrast, measurements of arsenic and boron within the mixing zone, taken during the October 2005 study, are near the method detection limits, meaning there is a higher level of uncertainty for the measurements of these constituents. Therefore, the rhodamine measurements provide a more accurate measurement of available dilution than arsenic or boron measurements. The range of rhodamine probe readings taken throughout the mixing zone suggests available dilution in the mixing zone ranging from 62 to 91. The Discharger's requested dilution credit of 27 was determined as one third of the highest measured available dilution.

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The Discharger also determined that the mixing zone is incompletely mixed, meaning that pollutant concentrations and the amount of mixing that actually occurs within the mixing zone varies by more than 5 percent%. In an incomplete mixing scenario, there is the potential for parts of the mixing zone to have minimal mixing some of the time. The SIP allows the Regional Water Board to significantly limit mixing zones and dilution credits as necessary to protect beneficial uses. Because of the uncertainty associated with mixing characteristics in an incompletely mixed mixing zone, the Regional Water Board determined that is appropriate to limit dilution credits to levels that are lower than those determined by the dDischarger, yet high enough to that the resulting effluent limitations are reasonably achievable by the Discharger. By establishing dilution credits significantly lower than those that were determined by the Discharger's mixing zone study, the Regional Water Board is ensuring that the beneficial uses are protected. The dilution credits in this Order are determined based on the assimilative capacity of the receiving water for the pollutants in question, minimizing the mixing zone and dilution credits, and allowing the Discharger to reasonably achieve compliance with its effluent limitations using the technology it has recently installed to treat its effluent.

Both arsenic and iron have receiving water background concentrations of non-detect, meaning that the receiving water has assimilative capacity for these constituents. For arsenic and iron a dilution credit is determined based on the lowest possible dilution credit that will allow the dDischarger to reasonably meet its effluent limitations for arsenic, which is the primary pollutant of concern for the discharge. Therefore, a dilution credit of 12 is established in this Order for arsenic and iron.

Because there is less assimilative capacity for EC, the Regional Water Board determined that a more stringent dilution credit is necessary to limit salinity loads to the receiving water. The dilution credit for EC is determined from EC measurements that the Discharger took during the October 2005 dye study. Based on those measurements, the Discharger estimated that the initial dilution available at the point where the discharge enters the receiving water is 2.9. Therefore, this Order applies a dilution credit of 2.9 for EC.

Based on information provided by the Discharger, it is expected that flows from the Facility do not reach the river between June and December, and with the recent installation of the passive treatment system, the Discharger believes that treated drainage would reach the river even less frequently than in the past. Therefore, the Regional Water Board will only allow a mixing zone during the period from 1 December through 31 May when there is a greater potential for a discharge to occur. The dilution credits applied in this Order from 1 December through 31 May are summarized below:

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Table F-4. Summary of Dilution Credits

Constituent	Dilution Credit
Arsenic	12
Iron	12
Electrical Conductivity	2.9

~~b. **Assimilative Capacity/Mixing Zone.** The Discharger had previously requested consideration for a mixing zone for discharges from the Facility. This request was denied. Therefore, the worst-case dilution is assumed to be zero to provide protection for the receiving water beneficial uses. The impact of assuming zero assimilative capacity within the receiving water is that the discharge limitations are end-of-pipe limits with no allowance for dilution within the receiving water.~~

~~d.~~c. **Hardness.** While no effluent limitation for hardness is necessary in this Order, hardness is critical to the assessment of the need for, and the development of, effluent limitations for certain metals. The CTR and the NTR 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 having hardness-dependent criteria include cadmium, copper, chromium III, lead, nickel, silver, and zinc. The equation describing the regulatory criterion, as established in the CTR, is as follows:

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

Where:

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

The constants “m” and “b” are specific to both the metal under consideration, and the type of CTR criterion (i.e., acute or chronic). The metal-specific values for these constants are provided in the CTR at paragraph (b)(2), Table 1.

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

Concave Downward: cadmium (chronic), chromium (III), copper, nickel, and zinc
Concave Upward: cadmium (acute), lead, and silver (acute)

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

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all discharge conditions. Recent studies indicate that using the lowest recorded receiving water hardness for establishing water quality criteria is not protective of the receiving water under various mixing conditions and could be overly protective for some mixing conditions. The Regional Water Board has evaluated these studies and concurs that for some parameters the beneficial uses of the receiving water are fully protected using the lowest hardness value of the effluent. For some parameters, the use of the lowest hardness value of the effluent and either lowest or highest hardness value of the receiving water is protective. However, to use this approach the effluent hardness dataset must be sufficient to ensure adequate protection of the beneficial uses.

For those contaminants where the regulatory criteria exhibit a concave downward relationship as a function of hardness, use of the lowest recorded effluent hardness for establishment of water quality objectives is fully protective of all beneficial uses regardless of whether the effluent or receiving water hardness is higher. Use of the lowest recorded effluent hardness is also protective under all possible mixing conditions between the effluent and the receiving water (i.e., from high dilution to no dilution). Therefore, for cadmium (chronic), chromium (III), copper, nickel, and zinc water quality criteria were calculated using Equation 1 and a minimum effluent hardness of 140 mg/L as $CaCO_3$, based on data provided in the Report of Waste Discharge.

For those metals where the regulatory criteria exhibit a concave upward relationship as a function of hardness, a water quality objective based on either the effluent hardness or the receiving water hardness would not be protective under all mixing scenarios. Instead, a water quality objective that accounts for both the hardness of the receiving water and the effluent is required. The following equations provide fully protective water quality criteria for those metals that exhibit a concave upward relationship.

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

Where:

H_{eff} = lowest recorded effluent hardness
Hr_w = lowest recorded receiving water hardness
m = metal- and criterion-specific constant
b = metal- and criterion-specific constant

Because the lowest receiving water hardness is less than the lowest effluent hardness, using the lowest recorded receiving water hardness increases the difference between the hardness of the two waters and leads to the development of more restrictive water quality criteria. Therefore, for cadmium (acute), lead, and silver (acute) water quality criteria were calculated using Equation 2 with a

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lowest reported effluent hardness of 140 mg/L as $CaCO_3$ and a receiving water hardness of 13 mg/L as $CaCO_3$, as provided in the Report of Waste Discharge.

