CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

CENTRAL VALLEY REGION

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ORDER NO. R5-2007-0169
NPDES NO. CA0080853

WASTE DISCHARGE REQUIREMENTS FOR CHEVRON U.S.A. INC. STATION 36 - CARRIER CANAL KERN COUNTY

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

Table 1. Discharger Information

Discharger	CHEVRON U.S.A. INC.
Name of Facility	STATION 36 – CARRIER CANAL
Facility Address	1546 CHINA GRADE LOOP
	BAKERSFIELD, CA. 93308
	KERN COUNTY
The U.S. Environmental Protection Agency and the Regional Water Board have classified this discharge as a **minor** discharge.	

The Discharger's discharge point identified below is subject to waste discharge requirements as set forth in this Order:

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
DIS-001	Treated oilfield produced water	N 35° 24' 58"	W 118° 58' 32"	CARRIER CANAL

Table 3. Administrative Information

This Order was adopted by the Regional Water Quality Control Board on:	6 December 2007
This Order shall become effective on:	6 December 2007
This Order shall expire on:	4 December 2012
The Discharger shall file a Report of Waste Discharge in accordance with Title 23, California Code of Regulations, as application for issuance of new waste discharge requirements no later than:	**7 June 2012**

IT IS HEREBY ORDERED, that Order Nos. R5-2002-0052, R5-2002-0053, and Special Order R5-2005-0136 are rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in Division 7 of the Water Code (commencing with Section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

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

PAMELA C. CREEDON, Executive Officer

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I. FACILITY INFORMATION

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

Table 4. Facility Information

Discharger	CHEVRON U.S.A. INC.
Name of Facility	STATION 36 - CARRIER CANAL
Facility Address	1546 CHINA GRADE LOOP BAKERSFIELD, CA. 93308 KERN COUNTY
Facility Contact, Title, and Phone	GARY PIRON, MANAGER, KERN RIVER, (661) 392-2432
Mailing Address	SAME AS FACILITY
Type of Facility	CRUDE OIL EXTRACTION FACILITY SIC Code: 1311 (Crude Petroleum and Natural Gas)
Discharge Design Flow	18 million gallons per day (mgd)

II. FINDINGS

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

A. Background. Chevron U.S.A. Inc., a Pennsylvania corporation, (hereinafter Discharger) is currently discharging pursuant to Order No. R5 2002-0052 (National Pollutant Discharge Elimination System (NPDES) Permit No. CA0080853) as modified by Special Order R5-2005-0136. Previously, Chevron U.S.A. Inc. and Texaco Exploration and Production, Inc., discharged separately under Order Nos. R5-2002-0053 and R5-002-0052 (NPDES Permit Nos. CA0080853 and CA0078352). Chevron U.S.A. Inc. and Texaco Exploration and Production, Inc. completed a corporate merger of assets in 2003 and since then operates as Chevron U.S.A. Inc. Chevron U.S.A. Inc. consolidated outfalls in June 2002. Now only one permit is required. The Discharger submitted a Report of Waste Discharge, dated 12 December 2006, and applied for a NPDES permit renewal to discharge up to 18 mgd of treated produced water from its treatment facility in the Kern River Oil Field to a pipeline that conveys the treated produced water to the Carrier Canal. The application was deemed complete on 12 January 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. The Discharger owns and operates a crude oil production and treatment facility (hereinafter Station 36). The treatment facility consists of mechanical separation, sedimentation, filtration, and air floatation. Treated produced water is normally discharged from Station 36 to Cawelo Water District's Reservoir B via a new

42-inch diameter, coated steel pipeline, 8.5 miles in length. In instances when discharge to Reservoir B is not possible, the Discharger can convey treated produced water from Station 36 via a pipeline to the Carrier Canal. Station 36 and the pipeline to the Carrier Canal are hereinafter the "Facility". Discharge to the canal is limited to 480 hours annually by agreement with the canal owners, the City of Bakersfield (CITY) and the Kern Delta Water District (KDWD). The CITY is the operator of the Carrier Canal. Treated produced water is discharged from Discharge Point 001 (DIS-001) to the Carrier Canal, a water of the United States (U.S.) within the Kern Hydrologic Unit (No.557.10). The Carrier Canal also conveys water to the Kern County Water Agency's Water Treatment Plant for municipal use. To ensure no treated produced water enters the Water Treatment Plant and that other sources of raw water are used by the Water Treatment Plant when the Discharger discharges to the Carrier Canal, the CITY dispatcher, CITY Water Resources Superintendent (or designee), and KDWD dispatcher are notified by the Discharger prior to any discharge and the CITY acknowledges to the Discharger that discharge can commence. Attachment B is a map of the region. Attachment C is an aerial photo of the Facility and the nearby area. Attachment D provides a flow schematic of the treatment process at Station 36.

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 G), 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 F and Attachment H are also incorporated into and made part of 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.

F. Technology-based Effluent Limitations. Section 301(b) of the CWA and implementing USEPA permit regulations at Title 40, 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 G).

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 122.44(d)(1)(vi).

H. Water Quality Control Plans. The *Water Quality Control Plan for the Tulare Lake Basin, Second Edition – 199*5 (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 Basin Plan does not specifically identify beneficial uses for the Carrier Canal. It does identify present and potential uses for the Kern River, to which the Carrier Canal flows. Beneficial uses for Kern River are as follows: municipal and domestic supply (MUN); agricultural supply (AGR), including stock watering; industrial service supply (IND); industrial process supply (PRO); hydropower generation (POW); water contact recreation (REC-1); non-contact water recreation (REC-2), warm freshwater habitat (WARM); wildlife habitat (WILD); rare, threatened and endangered species (RARE); and groundwater recharge (GWR). The discharge occurs in groundwater Detailed Analysis Unit (DAU) 254. The designated beneficial uses of groundwater in DAU 254 are MUN, AGR, IND, PRO, REC-1, REC-2, and WILD.

In addition, the Basin Plan implements State Water Resources Control Board (State Water Board) Resolution No. 88-63, which established State policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. In addition, the Carrier Canal is a water of the U.S. and the quality of water in the canal must be maintained to meet the federal Clean Water Act threshold of "swimmable and fishable." Thus, the beneficial uses of the water in the Carrier Canal downstream of the discharge are MUN by rule and occasional use, AGR and GWR by design, and REC-1 and WARM by rebuttable presumption.

As discussed in detail in the Fact Sheet, beneficial uses applicable to waters in the Carrier Canal and the underlying groundwater are as follows:

Table 5. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
DIS-001	**Carrier Canal**	MUN, AGR, REC-1, WARM, and GWR.
	Groundwater	MUN, AGR, IND, PRO, REC-1, REC-2, and WILD

Requirements of this Order implement the Basin Plan.

