CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

CENTRAL VALLEY REGION

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ORDER NO. R5-2007-0162
NPDES NO. CA0085243

WASTE DISCHARGE REQUIREMENTS FOR THE MERIDIAN BEARTRACK COMPANY ROYAL MOUNTAIN KING MINE CALAVERAS COUNTY

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

Table 1. Discharger Information

Discharger	Meridian Beartrack Company
Name of Facility	Royal Mountain King Mine
Facility Address	4461 Rock Creek Road
	Copperopolis, CA 95228
	Calaveras County
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Quality Control Board have classified this discharge as a **major** discharge.	

The discharge by the Meridian Beartrack Company 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	Ground water	37° 59' 21.53" N	120° 41' 11.69" W	Littlejohns Creek

Table 3. Administrative Information

This Order was adopted by the Regional Water Quality Control Board on:	**6 December 2007**
This Order shall become effective on:	**25 January 2008**
This Order shall expire on:	**1 December 2012**
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**

IT IS HEREBY ORDERED, that in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder and the provisions of the federal Clean Water Act (CWA) and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on **6 December 2007**.

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	Meridian Beartrack Company
Name of Facility	Royal Mountain King Mine
Facility Address	4461 Rock Creek Road
	Copperopolis, CA 95228
	Calaveras County
Facility Contact, Title, and Phone	John Teagle, Environmental Coordinator, 209-785-3222 ext. 27
Mailing Address	PO Box 190, Copperopolis, CA 95228
Type of Facility	Industrial
Facility Design Flow	43 million gallons per day (mgd)

II. FINDINGS

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

A. Background. Meridian Beartrack Company (hereinafter Discharger) submitted a Report of Waste Discharge, dated 29 September 2005**,** and applied for a National Pollutant Discharge Elimination System (NPDES) permit authorization to discharge wastewater from the Royal Mountain King Mine (hereinafter Facility). The application was deemed complete.

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 a mine reclamation site. The treatment system consists of diluting and discharging groundwater from three overburden disposal sites (ODSs) and excess water in Sky Rocket Pit Lake. Wastewater is discharged from Discharge Point No. 001 (see table on cover page) to the Littlejohns Creek, a water of the United States, and a tributary to the San Joaquin River within the boundaries of the Sacramento – San Joaquin Delta, within the San Joaquin 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 (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 I are also incorporated into this Order.

E. **California Environmental Quality Act (CEQA).** Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA, Public Resources Code sections 21100-21177.

F. **Technology-based Effluent Limitations***.* Section 301(b) of the CWA and implementing USEPA permit regulations at section 122.44, title 40 of the Code of Federal Regulations (CFR)[1] require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Effluent Limitations Guidelines and Standards for the Best Professional Judgment (BPJ) in accordance with Part 125, section 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 section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards.

Section 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 section 122.44(d)(1)(vi).

[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 August 2006), for the Sacramento and San Joaquin River Basins* (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. The Basin Plan at page II-2.00 states that the "…*beneficial uses of any specifically identified water body generally apply to its tributary streams*." The Basin Plan does not specifically identify beneficial uses for Littlejohns Creek, but does identify present and potential uses for the Sacramento – San Joaquin Delta, to which Littlejohns Creek, via French Slough, is tributary. These beneficial uses are as follows: municipal and domestic supply; agricultural supply, including stock watering; industrial process supply; industrial service supply; water contact recreation; non-contact water recreation, including aesthetic enjoyment; warm freshwater habitat; cold freshwater habitat; warm migration of aquatic organisms; cold migration of aquatic organisms; warm spawning, reproduction, and/or early development; wildlife habitat; and navigation.

In addition, the Basin Plan implements State Water Resources Control Board (State Water Board) Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. Thus, as discussed in detail in the Fact Sheet, beneficial uses applicable to Littlejohns Creek are as follows:

Table 5. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Littlejohns Creek, tributary to French Camp Slough, tributary to the San Joaquin River within the boundaries of the Sacramento – San Joaquin Delta	Existing: Municipal and domestic supply (MUN); agricultural supply, including stock watering (AGR); industrial process supply (PROC); industrial service supply (IND); water contact recreation (REC-1); non-contact water recreation, including aesthetic enjoyment (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); warm migration of aquatic organisms (MIGR); cold migration of aquatic organisms (MIGR); warm spawning, reproduction, and/or early development (SPWN); wildlife habitat (WILD); navigation (NAV); ground water recharge (GWR);

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

Requirements of this Order implement the Basin Plan.

I. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on 22 December 1992, and later amended it on 4 May 1995 and 9 November 1999. About forty 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 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 includes compliance schedules and interim effluent limitations and/or discharge specifications. A detailed discussion of the basis for the compliance schedule(s) and interim effluent limitation(s) and/or discharge specifications is included in the Fact Sheet.

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 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 water quality-based effluent limitations for individual pollutants. The water quality-based effluent limitations consist of restrictions on antimony, arsenic, total chromium, dissolved oxygen, total dissolved solids, iron, pH, selenium, and zinc. The limitations for these constituents, except arsenic, are more stringent than the minimum, federal technology-based requirements that are necessary to meet water quality standards. These limitations are more stringent than required by the CWA. The rationale for including these limitations is explained in the Fact Sheet. In addition, the Regional Water Board has considered the factors in Water Code section 13241 in establishing these requirements.

Water quality-based effluent limitations have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant water quality-based effluent limitations 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 water quality-based effluent limitations 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.

P. 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.

Q. 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.

R. Provisions and Requirements Implementing State Law.

[Not Applicable]

S. 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.

T. 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.

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 discharge of wastewater at Discharge Point - 001 is prohibited except from 1 November to 30 April.

E. The discharge of wastewater at Discharge Point - 001 is prohibited when the daily average flow rate of Littlejohns Creek is less than 1000 gallons per minute.

F. **Effective immediately and until 30 April 2011 or when the water level in Skyrocket Pit Lake drops below 955 feet amsl, whichever is sooner**, the discharge of wastewater at Discharge Point - 001 is prohibited except when Littlejohns Creek flows provide a flow ratio greater than or equal to 10:1 (Littlejohns Creek flow : effluent flow) as a daily average.

G. **Effective 1 November 2011 or when the water level in Skyrocket Pit Lake drops below 955 feet amsl, whichever is sooner**, the discharge of wastewater at Discharge Point - 001 is prohibited except when Littlejohns Creek flows provide a flow ratio greater than or equal to 15:1 (Littlejohns Creek flow : effluent flow) as a daily average.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point No. 001

1. Final Effluent Limitations – 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. The Discharger shall maintain compliance with the effluent limitations specified in Table 6:

Table 6. Effluent Limitations

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
pH	s.u.	--	--	6.5	8.5
Antimony, Total Recoverable	µg/L	--	17	--	--
Arsenic, Total Recoverable	µg/L	--	140	--	--
Cadmium, Total Recoverable	µg/L	50	100		
Chromium, Total	µg/L	--	160	--	--
Copper, Total Recoverable	µg/L	150	300		
Iron, Total Recoverable	µg/L	--	1,300	--	--
Lead, Total Recoverable	µg/L	300	600	--	--
Mercury, Total Recoverable	µg/L	1.0	2.0	--	--
Nitrate (as N)	mg/L	--	3.0[2]	--	--
Selenium, Total Recoverable	µg/L	--	14	--	--
	lbs/day[1]	--	5.0	--	--
Zinc, Total Recoverable	µg/L	190	390	--	--
Dissolved Oxygen	mg/L	--	--	7.0	--
Total Dissolved Solids	mg/L	--	4,000	--	--
Total Suspended Solids	mg/L	20	30		

[1] Based on a maximum design flow of 43 mgd
[2] Effective 1 November 2011 or when the water level in Skyrocket Pit Lake drops below 955 amsl, whichever is sooner.

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

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

c. **Total Dissolved Solids.** The total annual (1 August – 31 July) mass discharge of total dissolved solids shall not exceed 3,000 tons/year.

2. Interim Effluent Limitations

a. **Nitrate.** Effective immediately and until 30 April 2011 or when the water level in Skyrocket Pit Lake drops below 955 feet amsl, whichever is sooner, the maximum daily effluent nitrate (as N) concentration shall not exceed 5.0 mg/L.

B. Land Discharge Specifications – Not Applicable

Discharges to groundwater are regulated by separate waste discharge requirements.

C. Reclamation Specifications – Not Applicable

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

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

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

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

3. **Dissolved Oxygen**: The dissolved oxygen concentration to be reduced below 5.0 mg/L at any time.

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

5. **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.

6. **pH**. The pH to be depressed below 6.5, raised above 8.5, nor changed by more than 0.5 units. A 1-month averaging period may be applied when calculating the pH change of 0.5 units.

7. **Pesticides**:

   a. Pesticides to be present, individually or in combination, in concentrations that adversely affect beneficial uses;
   b. Pesticides to be present in bottom sediments or aquatic life in concentrations that adversely affect beneficial uses;
   c. Total identifiable persistent chlorinated hydrocarbon pesticides to be present in the water column at concentrations detectable within the accuracy of analytical methods approved by USEPA or the Executive Officer**.**
   d. Pesticide concentrations to exceed those allowable by applicable antidegradation policies (see State Water Board Resolution No. 68-16 and 40 CFR §131.12.).
   e. Pesticide concentrations to exceed the lowest levels technically and economically achievable.
   f. Pesticides to be present in concentration in excess of the maximum contaminant levels set forth in California Code of Regulations, Title 22, Division 4, Chapter 15**.**
   g. Thiobencarb to be present in excess of 1.0 µg/L.

8. **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.

9. **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.

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

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

12. **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.

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

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

15. **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.

16. **Total Dissolved Solids**. The total dissolved solids to exceed 1000 mg/L.

17. **Arsenic (total recoverable)**. **Effective 1 November 2011 or when the water level in Skyrocket Pit Lake drops below 955 feet amsl, whichever is sooner,** the total recoverable arsenic to exceed 10 µg/L.

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B. Groundwater Limitations – Not Applicable

Discharges to groundwater are regulated by separate waste discharge requirements.

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

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

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

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

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

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

ii. controls any pollutant limited in the Order.

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

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

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

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

h. 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:

    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.

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.

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 section 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 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, a limitation for a specific toxicant identified in the TRE, and/or a modification to the Discharge Prohibitions. Additionally, if the State Water Board revises the SIP's toxicity control provisions that would require the establishment of numeric chronic toxicity effluent limitations, this Order may be reopened to include a numeric chronic toxicity effluent limitation based on the new provisions.

d. **Flow Ratio.** The Discharger's model suggests that the 15:1 flow ratio, required by Discharge Prohibitions III.G., will not allow the level of Sky Rocket Pit Lake to remain below 960 amsl, which is the estimated level at which seepage into Littlejohns Creek ceases. Due to uncertainty in the background receiving water and effluent constituent concentrations after the lowering of Skyrocket Pit Lake, the required flow ratio required by Discharge Prohibitions III.G. has been conservatively established. Should the Discharger provide additional information

that indicates a lower dilution ratio would be adequately protective of the beneficial uses of the receiving water, this Order may be reopened to modify the Discharge Prohibition.

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 exhibits a pattern of toxicity exceeding 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 Initial Investigative TRE Work Plan and includes procedures for accelerated chronic toxicity monitoring and TRE initiation.

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

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

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

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

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

accelerated monitoring demonstrates a pattern of toxicity and requires the Discharger to initiate a TRE to address the effluent toxicity.

iii. **Numeric Monitoring Trigger.** The numeric toxicity monitoring trigger is greater than **8 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 when the effluent exhibits a pattern of toxicity.

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 six-week period (i.e. one test every two weeks) using the species that exhibited toxicity. The following protocol shall be used for accelerated monitoring and TRE initiation:

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

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

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

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

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

3) A schedule for these actions.

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 EPA guidance[2].

b. **Skyrocket Pit Lake Water Level and Water Quality Assessment.** The Discharger shall submit a status report **1 June, annually**, on the water level projections for Skyrocket Pit Lake. Each report shall include an assessment of the Discharger's progress towards meeting the long-term lake level objective (955 feet - 960 feet amsl). This report shall also include an evaluation of TDS and arsenic levels in Sky Rocket Pit Lake and Littlejohns Creek at RSW-001 and RSW-002 (as defined in Attachment E). The Discharger's modeling analysis has indicated that water quality is expected to improve in the creek, thereby providing potentially more dilution than is currently available. It is necessary to include the levels of TDS and arsenic in Littlejohns Creek in order to evaluate the effects of the lowering of Skyrocket Pit Lake on water quality in Littlejohns Creek. This Order includes a reopener provision to allow the permit to be reopened to lower or raise the required flow ratio (Discharge Prohibitions III.G.), based on the changes in constituent concentrations in Sky Rocket Pit Lake and Littlejohns Creek as the level of Sky Rocket Pit Lake is lowered.

c. **Evaluation of ODS Water Transfers.** The Discharger shall review monitoring data for Gold Knoll ODS, West ODS2, West ODS5, and Skyrocket Pit Lake and shall submit a report **1 March, annually**, that provides an evaluation of the effects of ODS spring water transfers on water quality in Skyrocket Pit Lake during the previous calendar year. The report should specifically address constituents that are present in greater concentrations in the ODS spring waters, and therefore, have the potential to worsen water quality in Skyrocket Pit Lake. The constituents evaluated shall include DO, EC, manganese, nickel, nitrate/nitrite as nitrogen, pH, selenium, sulfate, and total dissolved solids (TDS). With respect to DO and pH the concern is decreased levels as opposed to increased levels.

d. **Mixing Zone/Dilution Study.** The Discharger shall conduct a Mixing Zone Study to determine if the discharge is completely mixed, as defined by the SIP. **Within 60 days of adoption of the Order,** the Discharger shall submit a workplan and schedule for completion of the Mixing Zone Study. The Mixing Zone Study shall be conducted when flows in Littlejohns Creek are near the minimum allowable flow allowed for a surface water discharge (i.e. 1,000 gpm). The Mixing Zone Study shall be completed and submitted to the Regional Water Board **within 6 months of adoption of the Order**. If the Mixing Zone Study indicates that the discharge is <u>not</u> completely mixed, **within 12 months of adoption of the Order**, the Discharger shall submit a Dilution Study that evaluates the available dilution in Littlejohns Creek and identifies the size and

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

extent of the mixing zone. This Order may be reopened to modify the effluent limitations, as needed, based on the results of the Mixing Zone/Dilution Study.

3. Best Management Practices and Pollution Prevention

a. **Salinity Evaluation and Minimization Plan.** The Discharger shall prepare a salinity evaluation and minimization plan to address sources of salinity in its discharge to Littlejohns Creek. The plan shall be completed and submitted to the Regional Water Board **within 12 months of the effective date of this Order** for approval by the Executive Officer.

b. **Surface Water Discharge Minimization Plan.** The Discharger shall prepare and implement a Surface Water Discharge Minimization Plan. The Plan shall include measures to reduce surface water discharges to Littlejohns Creek by lowering the level of Skyrocket Pit Lake through evaporation or other means of disposal. The Plan shall evaluate disposal alternatives, such as evaporation measures, spray irrigation, etc. The plan shall be completed and submitted to the Regional Water Board **within 6 months of the effective date of this Order** for approval by the Executive Officer.

c. **Updated Best Available Technology Economically Achievable Study.** The Discharger shall conduct an updated Best Available Technology Economically Achievable Study (BAT Study) applying the criteria set forth in the applicable federal regulations. The BAT Study shall review existing treatment technologies available to the Discharger, taking into account new developments in salinity and other pollutant control technologies. The Discharger shall submit the BAT Study **180 days prior to expiration of this Order**.

4. Construction, Operation and Maintenance Specifications

a. **Submittal of Design and Construction Plans for the Discharge.** The Discharger shall submit final design and construction plans for the infrastructure and control equipment for Discharge Point No. 001 to the Regional Water Board for approval, prior to beginning construction.

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

a. **Initiation of Surface Water Discharge.** The surface water discharge to Littlejohns Creek is contingent upon compliance with the following conditions:

i. **Outfall Diffuser.** The Discharger shall design, acquire necessary permits by appropriate agencies, and construct an outfall and diffuser to Littlejohns Creek at Discharge Point 001.

ii. **Mixing Zone/Dilution Study.** The Discharger shall have completed a Mixing Zone Study to verify that the discharge is completely mixed, as defined by the SIP, of if <u>not</u> completely mixed, the Discharger shall have provided a Dilution Study to determine the available dilution and the size and extent of the mixing zone.

iii. **Request for Surface Water Discharge.** The Discharger shall submit to the Regional Water Board a request for a surface water discharge to Littlejohns Creek, which demonstrates compliance with items i. and ii., above. The surface water discharge is prohibited until the Executive Officer verifies compliance with Special Provisions VI.C.7.a., and approves the Discharger's request.

VII. COMPLIANCE DETERMINATION – NOT APPLICABLE

ATTACHMENT A – DEFINITIONS

Arithmetic Mean (μ), also called the average, is the sum of measured values divided by the number of samples. For ambient water concentrations, the arithmetic mean is calculated as follows:

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

Average Monthly Effluent Limitation (AMEL): the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

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

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 1 day (a calendar day or other 24-hour period defined as a day) or by the

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

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

Detected, but Not Quantified (DNQ) 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.

