

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

CENTRAL VALLEY REGION

11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114
Phone (916) 464-3291 • FAX (916) 464-4645
<http://www.waterboards.ca.gov/centralvalley>

ORDER NO. R5-2008-0008
NPDES NO. CA0084760

WASTE DISCHARGE REQUIREMENTS FOR THE KINDER MORGAN ENERGY PARTNERS, L.P., THROUGH ITS OPERATING PARTNERSHIP SFPP, L.P. FOX ROAD PETROLEUM RELEASE SITE, GROUNDWATER REMEDIATION SYSTEM, SOLANO COUNTY

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

Table 1. Discharger Information

Discharger	Kinder Morgan Energy Partners, L.P., Through Its Operating Partnership SFPP, L.P.
Name of Facility	Fox Road Petroleum Release Site Groundwater Remediation System
Facility Address	Fox Road, Elmira, CA 95620
	Solano County
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Quality Control Board have classified this discharge as a minor discharge.	

The discharge by the Kinder Morgan Energy Partners, L.P., Through Its Operating Partnership SFPP, L.P. 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	Treated Groundwater	38° 23' 45" N	121° 52' 30" W	Gibson Canyon Creek Flood Control Channel

Table 3. Administrative Information

This Order was adopted by the Regional Water Quality Control Board on:	25 January 2008
This Order shall become effective on:	15 March 2008
This Order shall expire on:	31 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IT IS HEREBY ORDERED, that Order No. 5-01-078 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act (CWA) and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on **25 January 2008**.

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	Kinder Morgan Energy Partners, L.P., Through Its Operating Partnership SFPP, L.P.
Name of Facility	Fox Road Petroleum Release Site Groundwater Remediation System
Facility Address	Fox Road
	Elmira, CA 95620
	Solano County
Facility Contact, Title, and Phone	Mark Sandon, Director of Environmental Affairs (714) 560-4867
Mailing Address	1100 Town and Country Road
	Orange, CA 92868
Type of Facility	Petroleum Pipeline
Facility Design Flow	150 gallons per minute (gpm) = 216,000 gallons per day (gpd)

II. FINDINGS

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

A. Background. Kinder Morgan Energy Partners, L.P., through its Operating Partnership SFPP, L.P. (formerly known as Santa Fe Pacific Pipeline Partners, L.P., hereinafter Discharger) is currently discharging pursuant to Order No. 5-01-078 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0084760. Order No. 5-01-078 authorized the discharge of up to a design flow of 216,000 gpd of treated groundwater from the Fox Road Petroleum Release Site Groundwater Remediation System, hereinafter Facility. The Discharger submitted a Report of Waste Discharge, dated 27 September 2005, and applied for a NPDES permit renewal to discharge up to 144,000 gpd of treated groundwater from the Facility. After discussions between the Regional Water Board and the Discharger, the Facility will continue operating at a design capacity of 216,000 gpd. The application was deemed complete.

B. Facility Description. The Discharger owns and operates a groundwater treatment facility to treat groundwater contaminated with petroleum hydrocarbons. The treatment system consists of four extraction trenches, 11 extraction wells, an oil-water separator, bag filters, thermal and catalytic oxidizers, an air stripper and granular activated carbon (GAC) vessels to remove the petroleum fuel constituents. The Discharger uses an anti-scaling or sequestering agent, an anti-foaming agent, sodium hypochlorite and sulfuric acid as amendments to facilitate treatment. Treated groundwater is discharged from Discharge Point No. 001 (see table on cover page) to Gibson Canyon Creek Flood Control Channel, a water of the United States and a tributary to the Sacramento – San Joaquin Delta via the Sweany Creek Channel, Ulatis Creek, and Cache Slough within

the Grassland Watershed. Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the Facility.

- C. Legal Authorities.** This Order is issued pursuant to section 402 of the 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 G are also incorporated into this Order.
- E. California Environmental Quality Act (CEQA).** Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA, Public Resources Code sections 21100-21177.
- F. Technology-based Effluent Limitations.** Section 301(b) of the CWA and implementing USEPA permit regulations at section 122.44, title 40 of the Code of Federal Regulations (40 CFR 122.44) require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Best Professional Judgment (BPJ) in accordance with 40 CFR 125.3. A detailed discussion of the technology-based effluent limitations development is included in the Fact Sheet (Attachment F).
- G. Water Quality-based Effluent Limitations.** Section 301(b) of the CWA and 40 CFR 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards.

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

information, as provided in 40 CFR 122.44(d)(1)(vi).

H. Water Quality Control Plans. The Regional Water Board adopted a *Water Quality Control Plan, Fourth Edition (Revised February 2007), for the Sacramento and San Joaquin River Basins* (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. The Basin Plan at page II-2.00 states that the “...beneficial uses of any specifically identified water body generally apply to its tributary streams.” The Basin Plan does not specifically identify beneficial uses for Gibson Canyon Creek Flood Control Channel, but does identify present and potential uses for the Sacramento – San Joaquin Delta, to which the Gibson Canyon Creek Flood Control Channel, via the Sweany Creek Channel, Ulatis Creek, and Cache Slough, is tributary. These beneficial uses are as follows: municipal and domestic supply; agricultural supply, including irrigation and stock watering; industrial service supply; industrial process 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 the Gibson Canyon Creek Flood Control Channel are as follows:

Table 5. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Gibson Canyon Creek Flood Control Channel	<u>Existing:</u> Municipal and domestic supply (MUN); agricultural supply, including irrigation and stock watering (AGR); industrial process supply (PRO); industrial service supply (IND); water contact recreation (REC-1); non-contact water recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); warm and cold migration of aquatic organisms (MIGR); warm spawning, reproduction, and/or early development (SPWN); wildlife habitat (WILD); and navigation (NAV).

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 USEPA policies and administrative decisions. See, e.g., *Whole Effluent Toxicity (WET) Control Policy*. The Regional Water Board, however, is not required to include a schedule of compliance, but may issue a Time Schedule Order pursuant to 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 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 (27 April 2000).) Under the revised regulation (also known as the Alaska rule), new and revised standards submitted to USEPA after 30 May 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by 30 May 2000 may be used for CWA purposes, whether or not approved by USEPA.
- M. Stringency of Requirements for Individual Pollutants.** This Order contains both technology-based effluent limitations and WQBELs for individual pollutants. The technology-based effluent limitations consist of restrictions on flow, ethylbenzene, toluene, methyl tert-butyl ether, t-amyl methyl ether, tertiary butyl alcohol, total petroleum hydrocarbons, and xylene. The WQBELs consist of restrictions on benzene, chlorine residual, dissolved oxygen, iron, manganese, nitrate, and pH. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements.

WQBELs have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant WQBELs were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR 131.38. The scientific procedures for calculating the individual WQBELs 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 131.21(c)(1). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the technology-based requirements of the CWA and the applicable water quality standards for purposes of the CWA.

- N. Antidegradation Policy.** 40 CFR 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 is consistent with the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the state and federal antidegradation policies. As discussed in detail in the Fact Sheet the permitted discharge is consistent with the antidegradation provision of 40 CFR 131.12 and State Water Board Resolution No. 68-16.
- O. Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at 40 CFR 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. Some effluent limitations in this Order are less stringent than those in the previous Order. As discussed in detail in the Fact Sheet this relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.
- P. Monitoring and Reporting.** 40 CFR 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 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 40 CFR 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR 122.42, are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under 40 CFR 122.42. The Regional Water Board has also included in this Order special provisions applicable to the Discharger. A rationale for the special provisions contained in this Order is provided in the attached Fact Sheet.
- 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 shall not cause degradation of any water supply.
- E. Surfacing or overflow of water outside the Gibson Canyon Creek Flood Control Channel is prohibited.

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
Flow	gpd	--	216,000	--	--
Dissolved Oxygen	mg/L	--	--	7.0	--
Total Residual Chlorine	mg/L	0.01	0.02	--	--
pH	standard units	--	--	6.5	8.5
Benzene	µg/L	--	0.35	--	--
Electrical Conductivity	µmhos/cm	1,408	--	--	--
Ethylbenzene	µg/L	--	0.5	--	--
Toluene	µg/L	--	0.5	--	--
Methyl Tert-Butyl Ether	µg/L	--	1.0	--	--

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Nitrate Nitrogen, Total (as N)	mg/L	10	--	--	--
T-Amyl Methyl Ether	µg/L	--	1.0	--	--
Tertiary Butyl Alcohol	µg/L	--	20	--	--
Total Petroleum Hydrocarbons (Diesel)	µg/L	--	50	--	--
Total Petroleum Hydrocarbons (Gasoline)	µg/L	--	50	--	--
Xylene	µg/L	--	0.5	--	--

b. **Total Recoverable Iron.** For a calendar year, the annual average total recoverable iron concentration in the effluent shall not exceed **300 µg/L**.

c. **Total Recoverable Manganese.** For a calendar year, the annual average total recoverable manganese concentration in the effluent shall not exceed **50 µg/L**.

2. Interim Effluent Limitations – Not Applicable

B. Land Discharge Specifications – Not Applicable

C. Reclamation Specifications – Not Applicable

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

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

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

4. Dissolved Oxygen:

- a. The monthly median of the mean daily dissolved oxygen concentration to fall below 85 percent of saturation in the main water mass;
- b. The 95 percentile dissolved oxygen concentration to fall below 75 percent of saturation; nor
- c. The dissolved oxygen concentration to be reduced below 7.0 mg/L at any time.

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

6. 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.

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

8. 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; nor
- g. Thiobencarb to be present in excess of 1.0 µg/L.

9. Salinity. The total dissolved solids to exceed 500 mg/L.

10. Radioactivity:

- a. Radionuclides to be present in concentrations that are harmful to human, plant, animal, or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life; nor
 - b. Radionuclides to be present in excess of the maximum contaminant levels specified in Table 4 (MCL Radioactivity) of Section 64443 of Title 22 of the California Code of Regulations.
11. **Suspended Sediments.** The suspended sediment load and suspended sediment discharge rate of surface waters to be altered in such a manner as to cause nuisance or adversely affect beneficial uses.
12. **Settleable Substances.** Substances to be present in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.
13. **Suspended Material.** Suspended material to be present in concentrations that cause nuisance or adversely affect beneficial uses.
14. **Taste and Odors.** Taste- or odor-producing substances to be present in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.
15. **Temperature.** The natural temperature to be increased by more than 5°F.
16. **Toxicity.** Toxic substances to be present, individually or in combination, in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.
17. **Turbidity.** The turbidity to increase as follows:
- a. More than 1 Nephelometric Turbidity Unit (NTU) where natural turbidity is between 0 and 5 NTUs.
 - b. More than 20 percent where natural turbidity is between 5 and 50 NTUs.
 - c. More than 10 NTU where natural turbidity is between 50 and 100 NTUs.
 - d. More than 10 percent where natural turbidity is greater than 100 NTUs.

B. Groundwater Limitations – Not Applicable

VI. PROVISIONS

A. Standard Provisions

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

The causes for modification include:

- *New regulations.* New regulations have been promulgated under Section 405(d) of the Clean Water Act, or the standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision after the permit was issued.
- *Land application plans.* When required by a permit condition to incorporate a land application plan for beneficial reuse of sewage sludge, to revise an existing land application plan, or to add a land application plan.
- *Change in sludge use or disposal practice.* Under 40 CFR 122.62(a)(1), a change in the Discharger's sludge use or disposal practice is a cause for modification of the permit. It is cause for revocation and reissuance if the Discharger requests or agrees.

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

- 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.

- I. 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 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 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, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if the State Water Board revises the SIP's toxicity control provisions that would require the establishment of numeric chronic toxicity effluent limitations, this Order may be reopened to include a numeric chronic toxicity effluent limitation based on the new provisions.
- d. **Mixing Zone Study.** Section 1.4.2.2 of the SIP requires the Discharger to submit receiving water mixing zone studies prior to allowing dilution credits for certain pollutants. Therefore, the Discharger may elect, as a means of compliance, to conduct a mixing zone study to evaluate any available assimilative capacity in the Gibson Canyon Creek Flood Control Channel. When requested, the Regional Water Board will review such studies and if warranted, may reopen this permit to make appropriate changes to the water quality-based effluent limitations.
- e. **Best Available Technology (BAT) Study.** The groundwater treatment system utilizes air stripping, activated carbon, and a catalytic and thermal oxidizer and is capable of dependably removing the groundwater contaminants to concentrations that are non-detectable by current analytical technology. Therefore, several effluent limitations have been developed based on Best Professional Judgment, in accordance with 40 CFR 125.3. If the Discharger conducts an acceptable Best Available Technology evaluation study that demonstrates that alternative effluent limitations are appropriate, this Order may be reopened to modify effluent limitations or other requirements.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

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

Work Plan and includes procedures for accelerated chronic toxicity monitoring and TRE initiation.

- i. **Toxicity Reduction Evaluation (TRE) Work Plan. Within 90 days of the effective date of this Order,** Within 90 days of the effective date of this Order, 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 guidance¹ and be of adequate detail to allow the Discharger to immediately initiate a TRE as required in this Provision.
- ii. **Accelerated Monitoring and TRE Initiation.** When the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity monitoring, and the testing meets all test acceptability criteria, the Discharger shall initiate accelerated monitoring as required in the Accelerated Monitoring Specifications. WET testing results exceeding the monitoring trigger during accelerated monitoring demonstrates a pattern of toxicity and requires the Discharger to initiate a TRE to address the effluent toxicity.
- iii. **Numeric Monitoring Trigger.** The numeric toxicity monitoring trigger is $> 1 \text{ TUc}$ (where $\text{TUc} = 100/\text{NOEC}$). The monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to begin accelerated monitoring and initiate a TRE.
- iv. **Accelerated Monitoring Specifications.** If the monitoring trigger is exceeded during regular chronic toxicity testing, within 14 days of notification by the laboratory of the test results, the Discharger shall initiate accelerated monitoring. Accelerated monitoring shall consist of four (4) chronic toxicity tests in a 6-week period (i.e. one test every 2 weeks) using the species that exhibited toxicity. The following protocol shall be used for accelerated monitoring and TRE initiation:
 - a) If the results of four (4) consecutive accelerated monitoring tests do not exceed the monitoring trigger, the Discharger may cease accelerated monitoring and resume regular chronic toxicity monitoring. However, notwithstanding the accelerated monitoring results, if there is adequate evidence of a pattern of effluent toxicity, the Executive Officer may require that the Discharger initiate a TRE.
 - b) If the source(s) of the toxicity is easily identified (i.e. temporary plant upset), the Discharger shall make necessary corrections to the facility and shall continue accelerated monitoring until four (4) consecutive accelerated tests do not exceed the monitoring trigger. Upon confirmation

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

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.