3. Determining the Need for WQBELs

a. CWA section 301 (b)(1) requires NPDES permits to include effluent limitations that achieve technology-based standards and any more stringent limitations necessary to meet water quality standards. Water quality standards include Regional Water Board Basin Plan beneficial uses and narrative and numeric water quality objectives, State Water Board-adopted standards, and federal standards, including the CTR and NTR. The Basin Plan includes numeric site-specific water quality objectives and narrative objectives for toxicity, chemical constituents, 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.) With regards to the narrative chemical constituents objective, the Basin Plan states that waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At minimum, "…*water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs)*" in Title 22 of CCR. The 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.*"

b. Federal regulations require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause, or contribute to an in-stream excursion above a narrative or numerical water quality standard. Based on information submitted as part of the application, and as directed by monitoring and reporting programs, the Regional Water Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for arsenic, boron, iron, manganese, and silver. Water quality-based effluent limitations (WQBELs) for these constituents are included in this Order. A summary of the reasonable potential analysis (RPA) is provided in Attachment G, and a detailed discussion of the RPA for each constituent is provided below.

c. The Regional Water Board conducted the RPA in accordance with Section 1.3 of the SIP. Although the SIP applies directly to the control of CTR priority pollutants, the State Water Board has held that the Regional Water Board may use the SIP as guidance for water quality-based toxics control.[1] The SIP states in the introduction "*The goal of this Policy is to establish a standardized approach for permitting discharges of toxic pollutants to non-ocean surface waters in a manner that promotes statewide consistency.*" Therefore, in this Order the RPA

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

procedures from the SIP were used to evaluate reasonable potential for both CTR and non-CTR constituents.

d. **Arsenic.** The USEPA Primary Maximum Contaminant Level (MCL) is 10 µg/L for arsenic. Pursuant to the Safe Drinking Water Act, DHS must revise the arsenic MCL in Title 22 CCR to be as low or lower than the USEPA MCL. Applying the Basin Plan's "Policy for Application of Water Quality Objectives", to protect future municipal and domestic water use, it is reasonable to apply the USEPA MCL for arsenic to the receiving stream.

The MEC for arsenic was 100 µg/L, based on 14 samples collected between 10 March 2004 and 12 September 2007, while the maximum observed upstream receiving water arsenic concentration was non-detect, based on 14 samples collected between 10 March 2004 and 12 September 2007. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the USEPA Primary MCL and the receiving water has assimilative capacity for arsenic. As discussed in Attachment F, Section IV.C.2.b, a dilution credit of 12 is established for arsenic from 1 December to 31 May each year.

However, the Regional Water Board finds that granting of this dilution credit could allocate an unnecessarily large portion of the receiving water's assimilative capacity for human health water quality criteria and could violate the Antidegradation Policy. For this reason, a performance-based effluent limitation is included in this Order. In developing the performance-based effluent limitation, where there are 10 sampling data points or more, sampling and laboratory variability is accounted for by establishing interim limits that are based on normally distributed data where 99.9 percent of the data points will lie within 3.3 standard deviations of the mean (Basic Statistical Methods for Engineers and Scientists, Kennedy and Neville, Harper and Row). Therefore, the performance-based effluent limitation in this Order is established as the mean plus 3.3 standard deviations of the available data. The following summarizes the calculations of the ~~interim~~ effluent limitation~~s~~ for arsenic.

No. of Samples = 14
Maximum = 100 µg/L
Mean = 52.5 µg/L
Standard Deviation = 19.0 µg/L
Performance-Based Effluent Limitation = 115 µg/L (applied as a maximum daily and applicable from 1 December to 31 May each year)~~.~~

An AMEL of 10 µg/L for arsenic is included in this Order and applicable from 1 June to 30 November each year based on protection of the Basin Plan's narrative chemical constituents objective. The Discharger is expected to be able to meet this limitation upon installation of its passive treatment system~~.~~

e. **Boron.** USEPA's Integrated Risk Information System (IRIS) toxicological database includes a reference dose as a drinking water level of 630 µg/L for

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boron. The recommended agricultural water quality goal for boron, that would apply the narrative chemical constituent objective, is 700 µg/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 recommended lowest observed toxicity effect level for boron is 1,000 µg/L. USEPA recommends no-adverse-response levels (SNARLs) for toxicity other than cancer risk of 600 µg/L for boron.

The MEC for boron was 390 µg/L, based on 14 samples collected between 10 March 2004 and 12 September 2007, while the maximum observed upstream receiving water boron concentration was non-detect based on 1 sample collected on 28 September 2007. Order No. R5-2003-0001 did not require the Discharger to monitor for boron in the receiving water. ~~Although the MEC is lower than the applicable WQOs, CDO No. R5-2003-0002 established a compliance schedule for boron and there is no receiving water data to determine whether assimilative capacity exists in the receiving water. Therefore, an AMEL of 700 µg/L for boron is carried over from Order No. R5-2003-0001 and based on protection of the Basin Plan's narrative chemical constituents objective. Based on the sample results for the effluent, it appears the Discharger can meet this effluent limitation~~Therefore, the discharge does not have a reasonable potential to exceed water quality objectives for boron, and no effluent limitation is included in this Order.

f. **Electrical Conductivity. (see Subsection for Salinity)**

g. **Iron.** The Secondary MCL - Consumer Acceptance Limit for iron is 300 µg/L. The MEC for iron was 310 µg/L, based on 14 samples collected between 10 March 2004 and 12 September 2007, while the maximum observed upstream receiving water iron concentration was non-detect, based on 1 sample collected on 28 September 2007. Order No. R5-2003-0001 did not require the Discharger to monitor for iron in the receiving water. ~~Based on effluent data alone~~Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Secondary MCL~~-~~. As discussed in Attachment F, Section IV.C.2.b, a dilution credit of 12 is established for iron from 1 December to 31 May each year.

However, the Regional Water Board finds that granting of this dilution credit could allocate an unnecessarily large portion of the receiving water's assimilative capacity for human health water quality criteria and could violate the Antidegradation Policy. For this reason, a performance-based effluent limitation is included in this Order. In developing the performance-based effluent limitation, where there are 10 sampling data points or more, sampling and laboratory variability is accounted for by establishing interim limits that are based on normally distributed data where 99.9 percent of the data points will lie within 3.3 standard deviations of the mean (Basic Statistical Methods for Engineers and Scientists, Kennedy and Neville, Harper and Row). Therefore, the performance-

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based effluent limitation in this Order is established as the mean plus 3.3 standard deviations of the available data. The following summarizes the calculations of the ~~interim~~ effluent limitation~~s~~ for iron.