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

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

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

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

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

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

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

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

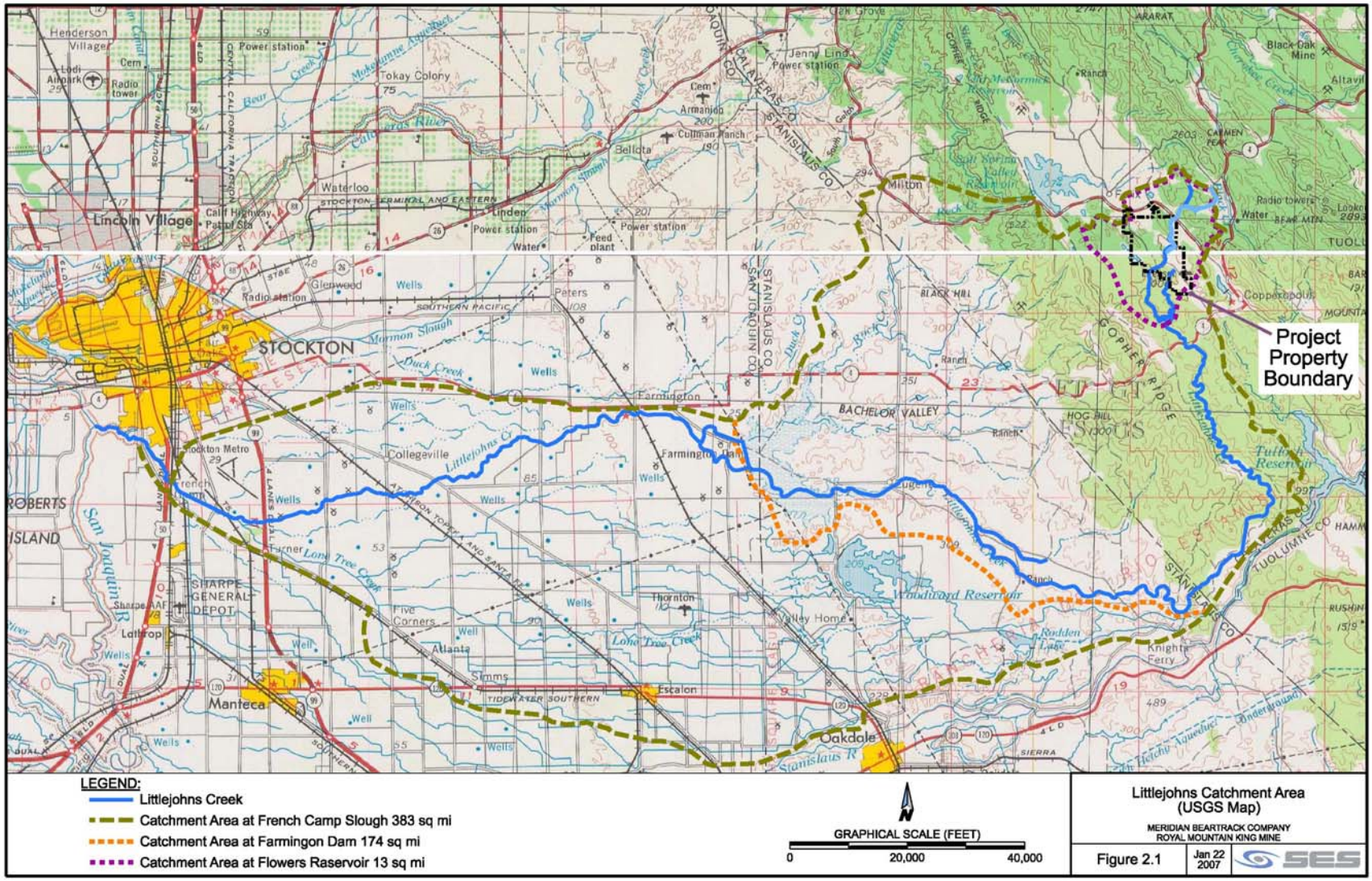
where:

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

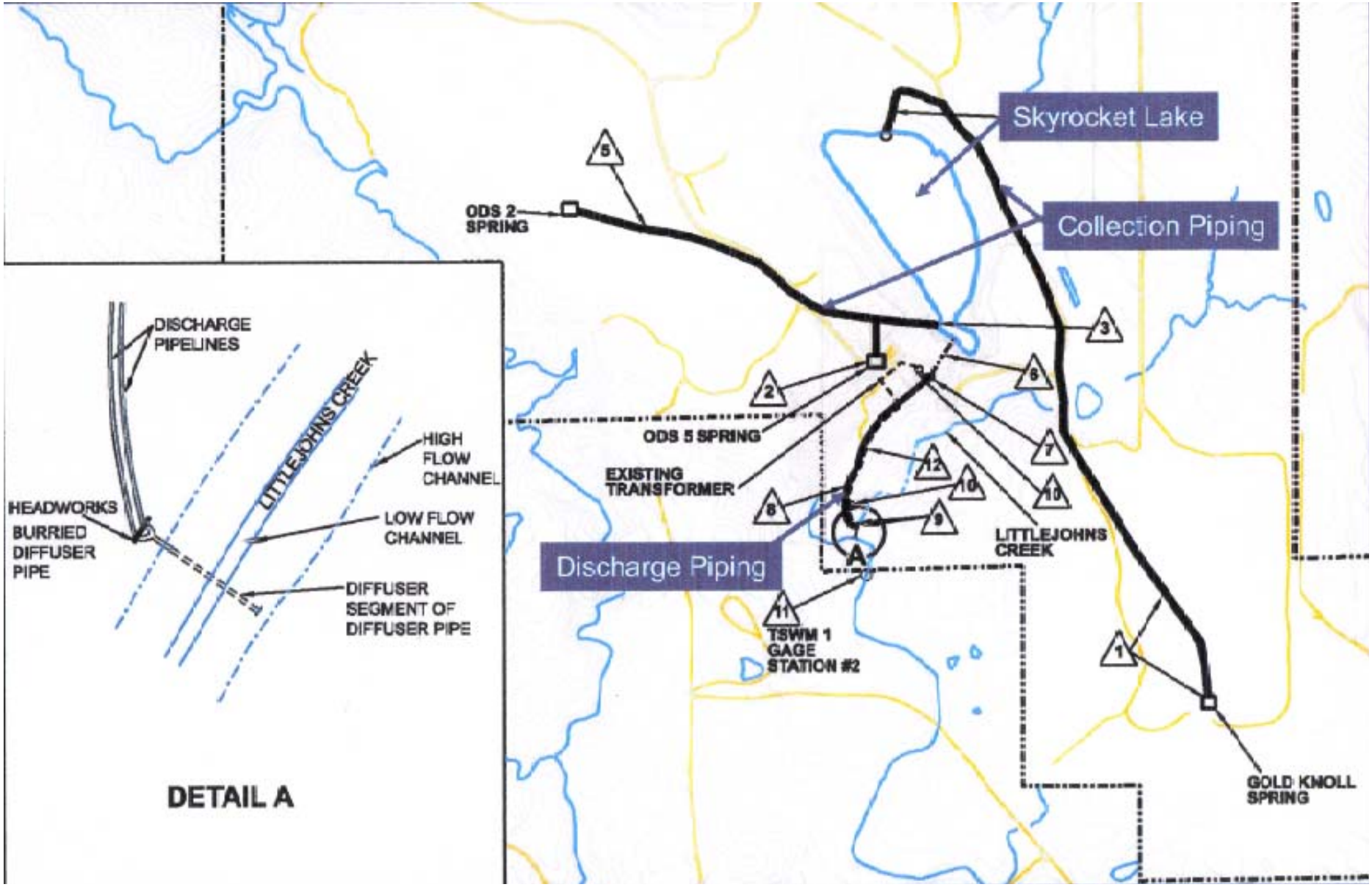
Toxicity Reduction Evaluation (TRE) is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity,

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

ATTACHMENT B – MAP



ATTACHMENT C – FLOW SCHEMATIC



ATTACHMENT D –STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

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

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

B. Need to Halt or Reduce Activity Not a Defense

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

C. Duty to Mitigate

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

D. Proper Operation and Maintenance

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

E. Property Rights

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

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

F. Inspection and Entry

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

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

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

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

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

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

5. Notice

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

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

H. Upset

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

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

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

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

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

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

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

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

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

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

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

B. Duty to Reapply

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

C. Transfers

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

III. STANDARD PROVISIONS – MONITORING

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

B. Monitoring results must be conducted according to test procedures under 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).)

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

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

B. Signatory and Certification Requirements

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

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

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

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

    b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of

equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 CFR §122.22(b)(2)); and

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

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).)

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).)

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

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).)

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.

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 Names	Monitoring Location Description (include Latitude and Longitude when available)
001	EFF-001	The outfall pipe from Skyrocket Pit Lake, prior to its being split to the three control valves.
--	RSW-001	Upstream of the proposed discharge, at monitoring location SWM-6 (see Attachment H)
--	RSW-002	100 feet upstream of Discharge Point No. 001
--	RSW-003	300 feet downstream of Discharge Point No. 001 at TSWM-1
--	RSW-004	Outfall of Flowers Reservoir at monitoring locations SWM-3
--	ODS-001	Gold Knoll ODS seep (see Attachment I)
--	ODS-002	West ODS2 (see Attachment I)
--	ODS-003	West ODS5 (see Attachment I)
---	SRPL-001	Sky Rocket Pit Lake

III. INFLUENT MONITORING REQUIREMENTS

[NOT APPLICABLE]

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

1. The Discharger shall monitor discharges from Discharge Point No. 001, at EFF-001, as follows. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding Minimum Level:

Table E-2. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	mgd	Meter	Continuous	[1]
Dissolved Oxygen	mg/L	Meter	1/day	
pH	s.u.	Grab	1/day	[1]
Antimony, Total Recoverable	µg/L	Grab	1/event[3]	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Arsenic, Total Recoverable	µg/L	Grab	1/event[4]	[1]
Cadmium, Total Recoverable	µg/L	Grab	1/event[3]	[1]
Chromium (Total)	µg/L	Grab	1/event[3]	[1]
Copper, Total Recoverable	µg/L	Grab	1/event[3]	[1]
Lead, Total Recoverable	µg/L	Grab	1/event[3]	[1]
Mercury, Total Recoverable	µg/L	Grab	1/event[3]	[1]
Selenium, Total Recoverable	µg/L	Grab	1/event[3]	[1]
Zinc, Total Recoverable	µg/L	Grab	1/event[3]	[1]
Electrical Conductivity @ 25 Deg. C	µmhos/cm	Grab	1/event[4]	[1]
Iron, Total Recoverable	µg/L	Grab	1/event[3]	[1]
Nitrate as N	µg/L	Grab	1/event[3]	[1]
Sulfate	mg/L	Grab	1/event[3]	[1]
Total Dissolved Solids	mg/L	Grab	1/event[4]	[1]
Total Suspended Solids	mg/L	Grab	1/event[3]	[1]
Aluminum[2]	µg/L	Grab	1/year	[1]
Manganese[2]	µg/L	Grab	1/year	[1]
Priority Pollutants [2]	µg/L	Grab	1/year	[1]

[1] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136; for priority pollutants the methods must meet the lowest minimum levels (MLs) specified 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] Concurrent with receiving surface water sampling.

[3] Monitoring shall be once per discharge event, with a maximum of once per month if there are multiple discharge events in any given month. The monitoring shall be at least once per month if the discharge is continuous for multiple months.

[4] Monitoring shall be once per discharge event, with a maximum of once per week if there are multiple discharge events in a week. The monitoring shall be at least once per week if the discharge is continuous for multiple weeks.

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

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

1. *Monitoring Frequency* – The Discharger shall perform acute toxicity testing once every 2 months. One test shall occur between 1 November and 31 December, one test shall occur between 1 January and 28 February, and one test shall occur between 1 March and 30 April, provided the discharge occurs during these periods.

2. *Sample Types* – For static non-renewal and static renewal testing, the samples shall be flow proportional 24-hour composites 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 juvenile *Oncorhynchus mykiss* (rainbow trout).

4. *Methods* – The acute toxicity testing samples shall be analyzed using EPA-821-R-02-012, Fifth Edition. Temperature, total residual chlorine, and pH shall be recorded at the time of sample collection. No pH adjustment may be made unless approved by the Executive Officer.

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

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

1. *Monitoring Frequency* – The Discharger shall perform quarterly three species chronic toxicity testing twice per discharge season. One test shall occur between 1 November and 31 January, and one test shall occur between 1 February and 30 April, provided the discharge occurs during these periods.

2. *Sample Types* – Effluent samples shall be flow proportional 24-hour composites 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

   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	
	50	25	12.5	6.25	3.125	Receiving Water	Laboratory Water
% Effluent	50	25	12.5	6.25	3.125	0	0
% Receiving Water	50	75	87.5	93.75	96.875	100	0
% Laboratory Water	0	0	0	0	0	0	100

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

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

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

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

   b. The statistical methods used to calculate endpoints;

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

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

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

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

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

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

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

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

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

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

VI. LAND DISCHARGE MONITORING REQUIREMENTS

[NOT APPLICABLE]

VII. RECLAMATION MONITORING REQUIREMENTS

[NOT APPLICABLE]

VIII. RECEIVING WATER MONITORING REQUIREMENTS

A. Monitoring Locations RSW-001, RSW-002, and RSW-003

1. The Discharger shall monitor Littlejohns Creek at RSW-001, RSW-002, and RSW-003[4] as follows:

Table E-4. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	mgd	Meter	Continuous	[1]
pH	s.u.	Grab	1/event[3]	[1]
Antimony	µg/L	Grab	1/event[3]	[1]
Arsenic	µg/L	Grab	1/event[6]	[1]
Selenium	µg/L	Grab	1/event[3]	[1]
Chloride	mg/L	Grab	1/event[3]	[1]
Dissolved Oxygen	mg/L	Grab	1/event[3]	[1]
Electrical Conductivity @ 25 Deg. C	µmhos/cm	Grab	1/event[6]	[1]
Iron, Total Recoverable	µg/L	Grab	1/event[3]	[1]
Sulfate	mg/L	Grab	1/event[3]	[1]
Temperature	°C	Grab	1/event[3]	[1]
Total Dissolved Solids	mg/L	Grab	1/event[6]	[1]
Chromium (Total)	µg/L	Grab	1/event[3]	[1]
Zinc, Total Recoverable	µg/L	Grab	1/event[3]	[1]
Aluminum[5]	µg/L	Grab	1/year	[1]
Manganese[5]	µg/L	Grab	1/year	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Nitrate as N[5]	µg/L	Grab	1/event[3]	[1]
Priority Pollutants [2, 5]	µg/L	Grab	1/year	[1]

[1] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136; for priority pollutants the methods must meet the lowest minimum levels (MLs) specified 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] Concurrent with effluent sampling. If no discharge has occurred during the calendar year, a sample shall be collected in December.

[3] Monitoring at RSW-003 shall be once per discharge event, with a maximum of once per month if there are multiple discharge events in any given month. Furthermore, the monitoring at RSW-003 shall be at least once per month if the discharge is continuous for multiple months. Monitoring at RSW-001 and RSW-002 shall be monthly.

[4] Monitoring at RSW-003 is not required during the non-discharge season.

[5] Monitoring only required at RSW-001

[6] Monitoring at RSW-003 shall be once per discharge event, with a maximum of once per week if there are multiple discharge events in a week. Furthermore, the monitoring at RSW-003 shall be at least once per week if the discharge is continuous for multiple weeks. Monitoring at RSW-001 and RSW-002 shall be monthly.

B. Monitoring Locations RSW-004

1. The Discharger shall monitor Littlejohns Creek at RSW-004 as follows:

Table E-5. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
pH	s.u.	Grab	1/month	
Arsenic	µg/L	Grab	1/month	[1]
Dissolved Oxygen	mg/L	Grab	1/month	[1]
Electrical Conductivity @ 25 Deg. C	µmhos/cm	Grab	1/month	[1]
Total Dissolved Solids	mg/L	Grab	1/month	[1]

[1] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136; for priority pollutants the methods must meet the lowest minimum levels (MLs) specified 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.

IX. OTHER MONITORING REQUIREMENTS

A. ODS Spring Monitoring

1. Monitoring Locations ODS-001, ODS-002, and ODS-003

The Discharger shall monitor the overburden disposal site (ODS) springs at ODS-001, ODS-002, and ODS-003 as follows.

Table E-6. ODS Spring Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow to Skyrocket Pit Lake	mgd	Meter	Continuous	[1]
pH	s.u.	Grab	1/month	[1]
Antimony, Total Recoverable	µg/L	Grab	1/month	[1]
Arsenic, Total Recoverable	µg/L	Grab	1/month	[1]
Chromium (Total)	µg/L	Grab	1/month	[1]
Copper, Total Recoverable	µg/L	Grab	1/month	[1]
Nickel	µg/L	Grab	1/month	[1]
Selenium, Total Recoverable	µg/L	Grab	1/month	[1]
Zinc, Total Recoverable	µg/L	Grab	1/month	[1]
Dissolved Oxygen	mg/L	Grab	1/month	[1]
Electrical Conductivity @ 25 Deg. C	µmhos/cm	Grab	1/month	[1]
Iron, Total Recoverable	µg/L	Grab	1/month	[1]
Manganese	µg/L	Grab	1/month	[1]
Nitrate/Nitrite as N	µg/L	Grab	1/month	[1]
Sulfate	mg/L	Grab	1/month	[1]
Total Dissolved Solids (TDS)	mg/L	Grab	1/month	[1]
Total Suspended Solids (TSS)	mg/L	Grab	1/month	[1]
Priority Pollutants	µg/L	Grab	1/year	[1]

[1] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136; for priority pollutants the methods must meet the lowest minimum levels (MLs) specified 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.

B. Sky Rocket Pit Lake Monitoring

1. The Discharger shall monitor Sky Rocket Pit Lake at SRPL-001 for one year following adoption of this Order as follows:

Table E-7. Sky Rocket Pit Lake Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Benzo (a) anthracene	µg/L	Grab	1/quarter	[1]
Benzo (a) pyrene	µg/L	Grab	1/quarter	[1]
Benzo (b) fluoranthene	µg/L	Grab	1/quarter	[1]
Benzo (k) fluoranthene	mg/L	Grab	1/quarter	[1]
Chrysene	mg/L	Grab	1/quarter	[1]
Dibenzo (a,h) anthracene	µg/L	Grab	1/quarter	[1]
1,2-Dibromo-3-chloropropane	µg/L	Grab	1/quarter	[1]
Indeno (1,2,3-cd) pyrene	µg/L	Grab	1/quarter	[1]
Bis(2-ethylhexyl) phthalate	µg/L	Grab	1/quarter	[1]

[1] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136; for priority pollutants the methods must meet the lowest minimum levels (MLs) specified 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.

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. 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.

   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 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

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

Table E-8. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
Continuous	**<Permit effective date>**	**All**	**Submit with monthly SMR**
1/month	**<First day of calendar month following permit effective date or on permit effective date if that date is first day of the month>**	**1st day of calendar month through last day of calendar month**	**30 days from the end of the monitoring period**
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**	**30 days from the end of the monitoring period**
1/year	**<1 January following (or on) permit effective date>**	**1 January through 31 December**	**30 days from the end of the monitoring period**

C. Discharge Monitoring Reports (DMRs)

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

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

Standard Mail	FedEx/UPS/ Other Private Carriers
State Water Resources Control Board Division of Water Quality c/o DMR Processing Center PO Box 100 Sacramento, CA 95812-1000	State Water Resources Control Board Division of Water Quality c/o DMR Processing Center 1001 I Street, 15th Floor Sacramento, CA 95814

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

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 general responsibilities of all persons employed at the Facility.

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

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

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

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

ATTACHMENT F – FACT SHEET

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ATTACHMENT F – FACT SHEET

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

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

I. PERMIT INFORMATION

The following table summarizes administrative information related to the Facility.

