CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

CENTRAL VALLEY REGION

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ORDER NO. R5-2007-XXXX
NPDES NO. CA0078867

WASTE DISCHARGE REQUIREMENTS FOR BERRY PETROLEUM COMPANY POSO CREEK/MCVAN FACILITY POSO CREEK OIL FIELD KERN COUNTY

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

Table 1. Discharger Information

Discharger	Berry Petroleum Company
Name of Facility	Poso Creek/McVan Facility
Facility Address	Poso Creek Oil Field
	T27S, R27E, S14
	Kern 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 Berry Petroleum Company from the discharge point 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	Produced Water	35º, 34', 47" N	119º, 2', 38" W	Unnamed Tributary to Poso Creek

Table 3. Administrative Information

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

IT IS HEREBY ORDERED, that Order No. 5-01-133 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in Division 7 of the Water Code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 **<Adoption Date>**.

_____

PAMELA C. CREEDON, Executive Officer

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I. FACILITY INFORMATION

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

Table 4. Facility Information

Discharger	Berry Petroleum Company
Name of Facility	Poso Creek/McVan Facility
Facility Address	Poso Creek Oil Field
	T27S, R27E, S14
	Kern County
Facility Contact, Title, and Phone	Robert E. Boston, Environmental Health and Safety Manager, (661) 616-3900
Mailing Address	5201 Truxtun Avenue, Suite 300, Bakersfield, California 93309
Type of Facility	Crude Oil Extraction Facility
Facility Design Flow	1.68 (in million gallons per day)

II. FINDINGS

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

A. Background. Berry Petroleum Company (hereinafter Discharger) is currently discharging pursuant to Order No. 5-01-133 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0078867. The Discharger submitted a Report of Waste Discharge, dated 18 December 2003**,** and applied for a NPDES permit renewal to discharge up to 1.68 mgd of treated wastewater from McVan Area, Poso Creek Oil Field**,** hereinafter Facility. In January 2004, the Regional Water Board requested additional information from the Discharger to process the application. The Discharger submitted additional information in May 2005.

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

B. Facility Description. The Discharger owns and operates a crude oil recovery facility in oil field leases at the Poso Creek/McVan Facility, Poso Creek Oil Field. The crude oil recovery process generates produced water (wastewater) that is treated and discharged within the lease area. The treatment system consists of mechanical separation, air floatation, and sedimentation. Produced water is discharged from Discharge Point 001 (see table on cover page) to an unnamed ephemeral stream, a water of the United States and a tributary to Poso Creek within the South Valley Floor Hydrologic Unit, Kern Uplands Hydrologic Area (558.90). 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 are also incorporated into this Order.

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

F. Technology-based Effluent Limitations*.* Section 301(b) of the CWA and implementing USEPA permit regulations at section 122.44, title 40 of the Code of Federal Regulations (CFR) require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Effluent Limitations Guidelines and Standards for the Oil and Gas Extraction Category in Part 435 and Best Professional Judgment (BPJ) in accordance with Part 125, section 125.3. A detailed discussion of the technology-based effluent limitations development is included in the Fact Sheet (Attachment F).

G. Water Quality-based Effluent Limitations. Section 301(b) of the CWA and 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. Section 122.44(d)(1)(i) mandates that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, water quality-based effluent limitations (WQBELs) must be established using: (1) EPA 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 22.44(d)(1)(vi).

H. Water Quality Control Plans. The Regional Water Board adopted a *Water Quality Control Plan, Second Edition, for the Tulare Lake Basin* (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 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 the unnamed ephemeral stream, but does identify present and potential uses for Poso Creek, to which the unnamed stream is tributary. These beneficial uses are as follows: agricultural supply, water contact recreation, non-contact water recreation, warm freshwater habitat, cold freshwater habitat, wildlife habitat, groundwater recharge, and freshwater replenishment. Thus, the beneficial uses applicable to the unnamed tributary to Poso Creek and the underlying groundwater are as follows:

Table 5. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	**Unnamed Tributary to Poso Creek**	Existing (surface water): Agricultural supply (AGR), water contact recreation (REC-1), non-contact water recreation (REC-2), warm freshwater habitat (WARM), cold freshwater habitat (COLD), wildlife habitat (WILD), ground water recharge (GWR), and freshwater replenishment (FRSH).
	Groundwater	Existing (groundwater): Municipal and domestic water supply (MUN), agricultural supply (AGR), industrial service supply (IND), and water contact recreation (REC-1).

Requirements of this Order implement the Basin Plan.

I. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on December 22, 1992, and later amended it on May 4, 1995 and November 9, 1999. About forty criteria in the NTR applied in California. On May 18, 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 February 13, 2001. These rules contain water quality criteria for priority pollutants.

J. **State Implementation Policy.** On March 2, 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 April 28, 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 May 18, 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 February 24, 2005 that became effective on July 13, 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 Board Order WQ 2001-06 at pp. 53-55). See also Communities for a Better Environment (CBE) et al. v. State Water Resources Control Board, 34 Cal.Rptr.3d 396, 410 (2005). The Basin Plan includes a provision that authorizes the use of compliance schedules in NPDES permits provided that the schedule does not allow more than 10 years (from the adoption date of the objective or criteria) for compliance (see Basin Plan page IV-22). Consistent with the State Water Board's Order in the CBE matter, the Regional Water Board has the discretion to include compliance schedules in NPDES permits when it is including an effluent limitation that is a "new interpretation" of a narrative water quality objective. This conclusion is also consistent with the United States Environmental Protection Agency policies and administrative decisions. See, e.g., Whole Effluent Toxicity (WET) Control Policy. The Regional Water Board, however, is not required to include a schedule of compliance, but may issue a Time Schedule Order pursuant to Water Code section 13300 or a Cease and Desist Order pursuant to Water Code section 13301 where it finds that the discharger is violating or threatening to violate the permit. The Regional Water Board will consider the merits of each case in determining whether it is appropriate to include a compliance schedule in a permit, and, consistent with the Basin Plan, should consider feasibility of achieving compliance, and must impose a schedule that is as short as practicable to achieve compliance with the objectives, criteria, or effluent limit based on the objective or criteria.

For CTR constituents, Section 2.1 of the SIP provides that, based on a Discharger's request and demonstration that it is infeasible for an existing Discharger to achieve immediate compliance with an effluent limitation derived from a CTR criterion, compliance schedules may be allowed in an NPDES permit. Unless an exception has been granted under section 5.3 of the SIP, a compliance schedule may not exceed 5 years from the date that the permit is issued or reissued, nor may it extend beyond 10 years from the effective date of the SIP (or May 18, 2010) to establish and comply with CTR criterion-based effluent limitations. Where a compliance schedule for a final effluent limitation that 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.

L. Alaska Rule. On March 30, 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards (WQS) become effective for CWA purposes. (40 CFR 131.21; 65 Fed. Reg. 24641 (April 27, 2000).) Under the revised regulation (also known as the Alaska rule), new and revised standards submitted to USEPA after May 30, 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 May 30, 2000 may be used for CWA purposes, whether or not approved by USEPA.

M. Stringency of Requirements for Individual Pollutants. This Order contains technology-based effluent limitations for individual pollutants. The technology-based effluent limitations consist of restrictions on oil and grease. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements and are no more stringent than required to implement the technology-based requirements of the CWA.

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

O. Anti-Backsliding Requirements. Sections 402(o)(2) and 303(d)(4) of the CWA and 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 that those in the previous Order. As discussed in detail in the Fact Sheet this relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

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

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

R. Provisions and Requirements Implementing State Law. The provisions/requirements in subsections V.B and VI.C of this Order are included to

implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.

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 waste other than treated oilfield produced water at the location and in the manner described in the Findings and authorized herein is prohibited.

B. The bypass 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. Discharge of waste classified as ‘hazardous’, as defined in section 2521(a) of Title 23, CCR, section 2510 et seq., or of waste classifiable as ‘designated’, as defined in CWC section 13173, such as water softener brine, is prohibited.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point 001

1. Final Effluent Limitations – Discharge Point 001

The Discharger shall maintain compliance with the following effluent limitations at Discharge Point 001, with compliance measured at Monitoring Location EFF-001 as described in the attached MRP (Attachment E):

a. Limitations in Table 6, as set forth below:

Table 6. Effluent Limitations

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Flow	mgd	--	1.68	--	--
pH	standard	--	--	6.5	8.3
Electrical Conductivity at 25°C	umhos/cm	--	1000	--	--
Chloride	mg/L	--	175	--	--
	lbs/day[1]	--	2453	--	--
Boron, Total Recoverable	mg/L	--	1	--	--
	lbs/day[1]	--	0.014	--	--
Oil and Grease	mg/L	--	35	--	--
	lbs/day[1]	--	0.49	--	--

1 Based on a design flow of 1.68 mgd.

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

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

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 the unnamed tributary to Poso Creek:

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

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

3. **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 at centroid of flow;
    b. The 95 percentile dissolved oxygen concentration to fall below 75 percent of saturation; nor
    c. The dissolved oxygen concentration to be reduced below 5.0 mg/L at any time.

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 8.3, or changed by more than 0.3 units.

8. **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.