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

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

K. **Compliance Schedules and Interim Requirements.** In general, an NPDES permit must include final effluent limitations that are consistent with 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 Regional Water Board's Basin Plan allows for schedules of compliance and the Regional Water Board is newly interpreting a narrative standard, it may include schedules of compliance in the permit to meet effluent limits that implement a narrative standard. See In the Matter of Waste Discharge Requirements for Avon Refinery (State Board Order WQ 2001-06 at pp. 53-55). See also Communities for a Better Environment 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 for water quality objectives that are adopted after the date of adoption of the Basin Plan, which was August 17, 1995 (See Basin Plan at page IV-22). Consistent with the State Water Board's Order in the CBE matter, the Regional Water Board has the discretion to include compliance schedules in NPDES permits when it is including an effluent limitation that is a "new interpretation" of a narrative water quality objective. This conclusion is also consistent with the United States Environmental Protection Agency policies and administrative decisions. See,

e.g., Whole Effluent Toxicity (WET) Control Policy. The Regional Water Board, however, is not required to include a schedule of compliance, but may issue a Time Schedule Order pursuant to 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 May 18, 2010) to establish and comply with CTR criterion-based effluent limitations. Where a compliance schedule for a final effluent limitation that exceeds 1 year, the Order must include interim numeric limitations for that constituent or parameter. Where allowed by the Basin Plan, compliance schedules and interim effluent limitations or discharge specifications may also be granted to allow time to implement a new or revised water quality objective. This Order includes compliance schedules and effluent limitations and/or discharge specifications. A detailed discussion of the basis for the compliance schedule(s) and interim effluent limitation(s) and/or discharge specifications is included in the Fact Sheet.

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

M. Stringency of Requirements for Individual Pollutants. This Order contains both technology-based and water quality-based effluent limitations for individual pollutants. The technology-based effluent limitations consist of restrictions on oil and grease. The water quality-based effluent limitations consist of restrictions on flow, pH, electrical conductivity @ 25^{o} C, chloride, and boron. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. In addition, this Order contains effluent limitations more stringent than the minimum, federal technology-based requirements that are necessary to meet water quality standards. These limitations are more stringent than required by the CWA. The rationale for including these limitations is explained in the Fact Sheet.

Water quality-based effluent limitations have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant water quality-based effluent limitations were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR 131.38. The scientific procedures for calculating the individual water quality-based effluent limitations are based on the CTR-SIP, which was approved by USEPA on May 1, 2001. All beneficial uses and water quality objectives contained in the Basin Plan were approved under State law and submitted to and approved by USEPA prior to May 30, 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to May 30, 2000, but not approved by USEPA before that date, are nonetheless "*applicable water quality standards for purposes of the [Clean Water] Act*" pursuant to 40 CFR 131.21(c)(1). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the technology-based requirements of the CWA and the applicable water quality standards for purposes of the CWA.

N. Antidegradation Policy. 40 CFR 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 is consistent with the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the state and federal antidegradation policies. As discussed in detail in the Fact Sheet the permitted discharge is consistent with the antidegradation provision of 40 CFR 131.12 and State Water Board Resolution No. 68-16.

O. Anti-Backsliding Requirements. Sections 402(o)(2) and 303(d)(4) of the CWA and 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. All effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order.

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 authorizes the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program establishes monitoring and reporting requirements to implement federal and State requirements. This Monitoring and Reporting Program is provided in Attachment F.

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 E. The Discharger must comply with all standard provisions and with those

additional conditions that are applicable under 40 CFR 122.42. The Regional Water Board has also included in this Order special provisions applicable to the Discharger. A rationale for the special provisions contained in this Order is provided in the attached Fact Sheet.

R. Provisions and Requirements Implementing State Law. The provision/ requirement in subsection V.B of this Order is included to implement state law only. This provision/requirement is not required or authorized under the federal CWA; consequently, violations of this provision/requirement is not subject to the enforcement remedies that are available for NPDES violations.

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

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

III. DISCHARGE PROHIBITIONS

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

B. Discharge of treated produced water into the Carrier Canal except in accordance with a valid formal agreement between Chevron U.S.A. Inc. and the owners of the Carrier Canal, the CITY, and the KDWD, is prohibited.

C. The by-pass or overflow of wastes to surface waters is prohibited, except as allowed by Federal Standard Provisions I.G and I.H (Attachment E).

D. Neither the discharge nor its treatment shall create a nuisance or pollution as defined in Section 13050 of the CWC.

E. Discharge of waste classified as “hazardous,” as defined in Section 2521(a) of Title 23, CCR, Section 2510 et seq., or of waste classified as “designated,” as defined in CWC Section 13173, is prohibited.

F. Discharge of treated produced water to the Carrier Canal when the canal is being used as a water supply source for municipal use, or when the pipeline to Cawelo Reservoir B is operable, is prohibited.

G. Discharge of treated produced water to the Carrier Canal at a rate greater than one-third the freshwater flow in the Carrier Canal is prohibited.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point 001

1. Final Effluent Limitations – Discharge Point 001

The Discharger shall comply with the following effluent limitations at Discharge Point 001 (DIS-001) as described in the attached MRP (Attachment F):

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

Table 6. Effluent Limitations

Parameter	Units	Effluent Limitations			
		Average Annual	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
pH	standard			5.5	8.3
Electrical Conductivity @ 25°C	umhos/cm	1,000			
Chloride	mg/L	200			
Boron	mg/L	1.1			
Oil and Grease	mg/L		35		

b. A daily maximum discharge of 18 million gallons per day, or one-third the rate of freshwater flow in the Carrier Canal, whichever is less.

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

1. 70% for any one bioassay; and
2. 90% for the median of any three consecutive bioassays.

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

Receiving water limitations are based on water quality objectives contained in the Basin Plan and are a required part of this Order. The discharge shall not cause the following in the Carrier Canal just upstream from the Manor Street bridge crossing (monitoring location R–4 as described in the attached MRP (Attachment F):

1. **Un-ionized Ammonia**. Un-ionized ammonia to be present in amounts that adversely affect beneficial uses or exceed 0.025 mg/L (as N).

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

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

4. **Color**. Discoloration that causes nuisance, undesirable discoloration, or adverse affects on beneficial uses.

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

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

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

8. **pH**. The pH to be depressed below 6.5, raised above 8.3, nor changed by more than 0.3 units.

9. **Radioactivity**:

   a. Radionuclides to be present in concentrations that are harmful to human, plant, animal, or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.

   b. Radionuclides to be present in excess of the maximum contaminant levels specified in Table 4 (MCL Radioactivity) of Section 64443 of Title 22 of the California Code of Regulations.

10. **Salinity**. Constituents to exceed the following concentrations:

Constituents	Units	Daily Maximum
EC	umhos/cm	700
Chloride	mg/L	106
Boron	mg/L	0.5

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

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

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

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

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

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

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

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

18. Violation of any applicable water quality standard for receiving waters adopted by the Regional Water Board or the State Water Board pursuant to the CWA and regulations adopted thereunder.