Table F-1. Facility Information

WDID	
Discharger	Meridian Beartrack Company
Name of Facility	Royal Mountain King Mine
Facility Address	4461 Rock Creek Road
	Copperopolis, CA 95228
	Calaveras County
Facility Contact, Title and Phone	John Teagle, Environmental Coordinator, (209) 785-3222 ext. 27
Authorized Person to Sign and Submit Reports	Edgar Smith, President, (775) 850-3777
Mailing Address	PO Box 190 Copperopolis, CA 95228
Billing Address	9670 Gateway Drive, Suite 200 Reno, NV 89511
Type of Facility	Industrial (Not-classified)
Major or Minor Facility	Major
Threat to Water Quality	2
Complexity	C
Pretreatment Program	NA
Reclamation Requirements	NA
Facility Permitted Flow	43 million gallons per day (mgd)
Facility Design Flow	43 mgd
Watershed	San Joaquin River Basin
Receiving Water	Littlejohns Creek, tributary to French Camp Slough, tributary to the Sacramento – San Joaquin Delta
Receiving Water Type	Inland surface water

A. Meridian Beartrack Company (hereinafter Discharger) is the owner and operator of the Royal Mountain King Mine (hereinafter Facility), a reclaimed gold mine site.

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 Littlejohns Creek, a water of the United States, and a tributary to the French Camp Slough, which is a tributary to the San Joaquin River within the boundaries of the Sacramento – San Joaquin Delta (the Delta), and is currently regulated by Time Schedule Order (TSO) No. R5-2007-0900, TSO No. R5-2006-0090, and revised closure Waste Discharge Requirements (WDRs) Order No. 5-01-040.

C. The Discharger filed a report of waste discharge (ROWD) and submitted an application for its WDRs and National Pollutant Discharge Elimination System (NPDES) permit on 29 September 2005. Supplemental information was requested on 28 February 2007 and received on 19 March 2007. Supplemental information was also requested on 27 March 2007 and received on 28 March 2007. A site visit was conducted on 28 February 2007 to observe operations and collect additional data to develop permit limitations and conditions.

II. FACILITY DESCRIPTION

The Facility was a gold mine operated by the Discharger between February 1989 and July 1994. The Facility was originally regulated by Order No. 88-176, which addressed the removal, transport, processing, and disposal of mined material. Closure WDRs Order Nos. 97-165 and 5-01-040 regulated the closure of the Facility. The Facility consists of the following:

1. Three engineered waste management units (WMUs): the flotation tailings reservoir (FTR), the process water pond (PWP), and the leached concentrate residue facility (LCRF). The FTR and LCRF have been closed, the PWP is being used for wastewater evaporation. These WMUs are regulated under WDRs Order No. 5-01-040.
2. Three overburden disposal sites (ODSs): the FTR ODS, Gold Knoll ODS, and West ODS. The ODSs have been reclaimed, however spring water seeps from under the Gold Knoll and West ODSs.
3. Three former mining pits: Gold Knoll, Skyrocket, and North. The Skyrocket and North pits have filled with water and are referred to as Skyrocket Pit Lake and North Pit Lake. The Gold Knoll pit was backfilled.
4. An administrative building and related facilities.

The Facility collects groundwater from the spring seepage areas at the bases of the Gold Knoll and West ODSs. There is one spring emanating from Gold Knoll ODS, referred to as the Gold Knoll spring, and two springs emanating from West ODS, referred to as West ODS2 and West ODS5. Under WDR Order No. 5-01-040, the captured flows were

recirculated to the tops of the ODSs for evaporation via sprinkler systems. In November 2005, to avoid unauthorized discharges from the recirculation systems during wet weather, the Discharger requested that it be allowed to transfer collected ODS water to Skyrocket Pit Lake, a former mining pit, pursuant to a TSO. The resulting TSO No. R5-2006-0900 allowed for the short-term transfer of water from the Gold Knoll, West ODS2, and West ODS5 springs to Skyrocket Pit Lake.

The Discharger has determined that when the level of Skyrocket Pit Lake is above 955 to 960 above mean sea level (amsl), groundwater seepage occurs into Littlejohns Creek resulting in the creek flowing year round with high concentrations of TDS, sulfate, and arsenic. Because these constituents have a greater impact upon beneficial uses during low-flow/dry seasons due to its concentration in smaller volumes of water, the loading of salt and arsenic has the potential to impact water supplies down stream. During high flow periods (i.e. during storm events) there is assimilative capacity in Littlejohns Creek, thus, the volume of water moving through the watershed and into the Delta allows for a reduction in the potential for impacts to beneficial uses. This Order allows the management of the discharges from Skyrocket Pit Lake so as to reduce impacts to beneficial uses caused by mining (predominantly from high TDS, sulfate, and arsenic concentrations). This Order establishes requirements to allow intermittent discharges from Skyrocket Pit Lake to Littlejohns Creek during high creek flows. The proposed discharge from Skyrocket Pit Lake is one element in an overall proposal for closure of this facility. However, modeling by the Discharger indicates that a surface water discharge from Skyrocket Pit Lake will not maintain the level of Skyrocket Pit Lake indefinitely. Therefore, evaluation and refinement of the discharge system and other closure measures must be undertaken by the Discharger to stabilize the hydrology at the site.

A. Description of Wastewater Treatment and Controls

The Discharger's proposed discharge is from Skyrocket Pit Lake to Littlejohns Creek. The sources of water to be discharged include spring water emanating from the West ODS2, West ODS5, and Gold Knoll springs; and water from Skyrocket Pit Lake. The spring water consists of groundwater that has risen into the ODSs and some stormwater that infiltrates through the ODSs. Skyrocket Pit Lake receives natural flows primarily from groundwater, including subsurface flows from North Pit Lake, but also receives some surface water runoff. The wastewater sources and management practices are described in subsections A.1 – A.3 below.

1. **ODSs.** Reclamation of each ODS was conducted during the mine operation period. The slopes were graded to natural looking slopes ranging from 2:1 to 3:1 (horizontal:vertical), covered with 6 to 10 inches of topsoil, fertilized and revegetated, and trees and shrubs were planted in irrigated trenches. In 1998, covers for the West and Gold Knoll ODSs were enhanced by regrading the tops to a minimum 2 percent slope, and adding enhanced covers to portions of the ODS surfaces. The enhanced covers consist of a minimum of 4 inches of clayey compacted soil underlying 6 to 10 inches of topsoil.

WDRs Order No. 97-165 classified the ODSs as Group C mining waste. WDRs Order No. 5-01-040 reclassified the ODSs as Group B mining waste based on observed impacts to groundwater and surface water down gradient of the ODSs. A Group B mining waste, as described at CCR Title 27, section 22480(b), as "mining wastes that consist of or contain nonhazardous soluble pollutants of concentrations which exceed water quality objectives for, or could cause, degradation of waters of the state." The observed impacts included increased concentrations of ammonia, arsenic, chloride, nitrate, selenium, sulfate, and total dissolved solids (TDS), and are listed in WDRs Order No. 5-01-040, Findings 30, 31, and 32.

Water from the three ODS springs will be collected and pumped to Skyrocket Pit Lake. The West ODS2 and West ODS5 collection systems consist of subsurface sumps that are designed to isolate the spring water from surface water runoff, thereby minimizing the amount of water that is pumped to Skyrocket Pit Lake. The West ODS also has a series of concrete-lined ditches to direct water away from the sumps and reduce surface water infiltration through the ODS. Currently, the Gold Knoll spring water collection system consists of two collection ponds with a pumping barge. Surface water runoff is diverted away from the Gold Knoll sump via a series of concrete-lined ditches. Table F-2 summarizes the reported flows for each of the ODS springs.

Table F-2. ODS Spring Flows

ODS Spring	Maximum Flow (gpm)[1]	Average Flow (gpm)[1]
Gold Knoll	404	88
West ODS2	358	93
West ODS5	493	63

[1] Based on daily flow data from 1 January 2004 to 31 January 2007.

2. **North Pit Lake.** North Pit Lake acted as a hydraulic sink when mining operations ceased. Since North Pit Lake is higher in elevation and is situated generally up gradient of Skyrocket Pit Lake, it is likely that there is some groundwater flow from North Pit Lake into Skyrocket Pit Lake. In addition, the Discharger reported in its *2006 – 2007 Water Management Plan and Information Report* that above an elevation of 1036 feet above mean sea level (amsl) North Pit Lake experienced increased outflows. In a response letter dated 1 September 2006, the Regional Water Board stated that the Discharger's data shows evidence that increased outflows occurred at lake elevations lower than 1036 feet amsl. There is a possibility that the outflows from North Pit Lake may be entering Littlejohns Creek, via Love Pond Spring, upstream of the Discharge Point that is established in this Order. North Pit Lake is higher in elevation than Skyrocket Pit Lake and likely contributes to the groundwater flows into Skyrocket Pit Lake.

3. **Skyrocket Pit Lake and Final Discharge.** Skyrocket Pit also acted as a hydraulic sink when mining operations ceased, drawing groundwater from surrounding areas. In 1998 the Discharger constructed Skyrocket Dam, National ID No. CA01428, in the southwest corner of the Skyrocket Pit Lake, which is operated and maintained under

the CA Department of Water Resources (DWR), Division of Safety of Dams (DSOD) Permit No. 1500-004. The current spill level of Skyrocket Pit Lake is 973 feet amsl.

Since April 1999, Skyrocket Pit Lake and adjacent groundwater levels indicate that groundwater is flowing from Skyrocket Pit Lake to the southeast towards Littlejohns Creek. The average level of Skyrocket Pit Lake from 30 January 2004 through 31 October 2006 was 966 feet amsl based on 25 measurements. According to the Discharger's 2006 Alternatives Analysis, when Skyrocket Pit Lake is above 955 feet amsl, groundwater in the vicinity of the pit rises into Littlejohns Creek. Therefore, the Discharger proposes to use the 955 feet amsl elevation as a basis for the control set-point for Skyrocket Pit Lake's water level.

Although the groundwater flowing into Skyrocket Pit Lake has concentrations of some constituents of concern (COCs) which exceed water quality objectives. WDRs Order No. 5-01-040 classifies Skyrocket Pit Lake as a Group C WMU because these constituent concentrations are considered to be naturally occurring.

The Discharger proposes to discharge water from Skyrocket Pit Lake to Littlejohns Creek via a diffuser that will be constructed in Littlejohns Creek. The discharge flow rate will be controlled using automated control valves designed to maintain TDS and other constituent concentrations below the applicable water quality objectives by providing a minimum amount of dilution with Littlejohns Creek water. The discharge system uses a 32-inch outside diameter (OD) discharge line, equipped with a three branch manifold system installed near the discharge point at Skyrocket Pit Lake. The branches of the manifold include a 13 inch OD diameter, a 20 inch OD diameter, and a 32 inch OD diameter. Each branch is equipped with an automated flow control valve (FCV). The purpose of the manifold is precise control of the flow across the range 0 to 30,000 gpm and, more importantly, to allow for fast closing of the discharge line when flows in the creek or water quality standards require it. The FCV are controlled based on Littlejohns Creek flow and conductivity measurements. The proposed operating logic is summarized as follows:

- When the flow in Littlejohns Creek rises above a preset low flow level (flow recorder-low [FRL]), an activation signal is sent to the control system and the appropriate FCV or FCVs is/are opened.
- If the conductivity measured in Littlejohns Creek is a below a predetermined set point when an FCV is activated, a control signal is sent to gradually open the FCV(s). This allows water from Skyrocket Pit Lake to flow through the discharge line at a controlled rate and mix with Littlejohns Creek water. If the conductivity set point is exceeded, then the FCV(s) is/are gradually closed until the set point is reached.
- As long as conductivity in Littlejohns Creek remains below the set point, the FCVs will slowly respond to allow additional water to be blended into Littlejohns Creek until the conductivity set point is reached, or until all three valves are fully opened.
- When the flow in Littlejohns Creek drops below the FRH, a signal will be sent to reduce the flow. This will occur even if the conductivity is below the set point to

prevent a potential upset condition that could result if the flow in Littlejohns Creek were to drop quicker than the control response time of the FCVs

- When the level in Skyrocket Pit lake falls below a predetermined low level, then all three valves would remain closed regardless of the flow in Littlejohns Creek.

The discharge system is proposed to be operated to maintain water quality in Littlejohns Creek below the specified water quality standards, while concurrently maintaining the water level in Skyrocket Pit Lake below an elevation of 955 feet amsl. The Discharger has not submitted final design specifications, including specific setpoints for the flow control equipment, redundant or "fail safe" equipment, remote telemetry and alarm systems, and an emergency response plan. Initially, higher discharge rates than would normally be maintained will be required to lower Skyrocket Pit Lake from its current level of approximately 965 feet amsl to 955 feet amsl. Therefore, the Discharger has requested interim limits to allow for an increased discharge during the first 3 years of operation.

B. Discharge Points and Receiving Waters

1. The Facility is located in Section 19, T2N, R12E, MDB&M, as shown in Attachment B (Figure B-1), a part of this Order.

2. Wastewater is discharged at Discharge Point No. 001 to Littlejohns Creek, a water of the United States, and a tributary to the French Camp Slough, which is a tributary to the San Joaquin River within the boundaries of the Sacramento – San Joaquin Delta, at a point Latitude 37° 59' 21.53" N and longitude 120° 41' 11.69" W.

C. Summary of Self-Monitoring Data

Representative monitoring data submitted by the Discharger under WDRs Order No. 5-01-040 are as follows:

Table F-3. Historic Monitoring Data for the Surface of Skyrocket Pit Lake

Parameter	Units	Monitoring Data (13 January 2004 – 11 December 2006)	
		Highest Monthly Concentrations	Highest Quarterly Concentrations
Arsenic	µg/L	--	110
Bicarbonate	µg/L	--	220,000
Carbonate	µg/L	--	55,000
Chloride	mg/L	--	390
Electrical conductivity	µmhos/cm	--	3,700
Groundwater Elevation	ft amsl	970	--
Iron	µg/L	--	1300
Manganese	µg/L	--	20
Nickel	µg/L	--	80
Nitrate (as Nitrate + Nitrite)	µg/L	--	4600

Parameter	Units	Monitoring Data (13 January 2004 – 11 December 2006)	
		Highest Monthly Concentrations	Highest Quarterly Concentrations
pH	s.u.	--	8.0 – 9.0
Selenium	µg/L	--	12
Sulfate	mg/L	--	1,300
Total Dissolved Solids	mg/L	--	2,700
Temperature	° C	--	30

Table F-4. Historic Monitoring Data for Gold Knoll Spring

Parameter	Units	Monitoring Data (27 January 2004 – 27 December 2006)	
		Highest Monthly Concentrations	Highest Quarterly Concentrations
Antimony	µg/L	--	7
Arsenic	µg/L	--	27
Bicarbonate	µg/L	--	750,000
Carbonate	µg/L	--	ND[1]
Chloride	mg/L	--	320
Cyanide (Total)	µg/L	--	ND[1]
Cyanide (Weak Acid Dissociable)	µg/L	--	20
Dissolved Oxygen	mg/L	--	7.8
Electrical Conductivity	µmhos/cm	9,000	--
Flowrate	gpm	--	90
Manganese	µg/L	--	50
Nickel	µg/L	--	180
Nitrate (as Nitrate + Nitrite)	µg/L	--	39,000
pH	s.u.	7.1 - 7.8	--
Selenium	µg/L	--	93
Sulfate	mg/L	--	6,700
Total dissolved solids	mg/L	10,700	--
Temperature	° C	37	--
Total suspended solids	mg/L	--	16

[1] No detectable amount.

Table F-5. Historic Monitoring Data for West ODS2 Spring

Parameter	Units	Monitoring Data (27 January 2004 – 27 December 2006)	
		Highest Monthly Concentrations	Highest Quarterly Concentrations
Antimony	µg/L	--	30
Arsenic	µg/L	--	4.0
Bicarbonate	µg/L	--	290,000
Carbonate	µg/L	--	2,000
Chloride	mg/L	--	170
Cyanide (Total)	µg/L	--	ND[1]
Cyanide (Weak Acid Dissociable)	µg/L	--	ND[1]
Dissolved Oxygen	mg/L	--	14

Parameter	Units	Monitoring Data (27 January 2004 – 27 December 2006)	
		Highest Monthly Concentrations	Highest Quarterly Concentrations
Electrical Conductivity	µmhos/cm	4,490	--
Flowrate	gpm	--	110
Manganese	µg/L	--	270
Nickel	µg/L	--	1,200
Nitrate (as Nitrate + Nitrite)	µg/L	--	28,000
pH	s.u.	6.3 - 7.7	--
Selenium	µg/L	--	27
Sulfate	mg/L	--	2,600
Total dissolved solids	mg/L	4,500	--
Temperature	° C	23	--
Total suspended solids	mg/L	--	8.0

[1] No detectable amount.

Table F-6. Historic Monitoring Data for West ODS5 Spring

Parameter	Units	Monitoring Data (27 January 2004 – 27 December 2006)	
		Highest Monthly Concentrations	Highest Quarterly Concentrations
Antimony	µg/L	--	8.0
Arsenic	µg/L	--	12
Bicarbonate	µg/L	--	410,000
Carbonate	µg/L	--	2,000
Chloride	mg/L	--	240
Cyanide (Total)	µg/L	--	ND[1]
Cyanide (Weak Acid Dissociable)	µg/L	--	ND[1]
Dissolved Oxygen	mg/L	--	8.2
Electrical Conductivity	µmhos/cm	6,560	--
Flowrate	gpm	--	56
Manganese	µg/L	--	50
Nickel	µg/L	--	330
Nitrate (as Nitrate + Nitrite)	µg/L	--	20,500
pH	s.u.	6.3 - 7.9	--
Selenium	µg/L	--	80
Sulfate	mg/L	--	3,500
Total dissolved solids	mg/L	6,660	--
Temperature	° C	28.2	--
Total suspended solids	mg/L	--	12

[1] No detectable amount.

D. Compliance Summary

By letter dated 29 November 2005, the Discharger stated that the wastewater recirculation systems at the overburden disposal sites may not be sufficient to prevent discharges from the Gold Knoll, West ODS2, and West ODS5 springs. Therefore, the Discharger stated that it would begin transferring water from the three springs to Skyrocket Pit Lake, which is in violation of WDRs Order No. 5-01-040. The Discharger

requested that the wastewater transfers be allowed pursuant to a TSO. In response, the Regional Water Board issued TSO No. R5-2006-0900 allowing the transfer of wastewater collected from the Gold Knoll, West ODS2, and West ODS 5 springs until 30 June 2007. TSO No. R5-2006-0900 also required that the Discharger install additional groundwater monitoring wells, adhere to additional monitoring requirements, and submit additional technical reports.

