

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD**

**CENTRAL VALLEY REGION**

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**ORDER NO. R5-2007-XXXX  
 NPDES NO. CA0082295**

**WASTE DISCHARGE REQUIREMENTS  
 FOR  
 CHEVRON U.S.A. INC. AND CAWELO WATER DISTRICT  
 PRODUCED WATER RECLAMATION PROJECT  
 KERN RIVER AREA STATION 36  
 KERN RIVER OIL FIELD, KERN COUNTY**

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

**Table 1. Discharger Information**

<b>Discharger</b>	Chevron U.S.A. Inc. and Cawelo Water District
<b>Name of Facility</b>	Produced Water Reclamation Project, Kern River Area Station 36
<b>Facility Address</b>	Kern River Oil Field
	T29S, R28E, S5, MDB&M
	Kern County
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Quality Control Board have classified this discharge as a <b>minor</b> discharge.	

The discharge by Chevron U.S.A. Inc. (Chevron) and Cawelo Water District (CWD) from the discharge points identified below is subject to waste discharge requirements as set forth in this Order:

**Table 2. Discharge Locations**

<b>Discharge Point</b>	<b>Effluent Description</b>	<b>Discharge Point Latitude</b>	<b>Discharge Point Longitude</b>	<b>Receiving Water</b>
001	Treated Produced Water	35° 29' 4.9" N	119° 5' 11.2" W	CWD Reservoir B
002	Treated Produced Water and Imported Surface Water	35° 29' 26.8" N	119° 5' 22.2" W	CWD Distribution Canal
003	Treated Produced Water and Imported Surface Water	35° 30' 4.6" N	119° 6' 55.1" W	Poso Creek

**Table 3. Administrative Information**

This Order was adopted by the Regional Water Quality Control Board on:	<b>6/7 December 2007</b>
This Order shall become effective on:	<b>[+50days if contested]</b>
This Order shall expire on:	<b>[5 years from effective date]</b>
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:	<b>180 days prior to the Order expiration date.</b>

IT IS HEREBY ORDERED, that Order No. 95-031 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in Division 7 of the CWC (commencing with Section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act (CWA) and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on **6/7 December 2007**.

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 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**

<b>Discharger</b>	Chevron U.S.A. Inc. and Cawelo Water District
<b>Name of Facility</b>	Produced Water Reclamation Project, Kern River Area Station 36
<b>Facility Address</b>	Kern River Oil Field
	T29S, R28E, S5, MDB&M
	Kern County
<b>Facility Contact, Title, and Phone</b>	Gary Piron, Kern River Area Manager, San Joaquin Valley SBU, Chevron North America Exploration and Production, (661) 392-2808
<b>Mailing Address</b>	1546 China Grade Loop, Bakersfield, California 93308
<b>Type of Facility</b>	Crude Oil Extraction Facility
<b>Facility Design Flow</b>	37.8 (in million gallons per day)

**II. FINDINGS**

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

**A. Background.** Chevron U.S.A. Inc. (Chevron) owns and operates a crude oil extraction Facility in the Kern River Oil Field north of Bakersfield, Kern County. Produced water from the oil field is treated at its Kern River Area Station 36 Facility then conveyed via pipeline to Cawelo Water District (CWD) Reservoir B. At Reservoir B, treated produced water is commingled with surface water and used to irrigate farmland within the CWD. Excess blended water in the CWD irrigation system is periodically discharged to Poso Creek (a water of the United States, U.S.) for intentional recharge of groundwater. Chevron and CWD are hereafter collectively referred to as the Discharger. The discharge is currently regulated by Waste Discharge Requirements Order (Order) No. 95-031 [National Pollutant Discharge Elimination System (NPDES) Permit No. CA0082295] adopted by the Regional Water Board on 24 February 1995 and administratively extended by the Executive Officer on 19 January 2000. On 26 July 1999, Chevron (formerly Texaco Exploration & Production and ChevronTexaco) filed a Report of Waste Discharge (RWD) and submitted an application for renewal of Order No. 95-031 and NPDES Permit No. CA0082295. Information supplementing the RWD was provided by Chevron in June 2002 and July 2003, and an amendment to the application was submitted in April 2007.

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

**B. Facility Description.** Chevron recovers crude oil in the Kern River Oil Field. Oil and produced water from the field is collected and routed to the Kern River Area Station 36 treatment facility (Facility). The Facility is in Section 5, T29S, R28E, MDB&M, as shown in Attachment B (Site Location Map), a part of this Order. Treatment consists of mechanical separation, sedimentation, air floatation, and filtration. Attachment C provides a flow schematic of the treatment process at the Facility. Produced water not used for steam generation or injection is treated and conveyed via pipeline to CWD Reservoir B. Reservoir B is in Section 17, T28S, R27E, MDB&M. Prior to discharge to Reservoir B, treated produced water enters a polishing pond (adjacent to Reservoir B) for final treatment.

Reservoir B is an integral part of CWD's water distribution system and supplies irrigation water used in the CWD via its Distribution Canal. At Reservoir B, treated produced water received from Chevron (and others) is blended with water from other surface and groundwater supplies to meet the receiving water limitations set forth in this Order. Through use of its Distribution Canal, CWD discharges excess blended water to Poso Creek (for intentional recharge of groundwater) during the winter months when irrigation demand is low.

**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 (CWC, 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 CWC (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 CWC Section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA, Public Resources Code Sections 21100-21177. In accordance with CEQA, the CWD approved a Negative Declaration in April 2007 for a project that included the increase of flows for Chevron and Valley Waste Disposal Company (VWDC) as described in the Study and permitted herein. Regional Water Board staff reviewed and commented on the Study and on the proposed Negative Declaration. The approved Negative Declaration did not identify any significant effect on water quality that would result from the project and no mitigation measures were made a condition of the project. The project as approved by CWD and as permitted herein will not have a significant effect on water quality.

- F. Technology-based Effluent Limitations.** Section 301(b) of the CWA and implementing USEPA permit regulations at Title 40 of the Code of Federal Regulations (40 CFR) 122.44 require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Effluent Limitations Guidelines and Standards for the Oil and Gas Extraction Category in 40 CFR 435 and Best Professional Judgment (BPJ) in accordance with 40 CFR 125.3. A detailed discussion of the technology-based effluent limitations development is included in the Fact Sheet (Attachment F).
- G. Water Quality-based Effluent Limitations.** Section 301(b) of the CWA and 40 CFR 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards. 40 CFR 122.44(d)(1)(i) mandates that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, water quality-based effluent limitations (WQBELs) must be established using: (1) 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 *Water Quality Control Plan for the Tulare Lake Basin, Second Edition - 1995*, (hereinafter Basin Plan) designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. The beneficial use of water in CWD Reservoir B and the CWD distribution system by design is agricultural supply (AGR). For Poso Creek, the Basin Plan designates the following beneficial uses: 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). The Basin Plan designates the following beneficial uses for the underlying groundwater: municipal and domestic supply (MUN), AGR, industrial process supply (PRO), and industrial service supply (IND). Thus, the beneficial uses applicable to the water in Reservoir B and the distribution system, Poso Creek, and the underlying groundwater are as follows:

**Table 5. Basin Plan Beneficial Uses**

<b>Discharge Point</b>	<b>Receiving Water Name</b>	<b>Beneficial Use(s)</b>
001	<b>CWD Reservoir B</b>	AGR
002	<b>CWD Distribution Canal</b>	AGR
003	<b>Poso Creek</b>	AGR, REC-1, REC-2, WARM, COLD, WILD, GWR, and FRSH.
	<b>Groundwater</b>	MUN, AGR, PRO, and IND.

Requirements of this Order implement the Basin Plan.

- I. National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on 22 December 1992, and later amended it on 4 May 1995 and 9 November 1999. About forty criteria in the NTR applied in California. On 18 May 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on 13 February 2001. These rules contain water quality criteria for priority pollutants.
  
- J. State Implementation Policy.** On 2 March 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on 28 April 2000 with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Board in the Basin Plan. The SIP became effective on 18 May 2000 with respect to the priority pollutant criteria promulgated by the USEPA through the CTR. The State Water Board adopted amendments to the SIP on 24 February 2005 that became effective on 13 July 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.
  
- K. Compliance Schedules and Interim Requirements.** In general, an NPDES permit must include final effluent limitations that are consistent with CWA 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 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 USEPA

policies and administrative decisions. See, e.g., Whole Effluent Toxicity (WET) Control Policy. The Regional Water Board, however, is not required to include a schedule of compliance, but may issue a Time Schedule Order pursuant to CWC Section 13300 or a Cease and Desist Order pursuant to CWC 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 five years from the date that the permit is issued or reissued, nor may it extend beyond 10 years from the effective date of the SIP (or 18 May 2010) to establish and comply with CTR criterion-based effluent limitations. Where a compliance schedule for a final effluent limitation that exceeds one 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 30 March 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards (WQS) become effective for CWA purposes [40 CFR 131.21; 65 Fed. Reg. 24641 (27 April 2000)]. Under the revised regulation (also known as the Alaska rule), new and revised standards submitted to USEPA after 30 May 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by 30 May 2000 may be used for CWA purposes, whether or not approved by USEPA.
- M. Stringency of Requirements for Individual Pollutants.** This Order contains 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 federal technology-based requirements of the CWA for this Facility.
- N. Antidegradation Policy.** 40 CFR 131.12 requires that the State water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 is consistent with the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. As discussed in detail in

the Fact Sheet, the permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16.

- O. Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and 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. The discharge specifications and effluent limitations authorized in this Order are at least as stringent as those in Order No. 95-031. As discussed in detail in the Fact Sheet, this Order is consistent with the anti-backsliding requirements of the CWA and federal regulations.
- P. Monitoring and Reporting.** 40 CFR 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. CWC Sections 13267 and 13383 authorize the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (MRP) establishes monitoring and reporting requirements to implement federal and State requirements. This MRP is provided in Attachment E.
- Q. Standard and Special Provisions.** Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR 122.42, are provided in Attachment D. The Discharger must comply with all standard provisions and with those additional conditions that are applicable under 40 CFR 122.42. The Regional Water Board has also included in this Order special provisions applicable to the Discharger. 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 portions of 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 WDRs for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of notification are provided in the Fact Sheet of this Order.
- 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 oil field 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 or pollution as defined in Section 13050 of the CWC.
- D. Discharge of waste classified as 'hazardous', as defined in Section 2521(a) of Title 23, California Code of Regulations (CCR), Section 2510 et seq., or of waste classifiable as 'designated', as defined in CWC Section 13173, is prohibited.

### IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

#### A. Final Discharge Specifications

##### 1. Discharge Specifications – Discharge Point 001

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

**Table 6. Discharge Specifications – Discharge 001**

Parameter	Units	Discharge Specifications		
		Daily Maximum	Monthly Average	Annual Average
Flow	mgd	33.5	--	--
Electrical Conductivity at 25°C	umhos/cm	--	--	940
Chloride	mg/L	200	175	--
Boron, Total Recoverable	mg/L	1.6	1.4	--
Oil and Grease	mg/L	35	--	--

##### 2. Discharge Specifications – Discharge Point 002

The Discharger shall maintain compliance with the following discharge specifications at Discharge Point 002, with compliance measured at Monitoring Location EFF-002 as described in the attached MRP (Attachment E):

**Table 7. Discharge Specifications – Discharge 002**

Parameter	Units	Discharge Specifications		
		Daily Maximum	Monthly Average	Annual Average
Electrical Conductivity at 25°C	umhos/cm	--	--	1,000
Chloride	mg/L	--	--	200
Boron, Total Recoverable	mg/L	--	--	1.0

**B. Final Effluent Limitations**

**1. Final Effluent Limitations – Discharge Point 003**

The Discharger shall maintain compliance with the following effluent limitations at Discharge Point 003, with compliance measured at Monitoring Location EFF-003 as described in the attached MRP (Attachment E):

- a. Limitations in Table 8, as set forth below:

**Table 8. Effluent Limitations – Discharge 003**

Parameter	Units	Discharge Specifications		
		Daily Maximum	Monthly Average	Annual Average
Electrical Conductivity at 25°C	umhos/cm	--	--	1,000
Chloride	mg/L	--	--	200
Boron, Total Recoverable	mg/L	--	--	1.0
Oil and Grease	mg/L	Non-Detect	--	--
Arsenic, Total Recoverable	mg/L	10	--	--

- b. Discharge 003 shall not have a pH less than 6.5 nor greater than 8.3.
- c. **Acute Whole Effluent Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:
  - i. 70% for any one bioassay; and
  - ii. 90% for the median of any three consecutive bioassays.