B. Groundwater Limitations

1. The discharge shall not cause groundwater to be degraded.

VI. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all Standard Provisions included in Attachment E 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.

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

f. 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.

g. 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.

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

The technical report shall:

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

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

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

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

i. 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.

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

k. 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.

l. 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.

m. 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.

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

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

p. 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.

q. 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 E, Section V.E.1 [40 CFR 122.41(l)(6)(i)].

B. Monitoring and Reporting Program (MRP) Requirements

1. The Discharger shall comply with the MRP, and any future revisions thereto as authorized by the Executive Officer, in Attachment F of this Order.

C. Special Provisions

1. Reopener Provisions

a. This Order requires the Discharger to conduct monitoring of the effluent for arsenic and ammonia. This Order may be reopened for modification, or revocation and reissuance, depending on the results of this required monitoring.

b. Discharge of treated produced water to the Carrier Canal is subject to an agreement between Chevron U.S.A. Inc. and the owners of the Carrier Canal, the CITY and KDWD. The current agreement expires on 30 June 2009, which is prior to the expiration of this permit. To discharge to the Carrier Canal after 30 June 2009, the Discharger needs to submit a new, signed agreement specifying the terms of use of the canal. This Order may be reopened if necessary to be compatible with a new agreement.

c. This Order may be reopened to address issues that necessitate a major modification of the permit. Conditions that necessitate a major modification of a permit are described in 40 CFR 122.62, including:

   i. If new or amended applicable water quality standards are promulgated or approved pursuant to Section 303 of the CWA, or amendments thereto, this permit may be reopened and modified in accordance with the new or amended standards.

   ii. When new information, which 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.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

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

i. **Toxicity Reduction Evaluation (TRE) Work Plan. By 30 September 2008**, the Discharger shall submit to the Regional Water Board a TRE Work Plan for approval by the Executive Officer. The TRE Work Plan shall outline the procedures for identifying the source(s) of, and reducing or eliminating effluent toxicity. The TRE Work Plan must be developed in accordance with EPA guidance[1] and be of adequate detail to allow the Discharger to immediately initiate a TRE as required in this Provision.

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

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

iv. **Accelerated Monitoring Specifications.** If the monitoring trigger is exceeded during regular chronic toxicity testing, within 14-days of notification by the laboratory of the test results, the Discharger shall initiate accelerated monitoring. Accelerated monitoring shall consist of four (4) chronic toxicity

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

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

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

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

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

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

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

3) A schedule for these actions.

b. **Effluent Salinity Evaluation and Minimization Plan.** The Discharger shall prepare a salinity evaluation and minimization plan to address sources of salinity from the Facility and to discover whether there are opportunities for salinity reductions. The plan shall be completed and submitted to the Regional Water Board **by 30 September 2008** for approval by the Executive Officer.

3. Best Management Practices and Pollution Prevention. - Not Applicable

4. Construction, Operation and Maintenance Specifications. - Not Applicable

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

6. Other Special Provisions

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

To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, address and telephone number of the persons responsible for contact with the Regional Water Board and a statement. The statement shall comply with the signatory and certification requirements in the Federal Standard Provisions (Attachment E, 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 (μ), also called the average, is the sum of measured values divided by the number of samples. For ambient water concentrations, the arithmetic mean is calculated as follows:

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

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

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

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

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

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

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

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

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

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

For composite sampling, if one 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 means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater. Estuarine waters include~~d~~, but are not limited to, the Sacramento-San Joaquin Delta, as defined in 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 title 40 of the Code of Federal Regulations, Part 136, Attachment B, revised as of July 3, 1999.

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

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

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

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

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

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

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

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

where:

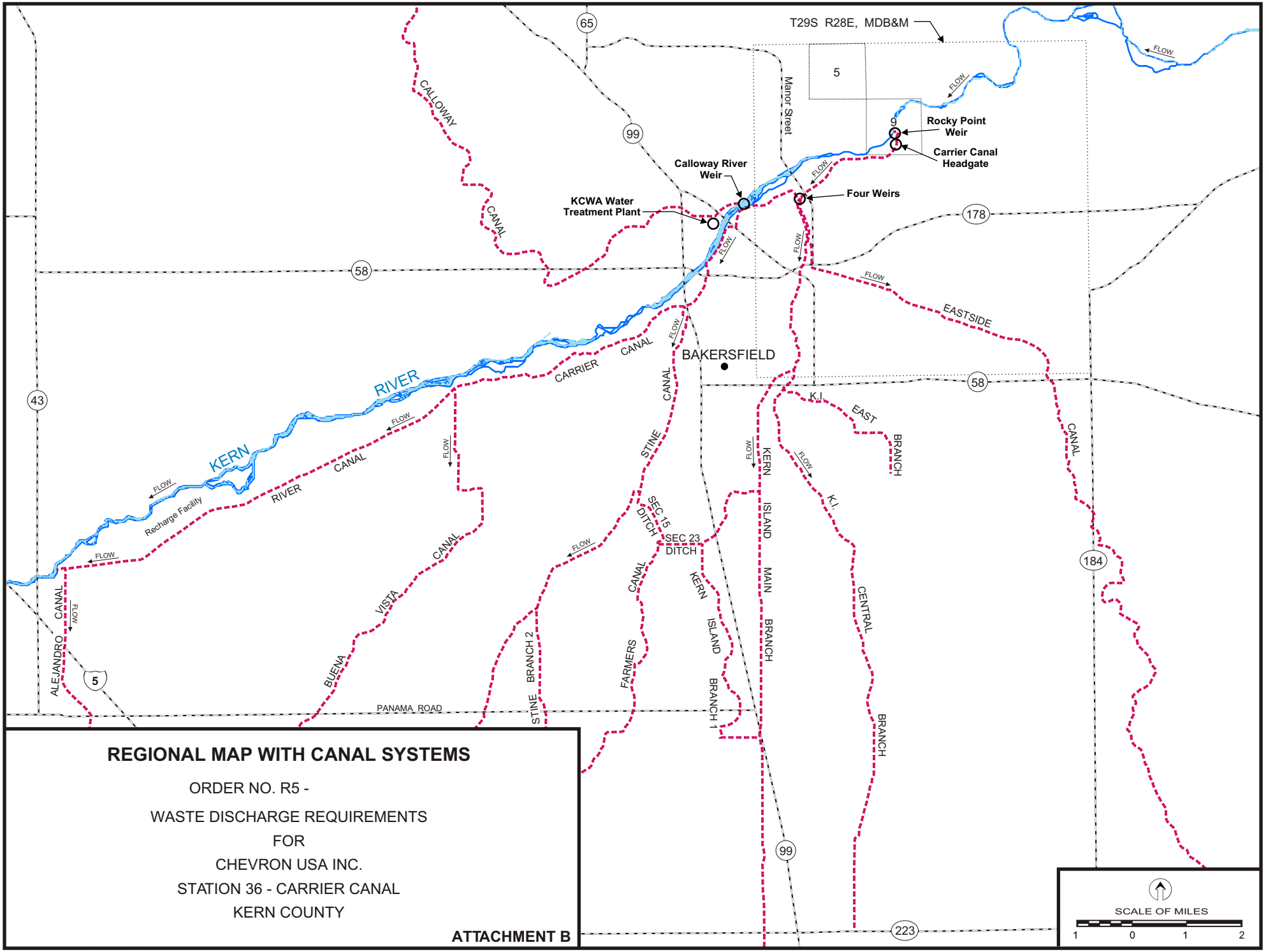
x is the observed value;

μ is the arithmetic mean of the observed values; and

n is the number of samples.