In addition, TSO No. R5-2007-0900 was issued on 6 February 2007 at the request of the Discharger. The TSO was issued to regulate the procedures for initiating a discharge of water from Skyrocket Pit Lake to Littlejohns Creek, performing the discharge in the event a discharge becomes necessary, and monitoring to ensure that any discharge does not cause an exceedance of downstream interim water quality objectives. Attachment B to TSO No. R5-2007-0900 outlines the operational changes and monitoring requirements that were incorporated under the TSO.

E. Planned Changes

The Discharger is planning to construct and install several items as part of its water collection and discharge system. Infrastructure to be constructed includes:

- A collection sump at the Gold Knoll ODS.
- Discharge flow control equipment, including: three control valves, one as backup; two pipes to convey water from the outlet pipe through the control valves; and associated control equipment, wiring, and power supply.
- A diffuser system in Littlejohns Creek designed for flows up to 30,000 gpm, which is the capacity of the Skyrocket Pit Lake outlet pipe.

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.

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 August 2006), 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 Sacramento – San Joaquin River Delta downstream of the discharge are municipal and domestic supply; agricultural supply, including stock watering; industrial process supply; industrial service supply; water contact recreation, including canoeing and rafting; non-contact water recreation, including aesthetic enjoyment; warm freshwater habitat; cold freshwater habitat; migration of aquatic organisms (warm and cold); warm spawning, reproduction, and/or early development; wildlife habitat; and navigation.

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.

2. **Bay-Delta Plan.** The *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* (Bay-Delta Plan) was adopted in May 1995 by the State Water Board superseding the 1991 Bay-Delta Plan. The Bay-Delta Plan identifies the beneficial uses of the estuary and includes objectives for flow, salinity, and endangered species protection.

   The Bay-Delta Plan attempts to create a management plan that is acceptable to the stakeholders while at the same time is protective of beneficial uses of the San Francisco Bay and the Sacramento – San Joaquin Delta. The State Water Board adopted Decision 1641 (D-1641) on 29 December 1999. D-1641 implements flow objectives for the Bay-Delta Estuary, approves a petition to change points of

3. **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 (Attachment F, Section IV.D.4.) the discharge is consistent with the antidegradation provisions of 40 CFR section 131.12 and State Water Board Resolution No. 68-16.

4. **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.

5. **Emergency Planning and Community Right to Know Act**. Section 13263.6(a), California Water Code, requires that "*the Regional Water Board shall prescribe effluent limitations as part of the waste discharge requirements of a POTW for all substances that the most recent toxic chemical release data reported to the state emergency response commission pursuant to Section 313 of the Emergency Planning and Community Right to Know Act of 1986 (42 U.S.C. Sec. 11023) (EPCRKA) indicate as discharged into the POTW, for which the State Water Board or the Regional Water Board has established numeric water quality objectives, and has determined that the discharge is or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to, an excursion above any numeric water quality objective*".

   The most recent toxic chemical data report does not indicate any reportable off-site releases or discharges to the collection system for this Facility. Therefore, a reasonable potential analysis based on information from Emergency Planning and Community Right to Know Act (EPCRA) cannot be conducted. Based on information from EPCRA, there is no reasonable potential to cause or contribute to an excursion above any numeric water quality objectives included within the Basin

Plan or in any State Water Board plan, so no effluent limitations are included in this permit pursuant to CWC section 13263.6(a).

However, as detailed elsewhere in this Order, available effluent data indicate that there are constituents present in the effluent that have a reasonable potential to cause or contribute to exceedances of water quality standards and require inclusion of effluent limitations based on federal and state laws and regulations.

6. **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.

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

1. Under Section 303(d) of the 1972 Clean Water Act, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On 30 November 2006 USEPA gave final approval to California's 2006 Section 303(d) List of Water Quality Limited Segments. The Basin Plan references this list of Water Quality Limited Segments (WQLSs), which are defined as "…*those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources (40 CFR 130, et seq.)*." The Basin Plan also states, "*Additional treatment beyond minimum federal standards will be imposed on dischargers to [WQLSs]. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment.*" Littlejohns Creek and French Slough are not listed as WQLSs in the 303(d) list of impaired water bodies.

2. **Total Maximum Daily Loads.** The USEPA requires the Regional Water Board to develop total maximum daily loads (TMDLs) for each 303(d) listed pollutant and water body combination. No TMDLs have been developed for Littlejohns Creek or French Slough.

E. Other Plans, Polices and Regulations

1. The State Water Board adopted the *Water Quality Control Policy for the Enclosed Bays and Estuaries of California*. The requirements within this Order are consistent with the Policy.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

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

The Federal CWA mandates the implementation of effluent limitations that are as stringent as necessary to meet water quality standards established pursuant to state or federal law [33 U.S.C. §1311(b)(1)(C); 40 CFR §122.44(d)(1)]. NPDES permits must incorporate discharge limits necessary to ensure that water quality standards are met. This requirement applies to narrative criteria as well as to criteria specifying maximum amounts of particular pollutants. Pursuant to Federal Regulations, 40 CFR §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 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.*

2. **Flow Ratio.** The facility proposes to meet water quality objectives by diluting its effluent with water from Littlejohns Creek. Dilution will be accomplished by discharging through a diffuser only during periods when sufficient flow is present in Littlejohn's Creek to provide the dilution necessary to meet applicable water quality objectives. Therefore, a minimum ratio of creek flow to effluent flow has been applied as a discharge prohibition in order to protect applicable water quality objectives. The constituent that would require the highest level of dilution in order to meet applicable water quality objectives is arsenic. The projected maximum effluent concentration (MEC) for arsenic is 137 µg/L as compared to a maximum receiving water level of 1.4 µg /L and most stringent water quality objective of 10 µg /L. At the projected MEC, the proposed discharge would need a dilution ratio of 15:1 (creek flow : effluent flow) in order to meet the applicable water quality objective. Therefore, this Order requires a minimum flow ratio of 15:1 (creek flow : effluent flow).

   During the initial three years of discharge, the Discharger intends to lower the level of Skyrocket Pit Lake and, thereby, the groundwater levels in the vicinity of the lake. As discussed in Section II.C.3, at lake levels higher than 955 feet amsl, groundwater containing high levels of TDS in the vicinity of Skyrocket Pit Lake surfaces into Littlejohns Creek upstream of the discharge, increasing the TDS in the creek. According to its 2006 Alternatives Analysis, the Discharger expects that lowering the level of Skyrocket Pit Lake to less than 955 feet amsl will decrease the long-term average upstream TDS in Littlejohns Creek during periods of discharge to approximately 150 mg/L. In order to expedite the draw down of Skyrocket Pit Lake,

this Order allows a lower flow ratio (10:1) during the first three years of discharge or until the water level in Skyrocket Pit Lake drops below 955 amsl, whichever is sooner.

3. **Discharge Period and Minimum Creek Flow.** This Order only allows a discharge during the wet-weather season (1 November through 30 April) and requires a minimum flow in Littlejohns Creek. These requirements are included to ensure there is adequate assimilative capacity in the receiving water.

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.

- 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

The Facility no longer conducts mining activities and, therefore, the ELGs at 40 CFR Part 440, Subpart J, which are applicable to the gold ore mining and dressing point source category, are not directly applicable to the Facility. However, the groundwater that collects in Skyrocket Pit Lake is characteristic of mine drainage in active, open pit or underground gold ore mining operations. In addition, during mining operations at the Facility, the groundwater that now collects in Skyrocket Pit Lake was managed as mine drainage. Therefore, based on application of BPJ, the BPT- and BAT-based ELGs developed for mine drainage at gold ore mines (40 CFR Part 440, Subpart J) were applied to the discharge.

Table F-8. Gold Ore Mine Drainage ELGs

Parameter	Units	Max Daily	Avg Monthly
Cadmium	mg/L	0.1[1]	0.05[1]
Copper	mg/L	0.3[2]	0.15[2]
Lead	mg/L	0.6[2]	0.3[2]
Mercury	mg/L	0.002[2]	0.001[2]
pH	su	6.0 to 9.0[3]	6.0 to 9.0[3]
Total Suspended Solids (TSS)	mg/L	30[3]	20[3]
Zinc	mg/L	1.5[2]	0.75[2]

[1] Based on BAT standards of performance at 40 CFR section 440.103(a).
[2] Based on BPT and BAT standards of performance at 40 CFR sections 440.102(a) and 440.103(a).
[3] Based on BPT standards of performance at 40 CFR section 440.102(a).

The water collected at the ODS Springs and transferred to Skyrocket Pit Lake is not necessarily characteristic of mine drainage because it may have either seeped through or otherwise come in contact with overburden from the mine. Therefore, the ODS Spring water is assumed to have characteristics similar to processing, or milling, wastewater from an active mine. Based on application of BPJ, the BPT- and BAT-based ELGs developed for froth flotation alone or in conjunction with other processes at gold ore mines (40 CFR Part 440, Subpart J) were also applied to the discharge.

Table F-9. Mine Mill ELGs

Parameter	Units	Max Daily	Avg Monthly
Cadmium	mg/L	0.1[1]	0.05[1]
Copper	mg/L	0.3[1]	0.15[1]
Lead	mg/L	0.6[1]	0.3[1]
Mercury	mg/L	0.002[1]	0.001[1]
pH	su	6.0 to 9.0[2]	6.0 to 9.0[2]
Total Suspended Solids (TSS)	mg/L	30[2]	20[2]
Zinc	mg/L	1.0[1]	0.5[1]

[1] Based on BPT and BAT standards of performance at 40 CFR sections 440.102(b) and 440.103(b).
[2] Based on BPT standards of performance at 40 CFR section 440.102(b).

Therefore, the concentration of pollutants in the discharge shall not exceed the values given in Table F-10. The regulations at 40 CFR Part 440, Subpart J specify

these ELGs as concentration-based effluent limitations, therefore mass limits are not applied. Table F-10 presents the most stringent technology-based criteria applicable to the discharge based on BPJ.

Table F-10. Summary of Technology-Based Effluent Limitations

Parameter	Units	Max Daily	Avg Monthly
Cadmium	mg/L	0.1	0.05
Copper	mg/L	0.3	0.15
Lead	mg/L	0.6	0.3
Mercury	mg/L	0.002	0.001
pH	su	6.0 to 9.0	6.0 to 9.0
Total Suspended Solids (TSS)	mg/L	30	20
Zinc	mg/L	1.0	0.5

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.** Wastewater is discharged to Littlejohns Creek, a water of the United States, and a tributary to the French Camp Slough, which is a tributary to the San Joaquin River within the boundaries of the Sacramento – San Joaquin Delta. The beneficial uses of Littlejohns Creek, as described above in Section III.C.1 and Section III.C.2, are as follows:

Table F-11. Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Littlejohns Creek, tributary to French Camp Slough, tributary to the San Joaquin River within the boundaries of the Sacramento – San Joaquin Delta	Existing: Municipal and domestic supply (MUN); agricultural supply, including stock watering (AGR); industrial process supply (PROC); industrial service supply (IND); water contact recreation (REC-1); non-contact water recreation, including aesthetic enjoyment (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); warm migration of aquatic organisms (MIGR); cold migration of aquatic organisms (MIGR); warm spawning, reproduction, and/or early development (SPWN); wildlife habitat (WILD);

b. **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 *California Toxics Rule*, at (c)(4), states the following:

"Application of metals criteria. (i) *For purposes of calculating freshwater aquatic life criteria for metals from the equations in paragraph (b)(2) of this section, for waters with a hardness of 400 mg/L or less as calcium carbonate, the actual ambient hardness of the surface water* <u>*shall*</u> *be used in those equations*." [emphasis added]

The State Water Board, in footnote 19 to Water Quality Order No. 2004-0013, stated: "*We note that…the Regional Water Board…applied a variable hardness value whereby effluent limitations will vary depending on the actual, current hardness values in the receiving water. We recommend that the Regional Water Board establish either fixed or seasonal effluent limitations for metals, as provided in the SIP, rather than 'floating' effluent limitations*."

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 conditions at the time of discharge, effluent limitations must be set using a reasonable worst-case condition in order to protect beneficial uses for all discharge conditions. Recent studies indicate that using the receiving water lowest hardness for establishing zinc WQBELs is not the most protective for the receiving water. The Regional Water Board has evaluated these studies and concurs that for some parameters the beneficial uses of the receiving water are best protected using the lowest hardness value of the effluent, while for some parameters the use of both the highest hardness value of the receiving water and the lowest hardness value of the effluent is the most protective. The lowest reported hardness for Skyrocket Pit Lake was 800 mg/L as $CaCO_3$, which is higher than the maximum 400 mg/L as $CaCO_3$ that the USEPA recommends be

used in calculations. Therefore, for purposes of establishing water quality-based effluent limitations (WQBELs) for zinc, and in accordance with USEPA recommendations, a hardness value of 400 mg/L as $CaCO_3$ was used in place of the lowest hardness of the effluent. For establishing zinc WQBELs, a lowest hardness of the effluent (400 mg/L as $CaCO_3$) was used.

c. **Assimilative Capacity/Mixing Zone.** 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. Any available dilution may be used to calculate protective effluent limitations by applying water quality criteria at the edge of the defined mixing zone. These calculations include receiving water pollutant concentration that are typically based on reasonable worst-case conditions for flow and concentration. Because the discharge is not intended to be year round, the discharge will not occur during periods of low or no flow in Littlejohns Creek, and a discharge prohibition has been established for the minimum flow ratio (see Section IV.A.); it is appropriate to establish a dilution credit based on the minimum flow ratio of 15:1. The 15:1 flow ratio was calculated based on the worst-case conditions for concentrations and represents the worst-case conditions allowable for flow.

The decision to allow dilution credits depends upon whether a discharge is completely or incompletely mixed. The Discharger plans to construct a diffuser prior to discharging, which will allow complete mixing in the receiving water. Therefore, for purposes of establishing WQBELs in this Order, a dilution credit of 15:1 has been granted chronic aquatic toxicity and human health criteria. A dilution credit for acute aquatic toxicity criteria has not been allowed in this Order. Provisions VI.C.2.d. of this Order requires the Discharger to conduct a Mixing Zone Study to verify that the discharge is completely mixed.

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, in studies, 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 antimony, arsenic, chromium, dissolved oxygen, electrical conductivity, iron, selenium, and zinc. Water quality-based effluent limitations (WQBELs), and in most cases, more stringent performance-based effluent limitations, have been established for these constituents in this Order. The Regional Water Board also finds that monitoring is required for aluminum, bis (2-ethylhexyl) phthalate, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, and 1,2-dibromo-3-chloropropane. 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 procedures from the SIP were used to evaluate reasonable potential for both CTR and non-CTR constituents.

d. Unless otherwise noted, WQBELs were calculated in accordance with section 1.4 of the SIP, as described in Attachment F, Section IV.C.4.

e. **Aluminum.** USEPA developed National Recommended Ambient Water Quality Criteria for protection of freshwater aquatic life for aluminum. The recommended 4-day average (chronic) and 1-hour average (acute) criteria for aluminum are 87 µg/L and 750 µg/L, respectively, for waters with a pH of 6.5 to 9.0. USEPA recommends that the ambient criteria are protective of the aquatic beneficial uses of receiving waters in lieu of site-specific criteria.

   The MEC for aluminum was 53 µg/L, based on four samples collected between 7 February 2006 and 11 December 2006, while the maximum observed upstream

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

receiving water aluminum concentration was non-detect, based on two samples collected on 7 February 2006 and 3 May 2006. Therefore, aluminum in the discharge does not have a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative toxicity objective, and no effluent limitations for aluminum have been established in this Order. However, since the lowest detection level of the receiving water aluminum concentrations is 500 µg/L, which is greater than the chronic criteria, this Order includes monitoring requirements for aluminum.

In USEPA's *Ambient Water Quality Criteria for Aluminum—1988* [EPA 440/5-86-008], USEPA states that "[a]*cid-soluble aluminum…is probably the best measurement at the present…*"; however, USEPA has not yet approved an acid-soluble test method for aluminum. Replacing the ICP/AES portion of the analytical procedure with ICP/MS would allow lower detection limits to be achieved. Based on USEPA's discussion of aluminum analytical methods, this Order allows the use of the alternate aluminum testing protocol described above to meet monitoring requirements.

f. **Antimony.** The California DHS has adopted a Primary MCL at Title 22 of the California Code of Regulations (CCR), Table 64431-A, for the protection of human health for antimony that is equal to 6.0 µg/L. The MEC for antimony was 15 µg/L, based on 19 samples collected between 13 January 2004 and 11 December 2006, while the maximum observed upstream receiving water antimony concentration was 0.6 µg/L, based on seven samples collected between 14 January 2004 and 3 May 2006. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Primary MCL.

The receiving water has an antimony concentration that is less than the applicable water quality objective, therefore assimilative capacity for antimony is available. Using an allowed dilution credit of 15:1, the calculation of the water quality-based effluent limitation (WQBEL) for antimony results in an annual average effluent limitation of 87 µg/L, which is protective of the Basin Plan's narrative chemical constituents objective. However, based on data submitted by the Discharger, it appears the Discharger can meet a more stringent effluent limitation. Therefore, the Regional Water Board finds that granting of this dilution credit could allocate an unnecessarily large portion of the receiving water's assimilative capacity and could violate the Antidegradation Policy. For this reason, a more stringent performance-based effluent limitation is included in this order, calculated as outlined in Section IV.C.4.d. A maximum daily effluent limitation (MDEL) for antimony of 17 µg/L is included in this Order.

g. **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 105 µg/L, based on 19 samples collected between 13 January 2004 and 11 December 2006, while the maximum observed upstream receiving water arsenic concentration was 1.4 µg/L, based on seven samples collected between 14 January 2004 and 3 May 2006. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Primary MCL.