3. Best Management Practices and Pollution Prevention

- a. **Salinity Evaluation and Minimization Plan.** The Discharger shall prepare and implement a salinity evaluation and minimization plan to address sources of salinity and shall provide annual reports demonstrating reasonable progress in the reduction of salinity in its discharge to the Gibson Canyon Flood Control Channel. The plan shall be completed and submitted to the Regional Water Board **within 9 months of the effective date of this Order** for approval by the Executive Officer. The annual reports shall be submitted in accordance with the Monitoring and Reporting Program (Attachment E, Section X.D.).

4. Construction, Operation and Maintenance Specifications

- a. The Discharger shall operate the treatment system for maximum removal efficiencies of groundwater contaminants.
- b. The Discharger shall operate the groundwater extraction network to achieve maximum contaminant plume capture.
- c. **Chemical Use.** The Discharger uses the following chemicals during the groundwater treatment process for equipment maintenance:

Chem-Treat CL-4435 (Anti-Scaling/Sequestering Agent); and
Chem-Treat CL241 (Anti-Foaming Agent).

Chem-Treat CL-4435, which prevents the buildup of calcium carbonate and other inorganic compounds on the treatment system appliances, contains 1-hydroxy ethylidene-1,1-diphosphonic acid and polyacrylic acid copolymer which cannot be analyzed by direct methods.

Chem-Treat CL-241, which prevents foaming and allows the air stripper to operate at maximum efficiencies, contains dimethyl polysiloxane (i.e., silicone) which cannot be analyzed by direct methods.

The Discharger shall minimize the use of Chem-Treat CL-4435 and Chem-Treat CL-241. The Discharger is required to record the average weekly dosages of the compounds used, and their specific purposes.

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

6. Other Special Provisions

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

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

7. Compliance Schedules – Not Applicable

VII. COMPLIANCE DETERMINATION – 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(I). In general, an exceedance of a water quality objective in the Basin Plan constitutes “pollution”.

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

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

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

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

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

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

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

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

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

Effluent Concentration Allowance (ECA) is a value derived from the water quality criterion/objective, dilution credit, and ambient background concentration that is used, in conjunction with the coefficient of variation for the effluent monitoring data, to calculate a long-term average (LTA) discharge concentration. The ECA has the same meaning as waste load allocation (WLA) as used in 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 included, but are not limited to, the Sacramento-San Joaquin Delta, as defined in Water Code section 12220, Suisun Bay, Carquinez Strait downstream to the Carquinez Bridge, and appropriate areas of the Smith, Mad, Eel, Noyo, Russian, Klamath, San Diego, and Otay rivers. Estuaries do not include inland surface waters or ocean waters.

Inland Surface Waters 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:

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

where:

x is the observed value;

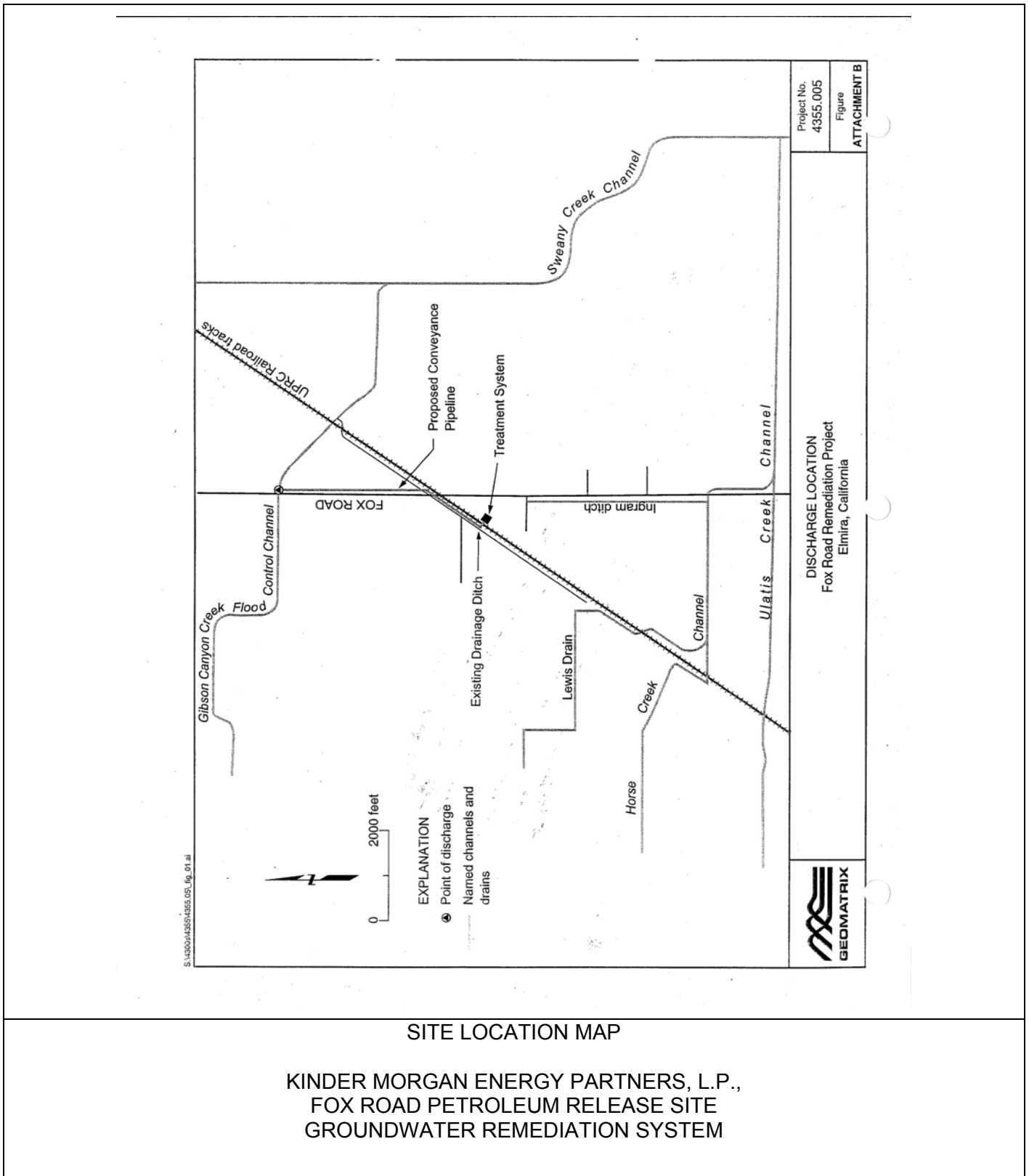
μ is the arithmetic mean of the observed values; and

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.)

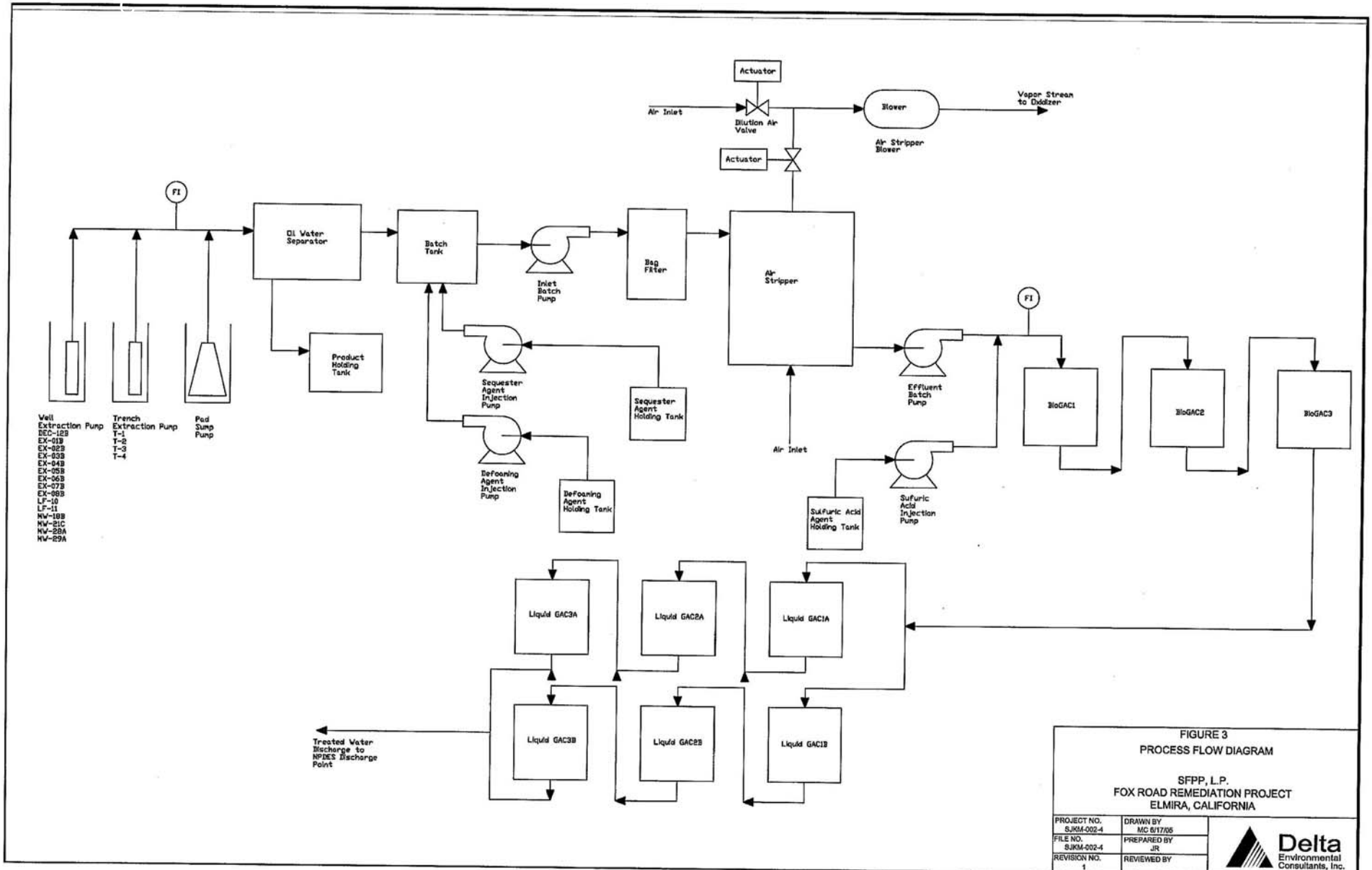
ATTACHMENT B – MAP



SITE LOCATION MAP

KINDER MORGAN ENERGY PARTNERS, L.P.,
 FOX ROAD PETROLEUM RELEASE SITE
 GROUNDWATER REMEDIATION SYSTEM

ATTACHMENT C – FLOW SCHEMATIC



**FIGURE 3
 PROCESS FLOW DIAGRAM**

SFPP, L.P.
 FOX ROAD REMEDIATION PROJECT
 ELMIRA, CALIFORNIA

PROJECT NO. SJKM-002-4	DRAWN BY MC 6/17/05
FILE NO. SJKM-002-4	PREPARED BY JR
REVISION NO. 1	REVIEWED BY

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) and 122.61.)

III. STANDARD PROVISIONS – MONITORING

- A.** Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 CFR 122.41(j)(1).)
- B.** Monitoring results must be conducted according to test procedures under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503 unless other test procedures have been specified in this Order. (40 CFR 122.41(j)(4) and 122.44(i)(1)(iv).)

IV. STANDARD PROVISIONS – RECORDS

- A.** Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least 5 years (or longer as required by 40 CFR Part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the 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 general partner or the proprietor, respectively. (40 CFR 122.22(a)(2).)
3. All reports required by this Order and other information requested by the Regional Water Board, State Water Board, or USEPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:
 - a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 CFR 122.22(b)(1));
 - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 CFR 122.22(b)(2)); and
 - c. The written authorization is submitted to the Regional Water Board and State Water Board. (40 CFR 122.22(b)(3).)
4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard

Provisions – Reporting V.B.3 above must be submitted to the Regional Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 CFR 122.22(c).)

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

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

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 CFR 122.22(l)(4).)
2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 CFR 122.41(l)(4)(i).)
3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Water Board. (40 CFR 122.41(l)(4)(ii).)
4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 CFR 122.41(l)(4)(iii).)

D. Compliance Schedules

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

E. Twenty-Four Hour Reporting

1. The Discharger shall 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 40 CFR 122.29(b) (40 CFR 122.41(l)(1)(i)); or
2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (40 CFR 122.41(l)(1)(ii).); or
3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 CFR 122.41(l)(1)(iii).)

G. Anticipated Noncompliance

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

H. Other Noncompliance

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

I. Other Information

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

VI. STANDARD PROVISIONS – ENFORCEMENT

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

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Non-Municipal Facilities

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

1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 CFR 122.42(a)(1)):
 - a. 100 micrograms per liter ($\mu\text{g/L}$) (40 CFR 122.42(a)(1)(i));
 - b. 200 $\mu\text{g/L}$ for acrolein and acrylonitrile; 500 $\mu\text{g/L}$ for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and 1 milligram per liter (mg/L) for antimony (40 CFR 122.42(a)(1)(ii));
 - c. Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 CFR 122.42(a)(1)(iii)); or
 - d. The level established by the Regional Water Board in accordance with 40 CFR 122.44(f). (40 CFR 122.42(a)(1)(iv).)