No. of Samples = 14
Maximum = 310 µg/L
Mean = 112.5 µg/L
Standard Deviation = 91.7 µg/L
Performance-Based Effluent Limitation = 415 µg/L (applied as a maximum daily and applicable from 1 December to 31 May each year).

Based on input from DPH and the fact that secondary MCLs are designed to protect consumer acceptance, effluent limitations for iron based on secondary MCLs are typically applied as ~~an annual~~ longer-term average concentrations. An ~~annual~~ 6-month average effluent limitation of 300 µg/L for iron is included in this Order and applicable from 1 June to 30 November each year based on protection of the Basin Plan's numeric chemical constituents objective.

h. **Manganese.** The Secondary MCL - Consumer Acceptance Limit for manganese is 50 µg/L. The MEC for manganese was 25 µg/L, based on 14 samples collected between 10 March 2004 and 12 September 2007, while the maximum observed upstream receiving water manganese concentration was 4.5 µg/L based on one sample collected on 28 September 2007. Order No. R5-2003-0001 did not require the Discharger to monitor for manganese in the receiving water. Therefore, the discharge does not have a reasonable potential to exceed water quality objectives for manganese, and no effluent limitation is included in this Order.~~. Order No. R5-2003-0001 did not require the Discharger to monitor the receiving water for manganese. Although the MEC is lower than the applicable WQO, CDO No. R5-2003-0002 established a compliance schedule for manganese and there is no receiving water data to determine whether assimilative capacity exists in the receiving water. Therefore, and based on input from DPH and the fact that secondary MCLs are designed to protect consumer acceptance, effluent limitations for manganese based on secondary MCLs are applied as an annual average concentration. An annual average effluent limitation of 50 µg/L for manganese is included in this Order. Based on the sample results for the effluent, it appears the Discharger can meet this effluent limitation.~~

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

j. **Salinity.** The discharge contains total dissolved solids (TDS), chloride, sulfate, and electrical conductivity (EC). These are water quality parameters that are indicative of the salinity of the water. Their presence in water can be growth limiting to certain agricultural crops and can affect the taste of water for human

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consumption. There are no USEPA water quality criteria for the protection of aquatic organisms for these constituents. 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-45. Salinity Water Quality Criteria/Objectives

Parameter	Agricultural WQ Goal[1]	Secondary MCL[3]	Basin Plan	Effluent	
				Average	Maximum
EC (µmhos/cm)	Varies[2]	900, 1600, 2200	N/A	890	1,450
TDS (mg/L)	Varies	500, 1000, 1500	125[4]	490	490
Sulfate (mg/L)	Varies	250, 500, 600	N/A	37	37
Chloride (mg/L)	Varies	250, 500, 600	N/A	190	190

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

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

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

4 Established as a 90th percentile water quality objective for the Middle Fork of the American River in Table III-3 of the Basin Plan

i. **Chloride**. The secondary MCL for chloride is 250 mg/L, as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum. The recommended agricultural water quality goal for chloride, that would apply the narrative chemical constituent objective, is 106 mg/L as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). The 106 mg/L water quality goal is intended to protect against adverse effects on sensitive crops when irrigated via sprinklers.

   The chloride concentration in the effluent was 190 mg/L, based on one sample collected by the Discharger on 16 May 2007. Order No. R5-2003-0001 did not require the Discharger to monitor the receiving water for chloride; therefore, no receiving water data for chloride was available. The effluent concentrations exceed the agricultural water quality goal of 106 mg/L.

ii. **Electrical Conductivity (EC)**. The secondary MCL for EC is 900 µmhos/cm as a recommended level, 1600 µmhos/cm as an upper level, and 2200 µmhos/cm as a short-term maximum. The agricultural water quality goal, that would apply the narrative chemical constituents objective, is 700 µmhos/cm as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). The 700 µmhos/cm agricultural water quality goal is intended to prevent reduction in crop yield, i.e., a restriction on use of water, for salt-

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sensitive crops, such as beans, carrots, turnips, and strawberries. These crops are either currently grown in the area or may be grown in the future. Most other crops can tolerate higher EC concentrations without harm, however, as the salinity of the irrigation water increases, more crops are potentially harmed by the EC, or extra measures must be taken by the farmer to minimize or eliminate any harmful impacts.

A review of the Discharger's monitoring reports from 10 March 2004 through 12 September 2007 shows an average effluent EC of 890 µmhos/cm, with a range from 370 µmhos/cm to 1,450 µmhos/cm for 14 samples. These levels exceed the applicable objectives. The background receiving water EC averaged 48 µmhos/cm in 14 sampling events collected by the Discharger from 10 March 2004 through 12 September 2007.

iii. **Total Dissolved Solids (TDS)**. The secondary MCL for TDS is 500 mg/L as a recommended level, 1000 mg/L as an upper level, and 1500 mg/L as a short-term maximum. The recommended agricultural water quality goal for TDS, that would apply the narrative chemical constituent objective, is 450 mg/L as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). Water Quality for Agriculture evaluates the impacts of salinity levels on crop tolerance and yield reduction, and establishes water quality goals that are protective of the agricultural uses. The 450 mg/L water quality goal is intended to prevent reduction in crop yield, i.e., a restriction on use of water, for salt-sensitive crops. Only the most salt sensitive crops require irrigation water of 450 mg/L or less to prevent loss of yield. Most other crops can tolerate higher TDS concentrations without harm, however, as the salinity of the irrigation water increases, more crops are potentially harmed by the TDS, or extra measures must be taken by the farmer to minimize or eliminate any harmful impacts.

The TDS effluent concentration was 490 mg/L based on one sample collected by the Discharger on 16 May 2007. Order No. R5-2003-0001 did not require the Discharger to monitor the receiving water for TDS; therefore, no receiving water data for TDS was available. The effluent concentrations exceed the Basin Plan water quality objective of 125 mg/L as a 90th percentile.

iv. **Salinity Effluent Limitations.** Effluent data for EC, chloride, and TDS indicate that effluent concentrations continue to be at levels of concern that may affect beneficial uses of the San Joaquin River. However, there is extremely limited effluent data for TDS and chloride, and there is no receiving water receiving water data for these constituents in the vicinity of the Discharge. In addition, there is no effluent data for chloride, EC, or TDS for discharges from the proposed treatment system, which the Discharger claims will lower salinity. In addition, the Discharger has requested a mixing zone for EC from 1 December to 31 May. As discussed in Section IV.C.2.b of this

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Fact Sheet, the Regional Water Board had considered application of a dilution ratio of 2.9 for EC. Therefore it has been determined that relevant effluent and receiving water data is insufficient to determine whether the Discharge has a reasonable potential to exceed water quality objectives for chloride, EC, and TDS. In accordance with Section 1.3 of the SIP, this Order requires additional monitoring for chloride, EC, and TDS in place of WQBELs.