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

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

11. **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 to domestic or municipal water supplies.

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

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

14. **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

The discharge shall not cause greater salinity degradation of the underlying groundwater than authorized by salinity effluent limitations and provisions specified herein.

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 five 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 ninety days of having been advised in writing by the Regional Water Board that the existing safeguards are inadequate, provide to the Regional Water Board and USEPA a schedule of compliance for providing safeguards such that in the event of reduction, loss, or failure of electric power, the Discharger shall comply with the terms and conditions of this Order. The schedule of compliance shall, upon approval of the Regional Water Board, become a condition of this Order.

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

   The technical report shall:

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

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

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

   The Regional Water Board, after review of the technical report, may establish conditions which it deems necessary to control accidental discharges and to

minimize the effects of such events. Such conditions shall be incorporated as part of this Order, upon notice to the Discharger.

l. A publicly owned treatment works (POTW) whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment and disposal facilities. The projections shall be made in January, based on the last three 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 four 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. 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 (559) 445-5116 within 24 hours of having knowledge of such noncompliance, and shall confirm this notification in writing within five 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

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 requires the Discharger to conduct monthly monitoring of the effluent for total recoverable lead and zinc. After collecting at least one-year of data, the Discharger shall determine if the discharge has reasonable potential to exceed water quality objectives or criteria for the constituents. Based on a review of the reasonable potential analysis, this Order may be reopened for addition and/or modification of effluent limitations and requirements for these constituents. This Order also requires the Discharger to conduct a study of molybdenum and determine appropriate water quality limitations. Based on the results of the study, this Order may be reopened to include receiving water and effluent

limitations for molybdenum. This Order requires the Discharger to conduct a study to examine the evidence concerning the designated beneficial uses of COLD and WARM and whether project modifications are necessary to mitigate potential impacts of elevated temperature waste on COLD and WARM. Depending on the results of the study, and whether the Regional Water Board determines COLD should be dedesignated, this Order will be reopened as necessary to establish or modify effluent or receiving water limitations such that beneficial uses are fully protected from potential thermal impacts.

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

c. 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.

d. **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.

e. **Water Effects Ratios (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating CTR criteria for applicable priority pollutant inorganic constituents. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

f. **Constituent Study.** If after review of the study results it is determined that the discharge has reasonable potential to cause or contribute to an exceedance of a water quality objective this Order may be reopened and effluent limitations added for the subject constituents.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

a. **Beneficial Use Study.** The Discharger shall submit, **within 180 days** of the adoption of the Order, a written work plan with a proposed time schedule to conduct a study to determine:

   i. Whether COLD exists or has potential to exist in the unnamed tributary and down stream of its confluence with Poso Creek (if the receiving water was unaffected by elevated temperature waste). If COLD does not and has no reasonable potential to exist in such setting, the study should provide evidence suitable to support a use attainability analysis in accordance with 40 CFR 131.10 and a possible Basin Plan amendment to dedesignate COLD for the reach studied. If COLD does or has reasonable potential to exist in such setting, the study must either demonstrate that the elevated temperature waste discharge does not affect COLD or provide a work plan and time schedule for implementing project modifications that fully protects COLD.

   ii. Whether elevated temperature waste discharge adversely affects WARM beneficial uses of the unnamed tributary and Poso Creek. If the discharge adversely affects WARM, the study must provide a proposed effluent limitation for temperature sufficient to protect WARM under all foreseeable discharge conditions and a work plan and time schedule to implement project modifications to achieve the limitation.

   The work plan, time schedule and study must be designed and implemented by appropriate professionals with experience conducting in-field aquatic studies and engineering works to meet effluent limitations.

b. **Salinity Evaluation and Minimization Plan.** The Discharger shall prepare a salinity evaluation and minimization plan to address sources of salinity from the Facility. The plan shall be completed and submitted to the Regional Water Board **within nine months of the effective date of this Order** for approval by the Executive Officer.

c. **Molybdenum Study.** The Discharger shall submit, **within 180 days** of the adoption of the Order, a work plan with a proposed time schedule to conduct a study and determine an appropriate water quality limitation for molybdenum that fully protects designated beneficial uses of the unnamed tributary and, if necessary, propose an appropriate effluent limit for molybdenum to ensure the discharge does not cause exceedance of the water quality limitation. The study shall, at a minimum, determine: (1) the spatial extent of surface water and groundwater affected, or potentially affected, by the discharge, (2) an applicable water quality limitation for molybdenum based on identified forms of designated beneficial uses that occur and are probable of surface water and groundwater

affected by the discharge, and (3) a numerical effluent limit for molybdenum if a reasonable potential is found.

d. **Chronic Whole Effluent Toxicity.** The Discharger shall conduct chronic whole effluent toxicity testing, as specified in the Monitoring and Reporting Program (Attachment E, Section V.). Furthermore, the Discharger shall 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 shall 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.

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

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

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

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

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

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

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

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

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

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

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

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

3) A schedule for these actions.

3. Best Management Practices and Pollution Prevention - Not Applicable

4. Construction, Operation and Maintenance Specifications

a. The sumps and other portions of the Facility that have the potential to attract wildlife shall be free of oil coatings or shall be covered or screened to preclude entry of bird and animal life.

b. The sumps shall be protected from inundation or washout due to floods with a 100-year return frequency.

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

6. Other Special Provisions

a. Sludge Disposal Requirements

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

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

iii. Within **60 days** of the adoption of the Order, the Discharger shall submit a Sludge Management Plan describing the annual volume of sludge generated by the Facility and specifying the method and location of sludge disposal or reuse.

b. 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

ATTACHMENT A – DEFINITIONS

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

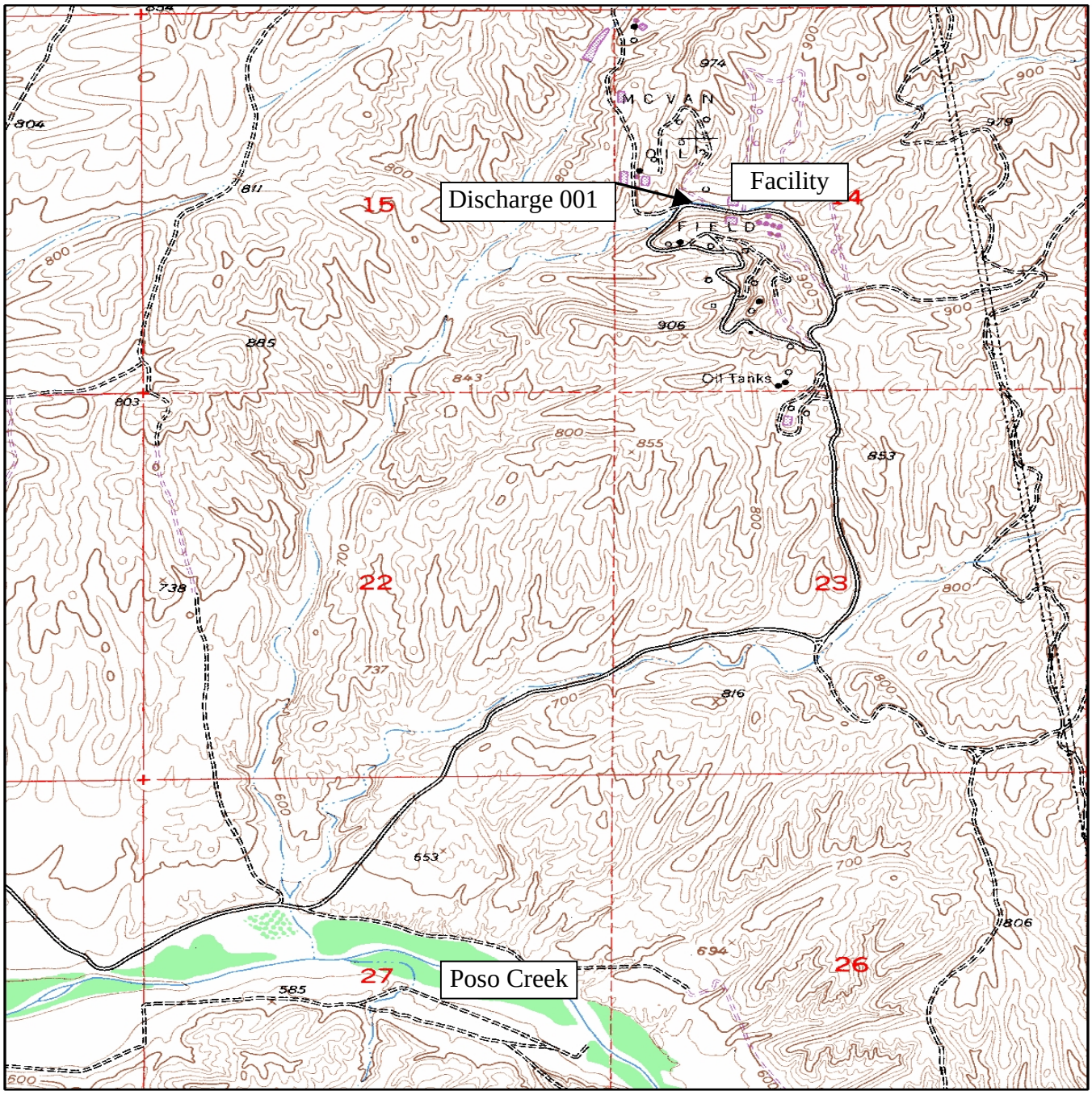
where:

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

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

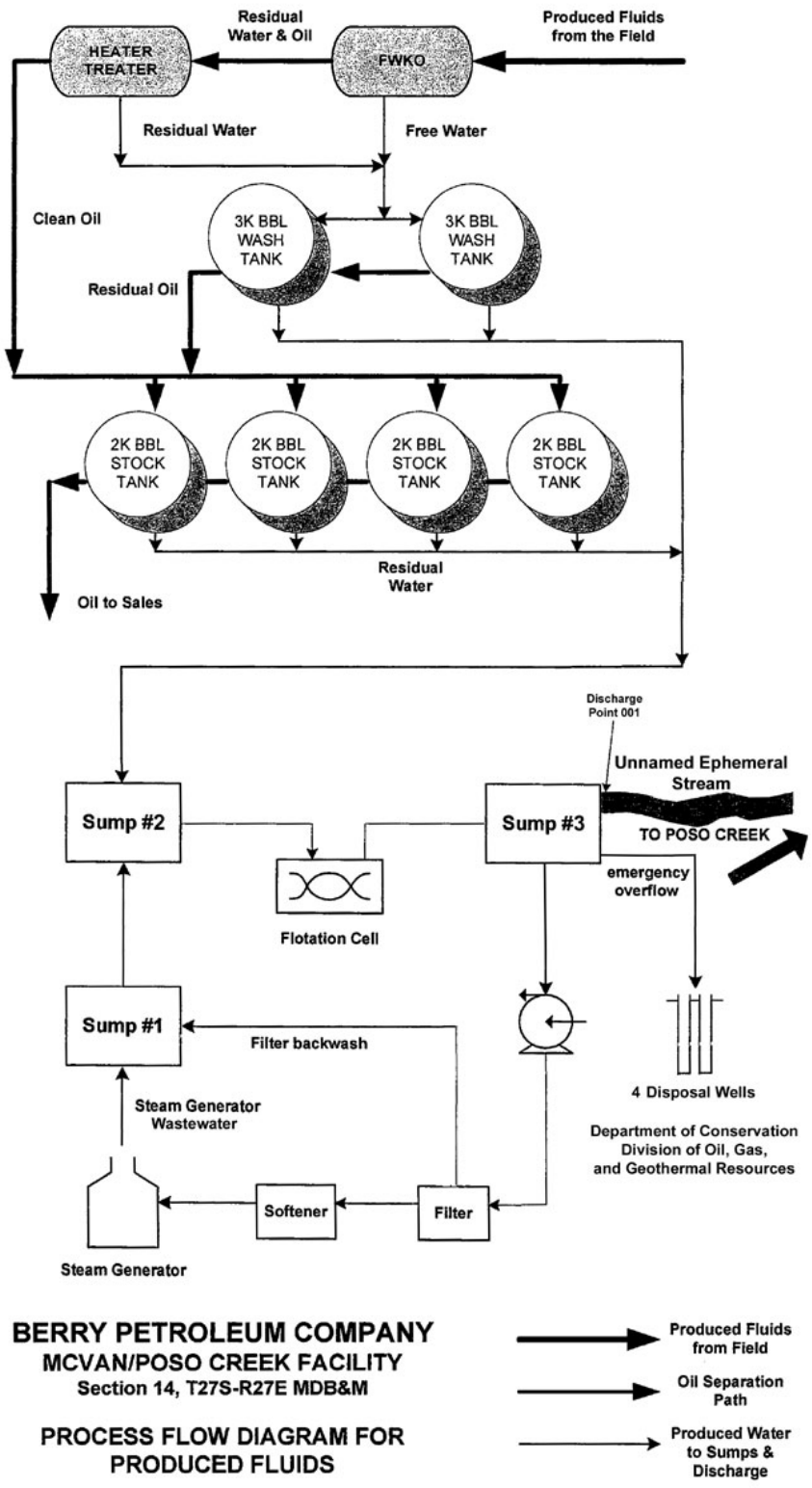
evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best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

ATTACHMENT B – MAP



Drawing Reference: **NORTH OF OILDALE** U.S.G.S TOPOGRAPHIC MAP 7.5 MINUTE QUADRANGLE *1954, Photorevised 1968* *Not to scale*	SITE LOCATION MAP BERRY PETROLEUM COMPANY MCVAN AREA, POSO CREEK OIL FIELD KERN COUNTY	N W E S

ATTACHMENT C – FLOW SCHEMATIC



ATTACHMENT D –STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

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

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

B. Need to Halt or Reduce Activity Not a Defense

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

C. Duty to Mitigate

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

D. Proper Operation and Maintenance

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

E. Property Rights

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

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

F. Inspection and Entry

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

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

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

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

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

G. Bypass

1. Definitions

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

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

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

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

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

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

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

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

5. Notice

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

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

H. Upset

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

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

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

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

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

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

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

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

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

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

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

B. Duty to Reapply

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

C. Transfers

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

III. STANDARD PROVISIONS – MONITORING

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

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

IV. STANDARD PROVISIONS – RECORDS

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

B. Records of monitoring information shall include:

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

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

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

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

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

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

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

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

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

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

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

B. Signatory and Certification Requirements

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

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

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

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

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

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

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

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

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

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

C. Monitoring Reports

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

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

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

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

D. Compliance Schedules

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

E. Twenty-Four Hour Reporting

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

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

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

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

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

F. Planned Changes

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

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

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are subject neither to effluent limitations in this Order nor to notification requirements under section 122.42(a)(1) (see Additional Provisions—Notification Levels VII.A.1). (40 CFR 122.41(l)(1)(ii).)

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

G. Anticipated Noncompliance

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

H. Other Noncompliance

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

I. Other Information

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

VI. STANDARD PROVISIONS – ENFORCEMENT

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

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Non-Municipal Facilities

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

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

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

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

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

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

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

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

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

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

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

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

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
001	EFF-001	After all treatment units, prior to discharge to the unnamed tributary to Poso Creek
--	RSW-001	250 feet upstream from the point of discharge to the unnamed tributary to Poso Creek
--	RSW-002	250 feet downstream from the point of discharge to the unnamed tributary to Poso Creek

III. INFLUENT MONITORING REQUIREMENTS – Not Applicable

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

1. The Discharger shall monitor the discharge of wastewater to the unnamed tributary to Poso Creek at EFF-001 as follows. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding Minimum Level:

Table E-2. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and (Minimum Level, units), respectively
Flow	mgd	Meter	Continuous	
Temperature[1]	°F	Meter	1/month[5]	
pH	standard	Grab	1/month[5]	2
Electrical Conductivity @ 25°C	umhos/cm	Grab	1/month[5]	2
Chloride	mg/L	Grab	1/month	2
Boron, Total Recoverable	mg/L	Grab	1/month	2
Oil and Grease	mg/L	Grab	1/month	2
Lead, Total Recoverable	ug/L	Grab	1/month	2,3
Zinc, Total Recoverable	ug/L	Grab	1/month	2,3
Molybdenum, Total Recoverable	ug/L	Grab	1/month	2
Standard Minerals[4]	mg/L	Grab	1/year[5]	2
Priority Pollutants	ug/L	Grab	1/year[5]	2,3

[1] Effluent Temperature monitoring shall be at the Outfall location.

[2] Samples shall be analyzed using the methods and procedures described in the 40 CFR 136. The Discharger shall use a Department of Health Services licensed laboratory capable of providing method detection limits and minimum levels sufficient to determine compliance with effluent limitations.

[3] 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.

[4] Standard minerals shall include the following: boron, calcium, iron, magnesium, potassium, sodium, chloride, manganese, phosphorus, total alkalinity (including alkalinity series), and hardness, and include verification that the analysis is complete (i.e., cation/anion balance).

[5] Concurrent with receiving surface water sampling.

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

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

1. *Monitoring Frequency* – the Discharger shall perform annual acute toxicity testing, concurrent with effluent monitoring and sampling.

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

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

4. *Methods* – The acute toxicity testing samples shall be analyzed using EPA-821-R-02-012, Fifth Edition. Temperature, total residual chlorine, 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 annual three species chronic toxicity testing concurrent with effluent monitoring and sampling.

2. *Sample Types* – Effluent samples shall be grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent monitoring location specified in the Monitoring and Reporting Program. The receiving water control shall be a grab sample obtained from the RSW-001 sampling location, as identified in the Monitoring and Reporting Program. In the absence of receiving water (due to ephemeral nature of tributary), an alternate control sample shall be obtained from Poso Creek. If Poso Creek water is not available, lab water may be used as a control.

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

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

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

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

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

7. *Dilutions* – The chronic toxicity testing shall be performed using 100% effluent and two controls. If toxicity is found in any effluent test, the Discharger must immediately retest using the dilution series identified in Table E-3, below. The receiving water control shall be used as the dilutent (unless the receiving water is toxic). If the receiving water is toxic, laboratory control water may be used as the dilutent, in which case, the receiving water should still be sampled and tested to provide evidence of its toxicity. In the absence of receiving water (due to ephemeral nature of tributary), an alternate dilutent sample may be obtained from Poso Creek.