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

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



REGIONAL MAP WITH CANAL SYSTEMS

ORDER NO. R5 -

WASTE DISCHARGE REQUIREMENTS

FOR

CHEVRON USA INC.

STATION 36 - CARRIER CANAL

KERN COUNTY

ATTACHMENT B

Map Source:
NAIP Aerial Photograph, 2005
Sections 5 and 9, T29S, R28E, MDB&M

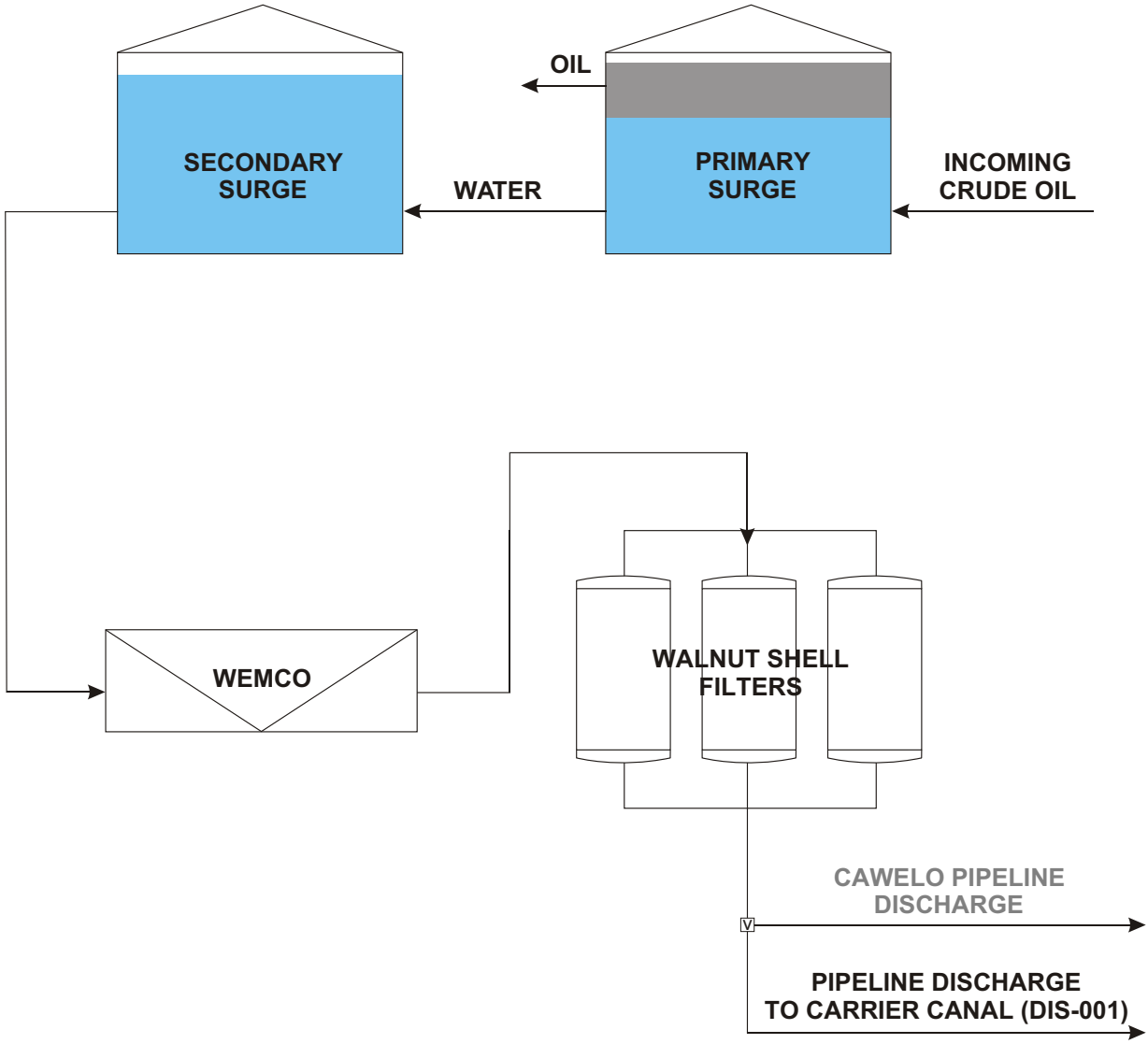
SCALE
1 INCH = 2,000 FEET

SITE LOCATION MAP

ORDER NO. R5 -2007-0169

WASTE DISCHARGE REQUIREMENTS
FOR
CHEVRON USA INC.
STATION 36 - CARRIER CANAL
KERN COUNTY

ATTACHMENT C



*NOT TO SCALE

PROCESS FLOW DIAGRAM

ORDER NO. R5 -2007-0169

WASTE DISCHARGE REQUIREMENTS

FOR

CHEVRON USA INC.

STATION 36 - CARRIER CANAL

KERN COUNTY

ATTACHMENT D

ATTACHMENT E –STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code (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 Section 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 backup 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 CWA. (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) and 122.44(i)(1)(iv))

IV. STANDARD PROVISIONS – RECORDS

A. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least 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 Section 13267)

B. Signatory and Certification Requirements

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

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

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

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

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

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

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

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

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

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

C. Monitoring Reports

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

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

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 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 40 CFR 122.29(b) (40 CFR 122.41(l)(1)(i)); or

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

3. 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))

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 F – MONITORING AND REPORTING PROGRAM

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ATTACHMENT F – MONITORING AND REPORTING PROGRAM (MRP)

The 40 Code of Federal Regulations, Part 122.48 (40 CFR 122.48) requires that all NPDES permits specify monitoring and reporting requirements. California Water Code (CWC) Sections 13267 and 13383 also authorize the Regional Water Quality Control Board (Regional Water Board) to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements, which implement the federal and State regulations.

I. GENERAL MONITORING PROVISIONS

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

B. Chemical, bacteriological, and bioassay analyses shall be conducted at a laboratory certified for such analyses by the California Department of Health Services (DHS). 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 DHS. Laboratories that perform sample analyses shall be identified in all monitoring reports.

D. Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year to ensure continued accuracy of the devices.