**2. Interim Effluent Limitations – Not Applicable**

**C. Land Discharge Specifications – Not Applicable**

**D. 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. Discharge 003 shall not cause the following conditions downstream of the Poso Creek outfall structure:

1. **Biostimulatory Substances.** Biostimulatory substances to be present that 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 7.0 mg/L at any time.
5. **Floating Material.** Floating material to be present in amounts that cause nuisance or adversely affect beneficial uses.
6. **Oil and Grease.** Oils, greases, waxes, or other materials to be present in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.
7. **pH.** The pH to be depressed below 6.5, raised above 8.3, 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.
15. **Salinity.** Water in Poso Creek that exits the CWD to exceed EC, chloride, and boron levels of 700 umhos/cm, 106 mg/L, and 0.5 mg/L, respectively.

## **B. Groundwater Limitations**

The discharge, in combination with other sources, shall not cause groundwater underlying the CWD to contain waste constituents in concentrations that adversely affect beneficial uses. In no case shall the discharge, in combination with other sources, cause underlying groundwater to increase in EC by more than six (6) umhos/cm per year over the permit term.

## **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. 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.

- b. 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.

- c. 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.

- d. 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.

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

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

- o. The Discharger shall file with the Regional Water Board technical reports on self-monitoring performed according to the detailed specifications contained in the MRP attached to this Order.
- p. 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.
- q. 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.
- r. 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)
- s. 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 arsenic and mercury. This Order may be reopened for modification, or revocation and reissuance, depending on the results of this required monitoring.
- 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. This Order may be reopened as a result of conditions that necessitate a major modification of a permit as 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 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. **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 by **30 September 2008** for approval by the Executive Officer.
- b. **Chronic Whole Effluent Toxicity.** The Discharger shall conduct chronic whole effluent toxicity testing, as specified in the MRP (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.** By **30 September 2008**, 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  $> 1 \text{ TUc}$  (where  $\text{TUc} = 100/\text{NOEC}$  (no observed effect concentration)). 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**

Treatment facilities 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**

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 CWC. Transfer shall be approved or disapproved in writing by the Executive Officer.

## **7. Compliance Schedules – Not Applicable**

## ATTACHMENT A – DEFINITIONS

**Arithmetic Mean (u)**, 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:

$$\text{Arithmetic mean} = u = \Sigma x / n \quad \text{where: } \Sigma x \text{ is the sum of the measured ambient water concentrations, and } n \text{ is the number of samples.}$$

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

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

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

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

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

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

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

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

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

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

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

**Effluent Concentration Allowance (ECA)** is a value derived from the water quality criterion/objective, dilution credit, and ambient background concentration that is used, in conjunction with the coefficient of variation for the effluent monitoring data, to calculate a long-term average (LTA) discharge concentration. The ECA has the same meaning as waste load allocation (WLA) as used in 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 included, but are not limited to, the Sacramento-San Joaquin Delta, as defined in CWC 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 40 CFR 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 CWC 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 CWC 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 ( $\sigma$ )** is a measure of variability that is calculated as follows:

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

where:

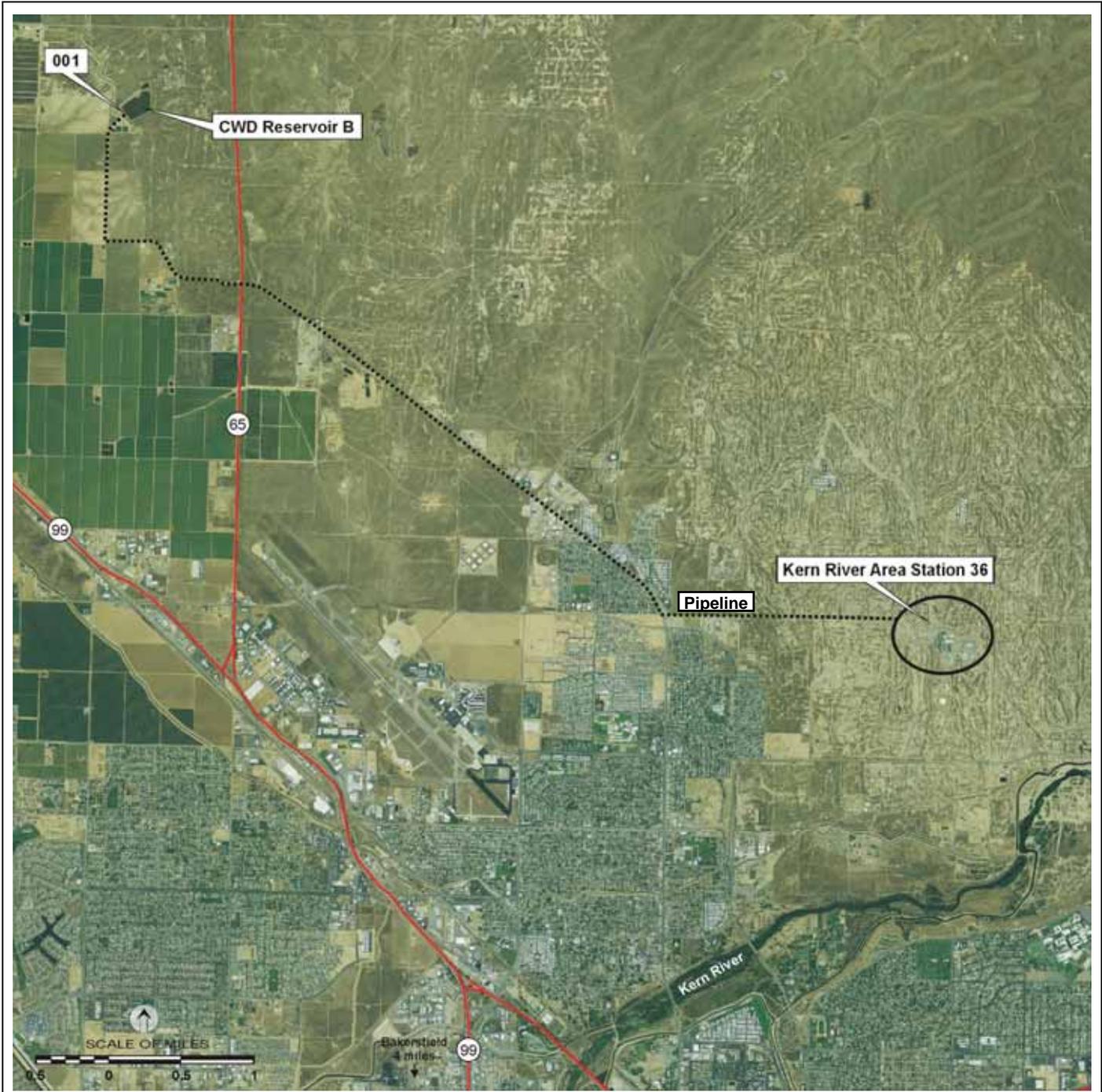
x is the observed value;

u is the arithmetic mean of the observed values; and

n is the number of samples.

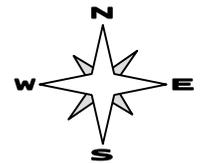
**Toxicity Reduction Evaluation (TRE)** is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first 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 – MAPS