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.C.2.a.iii of this Order)

Table E-3. Chronic Toxicity Testing Dilution Series

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

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

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

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

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

   b. The statistical methods used to calculate endpoints;

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

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

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

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

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

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

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

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

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

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

VI. Land Discharge Monitoring Requirements – Not Applicable

VII. Reclamation Monitoring Requirements – Not Applicable

VIII. Receiving Water Monitoring Requirements – Surface Water

A. Monitoring Location RSW-001 and RSW-002

1. The Discharger shall monitor the unnamed tributary to Poso Creek at RSW-001 and RSW-002 as follows:

Table E-4. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Dissolved Oxygen	mg/L	Grab	1/month	1
pH	Standard	Grab	1/month	1
Temperature	°F	Grab	1/month	1
Electrical Conductivity @ 25°C	umhos/cm	Grab	1/month	1
Hardness (as $CaCO_3$)	mg/L	Grab	1/month	1
Lead, Total Recoverable	ug/L	Grab	1/month	1,2
Zinc, Total Recoverable	ug/L	Grab	1/month	1,2
Molybdenum, Total Recoverable	ug/L	Grab	1/month	1

[1] Samples shall be analyzed using the methods and procedures described in the 40 CFR 136. The Discharger shall use a Department of Health Services licensed laboratory capable of providing method detection limits and minimum levels sufficient to determine compliance with effluent limitations.

[2] 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. In conducting the receiving water sampling, a log shall be kept of the receiving water conditions throughout the reach bounded by RSW-001 and RSW-002. Notes on receiving water conditions shall be summarized in the monitoring reports. Attention shall be given to the presence 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

IX. Other Monitoring Requirements

A. Sumps and Facility Monitoring

1. The Discharger shall regularly inspect sumps and other portions of the Facility that have the potential to attract birds and animal life. A log shall be kept of the sumps and facility conditions. Attention shall be given to the presence or absence of:

   Unscreened / Uncovered Sumps and Facilities

   a. Oil sheen or coatings in sumps and conveyance structures
   b. Animals (e.g. birds, rodents, etc.) in sumps, conveyance structures, and tanks

   Screened / Covered Sumps and Facilities

   a. Integrity of the screen /cover
   b. Effectiveness of the screen / cover

Notes on observed conditions at or of the aforementioned sumps and portions of the Facility shall be summarized in the monitoring report for all sumps and portions of the Facility in use. The summary shall also indicate whether any remedial action is needed or was taken to ensure compliance with the Special Provision VI.C.4.b, and shall briefly explain what action has been taken or is scheduled to be taken.

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. **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.

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

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

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

B. Self Monitoring Reports (SMRs)

1. At any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit Self-Monitoring Reports (SMRs) using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (http://www.waterboards.ca.gov/ciwqs/index.html). Until such notification is given, the Discharger shall submit hard copy SMRs. The CIWQS Web site will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.

2. Monitoring results shall be submitted to the Regional Water Board by the first day of the second month following sample collection. Annual monitoring results shall be submitted by the first day of the second month following each calendar year.

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, etc., shall be determined and recorded as needed to demonstrate compliance.

4. 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 – Fresno Branch Office
   1685 E Street
   Fresno, California 93706

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

Table E-5. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
Continuous	**Permit effective date**	**All**	**Submit with monthly SMR**
Monthly	**First day of calendar month following permit effective date or on permit effective date if that date is first day of the month**	**1st day of calendar month through last day of calendar month**	**First day of second month following sample collection**
Annually	**Permit effective date**	**January 1 through December 31**	**First day of second month following calendar year**

C. Discharge Monitoring Reports (DMRs) – Not Applicable

D. Other Reports

1. Within **60 days** of permit adoption, the Discharger shall submit a report outlining minimum levels, method detection limits, and analytical methods for approval, with a goal to achieve detection levels below applicable water quality criteria. At a minimum, the Discharger shall comply with the monitoring requirements for CTR constituents as outlined in Section 2.3 and 2.4 of the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California*, adopted 2 March 2000 by the State Water Resources Control Board. All peaks identified by analytical methods shall be reported.

2. **Annual Operations Report**. By **30 January** of each year, the Discharger shall submit a written report to the Executive Officer containing the following:

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

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

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

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

ATTACHMENT F – FACT SHEET

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ATTACHMENT F – FACT SHEET

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

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

I. PERMIT INFORMATION

The following table summarizes administrative information related to the facility.

Table F-1. Facility Information

WDID	**5D152202001**
Discharger	Berry Petroleum Company
Name of Facility	Poso Creek/McVan Facility
Facility Address	Poso Creek Oil Field T27S, R27E, S14 Kern County
Facility Contact, Title and Phone	Robert E. Boston, Environmental Health and Safety Manager (661) 616-3900
Authorized Person to Sign and Submit Reports	Robert E. Boston, Environmental Health and Safety Manager (661) 616-3900
Mailing Address	5201 Truxtun Avenue, Suite 300, Bakersfield, California 93309
Billing Address	SAME
Type of Facility	Crude Oil Extraction Facility, SIC Code: 1311 (Crude Petroleum and Natural Gas)
Major or Minor Facility	Minor
Threat to Water Quality	2
Complexity	B
Pretreatment Program	Not Applicable
Reclamation Requirements	Not Applicable
Facility Permitted Flow	1.68 (in million gallons per day)
Facility Design Flow	1.68 (in million gallons per day)
Watershed	South Valley Floor Hydrologic Unit, Kern Uplands Hydrologic Area (558.90)
Receiving Water	Unnamed Tributary to Poso Creek
Receiving Water Type	Inland Surface Water

A. Berry Petroleum Company (hereinafter Discharger) operates a crude oil extraction facility (hereinafter Facility) in the Poso Creek Oil Field, Kern County.

B. The Facility discharges produced water (wastewater) to an unnamed tributary of Poso Creek, a water of the United States, and is currently regulated by Order No. 5-01-133, which was adopted on 14 June 2001 and was to expire on 15 June 2006. The terms and conditions of the current Order 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 18 December 2003. In January 2004, the Regional Water Board requested additional information from the Discharger to process the application. The Discharger submitted additional information in May 2005 and again in March 2006.

II. FACILITY DESCRIPTION

The Discharger owns and operates crude oil producing wells and a produced wastewater treatment and disposal system within the Poso Creek Oil Field. The Discharger operates in eight (8) oil field leases (Enas Fee, Desert Glow, Fitzhugh, Leo, McVan, Poso, USL-14, and USL-35) owned and managed by the U.S. Department of Interior, Bureau of Land Management (BLM). The Facility is in the southwest quarter Section 14, T27S, R27E, MDB&M. Oil and water produced from each wellhead is brought to the Facility via a pipeline. The Discharger currently operates 85 active wells that produce approximately 1,000 barrels (bbl) of oil per day and 45,000 bbl of water per day.

A. Site Conditions

1. Average annual precipitation and evaporation for the area are 6.8 inches and in excess of 80 inches, respectively. The 100-year, 24-hour, maximum precipitation is 3.7 inches, based on maps obtained from the Kern County Department of Public Works, Floodplain Management Division. The Facility is not within the 100-year floodplain.

2. The Kern County Water Agency (KCWA) prepares and publishes annual water supply reports for the San Joaquin Valley portion of Kern County. The report includes maps which depict depth to groundwater and groundwater surface elevation data. Based on review of maps dated Spring 1999, groundwater is expected to be approximately 550 feet below ground surface in the area of the Facility (Note: the area of the Facility was not within a mapped area and the estimated depth to groundwater is based on the nearest contour line). Based on groundwater surface elevation data provided by the KCWA, the direction of groundwater flow appears to be southwesterly.

3. The groundwater basin of the Kern County portion of the San Joaquin Valley is a basin of interior drainage with no appreciable surface or subsurface outflow. For 1998, the KCWA reports that surface water supplies provided about 504,100 tons of salts into the basin. Groundwater extractions were calculated to be about 1,290,200 acre-feet in 1998 (including oil field produced water). KCWA reports that an average of about 25 percent of applied water percolates through the soil profile and reaches

the groundwater. Review of water quality maps prepared by the KCWA suggests that the groundwater beneath the Facility has a TDS concentration less than 500 mg/L.

4. The Facility discharges wastewater to an unnamed tributary of Poso Creek. The tributary trends west and south and reaches Poso Creek approximately two miles from the Facility. Poso Creek is part of the Poso watershed. The Poso watershed is one of four “minor stream” watersheds that provide the second largest source of surface water for the basin, after the Kern River (ref: KCWA). For 1998, the Poso stream group provided about 163,100 acre-feet of water to the basin.