E. Monitoring results, including noncompliance, shall be reported at intervals and in a manner specified in this Monitoring and Reporting Program.

II. MONITORING LOCATIONS

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

Table F-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description (include Latitude & Longitude)
Kern River Upstream Water	**R-3[1]**	**Kern River immediately upstream from the Carrier Canal Headgate N35°24'59", W118°58'32"**
Carrier Canal Receiving Water	**R-4[1]**	**Carrier Canal immediately upstream from the Manor St. crossing N35°24'08", W119°00'18"**
Pipeline Valve	**DIS-001[2]**	**Pipeline, just prior to discharge to the Carrier Canal immediately downstream from the Carrier Canal Headgate N35°24'58", W118°58'32"**

[1] R-1 and R-2 were previously designated for monitoring locations in the Beardsley Canal and R-3 and R-4 for locations in the Carrier Canal. For continuity, R-3 and R-4 designations are continued for these monitoring locations. The Agreement between the Discharger and the CITY / KDWD also uses these same monitoring location names.

[2] Order No. R5-2002-0052 and Order No. R5-2002-0053 identified the location at which effluent discharges from the pipeline to the Carrier Canal as 'Discharge 002.'

III. INFLUENT MONITORING REQUIREMENTS – NOT APPLICABLE

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location – DIS-001

1. The Discharger shall monitor at DIS-001 as follows and only when effluent discharge to the Carrier Canal occurs. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding Minimum Level:

Table F-2. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and Minimum Level
Flow[5]	mgd	Meter	Daily	
Temperature[5,6]	°F	Meter	2/week	
PH	pH units	Grab	2/week	[1]
Electrical Conductivity @ 25°C	umhos/cm	Grab	2/week	[1]
Boron, Total Recoverable	mg/L	Grab	2/week	[1]
Chloride	mg/L	Grab	2/week	[1]
Arsenic, Total[6]	mg/L	Grab	2/week	[1,2]
Ammonia[6]	mg/L	Grab	2/week	[1]
Standard Minerals[3]	mg/L	Grab	Once/Year	[1]
Oil & Grease	mg/L	Grab	2/week	[1]
Priority Pollutants[4]	ug/L	Grab	Twice[4]	[1,2]

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

[2] For priority pollutant constituents with effluent limitations, detection limits shall be below the effluent limitations. If the lowest minimum level (ML) published in Appendix 4 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Plan or SIP) is not below the effluent limitation, the detection limit shall be the lowest ML. For priority pollutant constituents without effluent limitations, the detection limits shall be equal to or less than the lowest ML published in Appendix 4 of the SIP.

[3] 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).

[4] Concurrent with receiving surface water sampling during first discharge after adoption of this Order and again if subsequent discharge occurs during the 12 months prior to the expiration date of the Order.

[5] Monitoring flow and temperature of pipeline discharge at Facility is acceptable alternative monitoring location.

[6] After obtaining 10 analyses, the Discharger may request to reduce frequency or eliminate testing for this parameter.

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 concurrent with effluent monitoring and sampling at least once during the first discharge event and at least once during any subsequent discharge event after adoption of the Order.

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 DIS-001.

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

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

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

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

1. *Monitoring Frequency* – the Discharger shall perform three species chronic toxicity testing at least once during the first discharge event and at least once during any subsequent discharge event after adoption of the Order.

2. *Sample Types* – Effluent samples shall be grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent monitoring location specified in the Monitoring and Reporting Program. The receiving water control shall be a grab sample obtained from the R-3 monitoring location, as identified in the Monitoring and Reporting Program.

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

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

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

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

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

7. *Dilutions* – The chronic toxicity testing shall be performed using 100% effluent and two controls. If toxicity is found in any effluent test, the Discharger must immediately retest using the dilution series identified in Table E-3, below. The receiving water control shall be used as the dilutent (unless the receiving water is toxic). If the receiving water is toxic, laboratory control water may be used as the dilutent, in

which case, the receiving water should 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 fourteen (14) days after receiving notification of a test failure. A test failure is defined as follows:

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

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

Table F-3 Chronic Toxicity Testing Dilution Series

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

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

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

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

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

      b. The statistical methods used to calculate endpoints;

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

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

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

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

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

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

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

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

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

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

VI. LAND DISCHARGE MONITORING REQUIREMENTS. – NOT APPLICABLE

VII. RECLAMATION MONITORING REQUIREMENTS. – NOT APPLICABLE

VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER

A. Monitoring Location R-3, just upstream from the Carrier Canal Headgate

1. The Discharger shall monitor the flow in the Carrier Canal above the Carrier Canal Headgate (monitoring location R-3) when discharging at DIS-001 as follows:

Table F-4a. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow[3]	mgd	Meter	Daily	
Temperature[4]	°F (°C)	Grab	2/week	
pH	pH Units	Grab	2/week	[1]
Electrical Conductivity @ 25°C	umhos/cm	Grab	2/week	[1]
Boron, Total Recoverable	mg/L	Grab	2/week	[1]
Chloride	mg/L	Grab	2/week	[1]
Arsenic, Total[4]	mg/L	Grab	2/week	[1,2]
Ammonia[4]	mg/L	Grab	2/week	[1]
Oil and Grease	mg/L	Grab	2/week	[1]

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

[2] For priority pollutant constituents without effluent limitations, the detection limits shall be equal to or less than the lowest ML published in Appendix 4 of the SIP. If the lowest minimum level (ML) published in Appendix 4 of the SIP is not below the effluent limitation, the detection limit shall be the lowest ML.

[3] Flow data provided by CITY is acceptable alternative.

[4] After obtaining 10 analyses, the Discharger may request to reduce frequency or eliminate testing for this parameter.

B. Monitoring Location R-4, just upstream from the Manor Street Bridge Crossing

1. The Discharger shall monitor the Carrier Canal just upstream from the Manor Street bridge crossing (monitoring location R-4) when discharging at DIS-001 as follows:

Table F-4b. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow[3]	mgd	Meter	Daily	
pH	pH units	Grab	2/week	
Temperature[4]	^{o}F (^{o}C)	Grab	2/week	[1]
Electrical Conductivity @ 25^{o}C	umhos/cm	Grab	2/week	[1]
Boron, Total Recoverable	mg/L	Grab	2/week	[1]
Chloride	mg/L	Grab	2/week	[1]
Arsenic, Total[4]	mg/L	Grab	2/week	[1,2]
Ammonia[4]	mg/L	Grab	2/week	[1]
Oil and Grease	mg/L	Grab	2/week	[1]

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

[2] For priority pollutant constituents without effluent limitations, the detection limits shall be equal to or less than the lowest ML published in Appendix 4 of the SIP. If the lowest minimum level (ML) published in Appendix 4 of the SIP is not below the effluent limitation, the detection limit shall be the lowest ML.

[3] Flow data provided by CITY is acceptable alternative.