However, the Regional Water Board finds that granting of a dilution credit could allocate an unnecessarily large portion of the receiving water's assimilative capacity, and allowing the Discharger to increase its current salt loading may be contrary to the Region wide effort to address salinity in the Central Valley and Resolution 68-16 (which requires that existing high quality waters be maintained until it has been demonstrated that any change will be consistent with the maximum benefit to the people of the State). Therefore, in accordance with Resolution 68-16, this Order includes a performance-based annual average effluent limitation of 1,200 µmhos/cm for EC to limit the discharge to current levels. ~~This Order includes a performance-based effluent limit for EC to protect the receiving water against any increases in effluent salinity. The performance-based effluent limit was established as the highest annual average EC for the Discharger based on the data available. The highest annual average was 950 µmhos/cm for the 2003 calendar year. Therefore, this Order includes an annual average effluent limitation for EC of 950 µmhos/cm.~~
A receiving water limitation is also included in this Order to implement the Basin Plan TDS objective (see Section V.A of this Fact Sheet).

k. **Silver.** The CTR includes a hardness-dependent standard for the protection of freshwater aquatic life for silver. The CTR standards for metals are presented in dissolved concentrations. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. The conversion factor for silver in freshwater is 0.85 for the instantaneous maximum criterion. Using the lowest of receiving water and effluent measured hardness of 13 and 140 mg/L as $CaCO_3$, respectively, the corresponding criterion is 0.14 µg/L, as total recoverable.

The MEC for silver was reported as less than 0.62 µg/L (the analytical reporting level), based on one sample collected in May 2007. Order No. R5-2003-0001 did not require the Discharger to monitor the receiving water for silver. Although the reported effluent concentration for silver indicates the potential to exceed applicable water quality criterion, based on the fact that only one effluent data point was provided below analytical reporting levels, and no receiving water data is available, no effluent limitations will be established in the Order. In accordance with Section 1.3 of the SIP, this Order requires additional monitoring for silver during the permit term in place of WQBELs.

l. **Toxicity.** See Section IV.C.5. of the Fact Sheet regarding whole effluent toxicity.

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4. WQBEL Calculations

a. A performance-based effluent limitation for EC was established based on the highest annual average EC for the Discharger based on the data available. Effluent limitations for pH were based on Basin Plan numeric objectives and applied directly as effluent limitations.

b. **Effluent Limitations from 1 June to 30 November.** As discussed in Section IV.C.3 above, an effluent limitation based on the primary MCL was applied as an AMEL for arsenic. Effluent limitations based on secondary MCLs were applied as a~~n annual~~ 6-month average for iron~~ and manganese~~. ~~Effluent limitations for pH were based on Basin Plan numeric objectives and applied directly as effluent limitations. Effluent limitations for boron were based on Basin Plan narrative objectives and applied as an AMEL consistent with Order No. R5-2003-001. A performance-based effluent limitation for EC was established based on the highest annual average EC for the Discharger based on the data available~~

c. **Effluent Limitations from 1 December to 31 May.** Effluent limitations for arsenic~~,~~ and iron~~, and EC~~ for 1 December to 31 May were established as maximum daily performance-based effluent limitations in accordance with ~~section 1.4 of the SIP. In calculating maximum effluent limitations, the effluent concentration allowances were set equal to the criteria/standards/objectives~~procedures used by the Regional Water Board for establishing interim effluent limitations.

$$\cancel{ECA_{acute} = CMC} \qquad ECA_{chronic} = CCC$$

~~For the human health, agriculture, or other long-term criterion/objective, a dilution credit can be applied, and ECA is calculated as follows:~~

$$\cancel{ECA_{HH} = HH + D(HH - B)}$$

~~where:~~

~~ECA_{acute} = effluent concentration allowance for acute (one-hour average) toxicity criterion~~

~~$ECA_{chronic}$ = effluent concentration allowance for chronic (four-day average) toxicity criterion~~

~~ECA_{HH} = effluent concentration allowance for human health, agriculture, or other long-term criterion/objective~~

~~CMC= criteria maximum concentration (one-hour average)~~

~~CCC= criteria continuous concentration (four-day average, unless otherwise noted)~~

~~HH = human health, agriculture, or other long-term criterion/objective~~

~~D = dilution credit~~

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~~B = maximum receiving water concentration~~

~~Water quality-based effluent limitations were calculated for arsenic, iron, and EC as follows in Tables F-6 through F-10, below:~~

~~Table F-10~~
~~WQBEL Calculations for Arsenic~~

	~~Acute~~	~~Chronic~~
~~Criteria (µg/L)~~	~~N/A~~	~~10~~
~~Dilution Credit~~	~~N/A~~	~~12~~
~~ECA~~	~~N/A~~	~~110~~
~~**AMEL (µg/L)**~~ [1]	~~N/A~~	~~**110**~~

~~AMEL = ECA per section 1.4.B, Step 6 of SIP~~

~~Table F-10~~
~~WQBEL Calculations for Iron~~

	~~Acute~~	~~Chronic~~
~~Criteria (µg/L)~~	~~N/A~~	~~300~~
~~Dilution Credit~~	~~N/A~~	~~12~~
~~ECA~~	~~N/A~~	~~3,800~~
~~**6-Month Average Effluent Limitation (µg/L)**~~ [1]	~~N/A~~	~~**3,800**~~

~~Limitation = ECA per section 1.4.B, Step 6 of SIP~~

~~Table F-10~~
~~WQBEL Calculations for Electrical Conductivity~~

	~~Acute~~	~~Chronic~~
~~Criteria (µmhos/cm)~~	~~N/A~~	~~700~~
~~Dilution Credit~~	~~N/A~~	~~2.9~~
~~ECA~~	~~N/A~~	~~2,400~~
~~**AMEL (µmhos/cm)**~~ [1]	~~N/A~~	~~**2,400**~~

~~AMEL = ECA per section 1.4.B, Step 6 of SIP~~

Summary of Water Quality-based Effluent Limitations
Discharge Point No. 001

Table F-~~5~~6. Summary of Water Quality-based Effluent Limitations for 1 June to 30 November