B. Description of Wastewater Treatment or Controls

Oil and water produced from the eight oil field leases enter a free water knock-out (FWKO) and heater treater connected in series. Oil and water are directed to a series of two 3,000-bbl wash tanks where the oil is separated from the water by residence time and chemical treatment. Oil from the heater treater and wash tanks is then directed to four 2,000-bbl stock tanks. The produced water from the wash tanks and stock tanks are directed to Sump #2 for evaporation and percolation. From Sump #2, the produced water is further polished in an air flotation unit prior to discharge to Sump #3. Polymer is added to enhance performance during clarification. From Sump #3 the produced water is discharged to either the unnamed tributary to Poso Creek or to one of the four Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR) regulated water disposal wells. The disposal wells are utilized for emergency overflow for the Facility.

The Discharger takes advantage of thermally enhanced oil recovery practice known as steamflooding. The steamflood oil recovery process helps increase oil production at the Facility. Produced water pumped from Sump #3 is the water source for the two steam generators at the Facility. The produced water is filtered and softened prior entry to the steam generators. Berry reports that the water softening process produces a brine waste that is containerized and hauled offsite for disposal. Filter backwash and steam generator wastewater are discharged to Sump #1. From Sump #1, the wastewater is pumped to Sump #2.

C. Discharge Points and Receiving Waters

1. The Facility is shown in Attachment B (Site Location Map), a part of this Order. The Facility is on federal property managed and regulated by BLM.

2. Treated wastewater is discharged at Discharge Point 001, latitude 35°34’47” N and longitude 119°2’38” W.

3. The unnamed tributary to Poso Creek is an effluent dominated water body. Under typical weather conditions during the term of Order No. 5-01-133, when the maximum effluent flow limitation was 0.42 mgd, flow in the unnamed tributary to Poso Creek was reported to terminate approximately 900 feet downstream from Discharge Point 001.

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

Effluent limitations contained in the existing Order for discharges from Discharge Point 001 (Monitoring Location EFF-001) and representative monitoring data from the term of the previous Order are as follows:

Table F-2. Historic Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitation			Monitoring Data (From August 2003 – August 2006)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Flow	mgd	--	--	0.42	--	--	0.546
pH	Standard	--	--	[6.5, 8.5][1]	--	--	[6.7, 7.9][1]
Electrical Conductivity @25°C	umhos/cm	--	--	700	--	--	426
Chloride	mg/L	--	--	106	--	--	86.2
Boron, Total Recoverable	mg/L	--	--	0.75	--	--	0.37
Oil and Grease	mg/L	--	--	35	--	--	26

[1] Instantaneous minimum – maximum range.

E. Compliance Summary

Order No. 5-01-133 contains an effluent flow limitation of 0.42 mgd. Review of effluent monitoring data from August 2003 through August 2005 indicates there were 26 instances where the effluent flow limitation was exceeded. No other effluent limitation exceedances were documented.

F. Planned Changes

The Facility has no planned changes within the time scope of this Order.

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, Second Edition, for the Tulare Lake Basin* (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. By the Basin Plan tributary rule, the beneficial uses of the unnamed tributary to Poso Creek are agricultural supply, water contact recreation, non-contact water recreation, warm freshwater habitat, cold freshwater habitat, wildlife habitat, groundwater recharge, and freshwater replenishment.

   The Basin Plan on page II-1 states: *"Protection and enhancement of beneficial uses of water against quality degradation is a basic requirement of water quality planning under the Porter-Cologne Water Quality Control Act. In setting water quality objectives, the Regional Water Board must consider past, present, and probable future beneficial uses of water."* and with respect to disposal of wastewaters states that "...*use of waters for disposal of wastewaters is not included as a beneficial use…and are subject to regulation as activities that may harm protected 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 States to adopt water quality standards which consider use and value of water for 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 November 28, 1975, whether or not they are included in the water quality standards. 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.

2. **Thermal Plan – Not Applicable.**

3. **Bay-Delta Plan – Not Applicable.**

4. **Antidegradation Policy.** The discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution 68-16.

5. **Anti-Backsliding Requirements.** Compliance with the Anti-Backsliding requirements is discussed in Section IV.D.3.

6. **Emergency Planning and Community Right to Know Act – Not Applicable**.

7. **Stormwater Requirements.** Effective 12 June 2006, USEPA published a rule that exempts construction activities at oil and gas sites from the requirement to obtain an NPDES permit for storm water discharges except in very limited instances. This action also encourages voluntary application of best management practices for construction activities associated with oil and gas field activities and operations to minimize erosion and control sediment to protect surface water quality.

8. **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 USCA 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 – Not Applicable

E. Other Plans, Polices and Regulations – Not Applicable

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

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

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 USC 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 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*." 40 CFR 122.44(d)(1)(vi) further provides 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-21, contains an implementation policy ("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) EPA'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.

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. 40 CFR 122.41 (m), define "bypass" as the intentional diversion of waste streams from any portion of a treatment facility. This section of 40 CFR 122.41 (m)(4) prohibits bypass unless it is unavoidable to prevent loss of life, personal injury, or severe property damage. The State Water Board adopted a precedential decision, Order No. WQO 2002-0015, which cites 40 CFR 122.41(m) as allowing bypass only for essential maintenance to assure efficient operation.

2. The prohibitions limit the discharge to the unavoidable wastewater produced in recovery of oil as described by the Discharger and only as authorized by the Order. Another prohibition, for emphasis, prohibits discharge of water softener brines.

B. Technology-Based Effluent Limitations

1. Scope and Authority

The CWA requires USEPA to develop effluent limitations, guidelines and standards (ELGs) representing application of best practicable treatment control technology (BPT), best available technology economically achievable (BAT), best conventional

pollutant control technology (BCT), and new source performance standards (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 section 125.3.

2. Applicable Technology-Based Effluent Limitations

a. **Flow.** Order No. 5-01-133 established a maximum daily effluent flow limitation of 0.42 mgd for the Facility based on the operations and observed daily maximum flows at the time. Previous Order No. 95-153, adopted 23 June 1995, established a maximum discharge flow of 1.68 mgd based on the design capacity of the Facility and oil extraction methods used at the time (i.e. steamflooding). The Discharger has requested an increase of flow back to that authorized by previous Order No. 95-153 due to improving market conditions that would again support steamflooding. As of April 2004, the Discharger employed steamflooding to increase oil production at the Facility thus increasing produced water to be discharged. Based on the Discharger's application, the design flow for the Facility remains at 1.68 mgd. This Order replaces the Order No. 5-01-133 maximum daily flow limitation with 1.68 mgd for discharge to the unnamed tributary to Poso Creek.

b. **Oil and Grease**. 40 CFR 435 (Effluent Limitations for the Oil and Gas Extraction Point Source Category) establish minimum levels of effluent quality for discharges from facilities in the oil and gas extraction industry. Subpart E (Agricultural and Wildlife Water Use Subcategory) applies to this Discharger. The applicable section of the subpart states:

"*The provisions of this subpart are applicable to those onshore facilities located in the continental United States and west of the 98th meridian for which the produced water has a use in agriculture and wildlife propagation when discharged into navigable waters. These facilities are engaged in the production, drilling, well completion, and well treatment in the oil and gas extraction industry.*"

In the Agricultural and Wildlife Water Use subcategory, TBELs are presented for best practicable control technology (BPT) for direct discharges. Limitations for the conventional pollutant oil and grease are based on BPT and are a daily maximum of 35 mg/L. Order No. 5-01-133 established technology based effluent limitations for oil and grease based on effluent limitation guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available. This Order carries over the TBEL for oil and grease established by Order No. 5-01-133.

Furthermore, under no circumstances shall the Discharger operate the Facility in such a manner that the oil and grease in the discharge violates any narrative limitations established by the receiving water limitations of this Order. The Discharger may have to treat oil and grease to a level below the 35 mg/L

limitation if a lower oil and grease concentration is necessary to prevent a violation of the receiving water limitations.

Summary of Technology-Based Effluent Limitations
Discharge Point 001

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

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Flow	mgd	--	--	1.68	--	--
Oil and Grease	mg/L	--	--	35	--	--
	lbs/day	--	--	0.49	--	--

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

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

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

a. **Receiving Water Temperature.** The receiving water is the unnamed tributary to Poso Creek. The Basin Plan designates beneficial uses for Poso Creek, but not for the tributary. By the Basin Plan's tributary rule, the following designated beneficial uses of Poso Creek are applicable to the unnamed tributary: agricultural supply, water contact recreation, non-contact water recreation, warm freshwater habitat, cold freshwater habitat, wildlife habitat, groundwater recharge, and freshwater replenishment.

Given the ephemeral nature of Poso Creek and the unnamed tributary, cold freshwater habitat (COLD) does not appear to be a beneficial use for these reaches. The discharge is not compatible with such use. The Discharger employs steamflooding to enhance oil recovery and this elevates the temperature of the discharge. Between July 2004 and November 2005, the Discharger reported the temperature of the effluent discharge to range from 47° to 50° C (approximately 116° to 120° F). The Discharger also collected monthly temperature readings from Poso Creek (precise locations not reported but likely

upstream and downstream of confluence of tributary and Poso Creek) between February and June 2005; these readings ranged from about 52° to 76° F but were within 0.5° F for each set of monthly measurements. The Discharger reports that historical effluent flow did not typically reach Poso Creek. However, discharge flows have increased with oilfield production, and the proposed Order authorizes an increase of flow four times that of the current permit limit. During a February 2007 inspection, Regional Water Board staff observed that the discharge nearly reached Poso Creek about two miles downstream from the discharge point. The flow downstream of the discharge location consisted solely of the discharge from the Facility. At the time of the inspection, Poso Creek was dry a short distance downstream from the confluence of the tributary. No aquatic life or wild life was observed in the tributary. The tributary watershed was primarily occupied by open ranch land and oilfield operations. The tributary channel upstream from the discharge outfall was not well defined due to historic oilfield operations; no runoff or drainage was observed at the time of the inspection.