2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 CFR 122.42(a)(2)):
 - a. 500 micrograms per liter ($\mu\text{g/L}$) (40 CFR 122.42(a)(2)(i));
 - b. 1 milligram per liter (mg/L) for antimony (40 CFR 122.42(a)(2)(ii));
 - c. Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 CFR 122.42(a)(2)(iii)); or
 - d. The level established by the Regional Water Board in accordance with 40 CFR 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)

40 CFR 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 Name	Monitoring Location Description (include Latitude and Longitude when available)
--	INF-001	Shall be located at the influent piping before the groundwater enters the treatment process
001	EFF-001	Shall be located at the sampling port after the GAC vessels and prior to discharge into Gibson Canyon Creek Flood Control Channel (Latitude 38° 23' 45" N, Longitude 121° 52' 30" W)
--	RSW-001	Shall be located within 50 feet upstream from Discharge Point No. 001
--	RSW-002	Shall be located within 50 feet downstream from Discharge Point No. 001

III. INFLUENT MONITORING REQUIREMENTS

A. Monitoring Location INF-001

1. The Discharger shall monitor influent groundwater at INF-001 as follows:

Table E-2. Influent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	gpd	Meter	Continuous	¹
Benzene	µg/L	Grab	1/Month	¹
Ethylbenzene	µg/L	Grab	1/Month	¹
Toluene	µg/L	Grab	1/Month	¹
Chloride	µg/L	Grab	1/Month	¹
Electrical Conductivity @ 25 Deg. C	µmhos/cm	Grab	1/Month	¹
Methyl Tert-Butyl Ether	µg/L	Grab	1/Month	¹
Sulfate	µg/L	Grab	1/Month	¹
T-Amyl Methyl Ether	µg/L	Grab	1/Month	¹
Tertiary Butyl Alcohol	µg/L	Grab	1/Month	¹
Total Dissolved Solids	mg/L	Grab	1/Month	¹
Total Petroleum Hydrocarbons (Diesel)	µg/L	Grab	1/Month	¹
Total Petroleum Hydrocarbons (Gasoline)	µg/L	Grab	1/Month	¹
Xylene	µg/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.

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

1. The Discharger shall monitor treated groundwater 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-3. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	gpd	Meter	Continuous	1
pH	standard units	Grab	1/Month	1
Benzene	µg/L	Grab	1/Month	1
Ethylbenzene	µg/L	Grab	1/Month	1
Toluene	µg/L	Grab	1/Month	1
Chloride	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
Methyl Tert-Butyl Ether	µg/L	Grab	1/Month	1
Nitrate Nitrogen, Total (as N)	µg/L	Grab	1/Month	1
Sulfate	µg/L	Grab	1/Month	1
T-Amyl Methyl Ether	µg/L	Grab	1/Month	1
Tertiary Butyl Alcohol	µg/L	Grab	1/Month	1
Temperature	°F	Grab	1/Month	1
Total Dissolved Solids	mg/L	Grab	1/Month	1
Total Petroleum Hydrocarbons (Gasoline)	µg/L	Grab	1/Month	1
Total Petroleum Hydrocarbons (Diesel)	µg/L	Grab	1/Month	1
Total Volume of Water Treated	gallons	Calculated	1/Month	1
Total Residual Chlorine	mg/L	Grab	1/Day ⁵	
Xylene	µg/L	Grab	1/Month	1
Aluminum, Total Recoverable ³	µg/L	Grab	1/Quarter	1
Iron, Total Recoverable	µg/L	Grab	1/Quarter	1
Manganese, Total Recoverable	µg/L	Grab	1/Quarter	1
Persistent Chlorinated Hydrocarbon Pesticides ⁴	µg/L	Grab	1/Quarter	1
Priority Pollutants	µg/L	Grab	²	1

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
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- 1 For priority pollutant constituents with effluent limitations, detection limits shall be below the effluent limitations. If the lowest minimum level (ML) published in Appendix 4 of the SIP is not below the effluent limitation, the detection limit shall be the lowest ML. For priority pollutant constituents without effluent limitations, the detection limits shall be equal to or less than the lowest ML published in Appendix 4 of the SIP.
- 2 Priority pollutants shall be sampled quarterly during the third year following the date of permit adoption and shall be conducted concurrently with upstream receiving water monitoring for hardness (as CaCO₃) and pH.
- 3 It is acceptable to use analytical analysis using either total or acid-soluble (inductively coupled plasma/atomic emission spectrometry or inductively coupled plasma/mass spectrometry) analysis methods, as supported by USEPA's *Ambient Water Quality Criteria for Aluminum* document (EPA 440/5-86-008), or other standard methods that exclude aluminum silicate particles as approved by the Executive Officer.
- 4 Persistent chlorinated hydrocarbon pesticides include: aldrin, dieldrin, chlordane, endrin, endrin aldehyde, heptachlor, heptachlor epoxide, hexachlorocyclohexane (alpha-BHC, beta-BHC, delta-BHC, and gamma-BHC or lindane), endosulfan (alpha and beta), endosulfan sulfate, toxaphene, 4,4'DDD, 4,4'DDE, and 4,4'DDT.
- 5 Total residual chlorine monitoring only required when chlorine used at the Facility. The Discharger shall note in the Self-Monitoring Reports whether there has been any chlorine use at the Facility.

2. If the discharge is intermittent rather than continuous, then on the first day of each such intermittent discharge, the Discharger shall monitor and record data for all of the constituents listed above, except for priority pollutants, after which the frequencies of analysis given in the schedule shall apply for the duration of each such intermittent discharge. In no event shall the Discharger be required to monitor and record data more often than twice the frequencies listed in the schedule.

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 quarterly acute toxicity testing.
 2. Sample Types – For static non-renewal and static renewal testing, the samples shall be grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent monitoring location EFF-001.
 3. Test Species – Test species shall be fathead minnows (*Pimephales promelas*).
 4. Methods – The acute toxicity testing samples shall be analyzed using EPA-821-R-02-012, Fifth Edition. Temperature, ammonia, 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.
2. Sample Types – Effluent samples shall be 8-hour composite samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent monitoring location specified in the Monitoring and Reporting Program. The receiving water control shall be a grab sample obtained from the RSW-001 sampling location, as identified in the Monitoring and Reporting Program.
3. Sample Volumes – Adequate sample volumes shall be collected to provide renewal water to complete the test in the event that the discharge is intermittent.
4. Test Species – Chronic toxicity testing measures sublethal (e.g., reduced growth, reproduction) and/or lethal effects to test organisms exposed to an effluent compared to that of the control organisms. The Discharger shall conduct chronic toxicity tests with:
 - The cladoceran, water flea, *Ceriodaphnia dubia* (survival and reproduction test);
 - The fathead minnow, *Pimephales promelas* (larval survival and growth test); and
 - The green alga, *Selenastrum capricornutum* (growth test).
5. Methods – The presence of chronic toxicity shall be estimated as specified in *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition, EPA/821-R-02-013, October 2002.*
6. Reference Toxicant – As required by the SIP, all chronic toxicity tests shall be conducted with concurrent testing with a reference toxicant and shall be reported with the chronic toxicity test results.
7. Dilutions – The chronic toxicity testing shall be performed using the dilution series identified in Table E-4, 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-4. Chronic Toxicity Testing Dilution Series

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

- C. **WET Testing Notification Requirements.** The Discharger shall notify the Regional Water Board within 24-hrs after the receipt of test results exceeding the monitoring trigger during regular or accelerated monitoring, or an exceedance of the acute toxicity effluent limitation.
- D. **WET Testing Reporting Requirements.** All toxicity test reports shall include the contracting laboratory’s complete report provided to the Discharger and shall be in accordance with the appropriate “Report Preparation and Test Review” sections of the method manuals. At a minimum, whole effluent toxicity monitoring shall be reported as follows:
 1. **Chronic WET Reporting.** Regular chronic toxicity monitoring results shall be reported to the Regional Water Board within 30 days following completion of the test, and shall contain, at minimum:
 - a. The results expressed in TUC, measured as 100/NOEC, and also measured as 100/LC₅₀, 100/EC₂₅, 100/IC₂₅, and 100/IC₅₀, as appropriate.
 - b. The statistical methods used to calculate endpoints;
 - c. The statistical output page, which includes the calculation of the percent minimum significant difference (PMSD);
 - d. The dates of sample collection and initiation of each toxicity test; and
 - e. The results compared to the numeric toxicity monitoring trigger.

Additionally, the monthly discharger self-monitoring reports shall contain an updated chronology of chronic toxicity test results expressed in TUC, and organized by test

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

2. **Acute WET Reporting.** Acute toxicity test results shall be submitted with the 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:
 - a. Results of the applicable reference toxicant data with the statistical output page giving the species, NOEC, LOEC, type of toxicant, dilution water used, concentrations used, PMSD, and dates tested.
 - b. The reference toxicant control charts for each endpoint, which include summaries of reference toxicant tests performed by the contracting laboratory.
 - c. Any information on deviations or problems encountered and how they were dealt with.

VI. LAND DISCHARGE MONITORING REQUIREMENTS – NOT APPLICABLE

VII. RECLAMATION MONITORING REQUIREMENTS – NOT APPLICABLE

VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER AND GROUNDWATER

A. Monitoring Location RSW-001 and RSW-002

1. The Discharger shall monitor Gibson Canyon Creek Flood Control Channel at RSW-001 and RSW-002 as follows:

Table E-5. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow ¹	gpd	²	1/Month	³
pH	standard units	Grab	1/Month	³
Dissolved Oxygen	mg/L	Grab	1/Month	³
Electrical Conductivity @ 25 Deg. C	µmhos/cm	Grab	1/Month	³
Temperature	°F	Grab	1/Month	³
Turbidity	NTU	Grab	1/Month	³
Total Dissolved Solids (TDS)	mg/L	Grab	1/Quarter	³

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Aluminum, Total Recoverable ¹	µg/L	Grab	1/Quarter	3
Hardness (as CaCO ₃) ¹	mg/L	Grab	4	3
Priority Pollutants ¹	µg/L	Grab	4	3

¹ Monitoring only required at Monitoring Location RSW-001.

² The flow of Gibson Canyon Creek Flood Control Channel may be estimated using simple field measurements. The estimated flow rate is based on the vertical distance from the water surface in the channel to a surveyed measuring point on the bridge that crosses Gibson Canyon Creek Flood Control Channel. The portion of the Channel where this measurement is made has previously been assessed for size and shape.

³ 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.

⁴ Shall be sampled quarterly during the third year following the date of permit adoption and shall be conducted concurrently with upstream receiving water monitoring for hardness (as CaCO₃) and pH.

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

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

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

B. Groundwater Monitoring – Not Applicable

IX. OTHER MONITORING REQUIREMENTS

A. Treatment Chemical Monitoring

The Discharger uses the following chemicals during the groundwater treatment process for equipment maintenance:

1. Chem-Treat CL-4435 (Anti-Scaling/Sequestering Agent); and
2. Chem-Treat CL241 (Anti-Foaming Agent).

The Discharger is required to minimize the use of Chem-Treat CL-4435 and Chem-Treat CL-241. The Discharger is required to record the average weekly dosages of the compounds used, and their specific purposes.

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.
2. Upon written request of the Regional Water Board, the Discharger shall submit a summary monitoring report. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year(s).
3. **Compliance Time Schedules.** For compliance time schedules included in the Order, the Discharger shall submit to the Regional Water Board, on or before each compliance due date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Water Board by letter when it returns to compliance with the compliance time schedule.
4. The Discharger shall report to the Regional Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act" of 1986.
5. **Reporting Protocols.** The Discharger shall report with each sample result the applicable Reporting Level (RL) and the current Method Detection Limit (MDL), as determined by the procedure in Part 136.

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 (\pm 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. Quarterly and annual Self Monitoring Reports shall be submitted to the Regional Water Board in accordance with Table E-6, below.
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-6. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period	SMR Due Date
Continuous	Permit effective date	All	1 May 1 August 1 November 1 February
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	First day of calendar month through last day of calendar month	1 May 1 August 1 November 1 February
1/quarter	Closest of 1 January, 1 April, 1 July, or 1 October following (or on) permit effective date	1 January through 31 March 1 April through 30 June 1 July through 30 September 1 October through 31 December	1 May 1 August 1 November 1 February
1/year	1 January following (or on) permit effective date	1 January through 31 December	1 February

C. Discharge Monitoring Reports (DMRs) – Not Applicable

D. Other Reports

1. **Progress Reports.** As specified in the compliance time schedules required in Special Provisions VI, progress reports shall be submitted in accordance with the following reporting requirements. At minimum, the progress reports shall include a discussion of the status of final compliance, whether the Discharger is on schedule to meet the final compliance date, and the remaining tasks to meet the final compliance date.

Table E-7. Reporting Requirements for Special Provisions Progress Reports

Special Provision	Reporting Requirements
Salinity Source Control Program Annual Progress Report (Section VI.C.3.a)	1 March, annually

2. Within **60 days** of permit adoption, the Discharger shall submit a report outlining minimum levels, method detection limits, and analytical methods for approval, with a goal to achieve detection levels below applicable water quality criteria. At a minimum, the Discharger shall comply with the monitoring requirements for CTR constituents as outlined in Section 2.3 and 2.4 of the *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.
3. When submitting quarterly monitoring reports, the following information must be included:
 - a. A narrative description of the conditions of the Gibson Canyon Creek Flood Control Channel. Attached field logs shall support the narrative.
 - b. A current area map showing relevant street names and neighboring land use with ¼ mile of the release area.
 - c. The effectiveness of the remediation system, including cumulative information on the mass of contaminant removed from the subsurface, the quarterly and cumulative total water extracted, treated and disposed, and any field notes pertaining to the operation and maintenance of the system.
 - d. If applicable, the reasons for and duration of all interruptions in the operation of the groundwater treatment system, and actions planned or taken to correct and prevent interruptions.
4. When submitting the Annual Report, the following information must be included and may be submitted with the 4th Quarter Monitoring Report:

- a. A description of the groundwater treatment system, including the amendments used to facilitate treatment, and an analysis of the effectiveness of the treatment system in removing the contaminants, cumulative information on the mass of contaminant removed from the subsurface, and the quarterly and cumulative total water volume extracted, treated, and disposed. The reports shall also include recommendations for treatment system modifications. Modifications to the treatment process may require a revised Report of Waste Discharge.
 - b. An identification of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program.
 - c. The names and telephone numbers of persons to contact regarding the plant for emergency and routine situations.
5. The Discharger uses Chem-Treat CL-4435, which prevents the buildup of calcium carbonate and other inorganic compounds on the treatment system appliances, and Chem-Treat CL-241, which prevents foaming and allows the air stripper to operate at maximum efficiencies.

In the event that the Discharger changes treatment chemicals, the Discharger is required to notify the Board of any change in chemical use, and must provide Material Safety Data Sheets (MSDSs) for chemicals used at the treatment facility within 30 days of the change in chemical use.