Parameter	Units	Effluent Limitations[1]			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Arsenic, Total Recoverable	µg/L	10	--	--	--
~~Boron, Total Recoverable~~	~~µg/L~~	~~700~~	~~--~~	~~--~~	~~--~~
Electrical Conductivity	µmhos/cm	~~950~~[1]~~950~~1,200[2]	--	--	--
Iron, Total Recoverable	µg/L	~~300~~[1]300[23]	--	--	--

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Parameter	Units	Effluent Limitations[1]			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
~~Manganese, Total Recoverable~~	~~µg/L~~	~~50[1]~~	~~--~~	~~--~~	~~--~~
pH	standard units	--	--	6.5	8.5

[1] Compliance with these limitations shall be determined at Monitoring Location EFF-001
~~[1]~~[2] Applied as an~~n annual~~ ~~6-month~~annual average effluent limitation.
[3] Applied as a 6-month average effluent limitation.

Table F-7. Summary of Water Quality-based Effluent Limitations for 1 December to 31 May

Parameter	Units	Effluent Limitations[1]			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Arsenic, Total Recoverable	µg/L	~~110~~ --	--115	--	--
Electrical Conductivity	µmhos/cm	~~2,400~~1,200[2]	--	--	--
Iron, Total Recoverable	µg/L	~~3,8002~~ --	~~--~~415[3]	--	--
pH	standard units	--	--	6.5	8.5

[1] Compliance with these limitations shall be determined at Monitoring Location EFF-001
[2] Applied as an annual average effluent limitation.
[3]~~2~~ Applied as a 6-month average effluent limitation.

5. Whole Effluent Toxicity (WET)

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

a. **Acute Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at III-8.00) The Basin Plan also states that, "…*effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate*…". USEPA Region 9 provided guidance for the development of acute toxicity effluent limitations in the absence of numeric water quality objectives for toxicity in its document titled "Guidance for NPDES Permit Issuance", dated February 1994. In section B.2. "Toxicity Requirements" (pgs. 14-15) it states that, "*In the absence of specific numeric water quality objectives for acute and chronic toxicity, the narrative criterion 'no toxics in toxic amounts' applies. Achievement of the narrative criterion, as applied herein, means that ambient waters shall not demonstrate for acute toxicity: 1) less than 90% survival, 50% of the time, based on the monthly median, or 2) less than 70%*

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survival, 10% of the time, based on any monthly median. For chronic toxicity, ambient waters shall not demonstrate a test result of greater than 1 TUc." Accordingly, effluent limitations for acute toxicity have been included in this Order as follows:

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

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

b. **Chronic Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." (Basin Plan at III-8.00) Adequate chronic WET data is not available to determine if the discharge has reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective. Attachment E of this Order requires annual chronic WET monitoring for demonstration of compliance with the narrative toxicity objective.

In addition to WET monitoring, Special Provision VI.C.2.a. requires the Discharger to submit to the Regional Water Board an Initial Investigative TRE Work Plan 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 and requirements for accelerated monitoring, as well as, requirements for TRE initiation if a pattern of toxicity is demonstrated.

D. Final Effluent Limitations

1. Mass-based Effluent Limitations

Order No. R5-2003-0001 includes mass-based effluent limitations for arsenic, boron, iron, and manganese. Pursuant to the exceptions to mass limitations provided in 40 CFR 122.45(f)(1), mass limitations for these constituents are not carried over to this Order because the applicable standards (i.e., water quality objectives) are expressed in terms of concentration 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. Based on a conversation between the Regional Water Board and the California DPH, annual average limitations are more appropriate for some pollutants whose effluent limitations are based on secondary MCLs. The effluent limitations for iron are based on the secondary MCL; however, the limitation is seasonal based on

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6-month wet and dry seasons. Therefore, ~~annual~~ 6-month average effluent limitations have been applied for iron ~~and manganese~~. The effluent limitations for arsenic ~~is~~ are based on the primary MCL, which is derived from human health-based criteria that would pose no significant health risk to individuals consuming the water on a daily basis. ~~The effluent limitation for boron is also based on human health-based criteria that would pose no significant health risk to individuals consuming the water on a daily basis.~~ Therefore, ~~an~~ AMELs ~~has~~ have been applied for arsenic ~~and boron~~.

3. Satisfaction of Anti-Backsliding Requirements

Some effluent limitations in this Order are less stringent than those in the previous Order. As discussed in Section IV.D.1 above, the removal of mass-based effluent limitations for arsenic, ~~boron,~~and iron~~, and manganese~~ is consistent with the anti-backsliding requirements of the CWA and federal regulations. Order No. R5-2003-0001 established effluent limitations for manganese and boron. Monitoring data over the term of Order No. R5-2003-0001 indicated that concentrations of manganese and boron in the effluent from Discharge Point No. 001 were below applicable water quality objectives. Therefore, the discharge no longer exhibits reasonable potential to exceed water quality objectives for manganese and boron. The monitoring data submitted by the Facility is considered new information by the Regional Board.

In addition, and as discussed in Section IV.D.2 above, based on new information and guidance provided by the California DPH, the averaging period for ~~manganese~~ iron has been changed from an AMEL to a~~n annual~~ 6-month average effluent limitation. The change in effluent limitation basis is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16. Any impact on existing water quality will be insignificant.

4. Satisfaction of Antidegradation Policy

The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution 68-16. This Order provides for an increase in the mass of pollutants discharged from 1 December to 31 May. However, the Discharger has installed a treatment system that will treat previously untreated flows from the V-Adit, which result in a decrease in the amount of pollutants being discharged throughout the course of the year. The amount of pollutants that are not treated is expected to be minimal and the overall result will be a decrease in the amount of pollutants discharged. The increase in allowable discharges applies to arsenic, iron, and electrical conductivity for the period from 1 December to 31 May each year. Even during that period the vast majority of the discharge will pass through the recently installed treatment system. Therefore, the increased effluent limitations will not result in increased pollutants discharged to the receiving water over the course of the year, and will not have significant impacts on aquatic life or human health. The new effluent limitations are determined based on dilution ratios that have been determined such that the increase will not cause a

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violation of water quality objectives. For these reasons, the Regional Water Board has determined that an antidegradation analysis is not required to consider the possible impacts resulting from the removal of effluent limitations following a RPA.