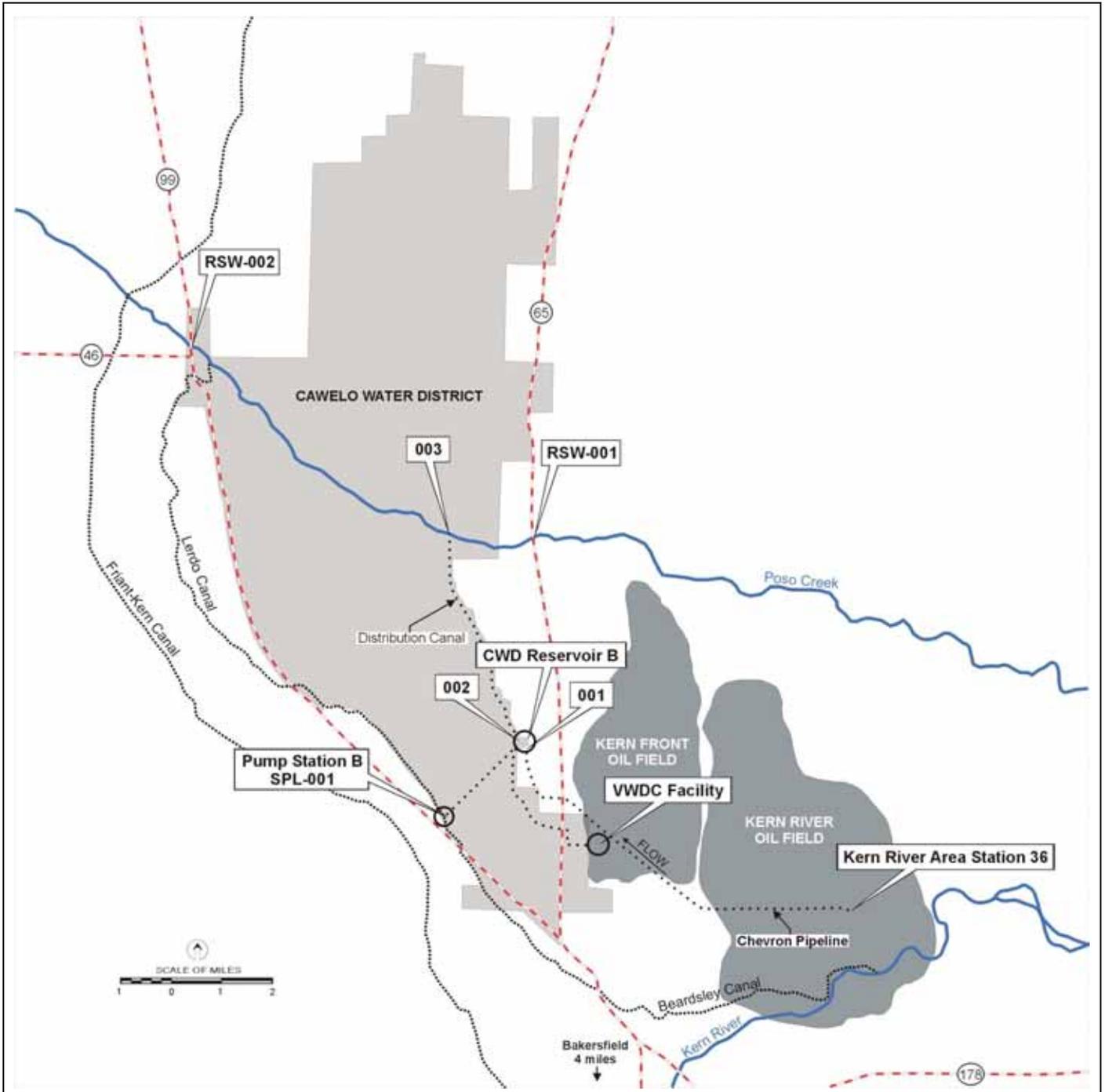


#### SITE LOCATION MAP

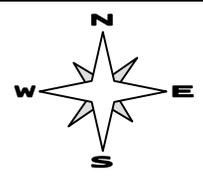
CHEVRON AND CWD  
PRODUCED WATER RECLAMATION PROJECT  
KERN COUNTY



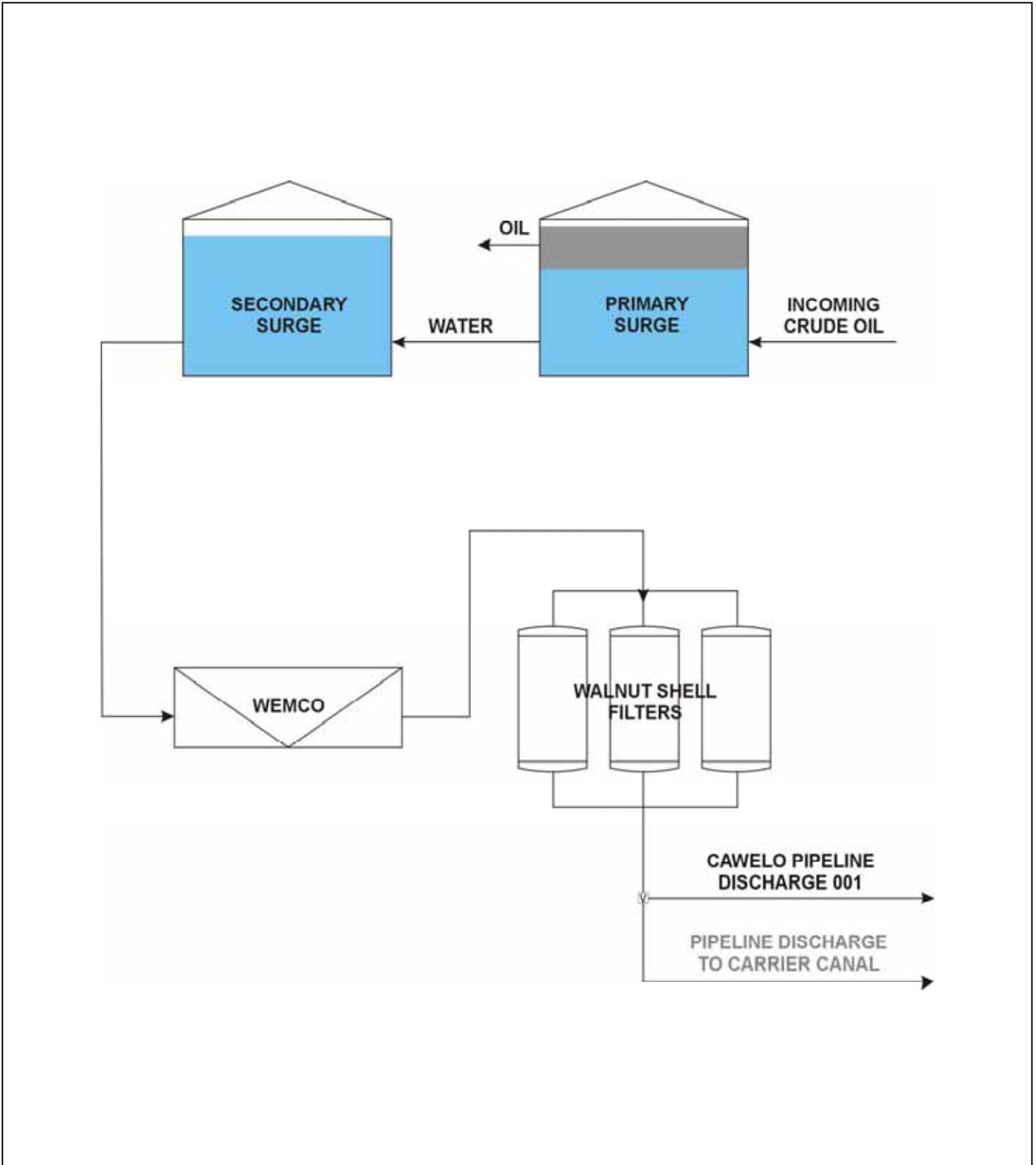
### ATTACHMENT B – MAPS



AREA MAP  
CHEVRON AND CWD  
PRODUCED WATER RECLAMATION PROJECT  
KERN COUNTY



### ATTACHMENT C – FLOW SCHEMATIC



## **ATTACHMENT D –STANDARD PROVISIONS**

### **I. STANDARD PROVISIONS – PERMIT COMPLIANCE**

#### **A. Duty to Comply**

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the CWC 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); CWC 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 CWC, 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 CWC. (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 40 CFR 136 or, in the case of sludge use or disposal, approved under 40 CFR 136 unless otherwise specified in 40 CFR 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 40 CFR 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); CWC 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 MRP (Attachment E) in this Order. (40 CFR 122.22(l)(4).)
2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 CFR 122.41(l)(4)(i).)
3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 CFR 136 or, in the case of sludge use or disposal, approved under 40 CFR 136 unless otherwise specified in 40 CFR 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 40 CFR 122.42(a)(1) (see Additional Provisions—Notification Levels VII.A.1). (40 CFR 122.41(l)(1)(ii).)

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

#### **G. Anticipated Noncompliance**

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

#### **H. Other Noncompliance**

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

#### **I. Other Information**

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

### **VI. STANDARD PROVISIONS – ENFORCEMENT**

- A. The Regional Water Board is authorized to enforce the terms of this permit under several provisions of the CWC, 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 40 CFR 122.44(f). (40 CFR 122.42(a)(1)(iv).)
2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 CFR 122.42(a)(2)):
- a. 500 micrograms per liter (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 40 CFR 122.44(f). (40 CFR 122.42(a)(2)(iv).)

## ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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## **ATTACHMENT E – MONITORING AND REPORTING PROGRAM**

40 CFR 122.48 requires that all NPDES permits specify monitoring and reporting requirements. CWC Sections 13267 and 13383 also authorize the Regional Water Quality Control Board (Regional Water Board) to require technical and monitoring reports. This monitoring and reporting program (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 of California Department of Public Health (formerly 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 Public Health. 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 MRP.

### **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 CWD Reservoir B
002	EFF-002	At the outfall from Reservoir B to the Distribution Canal
003	EFF-003	At the outfall from the Distribution Canal to Poso Creek
--	SPL-001	At Lerdo Canal/Cawelo Pump Station B
--	RSW-001	Poso Creek upstream of Discharge 003 – State Highway 65 gauging station
--	RSW-002	Poso Creek downstream of Discharge 003 – 100 feet west of State Highway 99

**III. INFLUENT MONITORING REQUIREMENTS – Not Applicable**

**IV. EFFLUENT MONITORING REQUIREMENTS**

**A. Monitoring Location EFF-001**

The Discharger shall monitor the discharge of treated produced water to CWD Reservoir B at EFF-001 as identified in Table E-2. After one year of monitoring and upon request by the Discharger, a reduction of monitoring frequency may be considered for approval by the Executive Officer.

**Table E-2. Effluent Monitoring – EFF-001**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and (Minimum Level, units), respectively
Flow	mgd	Meter	Continuous	
Electrical Conductivity @ 25°C	umhos/cm	Meter	Continuous	1
Chloride	mg/L	Grab	1/week	1
Boron, Total Recoverable	mg/L	Grab	1/week	1
Oil and Grease	mg/L	Grab	1/month	1
pH	standard	Grab	1/month	1
Total Suspended Solids	mg/L	Grab	1/month	1
Standard Minerals <sup>2</sup>	mg/L	Grab	1/month	1

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

<sup>2</sup> 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).

**B. Monitoring Location EFF-002**

The Discharger shall monitor the discharge of blended water from CWD Reservoir B to the Distribution Canal at EFF-002, as identified in Table E-3. Monitoring the discharge at EFF-002 is not required while discharge occurs at Discharge 003. After one year of monitoring and upon request by the Discharger, a reduction of monitoring frequency may be considered for approval by the Executive Officer.

**Table E-3. Effluent Monitoring – EFF-002**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and (Minimum Level, units), respectively
Flow	mgd	Computed	Daily	
Electrical Conductivity @ 25°C	umhos/cm	Grab	1/week	1
Chloride	mg/L	Grab	1/week	1
Boron, Total Recoverable	mg/L	Grab	1/week	1
Standard Minerals <sup>2</sup>	mg/L	Grab	1/month	1

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

<sup>2</sup> 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).

**C. Monitoring Location EFF-003**

When discharge of blended water from the Distribution Canal to Poso Creek occurs, the Discharger shall monitor at EFF-003 as identified in Table E-4. After one year of monitoring and upon request by the Discharger, a reduction of monitoring frequency may be considered for approval by the Executive Officer.

**Table E-4. Effluent Monitoring – EFF-003**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and (Minimum Level, units), respectively
Flow	mgd	Computed	Daily	
Electrical Conductivity @ 25°C	umhos/cm	Grab	1/week	1
Chloride	mg/L	Grab	1/week	1
Boron, Total Recoverable	mg/L	Grab	1/week	1
Oil and Grease	mg/L	Grab	1/month	1
pH	standard	Grab	1/month	1
Arsenic, Total Recoverable	ug/L	Grab	1/month	1
Mercury, Total Recoverable	ug/L	Grab	1/month	1, 2
Total Suspended Solids	mg/L	Grab	1/month	1
Temperature	°C(°F)	Grab	1/month	
Standard Minerals <sup>3</sup>	mg/L	Grab	1/month <sup>4</sup>	1
Priority Pollutants	ug/L	Grab	1/year <sup>4</sup>	1
Acute Toxicity	ug/L	Grab	2/Discharge Event <sup>4,5</sup>	1

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

<sup>2</sup> 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.

<sup>3</sup> 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).

<sup>4</sup> Concurrent with receiving surface water sampling.

<sup>5</sup> Sampling to occur near beginning and end of discharge event during non-irrigation season (i.e., winter months). Net sampling frequency need not exceed twice per year unless results necessitate additional 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 acute toxicity testing twice per discharge event, concurrent with effluent monitoring and sampling. Sampling to occur near beginning and end of discharge event during non-irrigation season (i.e., winter months). Net sampling frequency need not exceed twice per year unless results necessitate additional 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-003.

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 seven 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 three species chronic toxicity testing twice per discharge event, concurrent with effluent monitoring and sampling. Sampling to occur near beginning and end of discharge event during non-irrigation season (i.e., winter months). Net sampling frequency need not exceed twice per year unless results necessitate additional 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 MRP. The receiving water control shall be a grab sample obtained from the RSW-001 sampling location, as identified in the MRP. In the absence of receiving water 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-5, below. The receiving water control shall be used as the diluent (unless the receiving water is toxic). If the receiving water is toxic, laboratory control water may be used as the diluent, in which case, the receiving water should still be sampled and tested to provide evidence of its toxicity.
8. **Test Failure** –The Discharger must re-sample and re-test as soon as possible, but no later than 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-5. 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 TU<sub>c</sub>, measured as 100/NOEC (no observed effect concentration), and also measured as 100/LC<sub>50</sub>, 100/EC<sub>25</sub>, 100/IC<sub>25</sub>, and 100/IC<sub>50</sub>, as appropriate;
  - b. The statistical methods used to calculate endpoints;
  - c. The statistical output page, which includes the calculation of the PMSD;
  - d. The dates of sample collection and initiation of each toxicity test; and
  - e. The results compared to the numeric toxicity monitoring trigger.

Additionally, the monthly discharger self-monitoring reports shall contain an updated chronology of chronic toxicity test results expressed in TU<sub>c</sub>, and organized by test species, type of test (survival, growth or reproduction), and monitoring frequency [i.e., either quarterly, monthly, accelerated, or Toxicity Reduction Evaluations (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 TRE 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 (lowest observed effect concentration), 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. Supply Water and Receiving Water Monitoring Requirements

### A. Monitoring Location SPL-001

The Discharger shall monitor the source of supply water used to blend with treated produced water at Reservoir B at monitoring location SPL-001 as identified in Table E-6. After one year of monitoring, and upon request by the Discharger, a reduction of monitoring frequency may be considered for approval by the Executive Officer.