This Order recognizes that COLD is a designated use and by law must be protected, but authorizes an ongoing and increased discharge of elevated temperature waste due to flow conditions and field observations which indicate that COLD beneficial use is improbable. The Order requires the Discharger to conduct monthly sampling of temperature for the effluent and receiving water and monthly sampling of dissolved oxygen for the receiving water. To properly resolve the apparent contradiction in the longterm, this Order requires the Discharger to conduct a study to investigate and provide evidence on whether COLD exists or could potentially exist in the unnamed tributary and down stream of its confluence with Poso Creek (if waste with elevated temperature was not discharged), and if so, in what specific reaches. The study must be conducted by a professional with appropriate experience to conduct an in-field aquatic study and to provide all necessary documentation for a use attainability analysis in accordance with 40 CFR 131.10 and for consideration of a possible Basin Plan amendment to dedesignate COLD. If COLD does exist, the Discharger must either demonstrate that its discharge does and will not affect COLD or provide a work plan and time schedule for implementing project modifications that fully protect COLD.

Similarly, this Order also requires the Discharger to address whether waste with elevated temperatures adversely affects WARM beneficial uses of the unnamed tributary and Poso Creek. If the discharge is found to adversely affect WARM, the Discharger must submit a work plan and time schedule to implement project modifications that fully protect WARM.

This Order includes a reopener to allow the Regional Water Board to reconsider the Order if the study demonstrates the need to modify the effluent or receiving water limitations to protect COLD or WARM.

b. **Hardness.** While no effluent limitation for hardness is necessary in this Order, hardness is critical to the assessment of the need for, and the development of,

effluent limitations for certain metals. The *California Toxics Rule*, at (c)(4), states the following:

"Application of metals criteria. (i) *For purposes of calculating freshwater aquatic life criteria for metals from the equations in paragraph (b)(2) of this section, for waters with a hardness of 400 mg/L or less as calcium carbonate, the actual*

ambient hardness of the surface water <u>*shall*</u> *be used in those equations*." [emphasis added]

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

Effluent limitations for the discharge must be set to protect the beneficial uses of the receiving water for all discharge conditions. In the absence of the option of including condition-dependent, "floating" effluent limitations that are reflective of actual conditions at the time of discharge, effluent limitations must be set using a reasonable worst-case condition in order to protect beneficial uses for all discharge conditions. The discharge occurs in an ephemeral tributary and upstream flow may only occur during significant storm events, thus, the Discharger has not sampled the receiving water for hardness. For purposes of establishing water quality-based effluent limitations, a reported hardness value of 6.8 mg/L as $CaCO_3$ (effluent sampling data) was used.

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. 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

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

CTR and non-CTR constituents. The results of the RPA are discussed in more detail below.

b. **Electrical Conductivity. (see Subsection g. Salinity)**

c. **Lead**. The CTR includes hardness-dependent standards for the protection of freshwater aquatic life for lead. The standards for metals are presented in dissolved concentrations. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. The conversion factors for lead in freshwater are 1.46203-[0.145712 X ln(hardness)] for both the acute and the chronic criteria. Samples have not been collected from the upstream receiving water for analysis of hardness. Using the worst-case measured hardness from the effluent (6.8 mg/L), the applicable chronic criterion (maximum four-day average concentration) is 0.10 ug/L and the applicable acute criterion (maximum one-hour average concentration) is 3.0 ug/L, as total recoverable.

   Three (3) effluent samples were collected between October 2003 and October 2005 and analyzed for total lead or total recoverable lead. For the October 2003 sample (analyzed for total lead with filtration prior to acidification), the laboratory reported no detectable concentration of total lead at a practical quantitation limit (PQL) of 1.0 ug/L and at a method detection limit of 0.067 ug/L. The October 2004 and October 2005 samples were analyzed for total recoverable lead. For the October 2004 sample, the laboratory reported an estimated concentration of total recoverable lead of 0.06 ug/L at a PQL of 1.0 ug/L and a MDL of 0.02 ug/L. For the October 2005 sample, the laboratory reported an estimated concentration of total recoverable lead of 0.15 ug/L at a PQL of 1.0 ug/L and a MDL of 0.019 ug/L. Samples have not been collected from the upstream receiving water for analysis of lead. The data indicate that lead is present in the effluent, but the data are not sufficient to conclude that there is a reasonable potential for the effluent to cause an exceedance of the water quality criteria for lead. The Discharger has installed a new air flotation unit that may improve the quality of the discharge.

   This Order requires the Discharger to monitor the effluent monthly for total recoverable lead. This Order also includes a reopener to allow the Regional Water Board to reconsider the Order if the monitoring demonstrates the discharge has a reasonable potential to cause an exceedance of the water quality criteria for lead.

d. **Molybdenum.** *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), recommends that the molybdenum concentration in waters used for agricultural irrigation not exceed 10 ug/L. The cited concentration is based on “good irrigation practices” of an annual application rate of 10,000 cubic meters per hectare per year (about 3.3 acre-feet per year). *Water Quality for Agriculture* notes that molybdenum is not toxic to plants at normal concentrations in soil and water but can be toxic to livestock if forage is grown in soils with high concentrations of available molybdenum.

The ephemeral tributary to which the discharge occurs is on BLM land that is managed for oil recovery and cattle grazing. About two miles downstream of the discharge point near Poso Creek, the land is used for cattle grazing and occupied by few rural residences. Based on the surrounding property use, water (if present) in Poso Creek would not be expected to be used for other than livestock purposes until Poso Creek crosses Highway 65 about two miles downstream and west of the confluence of the ephemeral tributary and Poso Creek. The discharge could possibly affect cattle that drink from the discharge and forage on nearby grasses; however, this potential exposure has not been investigated.

The MEC for molybdenum was 25.9 ug/L based on three samples collected between October 2003 and October 2005. Samples have not been collected from the upstream receiving water for analysis of molybdenum. The currently available information is not adequate to demonstrate that molybdenum in the discharge has a reasonable potential to cause, or contribute to, an exceedance of a water quality objective or criteria. This Order requires sampling of the effluent and receiving water for total recoverable molybdenum. This Order requires the Discharger to conduct a study to determine appropriate numeric water quality limitations for molybdenum to protect the beneficial uses of surface water and groundwater, where applicable. Reasonable potential will be reevaluated in the future to determine whether there is a need to add numeric effluent limits to the permit or to continue monitoring. This Order also includes a reopener to allow the Regional Water Board to reconsider the Order if the monitoring demonstrates the discharge has a reasonable potential to cause an exceedance of the water quality criteria for molybdenum.

e. **Dioxin**. The CTR includes criteria for 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8,-TCDD). In addition to this compound, the SIP identifies congeners of chlorinated dibenzodioxins (2,3,7,8-CDDs) and chlorinated dibenzofurans (2,3,7,8-CDFs) that exhibit toxic effects similar to those of 2,3,7,8-TCDD. The U.S. EPA published toxic equivalency factors (TEF's) for 16 of the congeners. The TEFs express the relative toxicity of the congeners compared to 2,3,7,8-TCDD (whose TEF equals 1.0). The World Health Organization has provided revised TEF values for three of the congeners. The CTR criterion for Human health protection for consumption of water is 0.000000013 ug/l.

Between February 2004 and November 2005, three (3) samples were collected from Discharge Point 001 and analyzed for 2,3,7,8-TCDD and the dioxin congeners. The sample collected February 2004 was reported to contain OctaCDF at 220 picograms per Liter (pg/L); the remaining analytes were not detected. Subsequent sampling returned no detectable concentrations of dioxin or dioxin congeners. The published TEF for OctaCDF is 0.0001. Converting the OctaCDF detection of 220 pg/L to the equivalent 2,3,7,8,-TCDD concentration yields 0.000000022ug/L (0.00022ug/L x 0.0001). Additional monitoring for dioxins does not appear necessary at this time and are not a requirement of this Order.

f. **pH.** The Basin Plan includes a water quality objective for surface waters that the "…*pH shall not be depressed below 6.5 nor raised above 8.3. 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.

g. **Salinity.** The Basin Plan includes maximum effluent salinity limits of 1,000 umhos/cm for electrical conductivity (EC), 175 mg/L for chloride, and 1.0 mg/L for boron. The Basin Plan also includes effluent salinity limits for oilfield discharges of 1,000 umhos/cm for EC, 200 mg/L for chloride, and 1.0 mg/L for boron.