[4] After obtaining 10 analyses, the Discharger may request to reduce frequency or eliminate testing for this parameter.

C. Log of Receiving Water Conditions

1. In conducting the receiving water sampling, a log shall be kept of the receiving water conditions throughout the reach bounded by R-3 and R-4. Notes on receiving water conditions shall be summarized in the monitoring reports. Attention shall be given to the presence of:

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

IX. OTHER MONITORING REQUIREMENTS – NOT APPLICABLE

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment E) 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 (± 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 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 E), to the address listed below:

   California Regional Water Quality Control Board
   Central Valley Region
   Attn: NPDES Program
   1685 E Street
   Fresno, CA 93706

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

Table F-5. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On	Monitoring Period	SMR Due Date
Continuous	**Permit effective date**	**All**	**Submit with monthly SMR**
Daily	**Permit effective date**	**Any 24-hour period or less that reasonably represents a calendar day for purposes of sampling.**	**Submit with monthly SMR**
Twice per Week	**Permit effective date**	**Any two non-consecutive 24-hour periods or less within a calendar week that reasonably represents two calendar days for purposes of sampling.**	**Submit with monthly SMR**
Annually	**January 1 following permit adoption date**	**January 1 through December 31**	**By 1 March following the monitoring period**

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

D. Other Reports

1. **Laboratory Minimum Levels Report**. **Within 60 days of the effective date of the Order,** 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 G – FACT SHEET

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ATTACHMENT G – FACT SHEET

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

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

I. PERMIT INFORMATION

The following table summarizes administrative information related to the facility.

Table G-1. Facility Information

WDID	5D152003065
Discharger	CHEVRON U.S.A. INC.
Name of Facility	STATION 36 - CARRIER CANAL
Facility Address	1546 CHINA GRADE LOOP BAKERSFIELD, CA 93308 KERN COUNTY
Facility Contact, Title and Phone	GARY PIRON, MANAGER KERN RIVER, (661) 392-2432
Authorized Person to Sign and Submit Reports	GARY PIRON, MANAGER KERN RIVER, (661) 392-2432
Mailing Address	1546 CHINA GRADE LOOP, BAKERSFIELD, CALIFORNIA 93308
Billing Address	SAME AS MAILING
Type of Facility	CRUDE OIL EXTRACTION FACILITY SIC Code: 1311 (Crude Petroleum and Natural Gas)
Major or Minor Facility	MINOR
Threat to Water Quality	2
Complexity	B
Pretreatment Program	Not applicable
Reclamation Requirements	Not applicable
Discharge Permitted Flow	18 mgd
Discharge Design Flow	18 mgd
Watershed	KERN DELTA HYDROLOGIC AREA
Receiving Water	CARRIER CANAL
Receiving Water Type	INLAND CANAL SURFACE WATER

A. Chevron U.S.A. Inc. (hereinafter Discharger) is the owner and operator of a crude oil production and treatment facility in the Kern River Oil Field, Kern County (hereinafter Station 36). The Discharger can convey treated oil field produced water from Station 36 via a steel pipeline to the Carrier Canal. Station 36 and the pipeline to the Carrier Canal

are hereinafter the Facility. 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. The Facility discharges treated produced water to the Carrier Canal, a water of the United States (U.S.) The discharge is currently regulated by Order No. R5-2002-0052 (National Pollutant Discharge Elimination System (NPDES) Permit No. CA0080853) as modified by Special Order R5 2005-0136, which was adopted on 16 September 2005. The terms and conditions of the current Order remain in effect until new Waste Discharge Requirements (WDRs) and NPDES permit are adopted pursuant to this Order.

C. The Discharger filed a report of waste discharge and submitted an application for renewal of its WDR and NPDES permit on 12 December 2006. The application was deemed complete on 12 January 2007. Regional Water Board staff conducted a site visit on 23 April 2007 to observe operations and collect treated produced water and receiving water samples in order to develop permit limitations and conditions.

II. 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. Station 36 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 most recent report includes maps depicting depth to groundwater and groundwater surface elevation data for Spring 2001. Based on review of a map dated April 2001, groundwater is expected to be approximately 250 to 300 feet below ground surface in the area of the Facility. Based on groundwater surface elevation data provided by KCWA, the direction of groundwater flow appears to be to the southwest.

3. The groundwater basin in 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.

III. FACILITY DESCRIPTION

During April 2007, the Discharger reported production of approximately 734,600 barrels (30.85 million gallons) of produced water per day. The produced water is treated at Station 36 to remove oil, grease, and inorganic sediments. The treatment system consists of mechanical separation, sedimentation, air floatation, and filtration using surge and skim tanks, Wemco units, and walnut hull filtration vessels. The treatment system has a maximum capacity of 900,000 barrels (37.8 million gallons per day).

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. Remaining treated produced water is conveyed via pipelines from Station 36 as described below.

A. Description of Wastewater Controls.

Treated produced water from Station 36 is normally conveyed via a newly constructed, coated steel pipeline and discharged to Cawelo Water District's Reservoir B. Treated produced water discharged to Reservoir B is blended with other treated produced water and surface water supplies and distributed for agricultural uses. When the pipeline to Reservoir B is down for repair, cleaning, or other operational conditions requiring shutdown, treated produced water from Station 36 is conveyed via a steel pipeline and discharged to the Carrier Canal.

The discharge to the Carrier Canal occurs several yards downstream from the Carrier Canal Headgate (hereinafter Headgate), which controls the flow of Kern River water into the Carrier Canal. The Headgate is approximately 350 yards below the Rocky Point Weir, which diverts water from the Kern River channel into the Carrier Canal above the Headgate. The Carrier Canal is jointly owned by the City of Bakersfield (CITY) and the Kern Delta Water District (KDWD). The Carrier Canal is operated by the CITY.

In accordance with *Amended Agreement No. 05-16WB(1) Agreement For Discharge of Oilfield Wastewater into the Carrier Canal System* (Agreement), dated 16 August 2006, between and among the CITY, KDWD, and the Discharger, the discharge of treated produced water into the Carrier Canal is allowed for a maximum of 480 hours per year, the year being the 12 month periods from 1 April 2007 through 31 March 2009, and the flow volume is not to exceed the limit in the NPDES permit. For the period from 1 April 2009 through 30 June 2009, the discharge of treated produced water into the Carrier Canal is allowed for up to 60 hours. The Agreement expires on 30 June 2009 but may be terminated by the CITY before 30 June 2009 upon 60 days written notice.

Approximately 2.4 miles downstream from the Headgate is the Four Weirs, which can divert flow in the Carrier Canal to the Kern Island and Eastside canals for agriculture irrigation uses. The Kern Island Canal has first rights for up to 300 cubic feet per second of water from the Carrier Canal.