**Table E-6. Supply Water Monitoring – SPL-001**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and (Minimum Level, units), respectively
Flow	mgd	Computed	Daily	
Electrical Conductivity @ 25°C	umhos/cm	Grab	1/week	1
Chloride	mg/L	Grab	1/week	1
Boron, Total Recoverable	mg/L	Grab	1/week	1
pH	standard	Grab	1/week	1
Standard Minerals <sup>2</sup>	mg/L	Grab	1/month <sup>3</sup>	1

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

<sup>2</sup> 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).

<sup>3</sup> Concurrent with receiving surface water sampling.

### B. Monitoring Locations RSW-001 and RSW-002

1. The Discharger shall monitor the receiving water at RSW-001 and RSW-002, as identified in Table E-7. Monitoring at RSW-001 and RSW-002 is not required unless discharge is occurring at Discharge 003 and measurable flow is passing, or anticipated to pass, through RSW-002. After one year of monitoring, and upon request by the Discharger, a reduction of monitoring frequency may be considered for approval by the Executive Officer. Also, if another discharger (i.e., VWDC) conducts receiving water monitoring which is identical to, or exceeds the receiving water monitoring requirements specified herein, the Discharger may, at its discretion, submit results of such monitoring in lieu of separate monitoring.

**Table E-7. Receiving Water Monitoring – RSW-001 and RSW-002**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and (Minimum Level, units), respectively
Flow	mgd	Computed	Daily	
Electrical Conductivity @ 25°C	umhos/cm	Grab	1/week	1
Chloride	mg/L	Grab	1/week	1
Boron, Total Recoverable	mg/L	Grab	1/week	1
pH	standard	Grab	1/week	1
Turbidity	NTU	Grab	1/month	1
Temperature	°C(°F)	Grab	1/month	
Standard Minerals <sup>2</sup>	mg/L	Grab	1/month	1
Priority Pollutants	ug/L	Grab	1/year	1

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

<sup>2</sup> 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).

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 | e. Visible films, sheens, or coatings      |
| b. Discoloration                | f. Fungi, slimes, or objectionable growths |
| c. Bottom Deposits              | g. Potential nuisance conditions           |
| d. Aquatic Life                 |  |

**IX. Other Monitoring Requirements – Not Applicable**

**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 40 CFR 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-8. Monitoring Periods and Reporting Schedule**

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period	SMR Due Date
Continuous	Permit effective date	All	Submit with monthly SMR
Daily	Permit effective date	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.	Submit with monthly SMR
Weekly	Permit effective date	Sunday through Saturday	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	1 <sup>st</sup> day of calendar month through last day of calendar month	First day of second month following each calendar month
Annually	Permit effective date	January 1 through December 31	By 1 March following the monitoring period

**C. Discharge Monitoring Reports (DMRs) – Not Applicable**

**D. Other Reports**

1. **By 30 March 2008**, 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. Sections or subsections of this Order identified as “not applicable” have been determined to not apply to this Discharger.

**I. PERMIT INFORMATION**

The following table summarizes administrative information related to the Facility.

**Table F-1. Facility Information**

<b>WDID</b>	5D153020018
<b>Discharger</b>	Chevron U.S.A. Inc. and Cawelo Water District
<b>Name of Facility</b>	Produced Water Reclamation Project, Kern River Area Station 36
<b>Facility Address</b>	Kern River Oil Field
	T29S, R28E, S5, MDB&M
	Kern County
<b>Facility Contact, Title and Phone (Chevron)</b>	Gary Piron, Kern River Area Manager, San Joaquin Valley SBU, Chevron North America Exploration and Production, (661) 392-2808
<b>Facility Contact, Title and Phone (CWD)</b>	David Ansolabehere, General Manager, Cawelo Water District, (661) 393-6072
<b>Authorized Person to Sign and Submit Reports</b>	Gary Piron, Kern River Area Manager, San Joaquin Valley SBU, Chevron North America Exploration and Production, (661) 392-2808
<b>Mailing Address</b>	1546 China Grade Loop, Bakersfield, California 93308
<b>Billing Address</b>	Same
<b>Type of Facility</b>	Crude Oil Extraction Facility, SIC Code: 1311 (Crude Petroleum and Natural Gas)
<b>Major or Minor Facility</b>	Minor
<b>Threat to Water Quality</b>	2
<b>Complexity</b>	B
<b>Pretreatment Program</b>	Not Applicable
<b>Reclamation Requirements</b>	Not Applicable
<b>Facility Permitted Flow</b>	33.5 (in million gallons per day)
<b>Facility Design Flow</b>	37.8 (in million gallons per day)
<b>Watershed</b>	South Valley Floor Hydrologic Unit: North Kern Hydrologic Area (558.80), Kern Uplands Hydrologic Area (558.90)
<b>Receiving Water</b>	Poso Creek
<b>Receiving Water Type</b>	Inland Surface Water

A. Chevron U.S.A. Inc. (Chevron) owns and operates a crude oil extraction facility in the Kern River Oil Field north of Bakersfield, Kern County. Produced water from the oil field is treated at its Kern River Area Station 36 facility (Facility) to remove oil, grease, and

inorganic sediments, and then conveyed via pipeline to Cawelo Water District (CWD) Reservoir B. At Reservoir B, treated produced water is commingled with water from the Kern River and State Water Project, and groundwater, and used to irrigate farmland within the CWD. Excess blended water in the CWD irrigation system is periodically discharged to Poso Creek (a water of the United States, U.S.) for intentional recharge of groundwater. Chevron and CWD are hereafter collectively referred to as the Discharger.

- B.** The discharge is currently regulated by Waste Discharge Requirements Order (Order) No. 95-031 [National Pollutant Discharge Elimination System (NPDES) Permit No. CA0082295], adopted by the California Regional Water Quality Control Board, Central Valley Region (Regional Water Board) on 24 February 1995 and administratively extended by the Executive Officer on 19 January 2000.
- C.** On 26 July 1999, Chevron (formerly Texaco Exploration & Production and ChevronTexaco) filed a Report of Waste Discharge (RWD) and submitted an application for renewal of Order No. 95-031 and NPDES Permit No. CA0082295. Information supplementing the RWD was provided by Chevron in June 2002 and July 2003, and an amendment to the application was submitted in April 2007.

## **II. FACILITY DESCRIPTION**

Chevron recovers crude oil in the Kern River Oil Field. Oil and water produced from the field is collected and routed to the Facility in Section 5, T29S, R28E, MDB&M, as shown in Attachment B (Site Location Map), a part of this Order. Chevron extracts approximately nine barrels (bbls) of water for every bbl of crude oil produced. Treatment consists of mechanical separation, sedimentation, air floatation (Wemco units), and filtration (walnut hull vessels). The Facility has the capacity to process up to 37.8 million gallons per day (mgd) of produced water. Attachment C provides a flow schematic of the treatment process at the Facility.

Some of the produced water is used at the various leases in the oil field and some is converted to steam by cogeneration plants and steam generators for reinjection back into the oil reservoir to enhance recovery. Steam injection wells are Class II injection wells permitted by the California Division of Oil, Gas, and Geothermal Resources. The cogeneration produced water feed is softened for corrosion control before it is converted to steam. The softening process produces brine water that is disposed of in permitted Class II injection wells. The cogeneration plants utilize reverse osmosis (RO) to treat water from five source water wells for nitrogen oxide emission control in the cogeneration plants. The RO reject water is also disposed of in permitted Class II injection wells. Treated produced water not used for steam generation or injection is treated and conveyed via a newly constructed, coated steel pipeline to CWD Reservoir B. Reservoir B is in Section 17, T28S, R27E, MDB&M. Prior to discharge to Reservoir B, treated produced water enters a polishing pond (adjacent to Reservoir B) for final treatment. Constructed in 2003, the pond includes concrete and PVC liners and has a 2.5 million gallon capacity.

The CWD covers approximately 45,000 acres and is generally between State Highway 99 and Highway 65. The CWD was formed for the purpose of obtaining a “supplemental or partial water supply” and delivering it for irrigation of crops within the CWD. The CWD uses imported surface water, pumped groundwater, and treated produced water to provide and meet irrigation needs of the agricultural lands of the CWD.

In August 1994, Texaco Exploration and Production Inc. (now Chevron) and CWD executed an agreement whereby reclaimed produced water is provided to CWD. Chevron and CWD executed an updated agreement in September 2006. Reservoir B is an integral part of CWD’s water distribution system and supplies irrigation water used in the CWD via the Distribution Canal. Treated produced water received from Chevron (and others, see below) is blended with water from other surface and groundwater supplies to meet the receiving water limitations set forth in this Order. Surface water blended into Reservoir B consists of Kern River water, State Water Project, and Central Valley Project waters delivered from the Beardsley Canal through Lerdo Pumping Station B. CWD is required to manage the water through management practices and blending to ensure protection of applicable beneficial uses. Through its use of its Distribution Canal, CWD discharges excess blended water to Poso Creek (for intentional recharge of groundwater) during the winter months when irrigation demand is low. Consequently, both Chevron and CWD are entities that discharge to surface waters of the U.S. and are collectively responsible for compliance with this Order.

In June 2007, the Regional Water Board adopted Order No. R5-2007-0066 (NPDES Permit No. CA0081311) for Valley Waste Disposal Company (VWDC) and CWD. The Order allows VWDC to discharge up to 7.4 mgd of treated produced water from the Kern Front Oil Field to Reservoir B.

At times when Chevron is unable to discharge to Reservoir B (due to maintenance or emergency reasons), treated produced water is discharged to the Carrier Canal. This discharge is regulated by Order No. R5-2002-0052 (NPDES No. CA0080853) and Special Order No. R5-2005-0136, which authorizes Chevron to discharge up to 18 mgd of treated produced water to the Carrier Canal. In December 2006, Chevron submitted a RWD and applied for a NPDES permit renewal to continue the contingency discharge to the Carrier Canal. The application was deemed complete on 12 January 2007 and adoption of a new Order is pending.

## **A. Site Conditions**

1. Average annual precipitation and evaporation for the area are 5.7 inches and in excess of 74 inches, respectively. The 100-year, 24-hour maximum precipitation is about 2.5 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 500 feet below ground surface (bgs) in the area where excess blended water is discharged to Poso Creek. Based on groundwater surface elevation data provided by the KCWA, the groundwater gradient is westerly.

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. CWD submitted a groundwater monitoring report in February 2005 which evaluated the quality of groundwater throughout the CWD. Between 1999 and 2004, the average EC of groundwater in the CWD decreased from 711.3 umhos/cm to 662.2 umhos/cm, which indicates improved groundwater quality. However, due to the large number of monitoring wells, the variability of well construction specifications and screening intervals, the discontinuity of yearly well sampling, and the approximate 400-foot vadose zone, it is difficult to determine the effect reclamation of produced water has had or will have on the quality of groundwater throughout the CWD.
5. 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**

A description of the treatment process utilized by Chevron is provided above in Facility Description.

## **C. Discharge Points and Receiving Waters**

1. From the Facility, treated produced water is discharged via an 8.5-mile pipeline to CWD Reservoir B. The outfall from the pipeline into Reservoir B is herein identified as Discharge 001. Reservoir B is clay lined and is an integral part of the CWD distribution system. Reservoir B is on the boundary between the North Kern Hydrologic Area (558.80) and the Kern Uplands Hydrologic Area (No. 558.90) as depicted on interagency maps prepared by the Department of Water Resources (August 1986).
2. Treated produced water (from Chevron and VWDC) is blended with surface water and discharged from Reservoir B to the CWD Distribution Canal. The outfall from

Reservoir B to the Distribution Canal is herein identified as Discharge 002. The CWD distribution system consists of 5.3 miles of lined canal and about 38 miles of pipeline ranging in size from 15- to 60-inches in diameter. The distribution system supplies irrigation water in the North kern Hydrologic Area.