The receiving water has an arsenic concentration that is less than the applicable water quality objective, therefore assimilative capacity for arsenic is available. Using an allowed dilution credit of 15:1, the calculation of the WQBEL for total arsenic results in an annual average effluent limitation of 140 µg/L, which is protective of the Basin Plan's narrative chemical constituents objective. However, based on data submitted by the Discharger, it appears the Discharger can meet a more stringent effluent limitation. Therefore, the Regional Water Board finds that granting of this dilution credit could allocate an unnecessarily large portion of the receiving water's assimilative capacity and could violate the Antidegradation Policy. For this reason, a more stringent performance-based effluent limitation is included in this order, calculated as outlined in Section IV.C.4.d. Rather than allowing an annual average effluent limitation, this Order includes a maximum daily effluent limitation for arsenic of 140 µg/L.

h. **Benzo(a)anthracene.** The CTR includes a benzo(a)anthracene criterion of 0.0044 µg/L for the protection of human health and is based on a one-in-a-million cancer risk for waters from which both water and organisms are consumed. The MEC for benzo(a)anthracene was 1.6 µg/L, based on one sample collected on 7 February 2006, while the maximum observed upstream receiving water benzo(a)anthracene concentration was non-detect, based on one sample collected on 7 February 2006. The effluent and receiving water samples taken on 7 February 2006 were each analyzed using two different analytical methods, resulting in two reporting limits for each sample. The reporting limit for the effluent sample analysis that resulted in the MEC was 4.8 µg/L, which is higher than the reported value of 1.6 µg/L. A second analysis was performed on the same sample and resulted in a non-detect with a reporting limit of 0.05 µg/L, which is less then the reporting limit for the analysis that resulted in a detected value. The lowest reporting limit for both the effluent and receiving water samples was 0.05 µg/L, which is greater than the applicable criterion. Therefore, a reasonable potential analysis could not be performed for benzo(a)anthracene and no limit is included in this Order. This Order includes monitoring requirements for benzo(a)anthracene so that a reasonable potential analysis may be carried out in the future.

i. **Benzo(a)pyrene.** The CTR includes a benzo(a)pyrene criterion of 0.0044 µg/L for the protection of human health and is based on a one-in-a-million cancer risk for waters from which both water and organisms are consumed. The MEC for benzo(a)pyrene was 1.7 µg/L, based on one sample collected on 7 February 2006, while the maximum observed upstream receiving water benzo(a)pyrene concentration was non-detect, based on one sample collected on 7 February

2006. The effluent and receiving water samples taken on 7 February 2006 were each analyzed using two different analytical methods, resulting in two reporting limits for each sample. The reporting limit for the effluent sample analysis that resulted in the MEC was 1.9 µg/L, which is higher than the reported value of 1.7 µg/L. A second analysis was performed on the same sample that resulted in a non-detect with a lower reporting limit of 0.05 µg/L, which is less then the reporting limit for the analysis that resulted in a detected value. The lowest reporting limit for both the effluent and receiving water samples was 0.05 µg/L, which is greater than the applicable criterion. Therefore, a reasonable potential analysis could not be performed for benzo(a)pyrene and no limit is included in this Order. This Order includes monitoring requirements for benzo(a)pyrene so that a reasonable potential analysis may be carried out in the future.

j. **Benzo(b)fluoranthene.** The CTR includes a benzo(b)fluoranthene criterion of 0.0044 µg/L for the protection of human health and is based on a one-in-a-million cancer risk for waters from which both water and organisms are consumed. The MEC for benzo(b)fluoranthene was 1.9 µg/L, based on one sample collected on 7 February 2006, while the maximum observed upstream receiving water benzo(b)fluoranthene concentration was non-detect, based on one sample collected on 7 February 2006. The effluent and receiving water samples taken on 7 February 2006 were each analyzed using two different analytical methods, resulting in two reporting limits for each sample. The reporting limit for the effluent sample analysis that resulted in the MEC was 1.9 µg/L, which is equal to the reported value. A second analysis was performed on the same sample that resulted in non-detect with a lower reporting limit of 0.05 µg/L, which is less then the reporting limit for the analysis that resulted in a detected value. The lowest reporting limit for both the effluent and receiving water samples was 0.05 µg/L, which is greater than the applicable criterion. Therefore, a reasonable potential analysis could not be performed for benzo(b)fluoranthene and no limit is included in this Order. This Order includes monitoring requirements for benzo(b)fluoranthene so that a reasonable potential analysis may be carried out in the future.

k. **Benzo(k)fluoranthene.** The CTR includes a benzo(k)fluoranthene criterion of 0.0044 µg/L for the protection of human health and is based on a one-in-a-million cancer risk for waters from which both water and organisms are consumed. The MEC for benzo(k)fluoranthene was 1.8 µg/L, based on one sample collected on 7 February 2006, while the maximum observed upstream receiving water benzo(k)fluoranthene concentration was non-detect, based on one sample collected on 7 February 2006. The effluent and receiving water samples taken on 7 February 2006 were each analyzed using two different analytical methods, resulting in two reporting limits for each sample. The reporting limit for the effluent sample analysis that resulted in the MEC was 0.48 µg/L. A second analysis was performed on the same sample that resulted in non-detect with a lower reporting limit of 0.05 µg/L, which is less then the reporting limit for the analysis that resulted in a detected value. The lowest reporting limit for both the effluent and receiving water samples was 0.05 µg/L, which is greater than the

applicable criterion. Therefore, a reasonable potential analysis could not be performed for benzo(k)fluoranthene and no limit is included in this Order. This Order includes monitoring requirements for benzo(k)fluoranthene so that a reasonable potential analysis may be carried out in the future.

l. **Bis (2-ethylhexyl) phthalate.** Bis (2-ethylhexyl) phthalate is used primarily as one of several plasticizers in polyvinyl chloride (PVC) resins for fabricating flexible vinyl products. According to the Consumer Product Safety Commission, USEPA, and the Food and Drug Administration, these PVC resins are used to manufacture many products, including soft squeeze toys, balls, raincoats, adhesives, polymeric coatings, components of paper and paperboard, defoaming agents, animal glue, surface lubricants, and other products that must stay flexible and noninjurious for the lifetime of their use. The State MCL for bis (2-ethylhexyl) phthalate is 4 µg/L and the USEPA MCL is 6 µg/L. The NTR criterion for Human health protection for consumption of water and aquatic organisms is 1.8 µg/L and for consumption of aquatic organisms only is 5.9 µg/L.

The MEC for bis (2-ethylhexyl) phthalate was 2.8 µg/L, based on one sample collected on 7 February 2006, while the maximum observed upstream receiving water bis (2-ethylhexyl) phthalate concentration was non-detect, based on one sample collected on 7 February 2006. However, the reporting limit for both the effluent and receiving water sample analyses was 4.8 µg/L, which is higher than both the reported value and the applicable criterion. Therefore a reasonable potential analysis could not be performed for bis (2-ethylhexyl) phthalate and no limit is included in this Order. This Order includes monitoring requirements for bis (2-ethylhexyl) phthalate so that a reasonable potential analysis may be carried out in the future.

m. **Chromium (Total)***.* The California DHS has adopted a Primary MCL at Title 22 of the California Code of Regulations (CCR), Table 64431-A, for the protection of human health for chromium that is equal to 50 µg/L. The MEC for chromium was 51 µg/L, based on four samples collected between 7 February 2006 and 11 December 2006, while the maximum observed upstream receiving water chromium concentration was non-detect, based on two samples collected on 7 February 2006 and 3 May 2006. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the State MCL.

The receiving water has a total chromium concentration that is less than the applicable water quality objective, therefore assimilative capacity for total chromium is available. Using an allowed dilution credit of 15:1, the calculation of the WQBEL for total chromium results in an annual average effluent limitation of 747 µg/L, which is protective of the Basin Plan's narrative chemical constituents objective. However, based on data submitted by the Discharger, it appears the Discharger can meet a more stringent effluent limitation. Therefore, the Regional Water Board finds that granting of this dilution credit could allocate an unnecessarily large portion of the receiving water's assimilative capacity and could violate the Antidegradation Policy. For this reason, a more stringent

performance-based effluent limitation is included in this order, calculated as outlined in Section IV.C.4.d. A MDEL for total chromium of 160 µg/L is included in this Order.

n. **Chrysene.** The CTR includes a chrysene criterion of 0.0044 µg/L for the protection of human health and is based on a one-in-a-million cancer risk for waters from which both water and organisms are consumed. The MEC for chrysene was 1.5 µg/L, based on one sample collected on 7 February 2006, while the maximum observed upstream receiving water chrysene concentration was non-detect, based on one sample collected on 7 February 2006. The effluent and receiving water samples taken on 7 February 2006 were each analyzed using two different analytical methods, resulting in two reporting limits for each sample. The reporting limit for the effluent sample analysis that resulted in the MEC was 0.48 µg/L. A second analysis was performed on the same sample that resulted in non-detect with a reporting limit of 0.05 µg/L, which is less then the reporting limit for the analysis that resulted in a detected value. The lowest reporting limit for both the effluent and receiving water samples was 0.05 µg/L, which is greater than the applicable criterion. Therefore, a reasonable potential analysis could not be performed for chrysene and no limit is included in this Order. This Order includes monitoring requirements for chrysene so that a reasonable potential analysis may be carried out in the future.

o. **Dibenzo(a,h)anthracene.** The CTR includes a dibenzo(a,h)anthracene criterion of 0.0044 µg/L for the protection of human health and is based on a one-in-a-million cancer risk for waters from which both water and organisms are consumed. The MEC for dibenzo(a,h)anthracene was 2.1 µg/L, based on one sample collected on 7 February 2006, while the maximum observed upstream receiving water dibenzo(a,h)anthracene concentration was non-detect, based on one sample collected on 7 February 2006. The effluent and receiving water samples taken on 7 February 2006 were each analyzed using two different analytical methods, resulting in two reporting limits for each sample. The reporting limit for the effluent sample analysis that resulted in the MEC was 0.48 µg/L. A second analysis was performed on the same sample that resulted in non-detect with a reporting limit of 0.1 µg/L, which is less then the reporting limit for the analysis that resulted in a detected value. The lowest reporting limit for both the effluent and receiving water samples was 0.1 µg/L, which is greater than the applicable criterion. Therefore, a reasonable potential analysis could not be performed for dibenzo(a,h)anthracene and no limit is included in this Order. This Order includes monitoring requirements for dibenzo(a,h)anthracene so that a reasonable potential analysis may be carried out in the future.

p. **1,2-Dibromo-3-chloropropane.** The Basin Plan contains the *Policy for Application of Water Quality Objectives*, which provides that narrative objectives may be translated using numerical limits published by other agencies and organizations. The California Environmental Protection Agency (Cal/EPA) Office of Environmental Health Hazard Assessment (OEHHA) has published the Toxicity Criteria Database, which contains cancer potency factors for chemicals,

including chloroform, that have been used as a basis for regulatory actions by the boards, departments and offices within Cal/EPA. The OEHHA cancer potency value for oral exposure to 1,2-dibromo-3-chloropropane is 0.025 milligrams per kilogram body weight per day (mg/kg-day). By applying standard toxicological assumptions used by OEHHA and USEPA in evaluating health risks via drinking water exposure of 70 kg body weight and two liters per day water consumption, this cancer potency factor is equivalent to a concentration in drinking water of 0.0017 µg/L (ppb) at the one-in-a-million cancer risk level. This risk level is consistent with that used by the Department of Health Services (DHS) to set *de minimis* risks from involuntary exposure to carcinogens in drinking water in developing MCLs and Action Levels and by OEHHA to set negligible cancer risks in developing Public Health Goals for drinking water. The one-in-a-million cancer risk level is also mandated by USEPA in applying human health protective criteria contained in the NTR and the CTR to priority toxic pollutants in California surface waters. The California DHS Primary MCL, adopted from the Public Health Goal, at Title 22 of the California Code of Regulations (CCR), Table 64431-A, for the protection of human health for 1,2-dibromo-3-chloropropane is equal to 0.2 µg/L.

The MEC for 1,2-dibromo-3-chloropropane was 0.0034 µg/L, based on one sample collected on 7 February 2006, while the maximum observed upstream receiving water 1,2-dibromo-3-chloropropane concentration was 0.0055 µg/L, based on one sample collected on 7 February 2006. In both cases the reporting limit for the laboratory analysis was 0.01 µg/L. Because the reported values were less than the analytical reporting limits, the MEC is significantly lower than the MCL, and only one sample was analyzed for 1,2-dibromo-3-chloropropane, This Order does not include effluent limitations for 1,2-dibromo-3-chloropropane. A larger number of samples will provide a more sound basis for effluent limitations if needed. Therefore, this Order includes monitoring requirements for 1,2-dibromo-3-chloropropane.

q. **Dissolved Oxygen.** The Basin Plan contains a numeric objective for dissolved oxygen (DO) of not less than 7.0 mg/L at any time for waters designated as cold freshwater habitat. DO concentrations in the effluent ranged from 0.88 mg/L to 11 mg/L, with an average of 5.7 mg/L, for 15 samples collected by the Discharger from 13 January 2004 through 28 October 2006. Background concentrations in Littlejohns Creek ranged from 0.7 mg/L to 7.3 mg/L, with an average of 4.0 mg/L, for 13 samples collected by the Discharger from 14 January 2004 through 26 May 2006. Therefore, the effluent exceeded the Basin Plan DO objective. Furthermore, the receiving water regularly exceeds the Basin Plan objective and no assimilative capacity for DO is available. An instantaneous minimum effluent limit of 7.0 mg/L is included in this Order based on the Basin Plan numeric objective for DO.

r. **Indeno(1,2,3-cd)pyrene.** The CTR includes an indeno(1,2,3-cd)pyrene criterion of 0.0044 µg/L for the protection of human health and is based on a one-in-a-million cancer risk for waters from which both water and organisms are

consumed. The MEC for indeno(1,2,3-cd)pyrene was 2.2 µg/L, based on one sample collected on 7 February 2006, while the maximum observed upstream receiving water indeno(1,2,3-cd)pyrene concentration was non-detect, based on one sample collected on 7 February 2006. The effluent and receiving water samples taken on 7 February 2006 were each analyzed using two different analytical methods, resulting in two reporting limits for each sample. The reporting limit for the effluent sample analysis that resulted in the MEC was 1.9 µg/L. A second analysis was performed on the same sample that resulted in non-detect with a reporting limit of 0.05 µg/L, which is less then the reporting limit for the analysis that resulted in a detected value. The lowest reporting limit for both the effluent and receiving water samples was 0.05 µg/L, which is greater than the applicable criterion. Therefore a reasonable potential analysis could not be performed for indeno(1,2,3-cd)pyrene and no limit is included in this Order. This Order includes monitoring requirements for indeno(1,2,3-cd)pyrene so that a reasonable potential analysis may be carried out in the future.

s. **Electrical Conductivity. (see Subsection v. Salinity)**

t. **Iron.** The Secondary MCL - Consumer Acceptance Limit for iron is 300 µg/L. The MEC for iron was 1,300 µg/L, based on 19 samples collected between 13 January 2004 and 11 December 2006, while the maximum observed upstream receiving water iron concentration was non-detect, based on two samples collected between 7 February 2006 and 3 May 2006. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Secondary MCL for iron.

The receiving water iron concentration was non-detect at SWM-6, however, the lowest reporting limit was 300 µg/L, which is equal to the Secondary MCL. Therefore, additional receiving water data at SWM-10 was evaluated, which is downstream of SWM-6. SWM-10 data has not been used elsewhere in this reasonable potential analysis, because it appears that Littlejohns Creek at SWM-10 contains groundwater and is likely not representative of background conditions. However, since there is insufficient data at SWM-6 to evaluate if there is assimilative capacity for iron, it was evaluated in this case. Based on 7 samples from 14 July 2004 to 17 April 2007, iron was detected in Littlejohns Creek at SWM-10 once at a concentration of 40 µg/L. This data demonstrates that there is assimilative capacity for iron in the receiving water. Using an allowed dilution credit of 15:1, the calculation of the WQBEL for iron results in an annual average effluent limitation of 4,200 µg/L, which is protective of the Basin Plan's narrative chemical constituents objective. However, based on data submitted by the Discharger, it appears the Discharger can meet a more stringent effluent limitation. Therefore, the Regional Water Board finds that granting of this dilution credit could allocate an unnecessarily large portion of the receiving water's assimilative capacity and could violate the Antidegradation Policy. For this reason, a more stringent performance-based effluent limitation is included in this order, calculated as outlined in Section IV.C.4.d. A MDEL for iron of 1,300 µg/L is included in this Order.

u. **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.

v. **Salinity.** The discharge contains 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 consumption. The Basin Plan contains a chemical constituent objective that incorporates State MCLs and contains a narrative objective, for EC, TDS, sulfate, and chloride.

Table F-12. Salinity Water Quality Criteria/Objectives

Parameter	Agricultural WQ Goal[1]	Secondary MCL[3]	Effluent	
			Avg	Max
EC (µmhos/cm)	Varies[2]	900, 1600, 2200	3,200	3,700
TDS (mg/L)	Varies	500, 1000, 1500	2,550	2,920
Sulfate (mg/L)	Varies	250, 500, 600	1,200	1,400
Chloride (mg/L)	Varies	250, 500, 600	350	440

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.

i. **Chloride**. The secondary MCL for chloride is 250 mg/L, as 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.

Chloride concentrations in the effluent ranged from 290 mg/L to 390 mg/L, with an average of 350 mg/L, for 18 samples collected by the Discharger from 13 January 2004 through 11 December 2006. Background concentrations in Littlejohns Creek ranged from 4 mg/L to 21 mg/L, with an average of 9 mg/L, for seven samples collected by the Discharger from 14 January 2004 through

3 May 2006. The effluent concentration exceeds 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, 1,600 µmhos/cm as an upper level, and 2,200 µmhos/cm as a short-term maximum. The agricultural water quality goal, that would apply the narrative chemical constituents objective, is 700 µmhos/cm as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). The 700 µmhos/cm agricultural water quality goal is intended to prevent reduction in crop yield, i.e. a restriction on use of water, for salt-sensitive crops, such as beans, carrots, turnips, and strawberries. These crops are either currently grown in the area or may be grown in the future. Most other crops can tolerate higher EC concentrations without harm, however, as the salinity of the irrigation water increases, more crops are potentially harmed by the EC, or extra measures must be taken by the farmer to minimize or eliminate any harmful impacts.