Effluent limitations were not included in this Order for boron and manganese, for which reasonable potential to exceed the water quality objectives was not indicated following a reasonable potential analysis. The procedures for conducting the reasonable potential analysis are explained elsewhere in this Fact Sheet. The removal of effluent limitations by itself is not expected to cause a change in the physical nature of the effluent discharged and is not expected to impact beneficial uses nor cause a reduction of the water quality of the receiving water, and the overall water quality is expected to be increased by the addition of a treatment system at the Facility. For these reasons, the Regional Water Board has determined that an antidegradation analysis is not required to consider the possible impacts resulting from the removal of effluent limitations following a RPA.

Compliance with these requirements will result in the use of best practicable treatment or control of the discharge.

~~The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. No increase in regulated flow is allowed under the Order. The impact on existing water quality will be insignificant.~~

Summary of Final Effluent Limitations
Discharge Point No. 001

Table F-~~6~~8. Summary of Final Effluent Limitations from 1 June to 30 November

Parameter	Units	Effluent Limitations[1]			Basis
		Average Monthly	Instantaneous Minimum	Instantaneous Maximum	
Flow	mgd	0.~~194~~[4] 194[2]	--	--	PB
Electrical Conductivity	µmhos/cm	~~950~~[2] ~~950~~1,200[3]	--	--	PB
Arsenic, Total Recoverable	µg/L	10	--	--	BP/MCL
~~Boron, Total Recoverable~~	~~µg/L~~	~~700~~	~~--~~	~~--~~	~~PO~~
Iron, Total Recoverable	µg/L	~~300~~[2] 300[34]	--	--	BP/MCL
~~Manganese, Total Recoverable~~	~~µg/L~~	~~50~~[2]	~~--~~	~~--~~	~~PO~~
pH	s.u.	--	6.5	8.5	BP
Acute Toxicity	% survival	Minimum for any one bioassay - - - - - - - - - 70% Median for any three or more consecutive bioassays - - - - 90%			BP

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Parameter	Units	Effluent Limitations[1]			Basis
		Average Monthly	Instantaneous Minimum	Instantaneous Maximum	

1 Compliance with these limits shall be determined at Monitoring Location EFF-001
2 Applied as an average daily discharge flow
3 Applied as an~~n annual~~ annual~~6 month~~ average effluent limitation
4 Applied as a 6-month average effluent limitation
5 PB – Performance-based
MCL – Maximum Contaminant Level
BPJ – Best Professional Judgment
BP – Basin Plan

Table F-9. Summary of Final Effluent Limitations from 1 December to 31 May

Parameter	Units	Effluent Limitations[1]			Basis
		~~Average Monthly~~Daily Maximum	Instantaneous Minimum	Instantaneous Maximum	
Electrical Conductivity	µmhos/cm	~~2,400~~1,200[3]	--	--	PB
Arsenic, Total Recoverable	µg/L	~~110~~115	--	--	BP/MCL
Iron, Total Recoverable	µg/L	~~3,800~~[3]415	--	--	BP/MCL
pH	s.u.	--	6.5	8.5	BP
Acute Toxicity	% survival	Minimum for any one bioassay - - - - - - - - - 70% Median for any three or more consecutive bioassays - - - - 90%			BP

1 Compliance with these limits shall be determined at Monitoring Location EFF-002
2 Applied as an average daily discharge flow
3 Applied as an annual ~~6 month~~ average effluent limitation
4 PB – Performance-based
MCL – Maximum Contaminant Level
BPJ – Best Professional Judgment
BP – Basin Plan

E. Interim Effluent Limitations – NOT APPLICABLE

F. Land Discharge Specifications – NOT APPICABLE

G. Reclamation Specifications – NOT APPLICABLE

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

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

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uses. The Basin Plan requires the application of the most stringent objective necessary to ensure that surface water and groundwater do not contain chemical constituents, toxic substances, radionuclides, or taste and odor producing substances in concentrations that adversely affect domestic drinking water supply, agricultural supply, or any other beneficial use.

A. Surface Water

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

B. Groundwater – NOT APPLICABLE

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

Section 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorizes the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (MRP), 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 MRP for this 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. Therefore ~~quarterly~~ twice per year effluent monitoring is required for flow, arsenic, ~~boron,~~ electrical conductivity, iron, ~~manganese, hardness,~~ and pH to assess compliance with effluent limitations (once during the period from 1 June to 30 November and once during the period from 1 December to 31 May). ~~Quarterly~~

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~~effluent monitoring for electrical conductivity is also required to determine compliance with the performance-based effluent limitations.~~

This Order includes two effluent monitoring locations. Monitoring Location EFF-001 shall be used to determine compliance with the effluent limitations that are applicable from 1 June to 30 November. During the wet season there is the potential for the discharge to mix with infiltrating storm water. Therefore, compliance with effluent limitations applicable from 1 December to 31 May, some of are based on dilution, shall be determined at Monitoring Location EFF-002. Monitoring Location EFF-002 has been established to allow sampling of the discharge prior mixing with storm water.

2. The SIP states that if "…*data are unavailable or insufficient, as described in section 1.2, to conduct the* [reasonable potential] *analysis for the pollutant,...the RWQCB* [Regional Water Board] *shall require additional monitoring for the pollutant in place of a water quality-based effluent limitation.*" Effluent data were insufficient for chloride, electrical conductivity, lead, manganese, mercury, silver, and total dissolved solids. Monitoring for these constituents has been included in this Order in accordance with the SIP.

3. Effluent monitoring for dissolved oxygen, temperature, and turbidity are included to assess the impact of the discharge on the receiving water.

4. In accordance with Section 1.3 of the SIP, periodic monitoring is required for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established. Periodic priority pollutant monitoring is also necessary to provide data that would account for possible changes in the discharge characteristics. Thus, monitoring for priority pollutants has been established once during the third year of the permit term.

C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** ~~Quarterly~~ Annual 96-hour bioassay testing is required to demonstrate compliance with the effluent limitations for acute toxicity.

2. **Chronic Toxicity.** Annual chronic whole effluent toxicity testing is required in order to demonstrate compliance with the Basin Plan's narrative toxicity objective.

3. **Monitoring Location.** In order to provide the most stringent protection of the receiving water, acute and chronic toxicity testing shall be conducted during the 1 December to 31 May monitoring period and samples shall be taken at Monitoring Location EFF-002.