3. From the distribution pipeline, excess blended water is discharged to Poso Creek. Discharge to Poso Creek is herein identified as Discharge 003. Discharge to Poso Creek occurs on a limited basis at times when irrigation demand is low (primarily winter months) and the discharge is for intentional recharge of groundwater. CWD obtains water supplies from many sources and manages all the irrigation water within its distribution network. To retain as much water within the CWD as possible, CWD attempts to discharge to Poso Creek only when there is no or insufficient surface water flow in Poso Creek to extend past the downstream boundary of the CWD. The CWD and the downstream water districts (North Kern Water Storage District or NKWSD and Semitropic Water Storage District or SWSD) filed competing applications for rights to waters in Poso Creek. CWD, by subsequent agreement with NKWSD and SWSD, has right to approximately the first 135 cfs as measured at State Highway 65. Flows greater than 135 cfs at State Highway 65 are allocated to NKWSD and SWSD until said flow exceeds 685 cfs, after which the flow is allocated to CWD, NKWSD, and SWSD relative to remaining demands. The CWD right of 135 cfs consists of 60 cfs of recharge capacity of the Poso Creek channel within CWD, riparian diversion right of 25 cfs, and 50 cfs appropriate diversion right to groundwater storage.

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

Effluent limitations contained in Order No. 95-031 for discharge of treated produced water into Reservoir B and representative monitoring data are as follows:

**Table F-2. Historic Effluent Limitations and Monitoring Data**

Parameter	Units	Effluent Limitation		Monitoring Data (From January 2004 through June 2007)
		Average Monthly	Maximum Daily	Average
Flow	mgd	--	25.2 <sup>1</sup>	17.6
Electrical Conductivity @25°C	umhos/cm	1,100	1,200	954
Chloride	mg/L	175	200	133
Boron, Total Recoverable	mg/L	1.4	1.6	0.99
Oil and Grease	mg/L	--	35	9.5

<sup>1</sup> The Order also includes a limitation for flow of "The average discharge over the life of the permit shall not exceed 18 mgd."

In April and October 2001, the Discharger collected samples of the effluent (Discharge 001) for CTR priority pollutant constituents. In August 2001 and February 2002, the

Discharger collected samples of the effluent for analysis of dioxins. In April 2007, Regional Water Board staff collected samples from the Chevron discharge to the Carrier Canal (same treated produced water as delivered to CWD) for analysis of electrical conductivity (EC), pH, total dissolved solids (TDS), hardness, chloride, boron, volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), total petroleum hydrocarbons as diesel (TPH diesel), TPH gasoline, oil & grease, Title 22 total recoverable metals, pesticides, dioxin, and chronic toxicity. A summary of the results of the priority pollutant sampling and other analyses is presented in Section IV.C.

The following table provides a summary of monitoring data for the additional source waters that enter CWD Reservoir B (treated produced water from VWDC and surface water delivered from Beardsley Canal through Lerdo Pumping Station B). The data represents averages of available values collected from 2001 to 2006.

Parameter	Units	VWDC	Surface Water (Irrigation Season, April – September)	Surface Water (Non-Irrigation Season, October – March)
Flow	mgd	1.89	85.2	14.2
Electrical Conductivity @25°C	umhos/cm	1,010	179	204
Chloride	mg/L	71.7	25.5	19.7
Boron, Total Recoverable	mg/L	0.73	0.11	0.15
Oil and Grease	mg/L	10.0	--	--

The following table provides a summary of monitoring data for the discharge of blended water from Reservoir B to the Distribution Canal (Discharge 002). The data represents averages of available values collected from 2001 to 2006.

Parameter	Units	Irrigation Season (April – September)	Non-Irrigation Season (October – March)
Flow	mgd	88.3	26.2
Electrical Conductivity @25°C	umhos/cm	311	676
Chloride	mg/L	43.3	100.8
Boron, Total Recoverable	mg/L	0.27	0.71

Between 2001 and 2006, CWD reported discharging to Poso Creek only in late 2004 and early 2005. The following provides a summary of the number of discharge days and the average volume for of the discharges.

Month	Days Discharging to Poso Creek	Average Discharge Volume (mgd)
November 2004	14	14.3
December 2004	14	14.3
January 2005	14	14.3
February 2005	27	21.0
March 2005	7	31.0

The following table provides a summary of monitoring data for the discharge of blended water to Poso Creek (Discharge 003). The data represents averages of available values collected from November 2004 to March 2005.

Parameter	Units	Discharge to Poso Creek (Discharge 003)
Electrical Conductivity @25°C	umhos/cm	761
Chloride	mg/L	101.4
Boron, Total Recoverable	mg/L	0.77

Upstream of the CWD at Highway 65, Poso Creek exhibited the following flows (ref: CWD, Agricultural Water Conservation Plan, December 2005):

Month	Average Monthly Flow 1984-2003 (acre-feet)	Total Flow 2002-2003 (acre-feet)	Month	Average Monthly Flow 1984-2003 (acre-feet)	Total Flow 2002-2003 (acre-feet)
October	82	0	April	3,290	1,104
November	418	0	May	2,006	1,736
December	911	0	June	838	0
January	1,960	0	July	225	0
February	3,627	0	August	38	0
March	4,282	565	September	20	0

From 1993 through 2006, Poso Creek exhibited the following characteristics within the CWD.

Parameter	Units	Poso Creek in CWD (Average)
Electrical Conductivity @25°C	umhos/cm	251.5
Chloride	mg/L	14.4
Boron, Total Recoverable	mg/L	0.03

## E. Compliance Summary

For the time period between January 2004 and June 2007, no exceedances of the effluent limitations occurred. In April 2004, the receiving water (downstream of Reservoir B outfall) was reported to contain a chloride concentration of 117.5 mg/L, in excess of the receiving water limit for chloride of 106 mg/L. Three subsequent receiving water samples (Reservoir B outfall) collected in April 2004 contained chloride at concentrations less than 38 mg/L.

## F. Planned Changes

The Facility has no planned changes within the term 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 *Water Quality Control Plan for the Tulare Lake Basin, Second Edition – 1995* (Basin Plan) designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. The beneficial use of water in CWD Reservoir B and the CWD distribution system by design is agricultural supply (AGR). For Poso Creek, the Basin Plan designates the following beneficial uses: 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).

Based on USGS Professional Report 437B and interpretation by CWD's consulting geologist, the Poso Creek recharge area extends across the CWD and is characterized as sandy surface soils overlying greater than 550 feet of continental deposits. The continental deposits consist of sandy soils with several gravel layers, and exhibit high percolation rates. Unless flow entering the CWD at the upstream gauging station is in sufficient volume to exceed the evaporation rates and infiltration capacity of the recharge area, all waters in Poso Creek will recharge the groundwater within the CWD. As discharge of excess blended water to Poso Creek

occurs for intentional recharge of groundwater, the designated beneficial uses must be considered. The Basin Plan designates the following beneficial uses for the underlying groundwater: municipal and domestic supply (MUN), AGR, industrial process supply (PRO), and industrial service supply (IND).

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.** See Limitations and Discharge Requirements – Findings, Section II.N.
5. **Anti-Backsliding Requirements.** See Limitations and Discharge Requirements – Findings, Section II.O.
6. **Emergency Planning and Community Right to Know Act – Not Applicable.**
7. **Stormwater Requirements.** Effective 12 June 2006, the U.S. Environmental Protection Agency (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, Policies and Regulations**

In June 1970, the Department of Water Resources (DWR) submitted a *Report on Poso Creek Water Quality Evaluation, Kern County*. The report evaluated the effect of produced water discharges from the Mt. Poso, Poso Creek, Round Mountain, and Kern Front Oil Fields on the Poso Creek Basin. The quality of the oil field discharges varied widely. Mt. Poso and Round Mountain generated produced water with chlorides of 500 to 1,100 mg/L. Discharges for the Poso Creek Oil Field generated produced water with chloride concentrations of 215 to 715 mg/L. Chloride concentrations in produced water from the Kern Front Oil Field ranged from 60 to 100 mg/L. In 1969, chlorides in oil field discharges (720 mg/L average) totaled 26,050 tons, corresponding roughly to 75,000 tons of salt. Measured chlorides in groundwater samples from a well near the center of CWD indicated that chloride in groundwater increased from less than 20 mg/L in 1916 to over 600 mg/L in 1969. This report served as a basis for a Regional Water Board Resolution adopted on 23 November 1970. Resolution 71-122 limited the maximum EC, chloride, and boron concentration in oil field “waste waters discharged to Poso Creek or its tributaries and to... unlined sumps...” to 1,000 umhos/cm, 200 mg/L and 1.0 mg/L, respectively. The Regional Water Board’s implementation of Resolution 71-122 effectively stopped uncontained discharge of oil field wastewater with unacceptable high salt concentrations in an area it called the Poso Creek Subarea.

Follow-up sampling by the CWD shows the impact of the high salt oil field discharges persisted in 1980. A 1980 map prepared by CWD which depicts chloride concentrations in the CWD shows a degraded area along Lerdo Highway with chloride exceeding 400 mg/L.

The Basin Plan incorporates the Poso Creek policy (Resolution 71-122). The Basin Plan notes the entire basin is essentially closed, and salts discharged within the basin accumulate. It recognizes that salt in basin groundwater will increase over time and adopts a strategy of controlled degradation (as opposed to prevention). As a measure of the acceptable rate of degradation, the Basin Plan establishes (as a water quality objective) a maximum annual degradation rate no greater than six (6) umhos/cm per year for the Poso Groundwater Hydrographic Unit (Hydrologic Area Nos. 558.70, 558.80, and 558.90). The existing and proposed discharge occurs in the North Kern Hydrologic area (558.80) and the Kern Uplands Hydrologic Area (558.90).

The Basin Plan specifies salinity limits for oil field discharges of 1,000 umhos/cm for EC, 200 mg/L for chloride, and 1.0 mg/L for boron, which are applied as annual averages.

In 1982, the Regional Water Board adopted Resolution No. 82-136, amending the Basin Plan to allow discharge of oil field wastewater to exceed Basin Plan limits to facilitate use for irrigation and other beneficial uses where the exception would not cause exceedance of a water quality objective. The Basin Plan, therefore, provides some flexibility to allow agricultural use of oil field wastewater when Basin Plan salinity limits to be exceeded provided the discharger first successfully demonstrates to the Regional Water Board that the proposed discharge will not substantially affect water quality nor cause a violation of a water quality objective.

On 1 June 1994, the USEPA, US Bureau of Reclamation, State Water Board, DWR, Department of Health Services, Conference of Directors of Environmental Health, and Water Reuse Association of California signed a *Statement of Support for Water Reclamation* and resolved that agencies would reduce reclamation disincentives and regulatory constraints on water reclamation. The Regional Water Board concurs with this statement and supports the efficient use of the State's limited water supplies provided the beneficial uses of water are maintained and water quality objectives are met.

The California Legislature enacted A.B. 3030 during the 1992 session, subsequently codified in CWC Section 10750, *et seq.* CWC Section 10750 states, in part, that:

"Any local agency, whose service area includes a groundwater basin, or a portion of a groundwater basin, that is not subject to groundwater management pursuant to other provision of law or a court order, judgment, or decree, may, by ordinance, or by resolution if the local agency is not authorized to act by ordinance, adopt and implement a Groundwater Management Plan pursuant to this part within all or a portion of its service area."

CWC Section 60224 empowers the CWD to take any action needed for protection and preservation of ground water supplies within the CWD including (1) the prevention of contaminants from entering CWD groundwater supplies, (2) the removal of contaminants from groundwater supplies of the CWD; (3) the location and characterizing of contaminants which may enter the groundwater supplies of the CWD, (4) the identification of parties responsible for contamination of groundwater; and (5) the performance of engineering studies.