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	5A48NP00004
Discharger	Kinder Morgan Energy Partners, L.P., Through Its Operating Partnership SFPP, L.P.
Name of Facility	Fox Road Petroleum Release Site Groundwater Remediation System
Facility Address	Fox Road
	Elmira, CA 95620
	Solano County
Facility Contact, Title and Phone	Mark Sandon, Director of Environmental Affairs (714) 560-4867
Authorized Person to Sign and Submit Reports	Mark Sandon, Director of Environmental Affairs (714) 560-4867
Mailing Address	1100 Town and Country Road
	Orange, CA 92868
Billing Address	Same as mailing address
Type of Facility	Petroleum Pipeline
Major or Minor Facility	Minor
Threat to Water Quality	3
Complexity	B
Pretreatment Program	N
Reclamation Requirements	Not Applicable
Facility Permitted Flow	150 gallons per minute (gpm) or 216,000 gallons per day (gpd)
Facility Design Flow	150 gpm or 216,000 gpd
Watershed	Grassland Watershed
Receiving Water	Gibson Canyon Creek Flood Control Channel
Receiving Water Type	Inland Surface Water

- A.** Kinder Morgan Energy Partners, L.P., Through Its Operating Partnership SFPP, L.P. (hereinafter Discharger) is the owner and operator of the Fox Road Petroleum Release Site Groundwater Remediation System (hereinafter Facility), a petroleum pipeline.

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 treated groundwater to the Gibson Canyon Creek Flood Control Channel, a water of the United States, and is currently regulated by Order No. 5-01-078 which was adopted on 27 April 2001 and expired on 1 April 2006. The terms and conditions of the current Order have been automatically continued and remain in effect until new Waste Discharge Requirements and NPDES permit are adopted pursuant to this Order.
- C.** The Discharger filed a report of waste discharge and submitted an application for renewal of its Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit on 27 September 2005. A site visit was conducted on 7 December 2005 to observe operations and collect additional data to develop permit limitations and conditions.

II. FACILITY DESCRIPTION

The Discharger owns a former underground petroleum pipeline system that distributed fuel products from Concord to Sacramento, California, and then on to Rockland and Reno, Nevada. The 14-inch diameter underground petroleum pipeline was taken out of service on 13 December 2004. The out of service underground petroleum pipeline lies within the Union Pacific Railroad right-of-way, and crosses Fox Road near the City of Dixon in Solano County. The pipeline is buried about 5 feet below ground surface (bgs). In November 1993, the Discharger discovered that a section of pipeline near the Fox Road railroad crossing was leaking its contents. The resulting groundwater contamination plume, treatment system, and disposal area are at the southwest corner of Fox Road and the railroad crossing, which is about 4 miles northeast of Elmira and about 4 miles southwest of Dixon, as shown on Attachment B, which is by reference a part of this Order.

Margaret Fox Ingram owns the property at Fox Road, Elmira, California 95620 on which the Facility is located. The surface water discharge from the Facility consists of treated groundwater only. The treatment system is designed to treat flows up to 216,000 gpd. Currently, the system is treating flows up to 108,000 gpd. The treated groundwater is discharged into Gibson Canyon Creek Flood Control Channel via a 1.5 mile long underground water conveyance line.

A. Description of Wastewater and Biosolids Treatment or Controls

The extraction and treatment system is part of the Discharger’s remediation of refined petroleum hydrocarbons from the release in 1993. Extracted groundwater is pumped from the extraction trenches and wells to a treatment system at the site. The groundwater extraction and treatment system is designed to treat the influent liquid for

dissolved hydrocarbons and fuel oxygenate constituents including benzene, toluene, ethylbenzene, and xylene (collectively referred to as BTEX) and fuel oxygenates, including methyl tert-butyl ether, t-amyl methyl ether, and tertiary butyl alcohol.

The treatment system at the Facility consists of four extraction trenches, 11 extraction wells, and an oil-water separator, a transfer tank, bag filters, an air stripper, and nine liquid phase granular activated carbon (GAC) vessels to remove the petroleum fuel constituents. In addition, a catalytic oxidizer unit is used to treat air stripper off gas [i.e., soil vapor extraction (SVE) system]. The catalytic oxidizer is operated under a Yolo-Solano Air Quality Management District permit.

The following chemicals may be used as amendments to facilitate treatment:

1. Sodium hypochlorite (chlorine) is periodically manually added to minimize biological fouling by iron-oxidizing bacteria. According to the Discharger, chlorine has not been used at the treatment facility since 2004.
2. Sulfuric acid is injected manually to regulate pH when necessary at a rate of 0.25 to 1 gpd.
3. Anti-scaling or sequestering agent, Chem Treat CL-4435 is added by the Discharger by an injection-metering pump at a flow rate of 1 to 2 gpd to prevent the buildup of calcium carbonate and other inorganic compounds on treatment system appliances.
4. Defoaming agents, Chem-Treat CL-241 is added by an injection-metering pump at a flow rate of 0.25 to 75 gpd to reduce foaming and to increase the efficiencies in the air stripper.
5. Sulfuric acid is injected manually to regulate pH when necessary at a rate of 0.26 to 1 gpd as a final pH adjustment prior to discharge.

The groundwater is pumped from the extraction wells and extraction trenches and enters a triple weir oil-water separator; a flow equalization or storage tank is not in place prior to the treatment process. The water from the oil-water separator is then collected in a 500 gallon transfer tank prior to entering a 6-bag micron filter. A sequestering agent and a defoamer are added prior to entering the 6-bag micron filter. The addition of chlorine may also be used to prevent bacterial growth throughout the treatment system, but primarily on the GAC vessels.

From the bag filter, the groundwater enters a catalytic oxidizer with an air to water heat exchanger in order to raise the temperature of the groundwater prior to entering the air stripper; the increase in temperature allows for an increase in mass removal efficiency of the air stripper. After the air stripper, groundwater is then directed to the GAC vessels. Effluent samples are collected from the sampling port located on the line leaving the GAC vessels, but before the effluent is discharged via an underground water conveyance line that runs approximately 1.5 miles before entering the Gibson Canyon

Creek Flood Control Channel. The treated groundwater receives aeration at Discharge Point No. 001 into the receiving water through a cascading waterfall.

A sample port is located between the air stripper and the GAC vessels to evaluate performance of the air stripper. Water samples are also collected periodically from a sampling port located between the GAC vessels to evaluate breakthrough in the vessels.

B. Discharge Points and Receiving Waters

1. The Facility is located in Section 8, T6N, R1E, MDB&M, as shown in Attachment B (Figure B-1), a part of this Order.
2. Treated groundwater is discharged at Discharge Point No. 001 to Gibson Canyon Creek Flood Control Channel, a water of the United States and a tributary to the Sacramento – San Joaquin Delta via Sweany Creek Channel, Ulati Creek, and Cache Slough at a point Latitude 38° 23' 45" N and longitude 121° 52' 30" W.
3. The outfall is not equipped with a diffuser. Treated groundwater is discharged from a pipe which extends approximately 10 feet into the Gibson Canyon Creek Flood Control Channel. Treated groundwater is aerated at Discharge Point No. 001 when it cascades from the discharge pipe and falls into the flood control channel.

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

1. Effluent limitations contained in Order No. 5-01-078 for discharges from Discharge Point No. 001 (Monitoring Location EFF-001) and representative monitoring data from the permit term are as follows:

Table F-2. Historic Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitation			Monitoring Data (From 20 August 2003 – To 21 September 2005)		
		30-Day Median ¹	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
<i>Conventional Pollutants</i>							
pH	standard units	--	--	6.5 – 8.5	--	--	9.4
<i>Priority Pollutants</i>							
Benzene	µg/L	<0.5	--	0.35	--	--	ND
Ethylbenzene	µg/L	<0.5	--	29	--	--	ND
Toluene	µg/L	<0.5	--	42	--	--	ND
<i>Non-Conventional Pollutants</i>							
Acute Toxicity	% Survival	--	--	2	--	--	--
Chlorine, Total Residual	mg/L	0.01	--	0.02	--	--	ND

Parameter	Units	Effluent Limitation			Monitoring Data (From 20 August 2003 – To 21 September 2005)			
		30-Day Median ¹	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge	
Dissolved Oxygen	mg/L	--	--	>7.0 ³	--	--	3.3 ⁴	
Flow	gpd	--	--	216,000	--	--	98,064 ⁵	
Fuel Oxygenates	Methyl Tertiary Butyl Ether (MTBE)	µg/L	<5.0	--	5.0	--	--	ND
	Tertiary Butyl Alcohol (TBA)	µg/L	140	--	200	--	--	51
	T-Amyl Methyl Ether (TAME)	µg/L	<5.0	--	5.0	--	--	ND
Sulfate	mg/L	400	--	500	--	--	410	
Total Dissolved Solids (TDS)	mg/L	--	--	1,500	--	--	750	
Total Petroleum Hydrocarbons	Gasoline Range	µg/L	<50	--	100	--	--	ND
	Diesel Range	µg/L	<50	--	100	--	--	ND
Xylene	µg/L	<1.0	--	17	--	--	ND	

ND = Not Detected

¹ Order No. 5-01-078 does not include average monthly effluent limitations.

² Average 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.

³ The Discharger shall not have a dissolved oxygen concentration in the effluent of less than 7.0 mg/L.

⁴ The lowest reported dissolved oxygen concentration in the effluent was recorded in a letter submitted to the Regional Water Board on 16 April 2001. In this correspondence, the dissolved oxygen concentration was recorded on 12 April 2001 at 2.31 mg/L. Laboratory data to support this value was not provided. Therefore, the lowest measured value from quarterly or annual reports, with supporting laboratory data, was included in the table above.

⁵ The Discharger reported the flow as 68.1 gpm during the 29 April 2005 sampling event. This flow value was converted to gpd.

2. The Report of Waste Discharge describes the discharge from Discharge Point No. 001 as follows:

Design Flow (dry or wet weather):	0.22	million gallons per day (mgd)
Annual Average Daily Flow Rate:	Not Provided	mgd
Maximum Daily Flow Rate:	Not Provided	mgd
Monthly Average Flow Rate:	0.072	mgd
Average Temperature, Summer:	67	°F

Average Temperature, Winter: 63 °F

3. The Discharger adds an anti-scaling or sequestering agent and an anti-foaming agent (e.g., sodium hypochlorite and sulfuric acid) which may be included in the Discharge.

D. Compliance Summary

The available effluent data indicate the Discharger consistently meets effluent limits contained in Order No. 5-01-078, with the exception of periodic exceedances of the effluent limitations for pH and dissolved oxygen.

E. Planned Changes

No changes are planned for the Facility.

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 February 2007), for the Sacramento and San Joaquin River Basins* (Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, State Water Board Resolution No. 88-63 requires that, with certain exceptions, the Regional Water Board assign the municipal and domestic supply use to water bodies that do not have beneficial uses listed in the Basin Plan. The beneficial uses of the Gibson Canyon Creek Flood Control Channel downstream of the discharge are municipal and domestic supply; agricultural supply, including irrigation and stock watering; industrial process supply; industrial service supply; water contact recreation; non-contact water recreation; warm freshwater habitat; cold freshwater habitat; warm and cold migration of aquatic organisms; 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. 40 CFR 131.2 and 131.10, require that all waters of the State regulated to protect the beneficial uses of public water supply, protection and propagation of fish, shell fish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation. 40 CFR 131.3(e) defines existing beneficial uses as those uses actually attained after 28 November 1975, whether or not they are included in the water quality standards. Federal Regulation, 40 CFR 131.10 requires that uses be obtained by implementing effluent limitations, requires that all downstream uses be protected and states that in no case shall a state adopt waste transport or waste assimilation as a beneficial use for any waters of the United States.

In reviewing whether the existing and/or potential uses of the Sacramento – San Joaquin Delta apply to the Gibson Canyon Creek Flood Control Channel, the Regional Water Board has considered the following facts:

a. Domestic Supply and Agricultural Supply

The Regional Water Board is required to apply the beneficial uses of municipal and domestic supply to the Gibson Canyon Creek Flood Control Channel based on State Water Board Resolution No. 88-63 which was incorporated in the Basin Plan pursuant to Regional Water Board Resolution No. 89-056. In addition, the State Water Board has issued water rights to existing water users downstream of the discharge for domestic and irrigation uses. In addition to the existing water uses, growth in the area, downstream of the discharge, is expected to continue, which presents a potential for increased domestic and agricultural uses of the water in the Gibson Canyon Creek Flood Control Channel.

b. Water Contact and Non-contact Recreation and Esthetic Enjoyment

The Regional Water Board finds that the discharge flows through residential areas, there is ready public access to Gibson Canyon Creek Flood Control Channel, exclusion of the public is unrealistic and contact recreational activities currently exist along the Gibson Canyon Creek Flood Control Channel and downstream waters, and these uses are likely to increase as the population in

the area grows. Prior to flowing into the Sacramento – San Joaquin Delta, Gibson Canyon Creek Flood Control Channel flows through areas of general public access, meadows, residential areas, and parks. The Sacramento – San Joaquin Delta also offers recreational opportunities.

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

The Gibson Canyon Creek Flood Control Channel flows to the Sacramento – San Joaquin Delta via tributaries. The California Department of Fish and Game (DFG) verified that numerous fish species are present in the waters downstream of the Gibson Canyon Creek Flood Control Channel. The Basin plan (Table II-1) designates the Sacramento – San Joaquin Delta as being both a cold and warm freshwater habitat. Therefore, pursuant to the Basin Plan (Table II-1, Footnote (2)), the cold-water habitat designation applies to Gibson Canyon Creek Flood Control Channel. The cold-water habitat designation necessitates that the in-stream dissolved oxygen concentration be maintained at, or above, 7.0 mg/L.

Upon review of the flow conditions, habitat values, and beneficial uses of the Gibson Canyon Creek Flood Control Channel, and the facts described above, the Regional Water Board finds that the beneficial uses identified in the Basin Plan for the Sacramento – San Joaquin Delta are applicable to Gibson Canyon Creek Flood Control Channel.

Based on reported flow data in the receiving water during the permit term, the Gibson Canyon Creek Flood Control Channel is not an ephemeral stream.

2. **Antidegradation Policy.** 40 CFR 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing 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 131.12 and State Water Board Resolution No. 68-16.
3. **Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at 40 CFR 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed. Compliance with the anti-backsliding requirements is discussed in Section IV.D.3.
4. **Storm Water Requirements.** USEPA promulgated Federal Regulations for storm water on 16 November 1990 in 40 CFR Parts 122, 123, and 124. The NPDES

Industrial Storm Water Program regulates discharges of storm water associated with industrial activity. If storm water discharges from this Facility are subject to applicable storm water program requirements, the Discharger is obligated to comply with Federal Regulations.