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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. Therefore, ~~quarterly~~ semiannual receiving water monitoring is included in this Order for arsenic, ~~boron,~~ chloride, dissolved oxygen, electrical conductivity, ~~hardness,~~ iron, ~~manganese,~~ pH, silver, temperature, total dissolved solids, and turbidity.

b. Annual monitoring for priority pollutants upstream of the discharge point is required during the third year of the Order term to collect the necessary data to determine reasonable potential as required in section 1.2 of the SIP. The pH and hardness (as $CaCO_3$) of the upstream receiving water shall also be monitored concurrently with the priority pollutants to ensure the water quality criteria are correctly adjusted for the receiving water when determining reasonable potential as specified in section 1.3 of the SIP.

2. Groundwater – NOT APPLICABLE

E. Other Monitoring Requirements – NOT APPLICABLE

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions

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

Section 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. Section 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with section 123.25, this Order omits federal conditions that address enforcement authority specified in sections 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

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1. **Reopener Provisions**

   a. **Additional Monitoring.** This Order requires the Discharger conduct additional monitoring for chloride, electrical conductivity, lead, manganese, mercury, silver, and total dissolved solids to determine whether the discharge has a reasonable potential to exceed water quality objectives for these constituents. This reopener provision allows the Regional Water Board to reopen this Order for addition and/or modification of effluent limitations and requirements for these constituents based on a review of the monitoring data.

   b. **Whole Effluent Toxicity.** This Order requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity through a Toxicity Reduction Evaluation (TRE). This Order may be reopened to include a numeric chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if a numeric chronic toxicity water quality objective is adopted by the State Water Board, this Order may be reopened to include a numeric chronic toxicity limitation based on that objective.

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 III-8.00.) Adequate WET data is not available to determine if the discharge has reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective. Attachment E of this Order requires Quarterly 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 Work Plan 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 and requirements for accelerated monitoring, as well as, requirements for TRE initiation if a pattern of toxicity is demonstrated.

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

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

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

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

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

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

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

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- *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.

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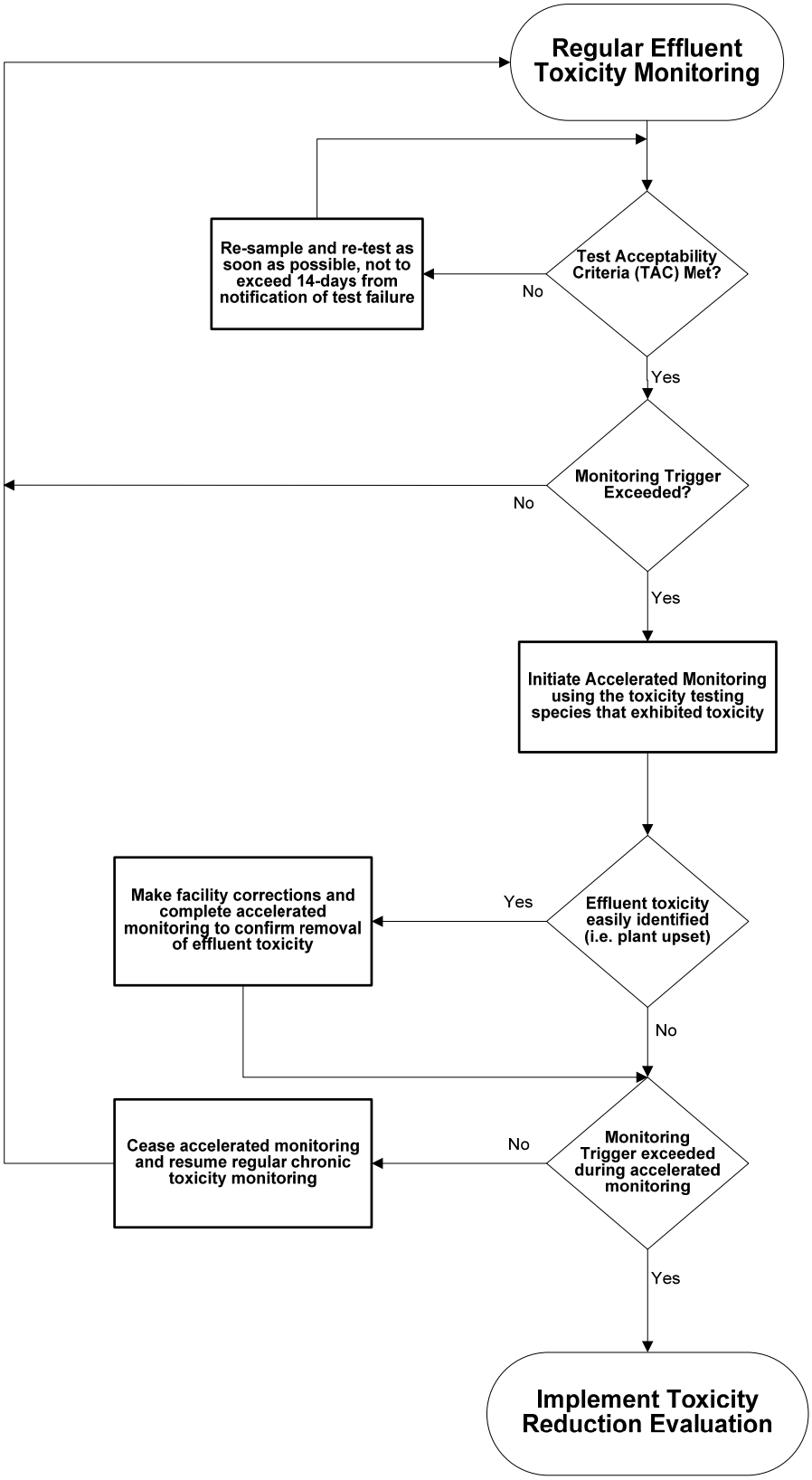
Figure F-1
WET Accelerated Monitoring Flow Chart



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b. **Lead, Manganese, and Mercury Studies.** The Discharger submitted analytical results from samples that were taken during the September 2006 dye study, 28 September 2006. Based on this data set, it appeared that the Discharger had reasonable potential to exceed water quality objectives for lead, manganese, and mercury. However, the values in the data set were consistently higher for several constituents (including lead, manganese and mercury) and contained several laboratory flags for potentially erroneous results. The analytical results showed lead, manganese, and mercury levels to be 2.8 µg/L, 71 µg/L, and 0.45 µg/L respectively. The MECs for lead, manganese, and mercury excluding the data in question are <0.6 µg/L, 25 µg/L, and 0.007 µg/L respectively. During a phone conversation on 24 June 2008, the Discharger explained that the discharge had been significantly altered for the dye study in order to force the discharge to reach the receiving water so that the dye study could be conducted. The alterations involved piping the discharge to the receiving water, which included digging in the vicinity of the V Adit, thereby releasing significant amounts of sediment. The samples taken on 28 September 2006 had been intended to serve solely for study purposes, and were not intended as effluent samples due to the significant presence of sediment. Based on the information provided by the Discharger, and independent analysis by the Regional Water Board, the Regional Water Board determined that the data collected on 28 September 2006 shall not be used in the RPA for the discharge. However, this Order includes requirements for the Discharger to conduct a study of lead, manganese, and mercury in the effluent to ensure that the pollutants are not present in the effluent at levels that have the potential to exceed water quality objectives. This Order also includes a requirement that the Discharger does not disturb soils or sediments at the Facility that have the potential to enter the discharge.