The CWD adopted a Ground Water Management Plan (Plan) on 21 July 1994 that establishes a policy of efficient water use, conservation, and management. Action elements in the Plan include the following:

- Acquire and import available, supplemental surface water for crop irrigation and groundwater recharge.
- Continue the application for appropriation of Poso Creek water and develop Poso Creek as a groundwater recharge facility within the CWD.
- Facilitate conjunctive use operations by the importation and recharge use of supplemental water.

- Construct and operate CWD wells.
- Monitor well construction and abandonment as administered by Kern County.

Monitoring elements of the Plan include:

- Semi-annual monitoring of groundwater levels of wells within the CWD.
- Semi-annual preparation of maps of equal elevation of water in wells.
- Monitor groundwater quality at 5-year intervals and prepare maps of electrical conductivity, chloride, and boron concentrations.
- Operate and maintain the Poso Creek gauging station above State Highway 65.

To sustain existing irrigated agriculture, CWD supplements its existing limited surface water supplies and overdrafted groundwater with the reclamation of treated produced water as described herein. Through its Plan, the CWD proposes to manage water used within its boundaries in a manner that meets Basin Plan objectives. The Basin Plan allows blending of wastewater with surface and groundwater to promote reuse of wastewater in water short areas provided it is otherwise consistent with water quality policies. The Poso Creek Subarea and CWD are water short areas and CWD can ensure consistency with water quality policies by proper management.

At the request of the NKWSD, the Regional Water Board conducted public hearings in 1985 to determine appropriate quality for water used for irrigation of crops in the Poso Creek Subarea. At the time, treated produced water was discharged to Beardsley Canal, the main canal for surface water being conveyed to NKWSD and CWD. The Regional Water Board adopted receiving water limits as appropriate for supply waters used to irrigate citrus and other sensitive crops grown in the two districts. The applicable receiving water limits for EC, chloride and boron are 700 umhos/cm, 106 mg/L, and 0.5 mg/L, respectively.

#### **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 Facility. 40 CFR 122.41 (m), defines “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 water produced in recovery of oil as described by the Discharger and only as authorized by the Order.

## 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 40 CFR 125.3.

### 2. Applicable Technology-Based Effluent Limitations

- a. **Flow.** Order No. 95-031 established a maximum daily effluent flow limitation of 25.2 mgd for the discharge of treated produced water from the Facility to CWD Reservoir B. The Order also included an effluent flow limitation of 18 mgd, expressed as an average discharge rate over the life of the permit. The Discharger requests the effluent flow limitation be increased to 33.5 mgd. CWD, Chevron, and VWDC conducted a study to support the requested flow increase and potential resultant increase of salt loading. The study considered the impacts from the discharge and is detailed in a document dated March 2007 and entitled *Cawelo Water District, Valley Waste Disposal Company, Chevron, Proposed Modification of Waste Discharge Requirements for Discharges into Reservoir "B" and Poso Creek, Technical Study Update for the California Regional Water Quality Control Board* (hereafter Study). A detailed summary of the Study is provided below in Section 3.C. The Study concluded that at projected quality and maximum flow rates from VWDC (EC of 1,030 umhos/cm and flow at 7.4 mgd) and from Chevron (EC of 940 umhos/cm and flow at 33.5 mgd), respectively, and when balanced by freshwater sources via CWD management of its system, the EC of the underlying groundwater would not increase by more than six (6) umhos/cm per year (i.e., compliance with Basin Plan). The requested increase of discharge flow is supported by the Study and discharge of wastewater for reclamation in a water short area is considered of maximum benefit as long as water quality objectives are achieved. In accordance with CEQA, the CWD approved a Negative Declaration in April 2007 for a project that included the increase of flows for Chevron and VWDC. For discharge of treated produced water to CWD Reservoir B (Discharge 001), this Order authorizes a maximum daily flow limitation of 33.5 mgd.
- 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 98<sup>th</sup> 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, technology-based effluent limitations (TBELs) are presented for 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. 95-031 established TBELs 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 for the industry. This Order carries over the TBEL for oil and grease established by Order No. 95-031.

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. Through management of the CWD distribution system, the Discharger is required to reduce oil and grease to levels below the 35 mg/L limitation specified at Discharge 001 to prevent a violation of the receiving water limitations in Poso Creek. For the discharge of excess blended water to Poso Creek (Discharge 003), this Order includes an effluent limitation for oil and grease of non-detect (i.e., less than the method detection limit as reported by the analytical laboratory).

**Summary of Technology-Based Discharge Specifications  
 Discharge 001**

**Table F-3. Summary of Technology-Based Discharge Specifications**

Parameter	Units	Discharge Specification				
		Annual Average	Monthly Average	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Flow	mgd	--	--	33.5	--	--
Oil and Grease	mg/L	--	--	35	--	--

**Summary of Technology-Based Effluent Limitations  
 Discharge 003**

**Table F-4. Summary of Technology-Based Effluent Limitations**

Parameter	Units	Effluent Limitations				
		Annual Average	Monthly Average	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Oil and Grease	mg/L	--	--	Non-Detect <sup>1</sup>	--	--

<sup>1</sup> Less than the method detection limit as reported by the analytical laboratory.

## C. Water Quality-Based Effluent Limitations (WQBELs)

### 1. Scope and Authority

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

### 2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

- a. **Receiving Water.** The receiving water is Poso Creek. The designated beneficial uses of Poso Creek are: AGR, REC-1, REC-2, WARM, COLD, WILD, GWR, and FRSH.
- 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. For purposes of establishing water quality-based effluent limitations, a reported hardness value of 50.4 mg/L as CaCO<sub>3</sub> (lowest 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 reasonable potential analysis (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.<sup>1</sup> The SIP states in the introduction “*The goal of this Policy is to establish a standardized approach for permitting discharges of toxic pollutants to non-ocean surface waters in a manner that promotes statewide consistency.*” Therefore, in this Order the RPA procedures from the SIP were used to evaluate reasonable potential for both CTR and non-CTR constituents. The RPA was completed using data collected by the Discharger in April and October 2001, and with data collected by Regional Water Board staff in April 2007. A summary of

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<sup>1</sup> See, Order WQO 2001-16 (Napa) and Order WQO 2004-0013 (Yuba City)

the RPA and CTR analysis is included as Attachment G of this Order. For each constituent of concern, the results of the RPA are discussed in more detail below.

- b. **Arsenic.** The Basin Plan includes a water quality objective that “*waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses.*” Groundwater recharge is a beneficial use of the receiving stream with the groundwater having a designated beneficial use of MUN. The maximum observed effluent arsenic concentration from Chevron was 19 ug/L. For the discharge to Reservoir B, arsenic exceeds the USEPA Primary Maximum Contaminant Level (MCL) of 10 ug/L. Pursuant to the Safe Drinking Water Act, the California Department of Public Health must revise the arsenic MCL in Title 22 CCR to be as low or lower than the USEPA MCL. Under conditions where Chevron and VWDC are discharging at capacity, the concentration of arsenic in the discharge to Poso Creek (Discharge 003) could exceed the MCL. Applying the Basin Plan’s “Policy for Application of Water Quality Objectives,” to protect the future municipal and domestic water use of groundwater, it is reasonable to apply the USEPA MCL for arsenic to discharges to Poso Creek, as water discharged to the creek is managed to recharge groundwater. An Effluent Limitation for arsenic of 10 ug/L is included in this Order and is based on protection of the beneficial use of groundwater recharge and municipal and domestic water supply, the Basin Plan water quality objective for chemical constituents, and toxicity; and the USEPA Primary MCL.
- c. **Bis (2-ethylhexyl) phthalate.** Bis (2-ethylhexyl) phthalate is used primarily as one of several plasticizers in polyvinyl chloride (PVC) resins for fabricating flexible vinyl products. The State MCL for bis (2-ethylhexyl) phthalate is four (4) ug/L and the USEPA MCL is six (6) ug/L. The NTR criterion for Human health protection for consumption of water and aquatic organisms is 1.8 ug/L and for consumption of aquatic organisms only is 5.9 ug/L.

The maximum effluent concentration (MEC) for bis (2-ethylhexyl) phthalate was 3.0 ug/L, based on three effluent samples (Discharge 001) collected between April 2001 and April 2007. The remaining two samples were reported to contain no detectable concentrations of the constituent at a method detection limit of 4.044 ug/L. For the detected concentration of 3.0 ug/L, the analytical laboratory report noted that (1) the result was an estimated value below the reporting limit, (2) the result was unreliable and the analyte is a common laboratory contaminant, and (3) the analyte was also detected in the associated method blank. The available data is not sufficient to determine whether the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the NTR criterion for bis (2-ethylhexyl) phthalate. Therefore, this Order requires monitoring for bis (2-ethylhexyl) phthalate (i.e., priority pollutants) at Discharge 003 and 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.

- d. **Electrical Conductivity. (see Subsection g. Salinity)**

- e. **Mercury.** The current USEPA Ambient Water Quality Criteria for Protection of Freshwater Aquatic Life, continuous concentration, for mercury is 0.77 ug/L (30-day average, chronic criteria). The CTR contains a human health criterion (based on a one-in-a-million cancer risk) of 0.050 ug/L for waters from which both water and aquatic organisms are consumed. Both values are controversial and subject to change. In 40 CFR 131, USEPA acknowledges that the human health criteria may not be protective of some aquatic or endangered species and that *"...more stringent mercury limits may be determined and implemented through use of the State's narrative criterion."* In the CTR, USEPA reserved the mercury criteria for freshwater and aquatic life and may adopt new criteria at a later date. For three effluent samples (Discharge 001) collected between April 2001 and April 2007, mercury was detected in two samples (collected in 2001) at concentrations of 0.0007 ug/L and 0.0636 ug/L. These effluent samples were collected prior to the consolidation of the Chevron and Texaco discharges into a single outfall in October 2002; and therefore, is not representative of more recent discharges. The remaining sample (recently collected in 2007) was reported to contain no detectable concentrations of mercury below the method detection limit of 0.2 ug/L. There is insufficient data to determine if the discharge has reasonable potential to cause an in stream excursion above the CTR human health criterion. Therefore, this Order requires monitoring for mercury at Discharge 003 and 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 mercury.
- f. **pH.** The Basin Plan includes a water quality objective for surface waters that the *"...pH 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."* Effluent Limitations for pH are included in this Order based on the Basin Plan objectives for pH.
- g. **Salinity.** Chevron requests no increase of the existing effluent limitations for EC, chloride, and boron as authorized by Order No. 95-031. Order No. 95-031 authorizes exceptions to the Basin Plan oil field salinity limits for EC and boron. For discharge of treated produced water to CWD Reservoir B (Discharge 001), the EC limit is expressed as a daily maximum of 1,200 umhos/cm and a monthly average of 1,100 umhos/cm. For boron, the limit is expressed as a daily maximum of 1.6 mg/L and a monthly average of 1.4 mg/L.

In March 2007, CWD, Chevron, and VWDC provided a technical Study in support of the proposed oil field production water flow and EC increases from VWDC (which were later authorized by Order R5-2007-0066) and proposed production water flow increases from Chevron to CWD Reservoir B, as detailed herein. The Study also examines proposed flow increases from the Schaefer Oil Company system as part of the overall balance (not an NPDES discharge). The Study employs a salt/volume balance model to demonstrate that potential impacts to groundwater from the increases in oil field production water discharges, if properly managed, will not cause groundwater underlying the CWD to exceed the

maximum average annual increase of six (6) umhos/cm per year for the Poso Groundwater Hydrographic Unit as specified in the Basin Plan. The CWD lies within the Poso Groundwater Hydrographic Unit. The Study employs the following assumptions:

- Generally, the annual average EC levels of the oil field production water discharges from VWDC, Chevron, and Schaefer Oil Company to the CWD system will remain near their respective ten-year median values.
- All imported salts migrate to the underlying groundwater mass and are evenly mixed throughout the underlying groundwater mass.
- About 10% of the imported surface and produced waters seep into the underlying groundwater through the reservoirs in the distribution system.
- About 15% of the blended water applied for irrigation percolates to the underlying groundwater.
- The groundwater basin underlying the CWD is replenished by an annual inflow of 22,000 acre-feet of subsurface water from the east with an EC of 200 umhos/cm (TDS of 115 mg/L).