At the Calloway River Weir, flow in the Carrier Canal can be diverted through a double box culvert under the Kern River to the Kern Water Treatment Plant for municipal use. The Water Treatment Plant is owned and operated by the KCWA. The Agreement requires the Discharger to notify prior to discharging treated produced water the CITY Dispatcher, the CITY Water Resources Superintendent (or designee), and the KDWD Dispatcher to ensure no treated produced water leaks from the Carrier Canal into the Kern River or commingles with water being used as a raw water supply source for the Water Treatment Plant. To prevent treated produced water from leaking into the Kern River, the CITY Water Resources Superintendent ensures that the gates at the Calloway River Weir are sufficiently closed to maintain the level of the Kern River above the level in the Carrier Canal. To prevent treated produced water commingled with water in the Carrier Canal from being used as raw water supply source at the Water Treatment Plant, the CITY Water Resources Superintendent ensures that other sources of raw water for the Water Treatment Plant are used for the duration of the treated produced water discharge. The Agreement states that the Discharger shall not discharge into the Carrier Canal until acknowledged by the CITY.

To the west of Freeway 99, flow in the Carrier Canal can be diverted to the Stine Canal and Buena Vista Canal for agriculture irrigation uses. West of the Buena Vista Canal, the Carrier Canal is named the River Canal. Flow in the River Canal can be diverted to the Alejandro Canal for agriculture irrigation uses. The River Canal discharges to the Kern River, a water of the U.S.

B. Discharge Points and Receiving Waters

1. The Facility is in Sections 5 and 9, T29S, R28E, MDB&M, as shown in Attachment B of this Order. Station 36 is in Section 5, and the pipeline from Station 36 ends at the Carrier Canal in Section 9.

2. Treated produced water is discharged at Discharge Point 001 (DIS-001) in the NW ¼ of the SE ¼ of Section 9, T29S, R28E, MDB&M, and at a point latitude 35°24’58”N and longitude 118°58’32”W.

3. At DIS-001, treated produced water is discharged to the Carrier Canal, a water of the U.S. Treated produced water is conveyed in the Carrier Canal to the Kern Island, Eastside, Stine, Buena Vista, and Alejandro Canals for agriculture irrigation uses.

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

Effluent Limitations/Discharge Specifications contained in the existing Order for effluent discharges from DIS-001 to the Beardsley Canal and DIS-002 (renamed DIS-001 in this Order) to the Carrier Canal are as follows:

Table G-2A. Historic Effluent Limitations and Monitoring Data at DIS-001 and DIS-002

Parameter	Units	Effluent Limitation		Monitoring Data, DIS-001 & DIS-002 (From December 2003 to March 2007)	
		Average Monthly	Maximum Daily	Highest Average Monthly	Highest Daily
Flow	mgd	--	50.2 at DIS-001 18.0 at DIS-002	19.2 at DIS-001 15.4 at DIS-002	26.3 at DIS-001 17.6 at DIS-002
pH	Standard	--	[5.5, 8.5][1]	[5.97, 6.68][1]	[5.97, 6.70][1]
Electrical Conductivity @ 25°C	umhos/cm	1,500	2,000	1,021	1,021
Chloride	mg/L	275	300	150.0	164.9
Boron, Total Recoverable	mg/L	2.0	2.0	1.29	1.36
Oil and Grease	mg/L	--	35	17.5	27.1

[1] Instantaneous minimum - maximum range.

Recent monitoring data from R-3 characterizes upstream quality as follows:

Table G-2B. Historic Receiving Water Monitoring Data at R-3

Parameter	Units	Monitoring Data at R-3 (From September 2005 to March 2007)	
		Highest Average Monthly	Highest Daily
Flow	mgd	414	420
pH	Standard	[6.48, 7.06][1]	[6.57 – 7.17][1]
Electrical Conductivity @ 25°C	umhos/cm	187	287
Chloride	mg/L	22.5	27.5
Boron, Total Recoverable	mg/L	0.16	0.18

[1] Instantaneous minimum - maximum range.

Receiving Water Limitations in the existing Order and recent monitoring data from R-4 are as follows:

Table G-2C. Historic Receiving Water Limitations and Monitoring Data at R-4

Parameter	Units	Receiving Water Limitations		Monitoring Data at R-4 (From September 2005 to March 2007)	
		Average Monthly	Maximum Daily	Highest Average Monthly	Highest Daily
Flow	mgd	--	--	414	420
pH	Standard	--	--	[6.50, 7.08][1]	[6.58 – 7.45][1]
Electrical Conductivity @ 25°C	umhos/cm	--	700	253	450
Chloride	mg/L	--	106	34.1	65.0
Boron, Total Recoverable	mg/L	--	0.5	0.33	0.44

[1] Instantaneous minimum - maximum range.

D. Compliance Summary

Order Nos. R5-2002-0052 and R5-2002-0053 contain an effluent flow limitation of 15.2 mgd to the Carrier Canal. Special Order No. R5-2005-0136 increased the effluent flow limitation to 18 mgd effective 16 September 2005. Review of effluent monitoring data from September 2005 through February 2007 indicates no instances where the respective effluent flow limitations to the Carrier Canal were exceeded.

E. Planned Changes

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

IV. 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. In addition, State Water Board Resolution No. 88-63 requires that, with certain exceptions, the Regional Water Board assign the municipal and domestic supply use to water

bodies that do not have beneficial uses listed in the Basin Plan. The beneficial uses of the water in the Carrier Canal downstream of the discharge are MUN by rule and occasional use, AGR and GWR by design, and REC-1 and WARM by rebuttable presumption.

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."*

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 fishable and swimmable. Federal Regulations, 40 CFR 131.2 and 131.10, require that the State consider beneficial uses of public water supply, protection and propagation of fish, shell fish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation when designating beneficial uses. 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.

2. **Thermal Plan. – Not Applicable**

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

4. **Antidegradation Policy.** 40 CFR 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. As discussed in detail in the Fact Sheet (Attachment F, Section IV.D.4.) the discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution 68-16.

5. **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 that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed. Compliance with the Anti-Backsliding requirements is discussed in Section IV.D.3.

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

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

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

D. Impaired Water Bodies on CWA 303(d) List. – Not Applicable

E. Other Plans, Polices and Regulations. – Not Applicable

V. 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 mentioned 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 U.S.C., § 1311(b)(1)(C); 40 CFR 122.44(d)(1)]. NPDES permits must incorporate discharge limits necessary to ensure that water quality standards are met. This requirement applies to narrative criteria as well as to criteria specifying maximum amounts of particular pollutants. Pursuant to Federal Regulations, 40 CFR 122.44(d)(1)(i), NPDES permits must contain limits that control all pollutants that "*are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality*." 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 U.S. 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 states that material and relevant information, including numeric criteria, and recommendations from other agencies and scientific literature will be utilized in evaluating compliance with the narrative toxicity objective. The Basin Plan also limits chemical constituents in concentrations that adversely affect surface water beneficial uses. For waters designated as municipal, the Basin Plan specifies that, at a minimum, waters shall not contain concentrations of constituents that exceed Maximum Contaminant Levels (MCL) of CCR Title 22. The Basin Plan further states that, to protect all beneficial uses, the Regional Water Board may apply limits more stringent than MCLs.