A review of the Discharger's monitoring reports from 13 January 2004 through 11 December 2006 shows an average effluent EC of 3,200 µmhos/cm, with a range from 2,600 µmhos/cm to 3,700 µmhos/cm for 19 samples. These levels exceed the applicable objectives. The background receiving water EC averaged 220 µmhos/cm in 15 sampling events collected by the Discharger from 14 January 2004 through 26 May 2006.

iii. **Sulfate**. The secondary MCL for sulfate is 250 mg/L as recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum. Sulfate concentrations in the effluent ranged from 1,000 mg/L to 1,300 mg/L, with an average of 1,200 mg/L, for 18 samples collected by the Discharger from 13 January 2004 through 11 December 2006. Background concentrations in Littlejohns Creek ranged from 19 mg/L to 92 mg/L, with an average of 40 mg/L, for seven samples collected by the Discharger from 14 January 2004 through 3 May 2006. The effluent concentration exceeds the secondary MCL recommended level of 250 mg/L.

iv. **Total Dissolved Solids (TDS).** The secondary MCL for TDS is 500 mg/L as a recommended level, 1,000 mg/L as an upper level, and 1,500 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 average TDS effluent concentration was 2,400 mg/L; concentrations ranged from 420 mg/L to 2,740 mg/L for 19 samples collected by the Discharger from 13 January 2004 through 11 December 2006. These concentrations exceed the applicable water quality objectives. The background receiving water TDS ranged from 70 mg/L to 350 mg/L, with an average of 170 mg/L in 15 sampling events performed by the Discharger from 14 January 2004 through 26 May 2006.

v. **Salinity Effluent Limitations.** Currently, during periods of high flow, the receiving water has a TDS concentration that is less than the applicable water quality objective, therefore assimilative capacity for TDS is available. Using an allowed dilution credit of 15:1, the calculation of the WQBEL for TDS results in an AMEL of 10,750 mg/L (based on meeting the secondary MCL of 500 mg/L), which is protective of the Basin Plan's narrative chemical constituents objective. A performance-based effluent limitation calculated as outlined in Section IV.C.4.d., results in an MDEL for TDS of 2,924 mg/L. However, as the level of Skyrocket Pit Lake lowers and with the addition of high TDS flows from the ODSs, the Discharger predicts that the TDS of Skyrocket Pit Lake will increase over time. Based on the projections, a MDEL for TDS of 4,000 mg/L is included in the Order. Furthermore, since Littlejohns Creek is tributary to the Sacramento-San Joaquin Delta, of additional concern is the salt loading to the Delta. Therefore, this Order includes an annual TDS mass-based limitation of 3,000 tons/year, based on the expected annual discharge during an extremely wet year. Compliance with the annual TDS loading limitation shall be determined from 1 August – 31 July.

w. **Selenium.** The CTR includes maximum 4-day average selenium concentration of 5.0 µg/L for the protection of freshwater aquatic life. The MEC for selenium was 12.1 µg/L, based on 19 samples collected between 13 January 2004 and 11 December 2006, while the maximum observed upstream receiving water selenium concentration was 0.76 µg/L, based on seven samples collected between 14 January 2004 and 3 May 2006. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for selenium.

The receiving water has a selenium concentration that is less than the applicable water quality objective, therefore assimilative capacity for selenium is available. Using an allowed chronic dilution credit of 15:1 (no dilution allowed for acute conditions), the calculation of the WQBELs for selenium results in an Average Monthly Effluent Limitation (AMEL) and MDEL of 16 µg/L and 20 µg/L,

respectively, which is protective of the CTR aquatic life criteria. However, based on data submitted by the Discharger, it appears the Discharger can meet a more stringent effluent limitation. Therefore, the Regional Water Board finds that a more stringent effluent limitation based on current performance is more appropriate. For this reason, a more stringent performance-based effluent limitation is included in this order, calculated as outlined in Section IV.C.4.d. An MDEL for selenium of 14 µg/L is included in this Order.

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

y. **Zinc.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for zinc. The criteria for zinc are presented in dissolved concentrations. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. The conversion factors for zinc in freshwater are 0.978 for the acute criteria and 0.986 for the chronic criteria. Using the appropriate hardness from the proposed effluent (400 mg/L as $CaCO_3$), as discussed in Section IV.C.2.b, the applicable chronic criterion (maximum 4-day average concentration) and acute criterion (maximum 1-hour average concentration) are both 390 µg/L, as total recoverable.

   The MEC for total zinc was 1,400 µg/L, based on nine samples collected between 7 February 2006 and 11 December 2006. Although the MEC data point appears to be an outlier and the next highest result for zinc was 28 ug/L, there is insufficient data was to statistically determine if the MEC can be treated as an outlier in the reasonable potential analysis. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for zinc.

   The maximum observed upstream receiving water total zinc concentration was 51 µg/L, based on three samples collected between 7 February 2006 and 3 May 2006. Therefore, assimilative capacity for zinc is available. Using an allowed chronic dilution credit of 15:1 (no dilution allowed for acute conditions), the calculation of the WQBELs for zinc results in an AMEL and MDEL of 190 µg/L and 390 µg/L, respectively, and are included in this Order based on CTR criteria for the protection of freshwater aquatic life (see Attachment F, Table F-12 for WQBEL calculations). Based on the sample results in the effluent, it appears the Discharger can meet these new limitations.

z. **Nitrate.** Nitrate is known to cause adverse health effects in humans. The California DPH has adopted Primary MCLs at Title 22 of the California Code of Regulations (CCR), Table 64431-A, for the protection of human health for nitrate of 10 mg/L (measured as nitrogen). The MEC for nitrate as N was 4.6 mg/L, while the maximum observed upstream receiving water nitrate concentration was 1.1 mg/L, which are below the Primary MCL. Therefore, the effluent does not have reasonable potential to cause or contribute to an exceedance of the applicable water quality objective in the receiving water and WQBELs are not necessary.

However, due to a settlement agreement between the Discharger and the California Sportfishing Protection Alliance, this Order includes an MDEL for nitrate as N of 3.0 mg/L, which is effective 1 November 2011, or when the elevation of Skyrocket Pit Lake drops to 955 amsl, whichever is sooner. In the interim period, an interim effluent limitation for nitrate as N of 5.0 mg/L is applied in this Order.

4. WQBEL Calculations

a. The effluent limitation for DO was applied directly as an instantaneous minimum effluent limit based on the Basin Plan objectives.

b. An effluent limitation for iron was applied directly as an annual average effluent limitation based on the secondary MCL.

c. Effluent limitations for zinc were calculated in accordance with section 1.4 of the SIP. The following paragraphs describe the methodology used for calculating these effluent limitations.

d. **Performance-Based Limitation Calculations.** Effluent limitations for antimony, arsenic, chromium (total), iron, selenium, and TDS were calculated as performance-based MDELs. In developing the performance-based limitations, 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% 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 interim limitations in this Order are established as the mean plus 3.3 standard deviations of the available data.

When there are less than 10 sampling data points available, the *Technical Support Document for Water Quality- Based Toxics Control* ((EPA/505/2-90-001), TSD) recommends a coefficient of variation of 0.6 be utilized as representative of wastewater effluent sampling. The TSD recognizes that a minimum of 10 data points is necessary to conduct a valid statistical analysis. The multipliers contained in Table 5-2 of the TSD are used to determine a maximum daily limitation based on a long-term average objective. In this case, the long-term average objective is to maintain, at a minimum, the current facility performance level. Therefore, when there are less than 10 sampling points for a constituent, interim limitations are based on 3.11 times the maximum observed effluent concentration to obtain the daily maximum interim limitation (TSD, Table 5-2).

Table F-13. Performance-Based Effluent Limitation Calculation Summary

Parameter	Units	MEC	Mean	Std. Dev.	# of Samples	Performance-based Limitation
Antimony	µg/L	15	13	1.3	19	17
Arsenic	µg/L	105	82	17	19	140
Chromium	µg/L	51	18	NA[1]	3	160
Iron	µg/L	1,300	190	340	19	1,300
Selenium, total recoverable	µg/L	12	9.2	1.6	19	14
Total Dissolved Solids	mg/L	2,740	2,547	114	18	2,924[2]

1 Not applicable. A standard deviation could not be calculated because there were less than 10 data points for this constituent. The interim limitation was calculated as the MEC x 3.11, per Table 5-2 of the TSD (cv=0.6).
2 TDS levels are expected to increase in Sky Rocket Pit Lake as the level of the lake is lowered, therefore, an effluent limit of 4,000 mg/L has been allowed for TDS (see subsection IV.C.3.v.v., above).

e. **Effluent Limitation Calculations.** In calculating maximum effluent limitations, the effluent concentration allowances were set equal to the criteria/standards/objectives.

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

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

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

where:

ECA_{acute} = effluent concentration allowance for acute (1-hour average) toxicity criterion

$ECA_{chronic}$ = effluent concentration allowance for chronic (4-day average) toxicity criterion

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

CMC = criteria maximum concentration (1-hour average)

CCC = criteria continuous concentration (4-day average, unless otherwise noted)

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

D = dilution credit

B = maximum receiving water concentration

Acute and chronic toxicity ECAs were then converted to equivalent long-term averages (LTA) using statistical multipliers and the lowest is used. Additional statistical multipliers were then used to calculate the maximum daily effluent limitation (MDEL) and the average monthly effluent limitation (AMEL).

Human health ECAs are set equal to the AMEL and a statistical multiplier is used to calculate the MDEL.

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

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

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

where: $mult_{AMEL}$ = statistical multiplier converting minimum LTA to AMEL
$mult_{MDEL}$ = statistical multiplier converting minimum LTA to MDEL
M_A = statistical multiplier converting CMC to LTA
M_C = statistical multiplier converting CCC to LTA

Water quality-based effluent limitations were calculated for selenium and zinc as follows in Tables F-14 and F-15, below.

Table F-14.
WQBEL Calculations for Selenium

	Acute	Chronic
Criteria (µg/L)	20	5
Dilution Credit	No Dilution	15:1
ECA	20	68.6
ECA Multiplier	0.68	0.82
LTA	13.7	56.5
AMEL Multiplier (95th%)	1.55	(1)
AMEL (µg/L)	15.7	(1)
MDEL Multiplier (99th%)	3.11	(1)
MDEL (µg/L)	20	(1)

(1) Limitations based on acute LTA (acute LTA < chronic LTA).

Table F-15.
WQBEL Calculations for Zinc

	Acute	Chronic
Criteria (µg/L)	390	390
Dilution Credit	No Dilution	15:1
ECA	390	5,475
ECA Multiplier	0.32	0.53
LTA	125	2,901
AMEL Multiplier (95th%)	1.55	(1)
AMEL (µg/L)	190	(1)
MDEL Multiplier (99th%)	3.11	(1)
MDEL (µg/L)	390	(1)

(1) Limitations based on acute LTA (acute LTA < chronic LTA).

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

Table F-16. Summary of Water Quality-based Effluent Limitations

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Acute Toxicity[1]	% Survival	--	--	--	--
Antimony, Total Recoverable	µg/L	--	17	--	--
Arsenic, Total Recoverable	µg/L	--	140	--	--
Chromium (Total)	µg/L	--	160	--	--
Dissolved Oxygen	mg/L	--	--	7.0	--
Iron, Total Recoverable	µg/L	--	1,300	--	--
pH	s.u.	--	--	6.5	8.5
Selenium, Total Recoverable	µg/L	--	14	--	--
	lbs/day	--	5.0	--	--
Total Dissolved Solids	mg/L	--	4,000[3]	--	--
Zinc, Total Recoverable	µg/L	190	390	--	--

[1] Median survival in effluent for any three consecutive 96-hour static or continuous flow bioassay tests shall be at least 90%, with no single test producing less than 70% survival.
[2] Based on an maximum discharge flow of 43 mgd.
[3] This Order also includes an annual mass loading for TDS of 3,000 tons/year (August-July).

5. Whole Effluent Toxicity (WET)

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

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

14-15) it states that, "*In the absence of specific numeric water quality objectives for acute and chronic toxicity, the narrative criterion 'no toxics in toxic amounts' applies. Achievement of the narrative criterion, as applied herein, means that ambient waters shall not demonstrate for acute toxicity: 1) less than 90% survival, 50% of the time, based on the monthly median, or 2) less than 70% survival, 10% of the time, based on any monthly median. For chronic toxicity, ambient waters shall not demonstrate a test result of greater than 1 TUc."* Accordingly, effluent limitations for acute toxicity have been included in this Order as follows:

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

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

b. **Chronic Aquatic Toxicity.** Two whole effluent chronic toxicity tests were performed by the Discharger on 7 February 2006 and 3 May 2006. The maximum observed toxicity was 2.0 chronic toxicity units (TUc) to *selenastrum capricornutum* growth. The discharge also demonstrated toxicity to *ceriodaphnia dubia* reproduction of 1.3 TUc. This data demonstrates that the discharge has reasonable potential to cause or contribute to an to an in-stream excursion above of the Basin Plan's narrative toxicity objective.

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

[2] In the Matter of the Review of Own Motion of Waste Discharge Requirements Order Nos. R4-2002-0121 [NPDES No. CA0054011] and R4-2002-0123 [NPDES NO. CA0055119] and Time Schedule Order Nos. R4-2002-0122 and R4-2002-0124 for Los Coyotes and Long Beach Wastewater Reclamation Plants Issued by the California Regional Water Quality Control Board, Los Angeles Region SWRCB/OCC FILES A-1496 AND 1496(a)

effluent toxicity limits in NPDES permits and general expansion and standardization of toxicity control implementation related to the NPDES permitting process. Since the toxicity control provisions in the SIP are under revision it is infeasible to develop numeric effluent limitations for chronic toxicity. Therefore, this Order requires that the Discharger meet best management practices for compliance with the Basin Plan's narrative toxicity objective, as allowed under 40 CFR 122.44(k).

To ensure compliance with the Basin Plan's narrative toxicity objective, the Discharger is required to conduct chronic whole effluent toxicity testing, as specified in the Monitoring and Reporting Program (Attachment E, Section V.). Furthermore, Special Provisions VI.C.2.a. of this Order requires the Discharger to investigate the causes of, and identify and implement corrective actions to reduce or eliminate effluent toxicity. If the discharge demonstrates a pattern of toxicity exceeding the numeric toxicity monitoring trigger, the Discharger is required to initiate a Toxicity Reduction Evaluation (TRE), in accordance with an approved TRE work plan. A 15:1 dilution credit has been granted for the chronic condition. To ensure adequate protection of aquatic life, a numeric chronic toxicity trigger of 8 TUc has been established in this Order. The numeric toxicity monitoring trigger is not an effluent limitation, it is the toxicity threshold at which the Discharger is required to perform accelerated chronic toxicity monitoring, as well as, the threshold to initiate a TRE if a pattern of effluent toxicity has been demonstrated.

D. Final Effluent Limitations

1. Mass-based Effluent Limitations

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

Mass-based effluent limitations were calculated by multiplying the concentration limitation by a reasonable estimate of the Facility's expected flow and the appropriate unit conversion factor. Since this is a newly regulated discharge it is infeasible to determine the actual flow. Therefore, mass-based effluent limitations have been calculated based on the design capacity of the outfall, which is 43 mgd.

2. Non-Continuous Discharges

Title 40 CFR 122.45(e) includes requirements for non-continuous dischargers, which states as follows:

"(e) Non-continuous discharges. Discharges which are not continuous, as defined in § 122.2, shall be particularly described and limited, considering the following factors, as appropriate:
(1) Frequency (for example, a batch discharge shall not occur more than once every 3 weeks);
(2) Total mass (for example, not to exceed 100 kilograms of zinc and 200 kilograms of chromium per batch discharge);
(3) Maximum rate of discharge of pollutants during the discharge (for example, not to exceed 2 kilograms of zinc per minute); and
(4) Prohibition or limitation of specified pollutants by mass, concentration, or other appropriate measure (for example, shall not contain at any time more than 0.1 mg/1 zinc or more than 250 grams (1⁄4 kilogram) of zinc in any discharge)."

The discharge from the Facility is not defined as a continuous discharge, therefore, the above factors were considered in developing effluent limitations. This Order requires compliance with applicable federal technology-based standards and with WQBELs where the discharge could have the reasonable potential to cause or contribute to an exceedance of water quality standards. Average monthly and maximum daily concentration-based effluent limitations are appropriate for most constituents to protect the beneficial uses of Littlejohns Creek. For selenium, a mass-based limitation is also included, because it is a bioaccumulative constituent, and for dissolved oxygen, the effluent limitations are based on an instantaneous minimum to protect aquatic life.

3. Satisfaction of Anti-Backsliding Requirements

[NOT APPLICABLE – NO PRIOR PERMIT]

4. Satisfaction of Antidegradation Policy

This Order provides for an overall increase in the volume and mass of pollutants discharged to Littlejohns Creek by allowing discharges to the creek that were not previously present. This Order is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution 68-16 as updated by State Water Board Administrative Procedure Update (APU) No. 90-004. The Discharger's "Antidegradation Analysis for the Royal Mountain King Mine Spring and Storm Water Discharge" report was submitted on 9 February 2007. At the direction of the Regional Water Board, the Discharger also submitted the "Royal Mountain King Mine Alternatives Analysis Report, Management of Spring and Pit Lake Water" on 30 September 2006, herein referred to as the Alternatives Analysis, which compared several treatment alternatives for the proposed discharge based on water quality, economic, implementation feasibility, and social factors. Portions of

the detailed analysis presented in the Alternatives Analysis was used in the antidegradation analysis report (AAR). The AAR is presented as a "simple" antidegradation analysis based on the determination that the discharge is temporally limited, will not result in any long-term deleterious effects on water quality, and the reduction in water quality is spatially localized to the reach from the Discharger's downstream property boundary to the entrance of Flowers Reservoir. The following is a summary of the AAR submitted by the Discharger to evaluate the proposed discharge:

a. **Water quality parameters and beneficial uses which will be affected by this Order and the extent of the impact.** This Order does not impact beneficial uses of the receiving waters or downstream receiving waters. All beneficial uses will be maintained and protected. This Order provides for an increase in the volume and mass of pollutants discharged to the receiving water. To determine the extent of the impact on the receiving water, the AAR focuses on arsenic, nitrate, and TDS as the primary constituents of concern. Arsenic, nitrate, and TDS were considered primary constituents of concern because they represent the worst-case potential for degradation when compared to baseline water quality and water quality objectives. As the nitrate levels are less than the primary MCL for nitrate of 10 mg/L, it is not considered a constituent of concern.

   The long- and short-term effects of the discharge on arsenic and TDS levels downstream from the Facility were analyzed. For the purposes of the AAR, the short-term refers to the initial 3-year discharge period in which the Discharger is required to reduce the water level in Skyrocket Pit Lake to a maximum of 955 feet amsl. The short-term concentrations for arsenic and TDS are calculated to be 12 µg/L and 615 mg/L, respectively. The long-term concentrations of arsenic and TDS are calculated to be 8 µg/L and 511 mg/L respectively. In addition, the long-term average concentration of TDS upstream of the discharge is calculated to decrease from approximately 300 mg/L to 150 mg/L because lowering the level of Skyrocket Pit Lake is expected lower groundwater levels that contribute to TDS levels in Littlejohns Creek upstream of the proposed discharge point. The salinity impacts caused by the discharge in the Sacramento-San Joaquin Delta are likely to be minimal, because the discharges will only occur during wet weather periods when flow levels in the Delta are highest and salinity levels are lowest.