5. **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. Gibson Canyon Creek Flood Control Channel is not listed in the 303(d) list of impaired water bodies.

E. Other Plans, Polices and Regulations

[Not Applicable]

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

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

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

The CWA requires point source discharges to control the amount of conventional, non-

conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations: 40 CFR 122.44(a) requires that permits include applicable technology-based limitations and standards, and 40 CFR 122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water where numeric water quality objectives have not been established. The Regional Water Board's Basin Plan, page IV-17.00, contains an implementation policy ("Policy for Application of Water Quality Objectives" that specifies that the Regional Water Board "*will, on a case-by-case basis, adopt numerical limitations in orders which will implement the narrative objectives.*" This Policy complies with 40 CFR 122.44(d)(1). With respect to narrative objectives, the Regional Water Board must establish effluent limitations using one or more of three specified sources, including (1) USEPA's published water quality criteria, (2) a proposed state criterion (*i.e.*, water quality objective) or an explicit state policy interpreting its narrative water quality criteria (*i.e.*, the Regional Water Board's "Policy for Application of Water Quality Objectives")(40 CFR 122.44(d)(1) (vi) (A), (B) or (C)), or (3) an indicator parameter. The Basin Plan contains a narrative objective requiring that: "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*" (narrative toxicity objective). The Basin Plan requires the application of the most stringent objective necessary to ensure that surface water and groundwater do not contain chemical constituents, discoloration, toxic substances, radionuclides, or taste and odor producing substances that adversely affect beneficial uses. The Basin Plan states that material and relevant information, including numeric criteria, and recommendations from other agencies and scientific literature will be utilized in evaluating compliance with the narrative toxicity objective. The Basin Plan also limits chemical constituents in concentrations that adversely affect surface water beneficial uses. For waters designated as municipal, the Basin Plan specifies that, at a minimum, waters shall not contain concentrations of constituents that exceed Maximum Contaminant Levels (MCL) of CCR Title 22. The Basin Plan further states that, to protect all beneficial uses, the Regional Water Board may apply limits more stringent than MCLs.

A. Discharge Prohibitions

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

B. Technology-Based Effluent Limitations

1. Scope and Authority

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

- Best practicable treatment control technology (BPT) represents the average of the best performance by plants within an industrial category or subcategory. BPT standards apply to toxic, conventional, and non-conventional pollutants.
- 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 40 CFR 125.3 authorize the use of best professional judgment (BPJ) to derive technology-based effluent limitations on a case-by-case basis where ELGs are not available for certain industrial categories and/or pollutants of concern. Where BPJ is used, the permit writer must consider specific factors outlined in 40 CFR 125.3.

2. Applicable Technology-Based Effluent Limitations

- a. Benzene, Ethylbenzene, Methyl Tertiary Butyl Ether, t-Amyl Methyl Ether, Toluene, Total Petroleum Hydrocarbons (Gasoline and Diesel), and Xylenes.**
The groundwater treatment system utilizes air stripping, activated carbon, and a catalytic and thermal oxidizer and is capable of dependably removing the groundwater contaminants to concentrations that are non-detectable by current analytical technology. Order No. 5-01-078 included technology-based limits for benzene, ethylbenzene, methyl tertiary butyl ether, t-amyl methyl ether, toluene, total petroleum hydrocarbons (gasoline and diesel), and xylenes based on the ability of the groundwater treatment system technology to achieve applicable

reporting limits. The current, commonly achieved reporting levels are as follows:

Constituent	Reporting Level	Units	Analytical Method
Benzene	0.5	µg/L	EPA Method 8260B or 8021B
Ethylbenzene	0.5	µg/L	EPA Method 8260B or 8021B
Methyl Tertiary Butyl Ether	1.0	µg/L	EPA Method 8260B
t-Amyl Methyl Ether	1.0	µg/L	EPA Method 8260B
Toluene	0.5	µg/L	EPA Method 8260B or 8021B
Total Petroleum Hydrocarbons (Gasoline and Diesel)	50	µg/L	EPA Method 8015M
Xylenes, Total	0.5	µg/L	EPA Method 8260B or 8021B

The current reporting levels for methyl tertiary butyl ether, t-amyl methyl ether, and xylenes are lower than those used to establish technology-based limits in Order No. 5-01-078. Therefore, technology-based limits for these constituents will be revised to reflect the current, commonly achieved reporting levels.

The current reporting levels for benzene, ethylbenzene, toluene, and total petroleum hydrocarbons (gasoline and diesel) are the same as those used to set technology-based limits in Order No. 5-01-078 and are the basis for the technology-based limits for these constituents in this Order.

Order 5-01-078 established technology-based limits for these constituents as 30-day medians. Consistent with 40 CFR 122.45(d) and recently adopted Orders by the Regional Water Board, 30-day median effluent limitations will be revised to maximum daily effluent limitations and the less than value (i.e., <) will be removed. Also, in order to be consistent with other recently adopted Orders, the effluent limit for total petroleum hydrocarbons will be revised to include both the diesel and gasoline ranges.

- b. **Tertiary Butyl Alcohol.** Order No. 5-01-078 included a tiered permit effluent limitation for tertiary butyl alcohol based on flow rates in the receiving water. When flows in the receiving water dropped below 300 gpm, the discharge of treated groundwater that contained tertiary butyl alcohol in concentrations in excess of 20 µg/L was prohibited. This limit was based on the ability of the groundwater treatment system technology to achieve a reporting level of 20 µg/L. Order No 5-01-078 also established a 30-day median of 140 µg/L and a daily maximum of 200 µg/L. The daily maximum was calculated given a dilution ratio of 12:1 and was contingent on the installation of a diffuser on the discharge pipe. Since there are treatment technologies that are capable of dependably removing tertiary butyl alcohol to concentrations that are below the applicable reporting limit of 20 µg/L, this Order establishes a technology-based limit of 20 µg/L for tertiary butyl alcohol, as a maximum daily effluent limitation. Dilution credits have not been used to calculate the effluent limit for tertiary butyl alcohol in this Order, because the effluent limitation for tertiary butyl alcohol is a technology-based effluent limitation. Dilution credits may only be used in the calculation of water quality-based effluent limitations, they cannot be applied to technology-based effluent limitations.

Based on the sample results for the effluent, the more stringent limitations for

tertiary butyl alcohol appear to put the Discharger in immediate non-compliance. New or modified control measures may be necessary in order to comply with the effluent limitations, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. Furthermore, the effluent limitations for tertiary butyl alcohol are a new regulatory requirement within this permit, which becomes applicable to the waste discharge with the adoption of this Order, which was adopted after 1 July 2000. Therefore, a compliance time schedule for compliance with the tertiary butyl alcohol effluent limitations is established in TSO No. R5-2008-0009 in accordance with CWC section 13300.

- c. **Flow.** For the groundwater treatment facility, technology-based effluent limitations are established on a case-by-case basis using BPJ. A technology-based effluent limitation for flow is established in this Order to monitor the performance of the groundwater treatment system from the standpoint of volumes being treated. The maximum daily flow rate in Order No. 5-01-078 was established at 216,000 gpd, the maximum design flow. This Order retains the maximum daily flow rate of 216,000 gpd.

**Summary of Technology-based Effluent Limitations
 Discharge Point No. 001**

Table F-3. Summary of Technology-based Effluent Limitations

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Benzene	µg/L	--	0.5	--	--
Ethylbenzene	µg/L	--	0.5	--	--
Methyl Tertiary Butyl Ether	µg/L	--	1.0	--	--
t-Amyl Methyl Ether	µg/L	--	1.0	--	--
Toluene	µg/L	--	0.5	--	--
Total Petroleum Hydrocarbons (Diesel)	µg/L	--	50	--	--
Total Petroleum Hydrocarbons (Gasoline)	µg/L	--	50	--	--
Xylenes	µg/L	--	0.5	--	--
Tertiary Butyl Alcohol	µg/L	--	20	--	--
Flow	gpd	--	216,000	--	--

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

As specified in 40 CFR 122.44(d)(1)(i), permits are required to include WQBELs for pollutants (including toxicity) that are or may be discharged at levels that cause, have reasonable potential to cause, or contribute to an in-stream excursion above any state water quality standard. The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are contained in other state plans and policies, or any applicable water quality criteria contained in the CTR and NTR.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

- a. **Receiving Water.** The receiving stream is Gibson Canyon Creek Flood Control Channel which flows to Sweany Creek Channel, Ulatis Creek, and then the Cache Slough, which are tributary to the Sacramento – San Joaquin Delta. The beneficial uses of Gibson Canyon Creek Flood Control Channel, as described in Section III.C, are as follows:

Table F-4. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Gibson Canyon Creek Flood Control Channel	<u>Existing:</u> Municipal and domestic supply (MUN); agricultural supply, including irrigation and stock watering (AGR); industrial process supply (PRO); industrial service supply (IND); water contact recreation (REC-1); non-contact water recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); warm and cold migration of aquatic organisms (MIGR); warm spawning, reproduction, and/or early development (SPWN); wildlife habitat (WILD); and navigation (NAV).

- 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* and the *National Toxics Rule* contain water quality criteria for seven metals that vary as a function of hardness, the lower the hardness the lower the water quality criteria. The hardness-dependent metals include cadmium, copper, chromium III, lead, nickel, silver, and zinc. The equation describing the total recoverable regulatory criterion is as follows:

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

Where:

m = criterion-specific constant

H = Effluent Hardness

b = criterion-specific constant

The constants “m” and “b” are specific to both the metal under consideration, and the type of total recoverable criterion (i.e. acute or chronic).

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 water quality criteria 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.

Because of the non-linearity of the Total Recoverable Criterion equation, the relationship can be either concave downward or concave upward depending on the criterion-specific constants. For those contaminants whereby the regulatory criteria exhibit a concave downward relationship as a function of hardness (e.g. acute and chronic copper, chromium III, nickel, and zinc, and chronic cadmium), use of the lowest recorded effluent hardness for establishment of water quality objectives is fully protective of all beneficial uses regardless of whether the effluent or receiving water hardness is higher. In accordance with these studies, the lowest effluent hardness value of 340 mg/L as CaCO₃ was used for purposes of establishing criteria for copper, chromium III, nickel, zinc and cadmium (chronic). For establishing criteria for cadmium (acute), lead, and silver (acute), and in accordance with the recent studie., the lowest effluent hardness of 340 mg/L as CaCO₃ and the highest receiving water hardness of 260 mg/L as CaCO₃ were used. Based on the sample results in the effluent, the discharge does not demonstrate reasonable potential to exceed the applicable water quality criteria for hardness-dependent metals and WQBELs have not been established in this Order.

- c. **Assimilative Capacity/Mixing Zone.** Based on the available information, the worst-case dilution is assumed to be zero to provide protection for the receiving water beneficial uses. The impact of assuming zero assimilative capacity within the receiving water is that discharge limitations are end-of-pipe limits with no allowance for dilution within the receiving water.

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. 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.
- c. The RPA was conducted based on data submitted for the period of 8 May 2002 through 21 September 2005. The Regional Water Board finds that this dataset is a reasonable representation of the characteristics of the discharge. The use of more recent data would unlikely affect the RPA, as the discharge characteristics of contaminated groundwater from a petroleum clean-up are not expected to vary considerably.
- d. 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 benzene, chlorine residual, dissolved oxygen, electrical conductivity, ethylbenzene, iron, manganese, methyl tert-butyl ether, nitrate, pH, toluene, total petroleum

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

hydrocarbons, and xylene. Effluent limitations for these constituents are included in this Order. A summary of the reasonable potential analysis (RPA) is provided in Attachment G, and a detailed discussion of the RPA for each constituent is provided below.

- e. WQBELs were calculated in accordance with section 1.4 of the SIP, as described in Attachment F, Section IV.C.4.
- f. **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 receiving stream has been measured to have a low hardness—typically between 92 and 260 mg/L as CaCO₃. This condition is supportive of the applicability of the ambient water quality criteria for aluminum, according to USEPA's development document.

The MEC for aluminum was 33 µg/L, based on four samples collected between 8 May 2002 and 13 January 2003, while the maximum observed upstream receiving water aluminum concentration was 1,100 µg/L, based on one sample collected on 13 January 2003. The receiving water sample exceeded the water quality criteria for aluminum, however, only one sample was collected. Additional data is necessary to adequately complete the reasonable potential analysis. This Order requires quarterly monitoring of the effluent and receiving water.

- g. **Benzene.** The Cal/EPA Office of Environmental Health Hazard Assessment (OEHHA) developed a Cancer Potency Factor as a Drinking Water Level for benzene of 0.35 µg/L. Order No. 5-01-078 established effluent limitations for benzene at 0.35 µg/L as a daily maximum based on the cancer potency factor. The Discharger has not exceeded these effluent limitations during the permit term, however, it is assumed that treated effluent from a petroleum release site triggers reasonable potential to exceed water quality standards for benzene. Therefore, these effluent limitations are retained in this Order. These permit limitations will ensure compliance with all applicable water quality standards for benzene.
- h. **Chlorine Residual.** Order No. 5-01-078 established effluent limitations for chlorine residual at 0.02 mg/L as a daily maximum and 0.01 mg/L as a 30-day median due to the Discharger's use of sodium hypochlorite (chlorine) to minimize biological fouling by iron-oxidizing bacteria. Chlorine is highly toxic to aquatic life and the Discharger's use presented a reasonable potential to cause or contribute to an exceedance of the Basin Plan's narrative toxicity objective. The Discharger no longer adds sodium hypochlorite. However, since to ensure compliance with the Basin Plan's narrative toxicity objective, the effluent limitations for total residual chlorine have been carried forward from the previous Order in the event the Discharger uses chlorine at the Facility.