3. Best Management Practices and Pollution Prevention – NOT APPLICABLE

4. Construction, Operation, and Maintenance Specifications ~~– NOT APPLICABLE~~

a. Because the soils and sediments at the Facility contain potentially significant amounts of pollutants of concern, this Order includes a requirement that the Discharger refrain from activities at the Facility that have the potential to cause significant amounts of soils or sediments to become entrained in the discharge.

5. Special Provisions for Municipal Facilities (POTWs Only) – NOT APPLICABLE

6. Other Special Provisions

a. Prior to making any change in the discharge point, place of use, or purpose of use of the wastewater, the Discharger must obtain approval of, or clearance from the State Water Resources Control Board (Division of Water Rights).

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

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notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office.

To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, address and telephone number of the persons responsible for contact with the Regional Water Board and a statement. The statement shall comply with the signatory paragraph of federal Standard Provision V.B.5 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved in writing by the Executive Officer.

7. Compliance Schedules – NOT APPLICABLE

VIII. PUBLIC PARTICIPATION

The California Regional Water Quality Control Board, Central Valley Region (Regional Water Board) is considering the issuance of waste discharge requirements (WDRs) that will serve as a National Pollutant Discharge Elimination System (NPDES) permit for Sliger Mine. As a step in the WDR adoption process, the Regional Water Board staff has developed tentative WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through the following direct mailing to agencies and known interested parties, posting of NOPH at the Discharger's offices and the local post office and publication in the local paper.
~~<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 Regional Water Board at the address above on the cover page of this Order.

To be fully responded to by staff and considered by the Regional Water Board, written comments should be received at the Regional Water Board offices by 5:00 p.m. on ~~<Date>~~16 September 2008.

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C. Public Hearing

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

Date: ~~June 12/13~~23/24 October, 2008
Time: 8:30 am
Location: Regional Water Quality Control Board, Central Valley Region
11020 Sun Center Dr., Suite #200
Rancho Cordova, CA 95670

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

Please be aware that dates and venues may change. Our Web address is http://www.waterboards.ca.gov/rwqcb5/ where you can access the current agenda for changes in dates and locations.

D. Waste Discharge Requirements Petitions

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

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

E. Information and Copying

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

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional Water Board, reference this facility, and provide a name, address, and phone number.

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G. Additional Information

Requests for additional information or questions regarding this order should be directed to Ken Landau at (916) 464-4726.

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ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS
DISCHARGE POINT NO. 001

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Arsenic, Total Recoverable	µg/L	100	2[2]	10	340	150	--	--	--	10	Yes
Barium, Total Recoverable	µg/L	84	NR	1,000	--	--	--	--	--	1,000	No
Boron, Total Recoverable	µg/L	390	NR	630	--	--	--	--	--	630[1]	No
Chromium, Total	µg/L	1.2	NR	48	410	48	--	--	--	50	No
Copper, Total Recoverable	µg/L	1.8	NR	2.1	2.6	2.1	--	--	--	1,000	No
Electrical Conductivity	µmhos/cm	1452	112	700			--	--	--	700[2]	No[3]
Iron, Total Recoverable	µg/L	310	NR	300		1,000[4]	--	--	--	300	Yes
Lead, Total Recoverable	µg/L	0.5	NR	1.1	57	1.1	--	--	--	15	No
Manganese, Total Recoverable	µg/L	25	NR	50	--	--	--	--	--	50	No
Mercury, Total Recoverable	µg/L	0.007	NR	0.050	--	--	0.050	0.051	--	0.2	No
Molybdenum, Total Recoverable	µg/L	1.9	NR	10	--	--	--	--	--	10[2]	No
Nickel, Total Recoverable	µg/L	1.9	NR	69	620	69	610	4,600	--	100	No
Phosphorous	µg/L	50	NR	0.14	--	--	--	--	--	0.14[5]	No[5]
Selenium, Total Recoverable	µg/L	2.1	NR	5.0	20	5.0	--	--	--	20	No
Silver, Total Recoverable	µg/L	0.62	NR	0.14	0.14	--	--	--	--	35[1]	Yes[3]
Sulfate (dissolved)	mg/L	37	NR	250						250	No
TDS	mg/L	490	NR	125					125[6]		Yes[3]

MEC = Projected Maximum Effluent Concentration (calculated using multiplier from Table 3-1, TSD for non-CTR)
B = Maximum Receiving Water Concentration or lowest detection level, if non-detect
C = Criterion used for Reasonable Potential Analysis
CMC = Criterion Maximum Concentration (CTR criterion unless otherwise noted)
CCC = Criterion Continuous Concentration (CTR criterion unless otherwise noted)
Water & Org = Water and Organism Criterion Concentration (CTR or NTR)
Org Only = Consumption of Organism Only Criterion Concentration (CTR or NTR)
Basin Plan = Numeric Site-specific Basin Plan Water Quality Objective
MCL = Drinking Water Standards Maximum Contaminant Level
NA = Not available
ND = Reported as non-detect
NR = Not reported
NC = No criteria

Footnotes:
(1) USEPA IRIS Reference Dose
(2) Water Quality for Agriculture.
(3) Monitoring is included in this Order for this constituent in accordance with Step 8 of Section 1.3 in the SIP which requires monitoring for constituents for which there is insufficient data.
(4) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 4-day Average.
(5) USEPA IRIS Reference Dose for white phosphorous. The Regional Water Board staff are still considering the applicability and relationship of this criterion to total phosphorus.
(6) As a 90th percentile of observed data.

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