   During the initial 3-year period, this Order allows discharges to occur with a lower required flow ratio (creek:effluent). The flow ratio is reduced from 15:1 to 10:1 during this initial period in order to allow the lowering of Skyrocket Pit Lake. Based on the proposed discharge quality and receiving water quality, the Order is fully protective for all constituents, except arsenic. There may be periods where there is insufficient dilution to meet the primary MCL for arsenic after dilution with the receiving water. However, based on the available data it appears that these occurrences will likely be limited. The potential short-term impacts caused by having higher discharge volumes in the initial 3-year period are negated by the more favorable long-term effects of lowering the groundwater

levels in the vicinity of Skyrocket Pit Lake. The lower groundwater levels will restore the natural, seasonal flow patterns of Littlejohns Creek by eliminating the year-round surfacing of high TDS groundwater into the creek. Instead of a constant flow of high TDS groundwater into Littlejohns Creek, even during periods when the creek would otherwise be dry, the proposed long-term discharge conditions will limit TDS loadings to periods of naturally high flow, when there is greater assimilative capacity for TDS in the creek.

b. **Scientific Rationale for Determining Potential Lowering of Water Quality.** The rationale used in the AAR is based on the Code of Federal Regulations, Section 131.12 (40 CFR 131.12), State Water Resources Control Board (SWRCB) Resolution No. 68-16, and SWRCB issued guidance to all Regional Boards regarding the implementation of antidegradation policies in NPDES permits APU-90-004 (SWRCB, 1990). Pursuant to the guidelines, this analysis follows the provisions for a 'simple analysis' and evaluates whether the proposed discharge will produce significant changes in the water quality of these receiving waters that would adversely impact existing beneficial uses. The simple analysis is comprised of three main components: (1) an evaluation of the effects on existing beneficial uses; (2) a socio-economic benefit analysis to establish the balance between the proposed action and the public interest; and (3) an evaluation of the incremental impacts on water quality. The AAR addresses the determination of measurable water quality impacts and whether beneficial uses are impacted by comparing estimated resulting receiving water quality to the water quality objectives and/or criteria used to protect designated beneficial uses, the evaluation of costs and benefits of reducing or eliminating the load increase, and the balance of the proposed project against the public interest. Details of the rationale are discussed in the AAR.

c. **Description of Alternative Control Measures.** The Discharger considered several alternatives for managing or treating the proposed discharge and for managing stormwater onsite to minimize the amount of water that would need to be discharged. The full analysis of the various management/treatment alternatives is presented in the Alternatives Analysis and demonstrates that the selected alternative represents best practicable treatment and control. Section 5 of the Alternatives Analysis describes in detail the procedures and techniques used to compare the management/treatment alternatives. The alternatives considered fall into four groups:

1. the "no further action alternative," which was included as a baseline for comparison;
2. alternatives that involve spring flow collection, storage, and treatment options;
3. alternatives that involve the removal of spring flows and excess pit lake water (e.g. through land disposal);
4. and alternatives that include combinations of source control measures combined with different treatment technologies

d. **Description of Socioeconomic Evaluation.** A socioeconomic evaluation was performed in the AAR to compare three potential water management methods with respect to their impact on resources, health, and aesthetics in the region. The evaluation is summarized in Table 5.1 of the AAR. The socioeconomic evaluation considered:

- energy needed to operate and maintain the systems;
- effects on water supply and groundwater recharge projects in the vicinity of the discharge;
- aesthetic impacts;
- risk of wastewater releases or treatment failure;
- and solid and hazardous waste generation.

Socio-economic considerations were also included as criteria in the alternatives evaluation that the Discharger used to determine which treatment method would be implemented at the Facility. The factors considered and the procedures used to include those factors are detailed in Section 5 of the Alternatives Analysis.

e. **Justification for Socioeconomic Considerations.** Potential degradation identified in the AAR due to this Order is justified by the following socioeconomic considerations:

- potential short-term effects caused by the increased flows needed to draw the water level down Skyrocket Pit Lake will be offset by the long-term benefits of restoring the natural flow patterns of Littlejohns Creek and reducing the negative impacts caused by increased groundwater levels in the vicinity of the lake;
- the proposed loadings will produce no observable effects within receiving waters in the long-term and, therefore, are not likely to impair existing or future beneficial uses;
- while concentrations of TDS and arsenic will increase slightly at the point of discharge during storm events, concentrations are expected to decrease during other times and in the long-term;
- and the discharge process and timing will have a positive impact on water supply and groundwater recharge beneficial uses by increasing the volume of water available for these uses.

Summary of Final Effluent Limitations
Discharge Point No. 001

Table F-17 presents the most stringent effluent limitations (i.e., water quality or technology based) applicable to the discharge.

Table F-17. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations				Basis
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Acute Toxicity	% Survival	--	--	--	[1]	BP
pH	s.u.	--	--	6.5	8.5	BP
Antimony, Total Recoverable	µg/L	--	17	--	--	PB
Arsenic, Total Recoverable	µg/L	--	140	--	--	PB
Cadmium	µg/L	50	100			BPJ
Chromium (Total)	µg/L	--	160	--	--	PB
Copper	µg/L	150	300			BPJ
Lead	µg/L	300	600			BPJ
Mercury	µg/L	1.0	2.0			BPJ
Nitrate (as N)	mg/L	--	3.0			[3]
Selenium, Total Recoverable	µg/L	--	14	--	--	PB
	lbs/day[2]	--	5.0			
Zinc, Total Recoverable	µg/L	190	390	--	--	CTR
Dissolved Oxygen	mg/L	--	--	7.0	--	BP
Iron, Total Recoverable	µg/L	--	1,300	--	--	PB
Total Dissolved Solids	mg/L	--	4,000[4]	--	--	PB
Total Suspended Solids	mg/L	20	30			BPJ

BPJ – Based on application of best professional judgment.
CTR- Based on water quality criteria contained in the California Toxics Rule, and applied as specified in the SIP.
BP- Based on water quality objectives contained in the Basin Plan.
PB – Performance-based effluent limits. Based on water quality data from skyrocket pit lake.

1 Median survival in effluent for any three consecutive 96-hour static or continuous flow bioassay tests shall be at least 90%, with no single test producing less than 70% survival.
2 Based on an estimated flow of 0.504 mgd and an estimated AMEL of 11 µg/L.
3 See section IV.C.3.z. for basis for the effluent limitations for nitrate.
4 This Order also includes an annual mass loading for TDS of 3,000 tons/year (August-July).

E. Interim Effluent Limitations

a. **Nitrate.** See section IV.C.3.z. for rationale for the interim effluent limitations for nitrate.

F. Land Discharge Specifications

[NOT APPLICABLE]

G. Reclamation Specifications

[NOT APPLICABLE]

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

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

A. Surface Water

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

   Numeric Basin Plan objectives for dissolved oxygen, and pH, are applicable to this discharge and have been incorporated as Receiving Surface Water Limitations.

Rationale for these numeric receiving surface water limitations are as follows:

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

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

c. **Dissolved Oxygen.** Littlejohns Creek has been designated as having the beneficial use of warm freshwater aquatic habitat (WARM). For water bodies designated as having WARM as a beneficial use, the Basin Plan includes a water quality objective of maintaining a minimum of 5.0 mg/L of dissolved oxygen. Since the beneficial use of WARM does apply to Littlejohns Creek, a receiving water limitation of 5.0 mg/L for dissolved oxygen was included in this Order.

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

e. **Oil and Grease**. The Basin Plan includes a water quality objective that *"[W]aters shall not contain oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses."* Receiving Water Limitations for oil and grease are included in this Order and are based on the Basin Plan objective.

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

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

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

h. **Radioactivity**. The Basin Plan includes a water quality objective that *"[R]adionuclides shall not 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."* The Basin Plan states further that *"[A]t a minimum, waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of radionuclides in excess of the maximum contaminant levels (MCLs) specified in Table 4 (MCL Radioactivity) of Section 64443 of Title 22 of the California Code of Regulations…"* Receiving Water Limitations for radioactivity are included in this Order and are based on the Basin Plan objective.

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

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

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

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

m. **Temperature.** Littlejohns Creek has the beneficial uses of both COLD and WARM. The Basin Plan includes the objective that "[a]*t no time or place shall the temperature of COLD or WARM intrastate waters be increased more than 5ºF above natural receiving water temperature*." This Order includes a receiving water limitation based on this objective.

n. **Toxicity**. The Basin Plan includes a water quality objective that *"[A]ll waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life."* Receiving Water Limitations for toxicity are included in this Order and are based on the Basin Plan objective.

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

- *Where natural turbidity is between 0 and 5 Nephelometric Turbidity Units (NTUs), increases shall not exceed 1 NTU.*
- *Where natural turbidity is between 5 and 50 NTUs, increases shall not exceed 20 percent.*
- *Where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTUs.*
- *Where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent*."

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

p. **Total Dissolved Solids**. The total dissolved solids to exceed 1000 mg/L. This limitation is based on the secondary MCL. Since the Discharger is relying on assimilative capacity for TDS, a numeric TDS receiving water limit it required to ensure the water quality objective is not exceeded downstream of the discharge.

q. **Arsenic (total recoverable)**. **Effective 1 November 2011 or when the water level in Skyrocket Pit Lake drops below 955 feet amsl, whichever is sooner,** the total recoverable arsenic to exceed 10 µg/L. This limitation is based on the USEPA primary MCL. During the first 5-10 years of the discharge, arsenic is expected to be the critical constituent by which the required flow ratio is determined. A receiving water limitation is required to ensure the discharge is not causing the receiving water to exceed the water quality objective. The Order includes a time schedule to meet the limitations, because a lower dilution ratio is required to allow the lowering of Skyrocket Pit Lake in the first three years of the permit and there may be periods where there is insufficient dilution to meet the primary MCL for arsenic after dilution with the receiving water. However, based on the available data it appears that these occurrences will likely be limited. The potential short-term impacts caused by having higher discharge volumes in the initial 3-year period are negated by the more favorable long-term effects of lowering the groundwater levels in the vicinity of Skyrocket Pit Lake.

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

(See Attachment F, Section VI.E.1, ODS Spring Monitoring)

B. Effluent Monitoring

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

2. Effluent monitoring for 1,2-dibromo-3-chloropropane benzo(a)anthracene, benzo(a)pyrene, benzo(b)fuoranthene, benzo(k)fluoranthene, bis (2-ethylhexyl) phthalate, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene is required because the constituents were reported to be present in Skyrocket Pit Lake at levels exceeding the applicable water quality objectives. However, Regional Water Board has determined that the reported levels do not necessarily representative of effluent quality. Therefore, monitoring is required to assess whether these constituents have reasonable potential to exceed water quality objectives.

3. Several constituents are present in the ODS springs at levels that exceed both applicable water quality objectives and the levels reported in Skyrocket Pit Lake. This Order requires the Discharger to annually evaluate the impacts to water quality in Skyrocket Pit Lake resulting from transfers of ODS spring water. Therefore, monitoring for DO, EC, manganese, nickel, nitrate/nitrite as nitrogen, pH, selenium, sulfate, TDS, and total suspended solids (TSS) is required to evaluate water quality impacts on Skyrocket Pit Lake resulting from ODS spring water transfers.

C. Whole Effluent Toxicity Testing Requirements

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

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

D. Receiving Water Monitoring

1. Surface Water

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

b. Receiving water monitoring for aluminum is also included because all of the reported detection limits for aluminum are greater than or equal to the applicable water quality criteria.

c. Monitoring requirements for Monitoring Location RSW-001 have been retained from WDRs Order No. 5-01-040, as applied to Monitoring Location SWM-6 in that Order, with the exception of bicarbonate, carbonate, and oil and grease. The monitoring requirement for nitrate is replaced by a monitoring requirement for nitrate/nitrite as nitrogen so that it may be compared to monitoring results for the ODS springs and Skyrocket Pit Lake. These monitoring requirements have also been applied to Monitoring Location RSW-002.

2. Groundwater

a. This Order requires the Discharger to monitor the Overburden Disposal Sites (ODSs), as identified in Attachment E. This Order includes a regular schedule of monitoring of the ODSs in the attached Monitoring and Reporting Program in order to evaluate increased constituent concentrations in Skyrocket Pit Lake.

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

1. Reopener Provisions

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

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

c. **Flow Ratio**. The Discharger's model suggests that the 15:1 flow ratio, required by Discharge Prohibitions III.G., will not allow the level of Sky Rocket Pit Lake to remain below 960 amsl, which is the estimated level at which seepage into Littlejohns Creek ceases. Due to uncertainty in the background receiving water and effluent constituent concentrations after the lowering of Skyrocket Pit Lake, the required flow ratio required by Discharge Prohibitions III.G. has been conservatively established. Should the Discharger provide additional information that indicates a lower dilution ratio would be adequately protective of the beneficial uses of the receiving water, this Order may be reopened to modify the Discharge Prohibition.

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.) Based on quarterly whole effluent chronic toxicity testing performed by the Discharger on 7 February 2006 and 3 May 2006, the discharge has reasonable potential to cause or contribute to an to an in-stream excursion above of the Basin Plan's narrative toxicity objective.

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

Monitoring Trigger. A numeric toxicity monitoring trigger of > 8 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 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.

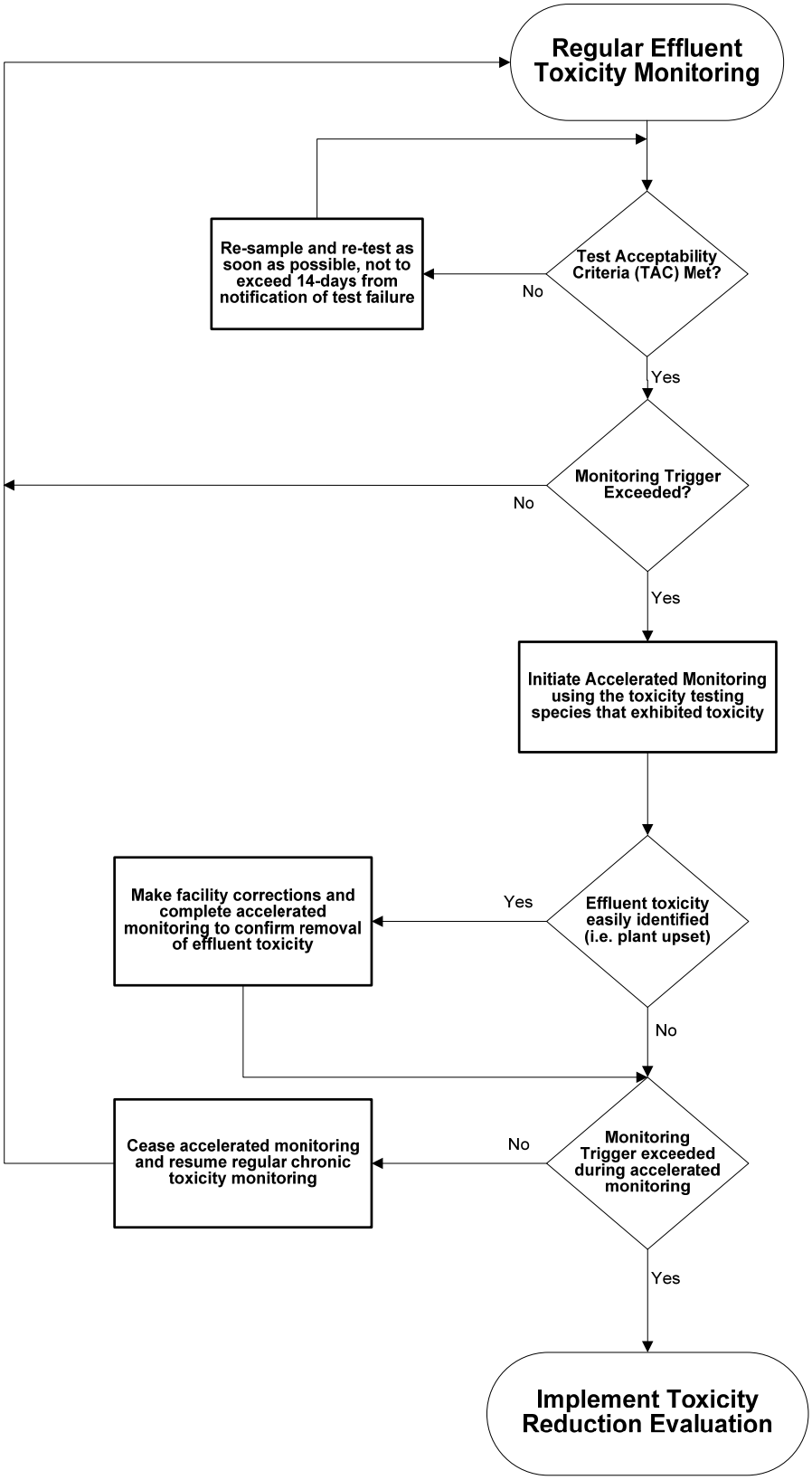
The provision requires accelerated monitoring consisting of four chronic toxicity tests every 2 weeks using the species that exhibited toxicity. Guidance regarding accelerated monitoring and TRE initiation is provided in the *Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001, 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.
- *Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity*, Second Edition, EPA 600/R-92/081, September 1993.
- *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, Fifth Edition, EPA-821-R-02-012, October 2002.
- *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, Fourth Edition, EPA-821-R-02-013, October 2002.
- *Technical Support Document for Water Quality-based Toxics Control,* EPA/505/2-90-001, March 1991.

Figure F-1
WET Accelerated Monitoring Flow Chart



b. **Skyrocket Pit Lake Water Level and Water Quality Assessment.** In order to track the Dischargers' progress towards meeting the long-term lake level objective (955 feet – 960 feet amsl), this Order requires the Discharger to report quarterly on the water level projections for Skyrocket Pit Lake. Each report should include an assessment of the Discharger's progress towards meeting the long-term lake level objective (955 feet – 960 feet amsl).