The Discharger has requested its effluent limits be increased to 1,000 umhos/cm for EC, 175 mg/L for chloride, and 1.0 mg/L for boron. The proposed Order authorizes effluent limitations for EC, chloride, and boron that are higher than those established by Order No. 5-01-133. The limits are consistent with those authorized by the Basin Plan and those previously authorized by Order No. 95-153, adopted 23 June 1995, which contain effluent limitations for EC, chloride, and boron at 1,000 umhos/cm, 175 mg/L, and 1.0 mg/L, respectively. In prescribing the limits in the Basin Plan, the Regional Water Board found them consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution 68-16.

i. **Electrical Conductivity (EC)**. Between August 2003 and September 2006, 39 wastewater samples were collected from Discharge Point 001 and analyzed for EC. The results averaged 353 umhos/cm and a MEC of 426 umhos/cm was reported for the sample collected and analyzed in June 2006.

ii. **Chloride**. Between August 2003 and September 2006, 38 wastewater samples were collected from Discharge Point 001 and analyzed for chloride. The results averaged 60 mg/L and a MEC of 86.2 mg/L was reported for the sample collected and analyzed in September 2006.

iii. **Boron**. Between August 2003 and September 2006, 38 wastewater samples were collected from Discharge Point 001 and analyzed for boron. The results averaged 0.2 mg/L and a MEC of 0.37 mg/L was reported for the sample collected and analyzed in September 2006.

Effluent monitoring data for EC, chloride, and boron indicates the Discharger will easily meet the proposed effluent limitations.

The above notwithstanding, the intent of the Basin Plan for controlling salinity degradation of both surface water and groundwater is the minimization of discharge salinity to the extent reasonable considering careful use and management of water resources. It is reasonable to expect that salinity may increase with increased use of steam, and that it is reasonable to increase salinity effluent limits from what is in Order No. 5-01-133 to the maximum authorized by the Basin Plan for oilfield discharges to facilitate recovery of oil.

However, to the extent that salinity is controllable, as in the present separation and the hauling off-site of all brines generated in from the softening of water for production of steam, it is reasonable and appropriate that it be done to meet the intent of the Basin Plan. In exchange for the additional operational latitude provide by greater salinity effluent limitations, it is appropriate that the discharge of the brine be prohibited and that the Discharger complete a Salinity Evaluation and Minimization Plan to discover whether there are other opportunities for salinity reductions. The Salinity Evaluation and Minimization Plan is discussed elsewhere.

h. **Zinc.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for zinc. The criteria for zinc are presented in dissolved concentrations. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. The conversion factors for zinc in freshwater are 0.978 for the acute criteria and 0.986 for the chronic criteria. Samples have not been collected from the upstream receiving water for analysis of hardness. Using the worst-case measured hardness from the effluent (6.8 mg/L), the applicable chronic criterion (maximum four-day average concentration) and the applicable acute criterion (maximum one-hour average concentration) are both 12 ug/L, as total recoverable.

Three (3) effluent samples were collected between October 2003 and October 2005 and analyzed for total zinc or total recoverable zinc. For the October 2003 sample (analyzed for total zinc with filtration prior to acidification), the laboratory reported a concentration of total zinc of 5.6 ug/L at a PQL of 5.0 ug/L and a MDL of 2.9 ug/L. The October 2004 and October 2005 samples were analyzed for total recoverable zinc. For the October 2004 sample, the laboratory reported a concentration of total recoverable zinc 8.2 ug/L at a PQL of 5.0 ug/L and a MDL of 2.1 ug/L. For the October 2005 sample, the laboratory reported a concentration of total recoverable zinc of 16 ug/L at a PQL of 5.0 ug/L and a MDL of 2.5 ug/L. Samples have not been collected from the upstream receiving water for analysis of zinc. The data indicate that zinc is present in the effluent, but the data are not sufficient to conclude that there is a reasonable potential for the effluent to cause an exceedance of the water quality criteria for zinc. The Discharger has installed a new air flotation unit that may improve the quality of the discharge.

This Order requires the Discharger to monitor the effluent monthly for total recoverable zinc. This Order also includes a reopener to allow the Regional Water Board to reconsider the Order if the monitoring demonstrates the discharge has a reasonable potential to cause an exceedance of the water quality criteria for zinc.

4. WQBEL Calculations – Not Applicable

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.

D. Final Effluent Limitations

1. Mass-based Effluent Limitations.

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

Mass-based effluent limitations were calculated by multiplying the concentration limitation by the Facility's permitted discharge flow of 1.68 mgd.

2. Averaging Periods for Effluent Limitations – Not Applicable

3. Satisfaction of Anti-Backsliding Requirements.

Some effluent limitations in this Order are less stringent that those in the previous Order. As discussed below, this relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

The effluent limitations for EC, chloride, and boron are being increased from the limitations in Order No. 5-01-133 which were more stringent than required by the Basin Plan and in previous permits for this Facility. The Discharger requested the limits be returned to 1,000 umhos/cm for EC, 175 mg/L for chloride, and 1.0 mg/L for boron, as specified in Order No. 95-153, adopted 23 June 1995. For Order 5-01-133, the final effluent limits were based on oil recovery methods utilized at the time, maximum reported effluent flow rates, and the characteristics of the discharge. Operations have substantially changed at the Facility since the last Order was adopted. Modifications have included the use of steamflooding which increases oil recovery and therefore results in an increase of produced water for treatment and discharge. 40 CFR 122.44(l)(1) allows the relaxation of effluent limitations for technology-based effluent limits if circumstances upon which the pervious permit was based have materially and substantially changed since the time the permit was issued.

4. Satisfaction of Antidegradation Policy

The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution 68-16. This Order provides for restoration of the volume and mass of pollutants authorized under Order No. 95-153. The increase in the discharge is necessary to facilitate an increase in crude oil production from an old oilfield and is considered to be a benefit to the people of the State. The increase has two issues that may impact designated beneficial uses, temperature and molybdenum, and studies are required to investigate and resolve the issues. Compliance with these requirements will result in use of best practicable treatment or control of the discharge, compliance with water quality objectives, and protection of beneficial uses.

Summary of Final Effluent Limitations
Discharge Point 001

Table F-4. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations					Basis
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Flow	Mgd	--	--	1.68	--	--	BPJ
pH	Standard	--	--	--	6.5	8.3	Basin Plan
Electrical Conductivity at 25°C	umhos/cm	--	--	1,000	--	--	Basin Plan
Chloride	mg/L	--	--	175	--	--	Basin Plan
	lbs/day	--	--	2,543	--	--	
Boron, Total Recoverable	mg/L	--	--	1	--	--	Basin Plan
	lbs/day	--	--	0.014	--	--	
Oil and Grease	mg/L	--	--	35	--	--	BPT, Basin Plan, USEPA
	lbs/day	--	--	0.49	--	--	

E. Interim Effluent Limitations – Not Applicable

F. Land Discharge Specifications – Not Applicable

G. Reclamation Specifications – Not Applicable

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

Basin Plan water quality objectives to protect the beneficial uses of surface water and groundwater include numeric objectives and narrative objectives, including objectives for chemical constituents, toxicity, and tastes and odors. The toxicity objective requires that surface water and groundwater be maintained free of toxic substances in concentrations

that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituent objective requires that surface water and groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use or that exceed the MCLs in Title 22, CCR. The tastes and odors objective states that surface water and groundwater shall not contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan requires the application of the most stringent objective necessary to ensure that surface water and groundwater do not contain chemical constituents, toxic substances, radionuclides, or taste and odor producing substances in concentrations that adversely affect domestic drinking water supply, agricultural supply, or any other beneficial use.

A. Surface Water

The Basin Plan includes numeric and narrative water quality objectives for various beneficial uses and water bodies. This Order contains Receiving Surface Water Limitations based on the Basin Plan numerical and narrative water quality objectives for biostimulatory substances, chemical constituents, color, dissolved oxygen, floating material, oil and grease, pH, sediment, settleable material, suspended material, tastes and odors, temperature, toxicity, and turbidity. The discharge does not contain pesticides or radioactive pollutants so Basin Plan objectives for them are not included in the Order.

Numeric Basin Plan objectives for dissolved oxygen, pH, and temperature are discussed below:

a. **Dissolved Oxygen.** Poso Creek 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. COLD applies to the unnamed tributary by the tributary rule, and a receiving water limitation of 7.0 mg/L for dissolved oxygen is included in this Order.

b. **pH.** The Basin Plan water quality objective for pH states that *"[T]he pH of water shall not be depressed below 6.5, raised above 8.3, or changed at any time more than 0.3 units from normal ambient pH."* This Order includes receiving water limitations for both pH range and pH change.

c. **Temperature.** The Basin Plan includes the objective that "[e]*levated temperature wastes shall not cause the temperature of waters designated COLD or WARM to increase by more than 5º*F above natural receiving water temperature." This Order includes a receiving water limitation based on this objective.

B. Groundwater

1. The beneficial uses of the underlying ground water are MUN, AGR, industrial service supply, and water contact recreation.

2. Basin Plan water quality objectives include narrative objectives for chemical constituents, tastes and odors, and toxicity of groundwater.

3. Groundwater is approximately 550 feet deep in the area of the Facility. Compliance with effluent limits will ensure the discharge causes no greater degradation than authorized by the Basin Plan. Further, effluent limitaions consistent with the Basin Plan ensure that the benefical uses of surface water and groundwater are reasonably protected. Specific numeric groundwater limitations are not necessary. This Order contains a narrative groundwater limitation consistent with the Basin Plan.