The USEPA Technical Support Document for Water Quality-Based Toxics Control [EPA/505/2-90-001] and the SIP contain statistical methods for converting chronic (four-day) and acute (one-hour) aquatic life criteria to average monthly and maximum daily effluent limitations based on the variability of the existing data and the expected frequency of monitoring. This method has been used to set an AMEL of 0.01 mg/L, in lieu of the 30-day median required in the previous Order. (see Table F-7 for the WQBEL calculations for chlorine residual)

- i. **Dissolved Oxygen.** The Gibson Canyon Creek Flood Control Channel has been designated as having the beneficial use of cold freshwater aquatic habitat (COLD). For water bodies designated as having COLD as a beneficial use, the Basin Plan includes a water quality objective of maintaining a minimum of 7.0 mg/L of dissolved oxygen. Order No. 5-01-078 included an effluent limitation requiring that the discharge shall not have a dissolved oxygen content less than 7.0 mg/L. Dissolved oxygen in the discharge was detected at concentrations below 7.0 mg/L on 1 November 2004 at 5.4 mg/L and on 21 December 2004 at 3.3 mg/L. This Order retains the effluent limitation from Order No. 5-01-078 in order to protect the beneficial uses of the receiving water.
- j. **Ethylbenzene.** USEPA has developed a Drinking Water Contaminant Fact Sheet which includes a taste and odor threshold for ethylbenzene of 29 µg/L. Order No. 5-01-078 established effluent limitations for ethylbenzene at 29 µg/L as a daily maximum based on the taste and odor threshold. The Discharger has not exceeded these effluent limitations during the permit term, however, it is assumed that treated effluent from a petroleum release site triggers reasonable potential to exceed water quality standards for ethylbenzene. As discussed further in section IV.D.5. of this Fact Sheet, no WQBELs are included in this Order for ethylbenzene because the applicable technology-based limit is more stringent and is protective of all water quality standards.
- k. **Iron.** The Basin Plan water quality objectives for chemical constituents requires that 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) specified in Title 22 of the CCR. The Secondary MCL - Consumer Acceptance Limit for iron is 300 µg/L. Based on input from DPH and the fact that secondary MCLs are designed to protect consumer acceptance, effluent limitations based on secondary MCLs are applied as an annual average concentration.

The MEC for iron was 320 µg/L, based on four samples collected between 8 May 2002 and 13 January 2003, while the maximum observed upstream receiving water iron concentration was 1,300 µg/L, based on one sample collected on 13 January 2003. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Secondary MCL for iron. An annual average effluent limitation of 300 µg/L for total recoverable iron is included in this Order based on the Basin Plan's narrative

chemical constituents objective. Based on the sample results for the effluent (165 µg/L as an annual average), it appears the discharge can meet the new effluent limitation for total recoverable iron.

- I. **Manganese.** The Basin Plan water quality objectives for chemical constituents requires that 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) specified in Title 22 of the CCR. The Secondary MCL - Consumer Acceptance Limit for manganese is 50 µg/L. Based on input from DPH and the fact that secondary MCLs are designed to protect consumer acceptance, effluent limitations based on secondary MCLs are applied as an annual average concentration.

The MEC for manganese was reported as 320 µg/L, based on four samples collected between 8 May 2002 and 13 January 2003, while the maximum observed upstream receiving water manganese concentration was 43 µg/L, based on one sample collected on 13 January 2003. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Secondary MCL for manganese. An annual average effluent limitation of 50 µg/L for manganese is included in this Order based on the Basin Plan's narrative chemical constituents objective.

Based on the sample results for the effluent, the limitations appear to put the Discharger in immediate non-compliance. New or modified control measures may be necessary in order to comply with the effluent limitations, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. Furthermore, the effluent limitations for manganese are a new regulatory requirement within this permit, which becomes applicable to the waste discharge with the adoption of this Order, which was adopted after 1 July 2000. Therefore, a compliance time schedule for compliance with the manganese effluent limitations is established in TSO No. R5-2008-0009 in accordance with CWC section 13300, that requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3.

- m. **Methyl Tert-Butyl Ether.** The Secondary Maximum Contaminant Level (MCL)-Consumer Acceptance Limit for methyl tert-butyl ether is 5 µg/L. Order No. 5-01-078 established effluent limitations at 5.0 µg/L as a daily maximum based on the Secondary MCL. The Discharger has not exceeded these effluent limitations during the permit term, however, it is assumed that treated effluent from a petroleum release site triggers reasonable potential to exceed water quality standards for methyl tert-butyl ether. As discussed in section IV.B.2.a., the applicable technology-based effluent limit for methyl tert-butyl ether is also 5 µg/L. This Order retains the MDEL of 5 µg/L from Order No. 5-01-078 based on the ability of the groundwater treatment system to remove methyl tert-butyl ether from the discharge and the protection of the Secondary MCL for methyl tert-butyl ether.

- n. **Nitrate.** Untreated groundwater contains ammonia. Nitrification is a biological process that converts ammonia to nitrite and nitrite to nitrate. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. Nitrate is known to cause adverse health effects in humans. The California DPH 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 nitrate equal to 10 mg/L (measured as nitrogen).

USEPA has developed Drinking Water Standards (10,000 µg/L as Primary MCL) and Ambient Water Quality Criteria for protection of human health (10,000 µg/L for non-cancer health effects) for nitrate. Recent toxicity studies have indicated a possibility that nitrate is toxic to aquatic organisms.

The MEC for nitrate was 11 mg/L, based on four samples collected between 8 May 2002 and 13 January 2003, while the maximum observed upstream receiving water nitrate concentration was 0.81 mg/L, based on one sample collected on 13 January 2003. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Primary MCL for nitrate. An AMEL for nitrate of 10 mg/L is included in this Order based on the Primary MCL.

Based on the sample results for the effluent, the limitations appear to put the Discharger in immediate non-compliance. New or modified control measures may be necessary in order to comply with the effluent limitations, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. Furthermore, the effluent limitations for nitrate are a new regulatory requirement within this permit, which becomes applicable to the waste discharge with the adoption of this Order, which was adopted after 1 July 2000. Therefore, a compliance time schedule for compliance with the nitrate effluent limitations is established in TSO No. R5-2008-0009 in accordance with CWC section 13300, that requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3.

- o. **Persistent Chlorinated Hydrocarbon Pesticides.** Endrin aldehyde was detected in the effluent in concentrations as high as 0.043 µg/L. This constituent is a persistent chlorinated hydrocarbon pesticide. The Basin Plan requires that no individual pesticides shall be present in concentrations that adversely affect beneficial uses; discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses; persistent chlorinated hydrocarbon pesticides shall not be present in the water column at detectable concentrations; and pesticide concentrations shall not exceed those allowable by applicable antidegradation policies. The CTR contains a numeric criterion for endrin aldehyde of 0.76 µg/L for freshwaters from which both water and organisms are consumed. However, the detection of endrin aldehyde at 0.043 µg/L in the effluent is suspect due to the nature of operations at the Facility. It is unlikely that an OC pesticide is present in the groundwater, because

these compounds tie up strongly to soil. Furthermore, it is expected that the groundwater would have little variation in concentration. Due to this uncertainty it is infeasible to complete the reasonable potential analysis for endrin aldehyde. This Order requires additional monitoring to complete the reasonable potential analysis.

- p. **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.
- q. **Salinity.** The discharge contains total dissolved solids (TDS), chloride, sulfate, and electrical conductivity (EC). These are water quality parameters that are indicative of the salinity of the water. Their presence in water can be growth limiting to certain agricultural crops and can affect the taste of water for human consumption. There are no USEPA water quality criteria for the protection of aquatic organisms for these constituents. The Basin Plan contains a chemical constituent objective that incorporates State MCLs, contains a narrative objective, and contains numeric water quality objectives for EC, TDS, sulfate, and chloride.

Table F-5. Salinity Water Quality Criteria/Objectives

Parameter	Agricultural WQ Goal ¹	Secondary MCL ²	Effluent	
			Avg	Max
EC (µmhos/cm)	Varies ³	900, 1600, 2200	895	1,200
TDS (mg/L)	Varies	500, 1000, 1500	552	750
Sulfate (mg/L)	Varies	250, 500, 600	56	410
Chloride (mg/L)	Varies	250, 500, 600	44	46

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

³ 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.

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

quality goal is intended to protect against adverse effects on sensitive crops when irrigated via sprinklers.

Chloride concentrations in the effluent ranged from 41 mg/L to 46 mg/L, with an average of 44 mg/L, for four samples collected by the Discharger from 8 May 2002 through 13 January 2003. The background concentration in the Gibson Canyon Creek Flood Control Channel was 11 mg/L for one sample collected by the Discharger on 13 January 2003.

- ii. **Electrical Conductivity (EC).** The secondary MCL for EC is 900 $\mu\text{mhos/cm}$ as a recommended level, 1600 $\mu\text{mhos/cm}$ as an upper level, and 2200 $\mu\text{mhos/cm}$ as a short-term maximum. The agricultural water quality goal, that would apply the narrative chemical constituents objective, is 700 $\mu\text{mhos/cm}$ as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations— Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). The 700 $\mu\text{mhos/cm}$ 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. In addition, the northwestern portion of the Sacramento – San Joaquin Delta has been listed as an impaired water body pursuant to Section 303(d) of the Clean Water Act because of electrical conductivity.

A review of the Discharger's monitoring reports from 8 May 2002 through 21 September 2005 shows an average effluent EC of 895 $\mu\text{mhos/cm}$, with a range from 610 $\mu\text{mhos/cm}$ to 1,200 $\mu\text{mhos/cm}$ for 26 samples. These levels exceed the applicable objectives. The background receiving water EC concentration averaged 445 $\mu\text{mhos/cm}$ in 23 sampling events collected by the Discharger from 13 January 2003 through 21 September 2005. These data show that the receiving water has limited assimilative capacity for EC.

- iii. **Sulfate.** The secondary MCL for sulfate is 250 mg/L as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum. Sulfate concentrations in the effluent ranged from 6.4 mg/L to 410 mg/L, with an average of 56 mg/L, for 26 samples collected by the Discharger from 8 May 2002 through 21 September 2005. Background concentrations in the Gibson Canyon Creek Flood Control Channel ranged from 7.2 mg/L to 26 mg/L, with an average of 26 mg/L, for two samples collected by the Discharger from 13 January 2003 through 29 April 2005. 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, 1000 mg/L as an upper level, and 1500 mg/L as a short-term maximum. The recommended agricultural water quality goal for TDS, that would apply the narrative chemical constituent objective, is 450 mg/L as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). Water Quality for Agriculture evaluates the impacts of salinity levels on crop tolerance and yield reduction, and establishes water quality goals that are protective of the agricultural uses. The 450 mg/L water quality goal is intended to prevent reduction in crop yield, i.e. a restriction on use of water, for salt-sensitive crops. Only the most salt sensitive crops require irrigation water of 450 mg/L or less to prevent loss of yield. Most other crops can tolerate higher TDS concentrations without harm, however, as the salinity of the irrigation water increases, more crops are potentially harmed by the TDS, or extra measures must be taken by the farmer to minimize or eliminate any harmful impacts.

The average TDS effluent concentration was 552 mg/L; concentrations ranged from 420 mg/L to 750 mg/L for 26 samples collected by the Discharger from 8 May 2002 through 21 September 2005. These concentrations exceed the applicable water quality objectives. The background receiving water TDS ranged from 120 mg/L to 460 mg/L, with an average of 270 mg/L in 23 sampling events performed by the Discharger from 13 January 2003 through 21 September 2005. These data indicate the receiving water exceeds water quality objectives and lacks assimilative capacity for TDS.

- v. **Salinity Effluent Limitations.** This Order includes a performance-based effluent limitation of 1,408 $\mu\text{mhos/cm}$ as an AMEL for EC. Although the limitation is more stringent than the limitations for TDS in the previous Order, the limitations may not be fully protective of all beneficial uses. However, the Regional Water Board finds that the discharge is in compliance with the State Water Board Resolution 68-16, because the groundwater clean up project is to the maximum benefit to the people of the State. On balance, the improved groundwater quality resulting from the groundwater cleanup project outweighs the minimal degradation caused by the surface water discharge. To minimize impacts to the beneficial uses of the receiving stream, this Order maintains the receiving water limitation of 500 mg/L TDS, and requires the Discharger to implement salinity reduction measures to reduce the salinity in its discharge to the Gibson Canyon Creek Flood Control Channel.

In developing the performance-based limitation, where there are 10 sampling data points or more, sampling and laboratory variability is accounted for by establishing 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 performance-based effluent limitations for EC are established as the mean plus 3.3 standard deviations of the available data (see Table F-6, for the calculation summary).

Table F-6. EC Effluent Limitation Calculation Summary

Parameter	Units	MEC	Mean	Std. Dev.	# of Samples	Interim Limitation
Electrical Conductivity	µmhos/cm	1,200	895	156	26	1,408

Order No. 5-01-078 established a 30-day median of 400 mg/L and an MDEL of 500 mg/L for sulfate. The previous Order also required that the discharge not have a total dissolved solids content greater than 1,500 mg/L. EC is an indicator parameter for salinity, including the parameters of TDS, sulfate, and chloride. Establishing an interim effluent limitation for EC is expected to effectively control the constituents that contribute to salinity, including TDS, sulfate, and chloride. Therefore, effluent limitations for sulfate and TDS are not retained in this Order. Monitoring for these constituents has been required to verify that they are effectively controlled using the indicator parameter.

- r. **Toluene.** USEPA has developed a Drinking Water Contaminant Fact Sheet which includes a taste and odor threshold for toluene of 42 µg/L. Order No. 5-01-078 established effluent limitations for toluene at 42 µg/L as a daily maximum based on the taste and odor threshold. The Discharger has not exceeded these effluent limitations during the permit term, however, it is assumed that treated effluent from a petroleum release site triggers reasonable potential to exceed water quality standards for toluene. As discussed further in section IV.D.5. of this Fact Sheet, no WQBELs are included in this Order for toluene because the applicable technology-based limit is more stringent and is protective of all water quality standards.
- s. **Total Petroleum Hydrocarbons (Diesel/Gasoline).** The USEPA Suggested-No-Adverse-Response-Level (SNARL) for diesel oil is 100 µg/L. Order No. 5-01-078 established effluent limitations for total petroleum hydrocarbons, both the diesel and gasoline ranges, at 100 µg/L as a daily maximum based on the SNARL. The Discharger has not exceeded these effluent limitations during the permit term, however, it is assumed that treated effluent from a petroleum release site triggers reasonable potential to exceed water quality standards for total petroleum hydrocarbons. As discussed further in section IV.D.5. of this Fact Sheet, no WQBELs are included in this Order for total petroleum hydrocarbons because the applicable technology-based limit is more stringent and is protective of all water quality standards.
- t. **Toxicity.** See Section IV.C.5. of the Fact Sheet regarding whole effluent toxicity.
- u. **Xylene.** USEPA has developed a Drinking Water Contaminant Fact Sheet which includes a taste and odor threshold for xylene at 17 µg/L. Order No. 5-01-078

established effluent limitations for xylene at 17 µg/L as a daily maximum based on the taste and odor threshold. The Discharger has not exceeded these effluent limitations during the permit term, however, it is assumed that treated effluent from a petroleum release site triggers reasonable potential to exceed water quality standards for xylene. As discussed further in section IV.D.5. of this Fact Sheet, no WQBELs are included in this Order for xylene because the applicable technology-based limit is more stringent and is protective of all water quality standards.