The Study examined six scenarios, which are discussed in more detail and summarized in the tables below.

**Scenario 1: Current Conditions**

Scenario 1 examines the potential annual incremental increase in groundwater EC due to current operating conditions. The volume and quality of surface water imported into CWD and the effluent flows and EC values for the oil field production water discharges to Reservoir B are based on historical ten-year median values during the period from 1996 through 2005.

**Table Scenario 1**

	<u>Flow rate</u>		<u>Salt concentration</u>		<u>Salt loading</u>
	(mgd)	(acft/year)	EC (umhos/cm)	TDS (mg/L)	(tons/year)
Valley Waste	1.4	1,589	1,030	588	1,270
Chevron	16.5	18,432	940	486	12,164
Schaefer	1.1	1,238	955	558	939
Surface Water		64,185	190	107	9,298
Subsurface		22,000	200	115	3,447
Total inflow:		107,444	Total salts:		<b>27,118</b>
					<b>TDS increase (+mg/L): 1.36</b>
					<b>EC increase (+umhos/cm): 2.36</b>

As shown, the model predicts that groundwater EC will increase by 2.36 umhos/cm per year.

**Scenario 2: 2005 Water Year**

Scenario 2 is based on oil field production water flows and surface water imports that reflect the conditions that occurred in 2005, when surface water supplies available to the CWD were about 4800 acre feet higher than the ten year

average. Oil field production water EC levels were based on the ten-year median values.

**Table Scenario 2**

	<u>Flow rate</u>		<u>Salt concentration</u>		<u>Salt loading</u>
	(mgd)	(acft/year)	EC (umhos/cm)	TDS (mg/L)	(tons/year)
Valley Waste	3.4	3,812	1,030	588	3,046
Chevron	15.2	17,096	940	486	11,282
Schaefer	1.15	1,293	955	558	980
Surface Water		68,959	190	107	9,990
Subsurface		22,000	200	115	3,447
Total inflow:		113,160	Total salts:		<b>28,745</b>
					<b>TDS increase (+mg/L): 1.54</b>
					<b>EC increase (+umhos/cm): 2.67</b>

Under Scenario 2, the model predicts that the groundwater EC will increase by 2.67 umhos/cm per year.

**Scenario 3: Proposed Conditions**

In Scenario 3, oil field production water effluent flows are increased to those included in the RWD submitted by VWDC, Chevron, and the Schaefer Oil Company. The production water EC values are assumed to mirror historic ten-year median values.

**Table Scenario 3**

	<u>Flow rate</u>		<u>Salt concentration</u>		<u>Salt loading</u>
	(mgd)	(acft/year)	EC (umhos/cm)	TDS (mg/L)	(tons/year)
Valley Waste	7.4	8,304	1,030	588	6,636
Chevron	33.5	37,593	940	486	24,809
Schaefer	2.15	2,424	955	558	1,838
Surface Water		64,185	190	107	9,298
Subsurface		22,000	200	115	3,447
Total inflow:		134,506	Total salts:		<b>46,028</b>
					<b>TDS increase (+mg/L): 3.45</b>
					<b>EC increase (+umhos/cm): 5.98</b>

Under this scenario, the predicted annual average increase in groundwater EC is 5.98 umhos/cm, which is consistent with the Basin Plan water quality objective that limits the annual average incremental increase in groundwater to six (6) umhos/cm.

**Scenario 4: Proposed Conditions (2005 Water Year)**

In Scenario 4, oil field production water effluent flows are maintained at those

included in the Reports of Waste Discharge submitted by VWDC, Chevron, and the Schaefer Oil Company, and the surface water imports are assumed to reflect the conditions that occurred in 2005. The production water EC values are again assumed to mirror historic ten-year median values.

**Table Scenario 4**

	<u>Flow rate</u>		<u>Salt concentration</u>		<u>Salt loading</u>
	(mgd)	(acft/year)	EC (umhos/cm)	TDS (mg/L)	(tons/year)
Valley Waste	7.4	8,304	1,030	588	6,636
Chevron	33.5	37,593	940	486	24,809
Schaefer	2.16	2,424	955	558	1,838
Surface Water		68,959	190	107	9,990
Subsurface		22,000	200	115	3,447
Total inflow:		139,280	Total salts:		<b>46,720</b>
					<b>TDS increase (+mg/L): 3.16</b>
					<b>EC increase (+umhos/cm): 5.48</b>

Under Scenario 4, the model predicts that the average annual increase in groundwater EC will be 5.48 umhos/cm.

**Scenario 5: Proposed Conditions (2005 Water Year)**

In Scenario 5, the oil field production flows are set at 75 percent of the maximum flows permitted and surface water imports are assumed to equal those that occurred in 2005. Oil field production water EC values are set at the ten-year median values.

**Table Scenario 5**

	<u>Flow rate</u>		<u>Salt concentration</u>		<u>Salt loading</u>
	(mgd)	(acft/year)	EC (umhos/cm)	TDS (mg/L)	(tons/year)
Valley Waste	5.53	6,200	1,030	588	4,954
Chevron	25	28,000	940	486	18,487
Schaefer	1.1	1,800	955	558	1,365
Surface Water		68,959	190	107	9,990
Subsurface		22,000	200	115	3,447
Total inflow:		126,959	Total salts:		<b>38,234</b>
					<b>TDS increase (+mg/L): 2.62</b>
					<b>EC increase (+umhos/cm): 4.54</b>

Under these conditions, the model indicates that the average EC of groundwater will increase by 4.54 umhos/cm per year.

**Scenario 6: Proposed Conditions (2005 Water Year/Increased EC)**

In Scenario 6, the oil field production flows are set at 75 percent of the maximum daily flows requested and surface water imports are assumed to equal those that

occurred in 2005. Oil field production water EC values are set 10 percent higher than the ten-year median values.

**Table Scenario 6**

	<u>Flow rate</u>		<u>Salt concentration</u>		<u>Salt loading</u>
	(mgd)	(acft/year)	EC (umhos/cm)	TDS (mg/L)	(tons/year)
Valley Waste	5.53	6,200	1,130	645	5,435
Chevron	25	28,000	1,030	532	20,251
Schaefer	1.1	1,800	1,050	614	1,501
Surface Water		68,959	190	107	9,990
Subsurface		22,000	200	115	3,447
Total inflow:		126,959	Total salts:		<b>40,624</b>
					<b>TDS increase (+mg/L): 3.06</b>
					<b>EC increase (+umhos/cm): 5.31</b>

Under these conditions, the model indicates that the average EC of groundwater will increase by 5.31 umhos/cm per year.

The Study concludes that when all oil field producers are discharging at maximum annual permitted quantities, the CWD will need to continue to import about 65,000 acre-feet of surface water and discharge approximately 10,000 acre-feet to Poso Creek for groundwater recharge to ensure the annual incremental increase in groundwater EC remains less than six (6) umhos/cm. It also demonstrates the proposed discharges will be consistent with this limit as long as the long-term average EC values of produced water discharges from VWDC and Chevron remain near their ten-year median values. The Study states that a salt load computation will need to be made regularly to determine whether restrictions on the discharge of oil field produced water discharges to CWD Reservoir B will be required in any year to stay under the incremental EC increase limit.

Implicit in the study results is that the CWD can to some degree manage its system by reducing the volume of the oil field production discharges it accepts, or by importing additional high quality surface water when available to create some assimilative capacity in the underlying aquifer for times when full surface water deliveries are not available. Also implicit in the Study is that changes in groundwater EC take place over long periods of time and that daily and monthly average EC spikes are not likely to contribute to violations of the Basin Plan incremental EC increase objective as long as VWDC maintains the long term average EC of its discharge at or below 1,030 umhos/cm and Chevron maintains the long term average of its discharge at or below 940 umhos/cm.

- i. **Electrical Conductivity (EC).** Given the above, it is reasonable to include in this Order discharge specifications that enable Chevron to discharge at a flow of 33.5 mgd and limit the annual average effluent EC of the Chevron discharge to CWD Reservoir B to 940 umhos/cm. Calculations in the Study

relied on 10-year average EC values from VWDC (1,030 umhos/cm) and Chevron (940 umhos/cm). As groundwater reflects the average of discharge character and as the average character used for Chevron for the demonstration is 940 umhos/cm, it is appropriate to apply this as an annual average EC limitation for Chevron at Discharge 001 to ensure compliance with Basin Plan objectives. Maximum daily and average monthly EC limits are not necessary and are not included. It has been demonstrated by the Study that the annual average EC will maintain compliance with Basin Plan objectives. Although the EC of the discharge averaged 954 umhos/cm over the last 3.5-year period, Chevron has indicated to staff that the Study utilized reliable grab sample data rather than the continuously monitored data as gathered and reported in monthly self-monitoring reports. Therefore, Chevron can meet the proposed discharge specification for EC at Discharge 001.

To ensure consistency with the Basin Plan, this Order also includes salinity limits for the discharge from Reservoir B to the Distribution Canal (Discharge 002) and from the CWD distribution system to Poso Creek (Discharge 003). For these two discharge locations, the limit for EC will be the annual average of 1,000 umhos/cm.

This Order includes a reopener that allows the Regional Water Board to adjust flow and EC discharge specifications and effluent limitations should the Study assumptions prove inadequate or dependent discharge limits require reassessment.

- ii. **Chloride.** For Discharge 001, chloride limits will be carried over from Order 95-031 and are at or less than the limits authorized by the Basin Plan. For Discharge 002 and Discharge 003, the limit for chloride will be the annual average of 200 mg/L. Effluent monitoring data for chloride indicates the Discharger will meet the proposed limitations.
- iii. **Boron.** For Discharge 001, boron limits will be carried over from Order 95-031 as an exception to the Basin Plan limit for boron. Regional Water Board staff calculations indicate that the boron effluent limitations have little potential to cause additional increases in the concentration of boron in groundwater underlying the CWD. Also, this Order requires the CWD to manage the discharges to Reservoir B so that discharges from Reservoir B comply with the limits authorized by the Basin Plan. Thus, the boron discharged to Reservoir B should not significantly impact groundwater quality or cause a violation of water quality objectives. Therefore, the boron limitations at Discharge 001 will remain at 1.6 mg/L (daily maximum) and 1.4 mg/L (monthly average). For Discharge 002 and Discharge 003, the limit for boron will be the annual average of 1.0 mg/L to ensure consistency with the Basin Plan. Effluent monitoring data for boron indicates the Discharger will meet the proposed limitations.

Additionally, Regional Water Board staff are aware that those discharging to CWD Reservoir B have not investigated potential methods to reduce the salinity of discharges into the CWD. Thus, it is appropriate to require Chevron to investigate whether there are measures that could be implemented to reduce the salinity of produced water discharged to CWD. This Order requires Chevron to conduct a Salinity Evaluation and Minimization Plan.

#### **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.**

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. 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. As the discharge to Poso Creek (Discharge 003) is not limited with respect to flow, this Order does not include effluent limitations expressed in terms of mass.

#### **2. Averaging Periods for Discharge Specifications and Effluent Limitations**

This Order includes salinity limits expressed as monthly averages and as annual averages. For compliance determination, monthly average is the arithmetic mean of the daily discharge values for a given calendar month (first of the month to the last of the month) and annual average is the arithmetic mean of daily discharge values collected for a calendar year (January 1 to December 31). For instances of multiple samples in a calendar day, daily discharge values is the mean of measurements collected within the calendar day.