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

Section 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorizes the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (MRP), Attachment E of this Order, establishes monitoring and reporting requirements to implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this facility.

A. Influent Monitoring – Not Applicable

B. Effluent Monitoring

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

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

C. Whole Effluent Toxicity Testing Requirements

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

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

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. Sumps and Facility Monitoring

The Basin Plan states that "*sumps shall either be free of oil or effectively covered or screened to preclude entry of birds and animals*." To protect birds and animals in the surrounding environment from a potential death trap, this Order requires sumps and portions of the Facility monitoring to evaluate compliance with the Basin Plan requirements.

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions

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

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

B. Special Provisions

1. Reopener Provisions

a. **Reasonable Potential.** This Order requires the Discharger to conduct monthly monitoring of the effluent for total recoverable lead and zinc. After collecting at least one-year of data, the Discharger shall determine if the discharge has reasonable potential to exceed water quality objectives or criteria for the

constituents. This reopener provision allows the Regional Water Board to reopen this Order for addition and/or modification of effluent limitations and requirements for these constituents based on a review of the reasonable potential analysis.

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

2. Special Studies and Additional Monitoring Requirements

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

In addition to WET monitoring, this provision requires the Discharger to submit to the Regional Water Board an Initial Investigative TRE Work Plan for approval by the Executive Officer, to ensure the Discharger has a plan to immediately move forward with the initial tiers of a TRE, in the event effluent toxicity is encountered in the future. The provision also includes a numeric toxicity monitoring trigger and requirements for accelerated monitoring, as well as, requirements for TRE initiation if a pattern of toxicity is demonstrated.

b. **Monitoring Trigger.** A numeric toxicity monitoring trigger of > 1 TUc (where TUc = 100/NOEC) is applied 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.

c. **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 two weeks using the species that exhibited toxicity. Guidance regarding accelerated monitoring and TRE initiation is provided in the *Technical*

Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991 (TSD). The TSD at page 118 states, "EPA recommends if toxicity is repeatedly or periodically present at levels above effluent limits more than 20 percent of the time, a TRE should be required." Therefore, four accelerated monitoring tests are required in this provision. If no toxicity is demonstrated in the four accelerated tests, then it demonstrates that toxicity is not present at levels above the monitoring trigger more than 20 percent of the time (only 1 of 5 tests are toxic, including the initial test). However, notwithstanding the accelerated monitoring results, if there is adequate evidence of 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.

d. **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.

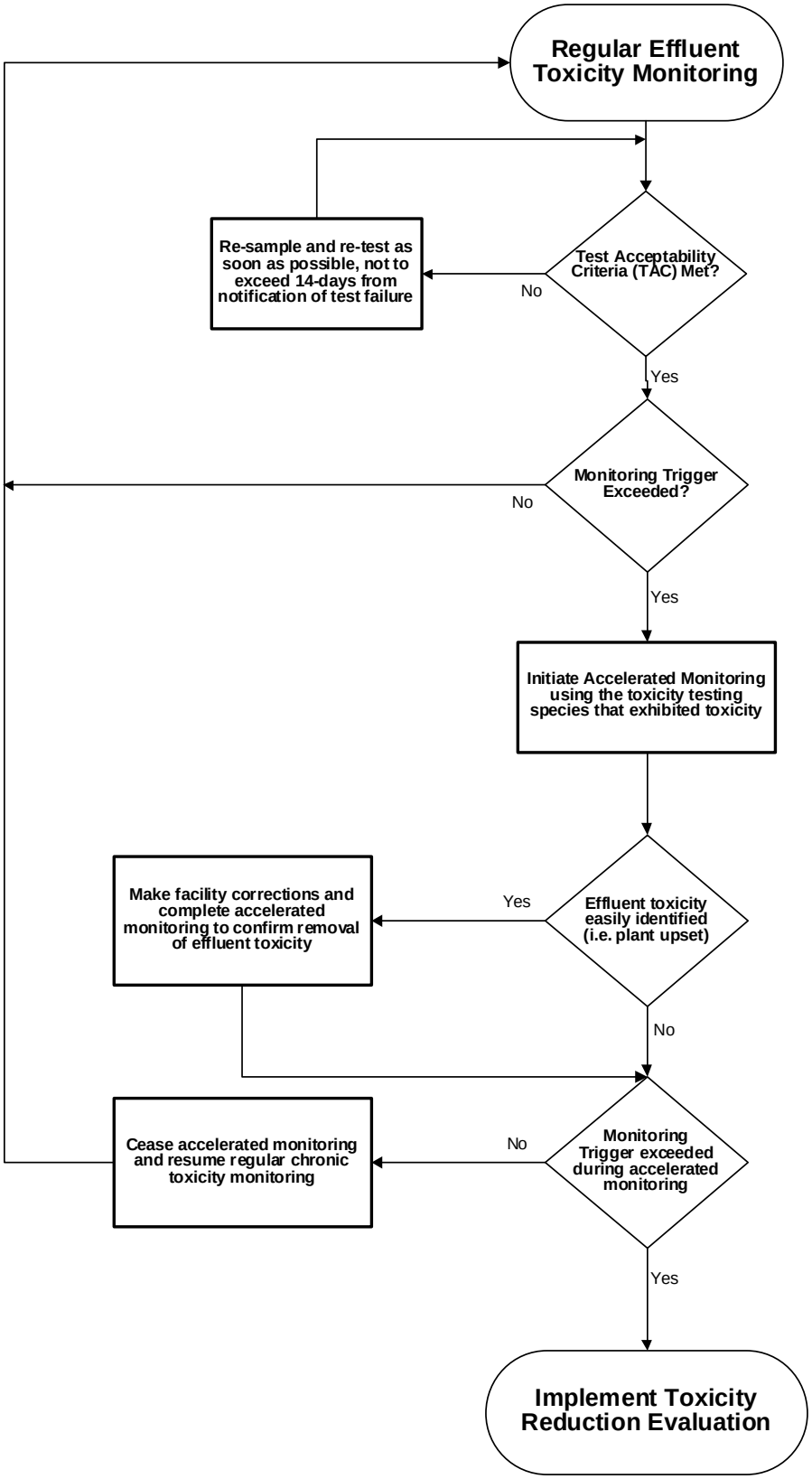
Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991.

e. **Molybdenum Study.** This Order requires sampling of the effluent and receiving water for total recoverable molybdenum. This Order requires the Discharger to conduct a study to determine appropriate numeric water quality limitations for molybdenum to protect beneficial uses of surface water. Reasonable potential will be reevaluated in the future to determine whether there is a need to add numeric effluent limits to the permit or to continue monitoring. This Order also includes a reopener to allow the Regional Water Board to reconsider the Order if the monitoring demonstrates the discharge has a reasonable potential to cause an exceedance of the water quality limitation developed for molybdenum.

f. **Beneficial Use Study.** This Order requires the Discharger to conduct monthly sampling of temperature for the effluent and receiving water and monthly sampling of dissolved oxygen for the receiving water. This Order requires the Discharger to conduct a beneficial use study to examine the designated beneficial uses of COLD and WARM and the discharger's impacts thereon. If COLD is not found or likely, the study requires submittal of the technical information necessary for the Regional Water Board to consider dedesignation of the use for the reach studied. If COLD does or could exist and the discharge does or may adversely impact it, the Discharger must modify its project to protect the use. If the discharge is found to adversely impact WARM, the Discharger will have to modify its project to protect WARM. This Order includes a reopener to allow the Regional Water Board to reconsider the Order if the study demonstrates the need to modify the effluent or receiving water limitations to protect COLD or WARM.

g. **Salinity Evaluation and Minimization Plan.** An Evaluation and Minimization Plan for salinity is required in this Order to ensure adequate measures are developed and implemented by the Discharger to reduce the discharge of salinity to the unnamed tributary of Poso Creek.

Figure F-1
WET Accelerated Monitoring Flow Chart



3. Best Management Practices and Pollution Prevention – Not Applicable

4. Construction, Operation, and Maintenance Specifications

a. To protect wildlife in the surrounding environment from hazards of the Facility, this Order requires sumps and portions of the Facility to be free of oil coatings or covered or screened.

b. In order to protect receiving waters from overflow of untreated or partially produced water, this specification requires that sumps be designed, constructed, operated, and maintained to prevent inundation or washout from 100-year floods.

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

6. Other Special Provisions

Other special provisions in this Order include specific requirements for a constituent study, change of ownership, and requirements for professional reports.

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 McVan Area, Poso Creek Oil Field. 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 mailing to interested parties on <Date> and posting by the Discharger at the site, the local post office, and county courthouse on or before <Date>.

B. Written Comments

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

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

C. Public Hearing

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

Date: June 21/22, 2007
Time: 8:30 am
Location: Regional Water Quality Control Board, Central Valley Region
11020 Sun Center Dr., Suite #200
Rancho Cordova, CA 95670

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

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

D. Waste Discharge Requirements Petitions

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

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

E. Information and Copying

The Report of Waste Discharge (RWD), related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Regional Water Board by calling (559) 445-5116.

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 Dane A. Mathis at (559) 488-4287.