4. WQBEL Calculations

- a. As discussed in Section IV.C.3. above, effluent limitations for iron, manganese, and nitrate are included in this Order, and were based on Basin Plan objectives and applied directly as effluent limitations.
- b. As discussed in Section IV.C.3. above, effluent limitations for benzene, dissolved oxygen, and pH were retained from Order No. 5-01-078 in order to ensure compliance with all applicable water quality standards.
- c. Effluent limitations for total residual chlorine were calculated in accordance with section 1.4 of the SIP. The following paragraphs describe the methodology used for calculating effluent limitations for total residual chlorine.
- d. **Effluent Limitation Calculations Based on the SIP.** For each water quality criterion/objective, the effluent concentration allowance (ECA) was calculated using the following steady-state mass balance equation:

$$\begin{aligned} \text{ECA} &= C + D(C - B) && \text{where } C > B, \text{ and} \\ \text{ECA} &= C && \text{where } C \leq B, \end{aligned}$$

where:

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

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

Acute and chronic toxicity ECAs were then converted to equivalent long-term averages (LTAs) 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.

$$\begin{aligned}
 & \overbrace{\min(M_A ECA_{acute}, M_C ECA_{chronic})}^{LTA_{acute}} \\
 AMEL &= mult_{AMEL} [\min(M_A ECA_{acute}, M_C ECA_{chronic})] \\
 MDEL &= mult_{MDEL} [\min(M_A ECA_{acute}, M_C ECA_{chronic})] \\
 & \underbrace{\hspace{15em}}_{LTA_{chronic}} \\
 MDEL_{HH} &= \left(\frac{mult_{MDEL}}{mult_{AMEL}} \right) AMEL_{HH}
 \end{aligned}$$

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

WQBELs were calculated for total residual chlorine as follows:

Table F-7. WQBEL Calculations for Total Residual Chlorine

	Acute	Chronic
Criteria (µg/L) ¹	0.019	0.011
Dilution Credit	No Dilution	No Dilution
ECA	0.02	0.01
ECA Multiplier	0.32	0.53
LTA	0.02	0.01
AMEL Multiplier (95 th %)	²	1.55
AMEL (mg/L)	²	0.01
MDEL Multiplier (99 th %)	²	3.11
MDEL (mg/L)	²	0.02

¹ USEPA Ambient Water Quality Criteria

² Limitations based on chronic LTA (Chronic LTA < Acute LTA)

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

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

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Benzene	µg/L	--	0.35	--	--
Chlorine, Total Residual	mg/L	0.01	0.02	--	--
Dissolved Oxygen	mg/L	--	--	7.0	--
Iron, Total Recoverable	µg/L	300 ¹	--	--	--

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Manganese, Total Recoverable	µg/L	50 ¹	--	--	--
Nitrate Nitrogen, Total (as N)	mg/L	10	--	--	--
pH	standard units	--	--	6.5	8.5
Acute Toxicity	% Survival ²				

¹ Applied as annual average effluent limitation.

² Not less than 90% median for three consecutive bioassays and 70% for any single bioassay.

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.** Based on quarterly whole effluent chronic toxicity testing performed by the Discharger from 23 August 2003 through 21 September 2005, several instances where chronic toxicity was reported for the discharge. Therefore the discharge has reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective.

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

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 Region² that contained numeric chronic toxicity effluent limitations. To address the petition, the State Water Board adopted WQO 2003-012 directing its staff to revise the toxicity control provisions in the SIP. The State Water Board states the following in WQO 2003-012, *"In reviewing this petition and receiving comments from numerous interested persons on the propriety of including numeric effluent limitations for chronic toxicity in NPDES permits for publicly-owned treatment works that discharge to inland waters, we have determined that this issue should be considered in a regulatory setting, in order to allow for full public discussion and deliberation. We intend to modify the SIP to specifically address the issue. We anticipate that review will occur within the next year. We therefore decline to make a determination here regarding the propriety of the final numeric effluent limitations for chronic toxicity contained in these permits."* The process to revise the SIP is currently underway. Proposed changes include clarifying the appropriate form of effluent toxicity limits in NPDES permits and general expansion and standardization of toxicity control implementation related to the NPDES permitting process. Since the toxicity control provisions in the SIP are under revision it is infeasible to develop numeric effluent limitations for chronic toxicity. Therefore, this Order requires that the Discharger meet best management practices for compliance with the Basin Plan's narrative toxicity objective, as allowed under 40 CFR 122.44(k).

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)

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

D. Final Effluent Limitations

1. Mass-based Effluent Limitations

40 CFR 122.45(f)(1) requires effluent limitations be expressed in terms of mass, with some exceptions, and 40 CFR 122.45(f)(2) allows pollutants that are limited in terms of mass to additionally be limited in terms of other units of measurement. This Order 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.

Except in the case of POTWs, 40 CFR 122.45(b)(2)(i) specifies that the calculation of any permit limitations, standards, or prohibitions which are based on production (or other measure of operation) be based not upon the designed production capacity but rather upon a reasonable measure of actual production for the facility. In order to expedite the groundwater remediation process, this Order encourages the Discharger to treat to the maximum extent possible. The production of treated groundwater is expected to increase; therefore, mass-based effluent limitations in this Order are calculated based on the maximum allowable discharge flow of 216,000 gpd.

2. Averaging Periods for Effluent Limitations

40 CFR 122.45 (d) requires maximum daily and average monthly effluent limitations for all dischargers other than publicly owned treatment works unless impracticable. Water quality objectives in the Basin Plan for dissolved oxygen, persistent chlorinated hydrocarbon pesticides, and pH are applied directly as instantaneous effluent limitations. Effluent limitations for iron and manganese are based on secondary MCLs and are applied as annual average effluent limitations. The rationale for using alternative averaging periods for these constituents is discussed in Attachment F, Section IV.C.3., above.

3. Satisfaction of Anti-Backsliding Requirements

There are no effluent limitations in this Order that are less stringent than those in the previous Order. Order No. 5-01-078 required effluent limitations for sulfate and total dissolved solids. This Order removes effluent limitations for sulfate and total dissolved solids and establishes an effluent limitation for electrical conductivity. Electrical conductivity is an indicator parameter for salinity, including the parameters of total dissolved solids, sulfate, and chloride. Establishing an effluent limitation for electrical conductivity is expected to effectively control the constituents that contribute to salinity, including total dissolved solids, sulfate, and chloride. Effluent and Receiving Water monitoring of sulfate, TDS, and chloride is required in this Order. The new effluent limitation for EC results in a more stringent salinity effluent limitation. Therefore, the change is consistent with the federal antibacksliding regulations.

4. Satisfaction of 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.

This Order does not allow for an increase in flow or mass of pollutants to the receiving water. Therefore, a complete antidegradation analysis is not necessary. The Order requires compliance with applicable federal technology-based standards and with water quality-based effluent limits (WQBELs) where the discharge could have the reasonable potential to cause or contribute to an exceedance of water quality standards.

This Order is fully protective of the beneficial uses of the receiving water, except for salinity, and is in compliance with federal anti-backsliding regulations. The Regional Water Board finds that discharge is in compliance with the State Water Board Resolution 68-16, because the discharge is to the maximum benefit to the people of the State. On balance, the improved groundwater quality resulting from the groundwater cleanup project outweighs the minimal degradation caused by the surface water discharge. To minimize impacts to the beneficial uses of the receiving stream, this Order maintains the receiving water limitation of 500 mg/L TDS, and requires the Discharger to implement salinity reduction measures to reduce the salinity in its discharge to the Gibson Canyon Creek Flood Control Channel.

The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.

5. Final Effluent Limitations

Final effluent limitations were determined by comparing the technology-based effluent limitations and the WQBELs and applying the most stringent limitations for each individual parameter. Effluent limitations for pH, chlorine, dissolved oxygen, iron, manganese, and nitrate are based on WQBELs, there are no technology-based effluent limitations are applicable for these parameters.

Effluent limitations for flow, t-amyl methyl ether, and tertiary butyl alcohol are based on technology-based effluent limitations because no WQBELs are applicable for these parameters.

The WQBELs for ethylbenzene, toluene, methyl tert-butyl ether, total petroleum hydrocarbons, and xylene are less stringent than the technology-based effluent limitations. Therefore, technology-based effluent limitations for these constituents have been established in this Order.

The WQBEL for benzene required in Order No. 5-01-078, based on OEHHA's Cancer Potency Factor as a Drinking Water Level, is more stringent than the applicable technology-based effluent limitation. Therefore, this Order retains the WQBEL from Order No. 5-01-078.

Summary of Final Effluent Limitations Discharge Point No. 001

Table F-9. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations				Basis ¹
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Flow	gpd	--	216,000	--	--	DC
pH	standard units	--	--	6.5	8.5	BP
Electrical Conductivity	µmhos/cm	1,408	--	--	--	PB
Benzene	µg/L	--	0.35	--	--	CPF
Ethylbenzene	µg/L	--	0.5	--	--	RL
Toluene	µg/L	--	0.5	--	--	RL
Chlorine, Total Residual	mg/L	0.01	0.02	--	--	NAWQC
Dissolved Oxygen	mg/L	--	--	7.0	--	BP
Iron, Total Recoverable	µg/L	300 ²	--	--	--	MCL
Manganese, Total Recoverable	µg/L	50 ²	--	--	--	MCL
Methyl Tert-Butyl Ether	µg/L	--	1.0	--	--	RL
Nitrate Nitrogen, Total (as N)	mg/L	10	--	--	--	MCL
T-Amyl Methyl Ether	µg/L	--	1.0	--	--	RL
Tertiary Butyl Alcohol	µg/L	--	20	--	--	RL
Total Petroleum Hydrocarbons (Diesel)	µg/L	--	50	--	--	RL
Total Petroleum Hydrocarbons (Gasoline)	µg/L	--	50	--	--	RL
Acute Toxicity	% Survival ³					BP
Xylene	µg/L	--	0.5	--	--	RL

¹ DC – Based on the design capacity of the Facility
 BP – Based on water quality objectives contained in the Basin Plan
 PB – Performance-based
 CPF – Based on OEHHA’s Cancer Potency Factor as a Drinking Water Level
 RL – Based on the technical capability of the groundwater treatment system to dependably remove the groundwater contaminants to concentrations that are non-detectable by current analytical technology
 NAWQC – Based on USEPA’s National Ambient Water Quality Criteria for the protection of freshwater aquatic life
 MCL – Based on the Primary or Secondary Maximum Contaminant Level
² Applied as an annual average effluent limitation.
³ Not less than 90% median for three consecutive bioassays and 70% for any single bioassay.

E. Interim Effluent Limitations – Not Applicable

F. Land Discharge Specifications – Not Applicable

G. Reclamation Specifications – Not Applicable

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

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

Numeric Basin Plan objectives for bacteria, dissolved oxygen, pH, temperature, and turbidity are applicable to this discharge and have been incorporated as Receiving Surface Water Limitations. Rationale for these numeric receiving 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. **Color.** The Basin Plan includes a water quality objective that “[W]ater shall be free of discoloration that causes nuisance or adversely affects beneficial uses.” Receiving water limitations for color are included in this Order and are based on the Basin Plan objective.
- d. **Dissolved Oxygen.** The Gibson Canyon Creek Flood Control Channel has been designated as having the beneficial use of cold freshwater aquatic habitat (COLD). For water bodies designated as having COLD as a beneficial use, the Basin Plan includes a water quality objective of maintaining a minimum of 7.0 mg/L of dissolved oxygen. Since the beneficial use of COLD does apply to the Gibson Canyon Creek Flood Control Channel, a receiving water limitation of 7.0 mg/L for dissolved oxygen was included in this Order.

For surface water bodies outside of the Sacramento – San Joaquin Delta, the Basin Plan includes the water quality objective that “...the monthly median of the mean daily dissolved oxygen (DO) concentration shall not fall below 85 percent of saturation in the main water mass, and the 95 percentile concentration shall not fall below 75 percent of saturation.” This objective was included as a receiving water limitation in this Order.

- e. **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.
- f. **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.
- g. **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.

- h. **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.
- i. **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.
- j. **Salinity.** The previous permit (Order 5-01-078) included a receiving water limitation stating that the discharge shall not cause the total dissolved solids concentration of the receiving water to exceed 500 mg/L. This receiving water limitation has been carried forward to this Order.
- k. **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.
- l. **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.
- m. **Suspended Material.** The Basin Plan includes a water quality objective that *“[W]aters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.”* Receiving water limitations for suspended material are included in this Order and are based on the Basin Plan objective.

- n. **Taste and Odors.** The Basin Plan includes a water quality objective that “[W]ater shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.” Receiving water limitations for taste- or odor-producing substances are included in this Order and are based on the Basin Plan objective.
- o. **Temperature.** The Gibson Canyon Creek Flood Control Channel 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 5°F above natural receiving water temperature.” This Order includes a receiving water limitation based on this objective.
- p. **Toxicity.** The Basin Plan includes a water quality objective that “[A]ll waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.” Receiving water limitations for toxicity are included in this Order and are based on the Basin Plan objective.
- q. **Turbidity.** The Basin Plan includes a water quality objective that “[I]ncreases in turbidity attributable to controllable water quality factors shall not exceed the following limits:
- 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 water limitation for turbidity is included in this Order and is based on the Basin Plan objective for turbidity.