#### **3. Satisfaction of Anti-Backsliding Requirements.**

The discharge specifications and effluent limitations authorized in this Order are at least as stringent as those in Order No. 95-031. Thus, the Order is consistent with the anti-backsliding requirements of the CWA and federal regulations.

#### 4. Satisfaction of Antidegradation Policy

In the Basin Plan, this Regional Water Board adopted criteria for the area managed by the CWD, which is in the Poso Groundwater Hydrographic Unit. Specifically this Regional Water Board has considered degradation that could be caused by discharges of oil field wastewater to land, groundwater, and surface water and determined degradation that results from discharges that comply with EC, chloride, and boron effluent limits of 1,000 umhos/cm, 200 mg/L, and 1.0 mg/L, respectively, is reasonable and appropriate. The Basin Plan also indicates that greater effluent limits may be considered if a discharger first demonstrates to this Regional Water Board that the discharge with higher limits will not substantially affect water quality or cause it to exceed water quality objectives. The Study demonstrates that the proposed increase of flow, coupled with the average EC limit for the Chevron discharge and proper management of the discharge will not cause violation of a water quality objective.

The CWD must secure freshwater and manage the blended discharges so they will not substantially affect water quality and violate a water quality objective, including ensuring the annual blended discharge does not cause or contribute to more than six (6) umhos/cm increase in groundwater in any year. Consistent with the Basin Plan and of maximum benefit the people of the State, the discharge as conditioned in this Order is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution 68-16.

#### 5. Summary of Final Limitations

**Table F-4. Discharge Specifications – Discharge 001**

Parameter	Units	Discharge Specifications			Basis
		Daily Maximum	Monthly Average	Annual Average	
Flow	mgd	33.5	--	--	BPJ
Electrical Conductivity at 25°C	umhos/cm	--	--	940	Basin Plan, BPJ
Chloride	mg/L	200	175	--	Basin Plan
Boron, Total Recoverable	mg/L	1.6	1.4	--	Basin Plan
Oil and Grease	mg/L	35	--	--	BPT, Basin Plan, USEPA

**Table F-5. Discharge Specifications – Discharge 002**

Parameter	Units	Discharge Specifications			Basis
		Daily Maximum	Monthly Average	Annual Average	
Electrical Conductivity at 25°C	umhos/cm	--	--	1,000	Basin Plan
Chloride	mg/L	--	--	200	Basin Plan
Boron, Total Recoverable	mg/L	--	--	1.0	Basin Plan

**Table F-6. Effluent Limitations – Discharge 003**

Parameter	Units	Effluent Limitations			Basis
		Daily Maximum	Monthly Average	Annual Average	
Electrical Conductivity at 25°C	umhos/cm	--	--	1,000	Basin Plan
Chloride	mg/L	--	--	200	Basin Plan
Boron, Total Recoverable	mg/L	--	--	1.0	Basin Plan
Arsenic, Total Recoverable	mg/L	10	--	--	BPJ, EPA
Oil and Grease	mg/L	Non-Detect	--	--	BPT, Basin Plan, USEPA

Discharge 003 shall not have a pH less than 6.5 nor greater than 8.3.

Survival of aquatic organisms in 96-hour bioassays of undiluted waste from Discharge 003 shall be no less than the following:

Minimum for any one bioassay: ----- 70%

Minimum median for any three consecutive bioassays: ----- 90%

**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.

### 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.
- 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 5°F above natural receiving water temperature.” This Order includes a receiving water limitation based on this objective.

At the request of the NKWSD, the Regional Water Board conducted public hearings in 1985 to determine appropriate quality for water used for irrigation of crops in the Poso Creek Subarea. At the time, treated produced water was discharged to Beardsley Canal, the main canal for surface water conveyed to NKWSD and CWD. The Regional Water Board adopted the following receiving water limits as appropriate for supply waters used to irrigate citrus and other sensitive crops grown in the two districts:

<u>Constituent</u>	<u>Concentration</u>
EC	700 umhos/cm
Chloride	106 mg/L
Boron	0.5 mg/L

The proposed Order considers that CWD, in keeping with its responsibility and authority to provide water to its customers that is suitable for irrigation of all crops grown in the District, has the ability to control the quality by the blending of supply waters. Further, as a groundwater management agency and Discharger under this Order, it has the authority and responsibility to comply with WDRs that implement the Basin Plan. Thus it may use its discretion to provide supply water of higher quality than prescribed by the Regional Water Board in its distribution system. However, ground and surface water not solely for the use of CWD, such as ground and surface waters that flow from CWD into the NKWSD downgradient of CWD, must be consistent with the receiving water quality prescribed by the Regional Water Board since 1985. The proposed Order requires CWD to ensure that discharges to Poso Creek do not cause the water in the creek that exits the CWD to exceed EC, chloride, and boron levels of 700 umhos/cm, 106 mg/L, and 0.5 mg/L, respectively.

## **B. Groundwater**

1. The beneficial uses of the underlying ground water are MUN, AGR, PRO, and IND.
2. Basin Plan water quality objectives include narrative objectives for chemical constituents, tastes and odors, and toxicity of groundwater.
3. Compliance with discharge specifications and effluent limitations will ensure the discharge causes no greater degradation than authorized by the Basin Plan. Further, discharge specifications and effluent limitations consistent with the Basin Plan ensure that the beneficial uses of surface water and groundwater are reasonably protected. The discharge, in combination with other sources, shall not cause groundwater underlying the CWD to contain waste constituents in concentrations that adversely affect beneficial uses. In no case shall the discharge, in combination with other sources, cause underlying groundwater to increase in EC by more than six (6) umhos/cm per year over the permit term.

## **VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS**

40 CFR 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. CWC 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, the effectiveness of the treatment process, and 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 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**

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 - Not Applicable**

## **VII. RATIONALE FOR PROVISIONS**

### **A. Standard Provisions**

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

40 CFR 122.41(a)(1) and (b) through (n) establish conditions that apply to all State-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. 40 CFR 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 CFR 123.25, this Order omits federal conditions that address enforcement authority specified in 40 CFR 122.41(j)(5) and (k)(2) because the enforcement authority under the CWC is more stringent. In lieu of these conditions, this Order incorporates by reference CWC 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 arsenic and mercury. This Order may be reopened for modification, or revocation and reissuance, depending on the results of this required monitoring.
- 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 two to three 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 one of five 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*

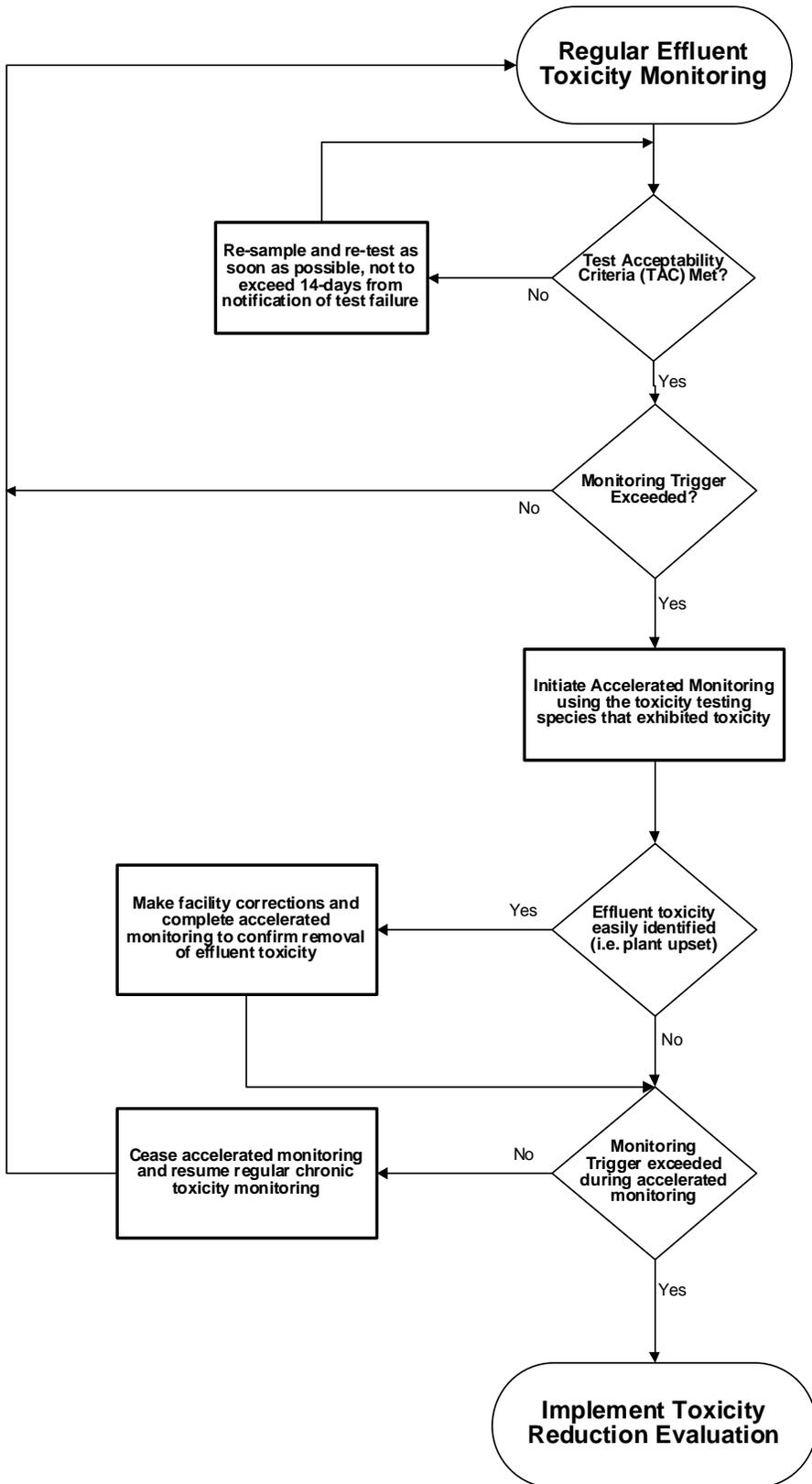
*Freshwater and Marine Organisms, Fifth Edition, EPA-821-R-02-012, October 2002.*

*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. **Salinity Evaluation and Minimization Plan.** An Evaluation and Minimization Plan for salinity is required in this Order to address sources of salinity from Chevron and to ensure adequate measures are developed and implemented by the Chevron and CWD to minimize the discharge of salinity to 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**

In order to protect receiving waters from overflow of untreated or partially treated produced water, this specification requires that treatment facilities 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 change of ownership and requirements for professional reports.

**7. Compliance Schedules – Not Applicable**

**VIII. PUBLIC PARTICIPATION**

The Regional Water Board is considering the adoption of an Order (WDRs) that will serve as an NPDES permit for the Discharger. As a step in the Order adoption process, Regional Water Board staff developed a tentative Order. The Regional Water Board encourages public participation in the Order 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 12 September 2007, posting on the Regional Water Board website, and posting by the Discharger at the site, the local post office, and county courthouse on or before 14 September 2007.

**B. Written Comments**

The staff determinations are tentative. Interested persons are invited to submit written comments concerning the tentative Order. Comments must be submitted either in person or by mail to the Executive Officer 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 12:00 p.m. on 15 October 2007.

### **C. Public Hearing**

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

Date: 6/7 December 2007  
Time: 8:30 am  
Location: Regional Water Quality Control Board, Central Valley Region  
11020 Sun Center Dr., Suite #200  
Rancho Cordova, CA 95670

Interested persons are invited to attend. At the public hearing, the Regional Water Board will hear testimony, if any, pertinent to the discharge, Order, 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 Order. 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 RWD, related documents, tentative 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 Order 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.

DAM:11/2/07