This report shall also include an evaluation of TDS and arsenic levels in Sky Rocket Pit Lake and in Littlejohns Creek at RSW-001 and RSW-002. The Discharger's modeling analysis has indicated that water quality is expected to improve in the creek, thereby providing potentially more dilution than is currently available. It is necessary to include the levels of TDS and arsenic in Littlejohns Creek in order to evaluate the effects of the lowering of Skyrocket Pit Lake on water quality in Littlejohns Creek. This Order includes a reopener provision to allow the permit to be reopened to lower or raise the required flow ratio, based on the changes in constituent concentrations in Sky Rocket Pit Lake and Littlejohns Creek as the level of Sky Rocket Pit Lake is lowered.

c. **Evaluation of ODS Water Transfers.** The Discharger submitted a report on 30 April 2007 titled *Evaluation of Data Collection and Spring Water Transfer*. The report concludes that to date the transfers of ODS spring water to Skyrocket Pit Lake have had no significant effects on the lake's water quality. Because the transfer of ODS spring was initiated in January 2006, the time frame available to asses the affects on water quality in Skyrocket Pit Lake is extremely short. Therefore, this Order requires the Discharger to continue reviewing monitoring data for Gold Knoll ODS, West ODS2, West ODS5, and Skyrocket Pit Lake and report on the effects of ODS spring water transfers on water quality in Skyrocket Pit Lake. The report should specifically address constituents that are present in greater concentrations in the ODS spring waters, and therefore, have the potential to worsen water quality in Skyrocket Pit Lake. The constituents evaluated shall include DO, EC, manganese, nickel, nitrate/nitrite as nitrogen, pH, selenium, sulfate, and TDS. With respect to DO and pH the concern is decreased levels as opposed to increased levels. The report is required to be submitted annually.

d. **Mixing Zone/Dilution Study.** Due to the requirement that the Discharger construct an outfall diffuser and the nature of the stream, it is reasonable to assume that the discharge is completely mixed, as defined in the SIP. However, prior to allowing a discharge to Littlejohns Creek, this Order requires the Discharger to conduct a Mixing Zone Study to verify that the discharge will be completely mixed. The Mixing Zone Study must be conducted when flows in Littlejohns Creek are near the minimum allowable flow allowed for a surface water discharge (i.e. 1,000 gpm). In the event the Mixing Zone Study indicates that the discharge is <u>not</u> completely mixed, the Discharger must perform a Dilution Study to determine the available dilution and the size and extent of the mixing zone. This Order may be reopened to modify the effluent limitations, as needed, based on the results of the Mixing Zone/Dilution Study. As part of a

settlement agreement between the Discharger and the California Sportfishing Protection Alliance (CSPA), the Discharger has agreed to provide the mixing zone/dilution study to CSPA for review and comment at least 20 days prior to submitting the study to the Regional Water Board.

3. Best Management Practices and Pollution Prevention

a. **Salinity Evaluation and Minimization Plan.** The Discharger shall prepare a salinity evaluation and minimization plan to address sources of salinity in its discharge to Littlejohns Creek.

b. **Surface Water Discharge Minimization Plan.** The Discharger shall prepare and implement a Surface Water Discharge Minimization Plan. The purpose of the Plan is for the Discharger to implement measures to reduce surface water discharges to Littlejohns Creek. The provision requires the Discharger to evaluate disposal alternatives to allow the level of Skyrocket Pit Lake to be lowered such that surface water discharges are minimized. The Discharger must evaluate disposal alternatives, such as evaporative measures, spray irrigation, etc.

c. **Updated Best Available Technology Economically Achievable Study.** The Discharger shall conduct an updated Best Available Technology Economically Achievable Study (BAT Study) applying the criteria set forth in the applicable federal regulations. The BAT Study shall review existing treatment technologies available to the Discharger, taking into account new developments in salinity and other pollutant control technologies. The Regional Water Board finds that the Discharger is currently meeting BAT. However, this study requirement is necessary to evaluate new and emerging salt reduction/removal technologies that may become available during the term of this Order. The Discharger shall submit the BAT Study **180 days prior to expiration of this Order.** As part of a settlement agreement between the Discharger and CSPA, the Discharger has agreed to provide the BAT study to CSPA for review and comment at least 30 days prior to submitting the study to the Regional Water Board.

4. Construction, Operation, and Maintenance Specifications

a. **Submittal of Design and Construction Plans for the Discharge.** The Discharger has not completed the final design or construction of the infrastructure needed to discharge under this Order. The Discharger has submitted some of the construction specifications (e.g., discharge pipe diameters, number and size of control valves, and a diagram of the proposed flow control system). However, the Discharger has not determined the final design of the diffuser it proposes to construct in Littlejohns Creek, nor has the Discharger provided estimates of the flow control set points that will be needed to meet its effluent limits. The Discharger shall submit final design and construction

plans for the discharge infrastructure and control equipment to the Regional Water Board for approval, prior to beginning construction.

5. **Special Provisions for Municipal Facilities (POTWs Only)**

   [NOT APPLICABLE]

6. **Other Special Provisions**

   [NOT APPLICABLE]

7. **Compliance Schedules**

   a. **Initiation of Surface Water Discharge.** This provision requires the Discharger to construct an outfall diffuser and conduct a Mixing Zone/Dilution Study prior to initiating the discharge to Littlejohns Creek.

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 the Royal Mountain King 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 publication of a notice of public hearing in the Union Democrat and the Calaveras Enterprise. In addition, the notice was mailed to interested persons and posted at the County courthouse, local post office, and at the entrance to the Facility.

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 were due at the Regional Water Board offices by 12:00 p.m. on **2 November 2007.**

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: 6 December 2007
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.

G. Additional Information

Requests for additional information or questions regarding this order should be directed to Jim Marshall at (916) 464-4772.

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

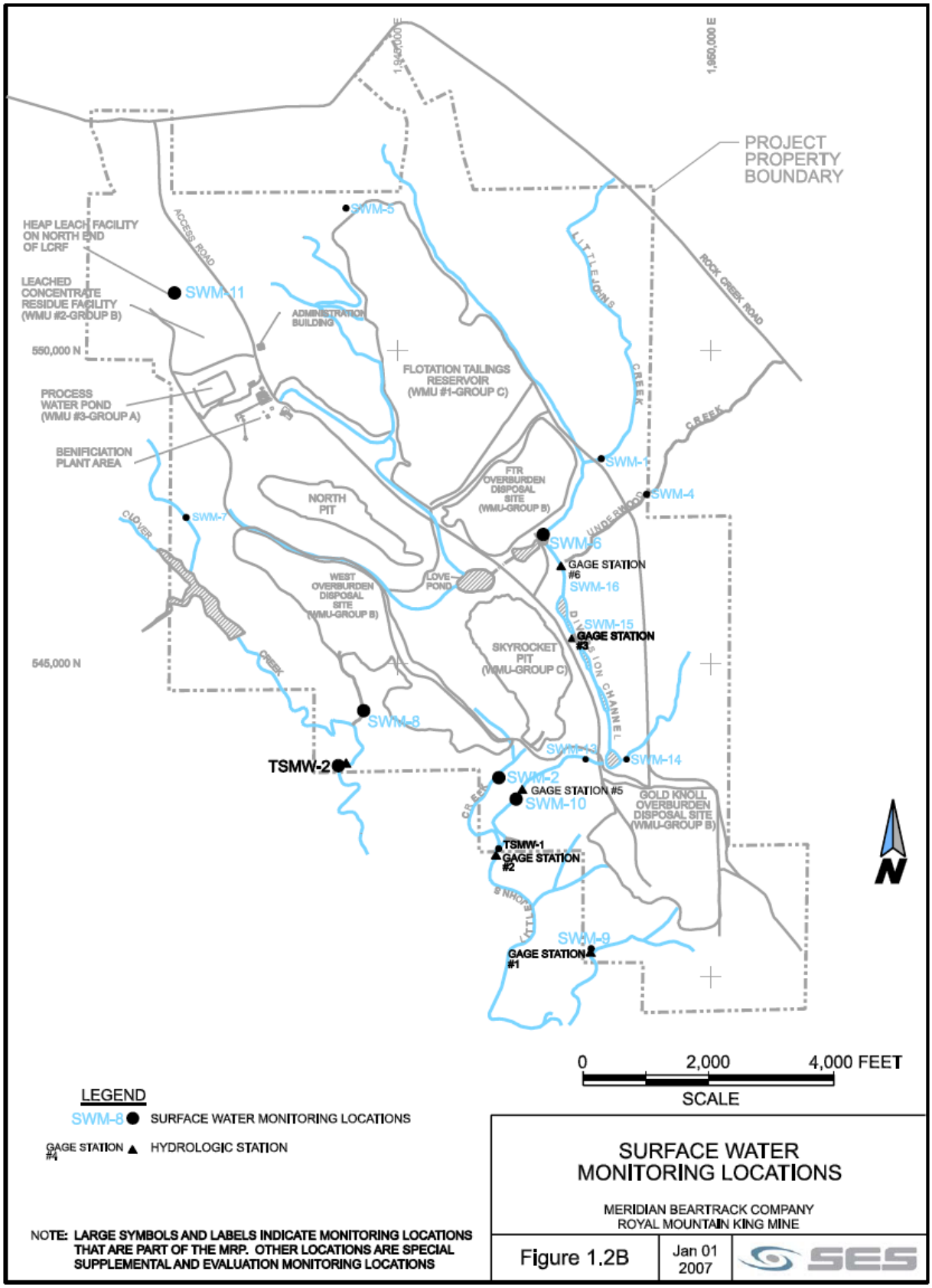
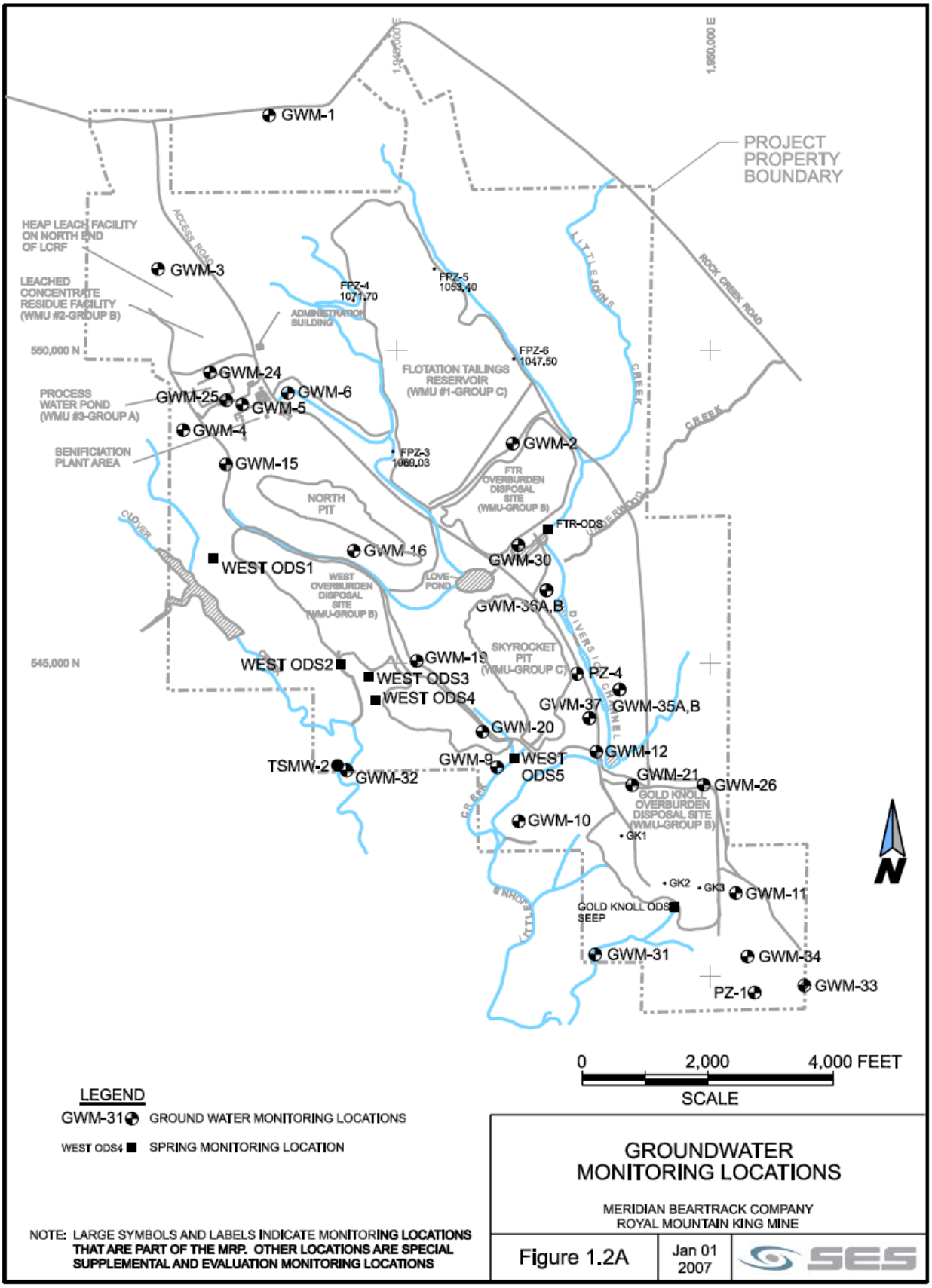
Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
1,2-Dibromo-3-chloropropane	µg/L	0.0034	0.0055	0.2	--	--	--	--	--	0.2	No
2,3,7,8 TCDD Equivalents	µg/L	$1.2x10^{-8}$	$9.7x10^{-9}$	$1.3x10^{-8}$	--	--	$1.3x10^{-8}$	$1.4x10^{-8}$	--		No
2,4-Dichlorophenoxyacetic acid (2,4-D)	µg/L	0.22	0.2	70	--	--	--	--	--	70	No
4,6-Dinitro-2-methylphenol	µg/L	1.5	<4.8(4)	13	--	--	13(3)	150(3)	--	--	No
Aluminum	µg/L	53	<500(4)	87	750(3)	87(3)	--	--	--	200(2)	Yes
Antimony	µg/L	15.2	0.6	6.0	--	--	14(1)	4300(1)	--	6.0	Yes
Arsenic	µg/L	105	1.4	10	340	150	--	--	--	10	Yes
Barium	µg/L	22	<40(4)	1,000	--	--	--	--	--	1,000	No
Benzo(a)anthracene	µg/L	1.6	<0.05(4)	0.0044	--	--	0.0044	0.049	--	0.1	Inconclusive(12)
Benzo(a)pyrene	µg/L	1.7	<0.05(4)	0.0044	--	--	0.0044	0.049	--	0.2	Inconclusive(12)
Benzo(b)fluoranthene	µg/L	1.9	<0.05(4)	0.0044	--	--	0.0044	0.049	--	--	Inconclusive(12)
Benzo(k)fluoranthene	µg/L	1.8	<0.05(4)	0.0044	--	--	0.0044	0.049	--	--	Inconclusive(12)
Bis(2-ethylhexyl) phthalate	µg/L	2.8	<4.8(4)	1.8	--	--	1.8(1)	5.9(1)	--	4.0	Inconclusive(12)
Butyl benzyl phthalate	µg/L	2.7	0.84	3.0	940(3)	3.0(3)	1,500(3)	5,200	--	--	No
Cadmium	µg/L	0.047	0.074	5.0	21	7.3	--	--	10(7)	5.0	No
Chloride	mg/L	390	21	106	860(3)	230(3)	--	--	106(7)	--	Yes
Chromium (total)	µg/L	51	3.5	50	--	--	--	--	--	50	Yes
Chromium (VI)	µg/L	ND	<5.0(4)	11	16	11	--	--	--	--	No
Chrysene	µg/L	1.5	<0.05(4)	0.0044	--	--	0.0044	0.049	--	--	Inconclusive(12)
Copper	µg/L	13	2.5	31	52	31	1,300	--	--	1,000	No
Dibenz(a,h) anthracene	µg/L	2.1	<0.1(4)	0.0044	--	--	0.0044	0.049	--	--	Inconclusive(12)
Di-n-butyl phthalate	µg/L	1.6	1.1	3.0	940(3)	3.0(3)	2,000(3)	12,000(1)	--	700(9)	No
Dissolved Oxygen(8)	mg/L	0.88	0.70	5.0	--	--	--	--	5.0	--	Yes
Electrical Conductivity	µmhos/ cm	3,700	460	700	--	--	--	--	700(7)	900(2)	Yes
Fluoranthene	µg/L	0.67	<0.05(4)	300	--	--	300	370	--	--	No
Fluoride	µg/L	640	<1,000(4)	1,000	--	--	1,000(10)	--	1,000(7)	2,000	No
Indeno(1,2,3-cd)pyrene	µg/L	2.2	<0.05(4)	0.0044	--	--	0.0044	0.049	--	--	Inconclusive(12)
Iron	µg/L	1,300	<300(4)	300	--	1,000(3)	--	--	--	300(2)	Yes
Lead	µg/L	1.1	0.22	2	440	17	2(10)	--	15	15	No
Manganese	µg/L	20	24	50	--	--	--	--	--	50(2)	No
Mercury	µg/L	0.00961	0.000129	0.05	--	--	0.05	0.051	200(7)	2.0	No
Nickel	µg/L	80	7.7	100	1500	170	610	4,600	200(7)	100	No
Nitrate as NO_3	µg/L	4,600	1,100	10,000	--	--	--	--	--	10,000	No

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Nitrate/Nitrite as N	µg/L	2,920	900	10,000	--	--	10,000(10)	--	--	10,000	No
Nitrite	µg/L	30	10	1,000	--	--	--	--	--	1,000	No
pH	s.u.	8.0 – 9	6.8 – 8.7	6.5 - 8.5	--	--	--	--	6.5 - 8.5	--	Yes
Pyrene	µg/L	0.72	<0.05(4)	960	--	--	960	11,000	--	--	No
Selenium	µg/L	12.1	0.76	5.0	--	5.0	--	--	20(7)	50	Yes
Silver, total recoverable	µg/L	0.24	<1(4)	36	36	--	--	--	--	100(2)	No
Sulfate	mg/L	1,300	92	250	--	--	500 (11)	--	--	250 (2)	Yes
Total Dissolved Solids	mg/L	2,740	350	450	--	--	--	--	450(7)	500(2)	Yes
Zinc, total recoverable	µg/L	1,400	51	390	390	390	--	--	--	5,000(2)	Yes

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

Footnotes:
(1) National Toxics Rule criteria
(2) Secondary MCL
(3) USEPA National Recommended Ambient Water Quality Standard
(4) All values were non-detect, concentrations were determined in accordance with the State Implementation Policy, Section 1.4.3
(5) This value has been converted from Basin Plan limit for the dissolved fraction in accordance with the State Implementation Policy, Section 1.4.1
(6) This value has been converted from the Basin Plan limit for the dissolved fraction using an estimated Conversion Factor of 1.
(7) Agriculture water quality goal (Ayers & Westcot)
(8) Criterion for dissolved oxygen is expressed as a minimum, therefore the data used are minimum effluent and background concentrations
(9) USEPA IRIS Reference Dose
(10) California Public Health Goal for Drinking Water
(11) USEPA Drinking Water Advisory
(12) See Attachment F, section IV.C.3.

ATTACHMENT H – SURFACE WATER MONITORING LOCATIONS



ATTACHMENT I – GROUNDWATER MONITORING LOCATIONS