B. Groundwater – Not Applicable

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

40 CFR 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorizes the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (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

1. Influent monitoring is required to collect data on the characteristics of the contaminated groundwater and assess treatment plant performance. The monitoring frequency (monthly) and sample type (grab) from Order No. 5-01-078 for flow, benzene, ethylbenzene, toluene, methyl tertiary butyl ether, sulfate, tertiary amyl methyl ether, tertiary butyl alcohol, total petroleum hydrocarbons, and xylene are retained in this Order.
2. Monitoring requirements established in Order No. 5-01-078 for temperature and turbidity are discontinued in this Order as they are unnecessary in the characterization of the influent.
3. Monthly monitoring requirements for chloride, electrical conductivity, and total dissolved solids are established in this Order to evaluate the need for future salinity controls.

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 requirements established in Order No. 5-01-078 for flow, pH, benzene, ethylbenzene, toluene, chlorine residual, dissolved oxygen, electrical conductivity, methyl tert-butyl alcohol, sulfate, temperature, t-amyl methyl ether, tertiary butyl alcohol, total dissolved solids, total petroleum hydrocarbons, and xylene are retained in this Order.
3. Monitoring data indicates the discharge has reasonable potential to exceed water quality standards for iron, manganese, and nitrate. Quarterly monitoring requirements for these constituents are established in this Order to determine compliance with effluent limitations for these constituents.
4. Quarterly monitoring during the third year of the permit term for priority pollutants has been established in accordance with Section 1.3 of the SIP which requires

periodic monitoring for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established.

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.** Based on quarterly chronic toxicity testing during the term of Order No. 5-01-078, the discharge has the reasonable potential to violate the Basin Plan's narrative toxicity objective. This order retains quarterly chronic whole effluent toxicity testing from Order No. 5-01-078 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.

2. Groundwater – Not Applicable

E. Other Monitoring Requirements

1. Treatment Chemical Monitoring

The Discharger uses the following chemicals during the groundwater treatment process for equipment maintenance:

Chem-Treat CL-4435 (Anti-Scaling/Sequestering Agent); and
Chem-Treat CL241 (Anti-Foaming Agent).

Chem-Treat CL-4435, which prevents the buildup of calcium carbonate and other inorganic compounds on the treatment system appliances, contains 1-hydroxy ethylidene-1,1-diphosphonic acid and polyacrylic acid copolymer which cannot be analyzed by direct methods.

Chem-Treat CL-241, which prevents foaming and allows the air stripper to operate at maximum efficiencies, contains dimethyl polysiloxane (i.e., silicone) which cannot be analyzed by direct methods.

The Discharger is required to minimize the use of Chem-Treat CL-4435 and Chem-Treat CL-241. The Discharger is required to record the average weekly dosages of

the compounds used, and their specific purposes. Chronic toxicity monitoring will be used to determine if the effluent is contributing to any toxicity to the receiving water.

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions

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

40 CFR 122.41(a)(1) and (b) through (n) establish conditions that apply to all State-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. 40 CFR 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 CFR 123.25, this Order omits federal conditions that address enforcement authority specified in 40 CFR 122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

B. Special Provisions

1. Reopener Provisions

- a. **Whole Effluent Toxicity.** This Order requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity through a 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. **Mixing Zone/Dilution Studies.** This Order requires the permit to be reopened should the Discharger complete mixing zone/dilution studies that indicate dilution is available to allow modification of water quality-based effluent limitations, as appropriate.
- c. **Best Available Technology (BAT) Study.** The groundwater treatment system utilizes air stripping, activated carbon, and a catalytic and thermal oxidizer and is capable of dependably removing the groundwater contaminants to concentrations that are non-detectable by current analytical technology. Therefore, several effluent limitations have been developed based on Best Professional Judgment, in accordance with 40 CFR 125.3. The Discharger has expressed concerns about the

ability of the current treatment system to meet the final effluent limitations for Tertiary Butyl Alcohol. If the Discharger conducts an acceptable Best Available Technology evaluation study that demonstrates that alternative effluent limitations are appropriate, this Order may be reopened to modify effluent limitations or other requirements.

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 from January 2003 through September 2005, 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 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 > 1 TUC (where TUC = $100/\text{NOEC}$) 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

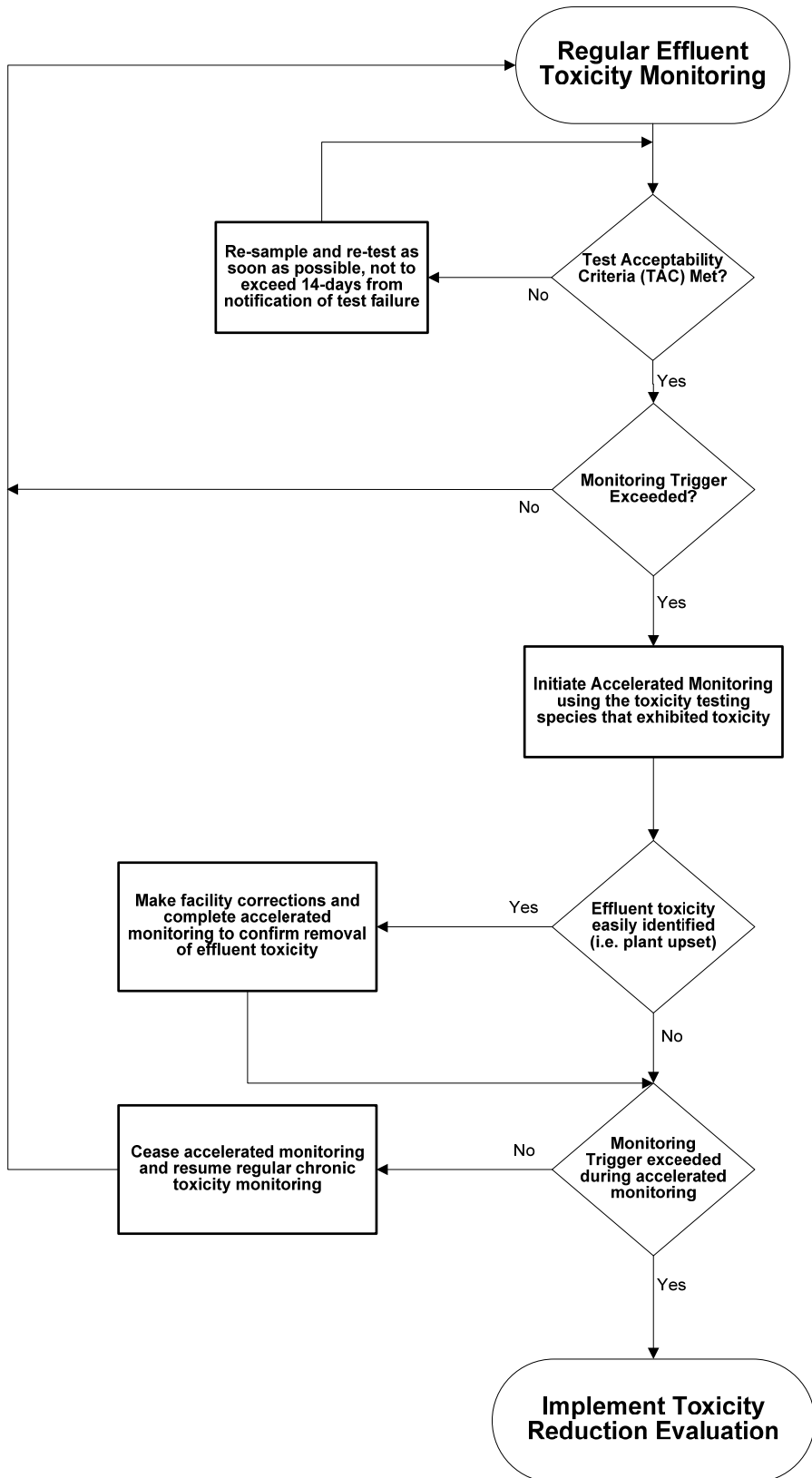
accelerated monitoring results, if there is adequate evidence of a pattern of effluent toxicity (i.e. toxicity present exceeding the monitoring trigger more than 20 percent of the time), the Executive Officer may require that the Discharger initiate a TRE.

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



3. Best Management Practices and Pollution Prevention

- a. **Salinity Evaluation and Minimization Plan.** The Discharger shall prepare and implement a salinity evaluation and minimization plan to address sources of salinity and shall provide annual reports demonstrating reasonable progress in the reduction of salinity in its discharge to the Gibson Canyon Flood Control Channel.

4. Construction, Operation, and Maintenance Specifications

Order No. 5-01-078 contained several provisions related to operation of the Facility's extraction and treatment system. These provisions were carried over to this Order to ensure proper operation of the extraction treatment system.

- a. The Discharger shall operate the treatment system for maximum removal efficiencies of groundwater contaminants.
- b. The Discharger shall operate the groundwater extraction network to achieve maximum contaminant plume capture.

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

6. Other Special Provisions

The purpose of this provision is to notify the Discharger that in the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, that the Discharger must notify the succeeding owner or operator of the existence of this Order.

7. Compliance Schedules – Not Applicable

VIII. PUBLIC PARTICIPATION

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

A. Notification of Interested Parties

The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and

has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through the following **<Describe Notification Process (e.g., newspaper name and date)>**

B. Written Comments

The staff determinations are tentative. Interested persons are invited to submit written comments concerning these tentative WDRs. Comments must be submitted either in person or by mail to the Executive Office at the Regional Water Board at the address above on the cover page of this Order.

To be fully responded to by staff and considered by the Regional Water Board, written comments should be received at the Regional Water Board offices by 5:00 p.m. on **14 December 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: 24/25 January 2008
Time: 8:30 am
Location: Regional Water Quality Control Board, Central Valley Region
11020 Sun Center Dr., Suite #200
Rancho Cordova, CA 95670

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

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

D. Waste Discharge Requirements Petitions

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

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

E. Information and Copying

The Report of Waste Discharge (RWD), related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Regional Water Board by calling (916) 464-3921.

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 Mr. James Marshall at (916) 464-4772.

ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Aluminum	µg/L	33	1,100	87	750 ⁽¹⁾	87 ⁽²⁾	--	--	--	200	Indeterminate
Ammonia	mg/L	0.12	0.37	0.58	2.14 ⁽¹⁾	0.58 ⁽³⁾	--	--	--	--	No
Antimony	µg/L	0.65	1.3	6	--	--	14	4,300	--	6	No
Arsenic	µg/L	1.9	2.7	10	340	150	--	--	--	10	No
Barium	µg/L	170	92	1,000	--	--	--	--	--	1,000	No
Benzene	µg/L	ND	ND	1	--	--	1.2	71	--	0.35 ⁽⁴⁾	Yes ⁽⁵⁾
Cadmium	µg/L	0.32	0.16	5	17	6.44	--	--	--	5	No
Chloride	mg/L	46	11	106	860 ⁽¹⁾	230 ⁽²⁾	--	--	--	106 ⁽⁶⁾	No
Chromium (Total)	µg/L	1.3	2	50	91.9	110	--	--	--	50	No
Copper	µg/L	2.9	6.6	27	44	27	1,300	--	--	1,000	No
Endrin aldehyde	µg/L	0.043	0.029	ND	--	--	0.76	0.81	ND	--	Indeterminate
Ethylbenzene	µg/L	ND	ND	300	--	--	3,100	29,000	--	29 ⁽⁷⁾	Yes ⁽⁵⁾
Fluoride	µg/L	570	500	2,000	--	--	--	--	--	2,000	No
Iron	µg/L	320	1,300	300	--	1,000 ⁽²⁾	--	--	--	300	Yes
Gamma-BHC	µg/L	ND	0.022	ND	0.95	--	0.019	0.063	ND	0.2	No
Manganese	µg/L	320	43	50	--	--	--	--	--	50	Yes
Methylene blue active substances (MBAS)	µg/L	51	21	500	--	--	--	--	--	500	No
Methyl tert butyl ether	µg/L	ND	ND	5	--	--	--	--	--	5	Yes ⁽⁵⁾
Nickel	µg/L	23	12	147	1,321	147	610	4,600	--	100	No
Nitrate	µg/L	11,000	810	10,000	--	--	--	--	--	10,000	Yes
Nitrite	µg/L	77	140	1,000	--	--	--	--	--	1,000	No
Selenium	µg/L	1.2	2.4	5	20	5	--	--	--	20	No
Specific Conductance (EC) @ 20°C	µmhos/cm	1,200	800	700	--	--	--	--	--	700 ⁽⁶⁾	Yes
Sulfate	mg/L	410	26	250	--	--	--	--	--	250	Yes
TCDD-equivalents	µg/L	ND	9.42 x 10 ⁻⁶	1.30 x 10 ⁻⁸	--	--	1.30 x 10 ⁻⁸	1.40 x 10 ⁻⁸	--	--	No
Total Dissolved Solids	mg/L	750	460	500	--	--	--	--	--	500	Yes
Total Petroleum Hydrocarbons	µg/L	ND	NA	--	--	--	--	--	--	100 ⁽⁸⁾	Yes ⁽⁵⁾

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
(Diesel/Gasoline)											
Xylene	µg/L	ND	ND	20	--	--	--	--	--	20	Yes ⁽⁵⁾
Zinc	µg/L	21	17	338	338	338	--	--	--	5,000	No

General Note: All inorganic concentrations are given as a total recoverable.
 MEC = Maximum Effluent Concentration
 B = Maximum Receiving Water Concentration or lowest detection level, if non-detect
 C = Criterion used for Reasonable Potential Analysis
 CMC = Criterion Maximum Concentration (CTR or NTR)
 CCC = Criterion Continuous Concentration (CTR or NTR)
 Water & Org = Human Health Criterion for Consumption of Water & Organisms (CTR or NTR)
 Org. Only = Human Health Criterion for Consumption of Organisms Only (CTR or NTR)
 Basin Plan = Numeric Site-specific Basin Plan Water Quality Objective
 MCL = Drinking Water Standards Maximum Contaminant Level
 NA = Not Available
 ND = Non-detect

Footnotes:
 (1) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 1-hour Average.
 (2) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 4-day Average.
 (3) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 30-day Average.
 (4) Cal/EPA Office of Environmental Health Hazard Assessment, Cancer Potency Factor as a Drinking Water Level
 (5) Although the constituent does not exceed the criterion, it is assumed that treated effluent from a petroleum release site triggers reasonable potential to exceed water quality standards for this constituent and effluent limitations have been established in this Order.
 (6) Water Quality for Agriculture.
 (7) USEPA Drinking Water Contaminant Fact Sheet, Taste and Odor Threshold
 (8) California's Office of Environmental Health Hazard Assessment cancer risk factor.