A. Discharge Prohibitions

1. As stated in section I.G of Attachment E, 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. 40 CFR 122.41 (m)(4) prohibits bypass unless it is unavoidable to prevent loss of life, personal injury, or severe property damage. In considering the Regional Water Board's prohibition of bypasses, the State Water Board adopted a precedential decision, Order No. WQO 2002-0015, which cites 40 CFR 122.41(m) as allowing bypass only for essential maintenance to assure efficient operation.

B. Technology-Based Effluent Limitations

1. Scope and Authority

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

- Best practicable treatment control technology (BPT) represents the average of the best performance by facilities within an industrial category or subcategory. BPT standards apply to toxic, conventional, and non-conventional pollutants.

- Best available technology economically achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. BAT standards apply to toxic and non-conventional pollutants.

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

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

The CWA requires USEPA to develop effluent limitations, guidelines and standards (ELGs) representing application of BPT, BAT, BCT, and NSPS. Section 402(a)(1) of the CWA and 40 CFR 125.3 authorize the use of best professional judgment (BPJ) to derive technology-based effluent limitations on a case-by-case basis where ELGs are not available for certain industrial categories and/or pollutants of concern. Where BPJ is used, the permit writer must consider specific factors outlined in 40 CFR 125.3.

2. Applicable Technology-Based Effluent Limitations

a. **Flow.** Previous Orders No. R5-2002-0052 and No. R5-2002-0053 established a maximum discharge flow of 15.2 mgd to the Carrier Canal. Special Order R5-2005-0136, adopted on 16 September 2005, increased the maximum discharge flow to 18 mgd. The Discharger requests the maximum discharge flow remain at 18 mgd. The Facility was designed to provide a level of treatment for up to a design flow of 37.8 mgd. For discharge to the Carrier Canal, the Facility pipeline capacity is reported to be 17.85 mgd (approximately 18 mgd). This Order contains a maximum daily discharge flow limit of 18 million gallons.

b. **Oil and Grease.** 40 CFR 435 (Effluent Limitations for the Oil and Gas Extraction Point Source Category) establish minimum levels of effluent quality for discharges

from facilities in the oil and gas extraction industry. Subpart E (Agricultural and Wildlife Water Use Subcategory) applies to this Discharger. The applicable section of the subpart states:

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

In the Agricultural and Wildlife Water Use subcategory, TBELs are presented for best practicable control technology (BPT) for direct discharges. Limitations for the conventional pollutant oil and grease are based on BPT and are a daily maximum of 35 mg/L. Previous Orders No. R5-2002-0052 and No. R5-2002-0053 established technology based effluent limitations for oil and grease based on effluent limitation guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available. This Order carries over the TBEL for oil and grease established by Order No. R5-2002-0052 and Order No. R5-2002-0053.

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

Summary of Technology-Based Effluent Limitations
Discharge Point DIS-001

Table G-3. Summary of Technology-Based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Flow	mgd	--	--	18	--	--
Oil and Grease	mg/L	--	--	35	--	--
	lbs/day	--	--	5,258	--	--

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 (RP) to cause, or contribute to an in-stream excursion above any State water quality standard. The process for determining RP and calculating WQBELs when necessary is intended to protect the designated uses of

the receiving water as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are contained in other state plans and policies, or any applicable water quality criteria contained in the CTR and NTR.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

a. **Receiving Water Temperature.** The Order requires the Discharger to conduct daily sampling of temperature for the effluent and receiving water. The Order prohibits the effluent discharged to the Carrier Canal at DIS-001 from increasing the ambient temperature of the receiving water in the Carrier Canal at monitoring location R-4 (described in the Monitoring and Reporting Program (Attachment E)) by more than 5^{o} F.

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. Effluent limitations for the discharge must be set to protect the beneficial uses of the receiving water for all discharge conditions. For purposes of determining RP, a reported effluent hardness value of 50.4 mg/L as $CaCO_3$ was used.

c. **Assimilative Capacity/Mixing Zone.** Discharger self-monitoring data and information provided by the CITY and KDWD indicates that flow in the Carrier Canal is relatively reliable, particularly when this short duration discharge occurs. From 2002 through 2006 the average flow in the Carrier Canal was 194 mgd, which is approximately 10.8 times the effluent flow limit of 18 mgd. Additionally, the Discharger is contractually required to ensure that boron concentrations in the canal (as measured at monitoring location R-4) do not exceed 0.5 mg/L during times of discharge. As described below, this limits discharge to the canal to periods when the ratio of canal water to effluent is greater than about 3:1.

MUN is a designated use of water in the Carrier Canal. However, as described earlier, the discharge of treated produced water to the Carrier Canal can only occur by contractual agreement between the Discharger and the CITY and KDWD. The Agreement prohibits discharge to the Carrier Canal when its waters are being used for MUN. Thus, the discharge will not adversely impact MUN.

3. Determining the Need for WQBELs

a. Based on information submitted as part of the application, in studies, and as directed by monitoring and reporting programs, the Regional Water Board finds that the discharge has a RP to cause or contribute to an in-stream excursion above a water quality standard for some constituents. Water quality-based effluent limitations (WQBELs) are included in this Order. A summary of the reasonable potential analysis (RPA) is included as Attachment H. For each constituent of concern, the results of the RPA are provided in more detail below.

b. The Regional Water Board conducted the RPA in accordance with Section 1.3 of the SIP. Although the SIP applies directly to the control of CTR priority

pollutants, the State Water Board has held that the Regional Water Board may use the SIP as guidance for water quality-based toxics control.[1] The SIP states in the introduction "*The goal of this Policy is to establish a standardized approach for permitting discharges of toxic pollutants to non-ocean surface waters in a manner that promotes statewide consistency."* Therefore, in this Order the RPA procedures from the SIP were used to evaluate reasonable potential for both CTR and non-CTR constituents

c. **Ammonia.** Ammonia is known to cause toxicity to aquatic organisms in surface waters. Discharges of ammonia would violate the Basin Plan narrative toxicity objective. Applying 40 CFR section 122.44(d)(1)(vi)(B), it is appropriate to use USEPA's *Ambient National Water Quality Criteria for the Protection of Freshwater Aquatic Life* for ammonia, which was developed to be protective of aquatic organisms. The Report of Waste Discharge (RWD) includes a single effluent sample result for ammonia of 0.67 mg/L. The RWD includes winter and summer effluent temperatures of 60°C and 71°C, respectively. The ammonia result exceeds the 30-day average, criteria continuous chronic concentration of 0.1747 mg/L calculated using a temperature of 71°C and a worst-case pH of 6.5.

   A single ammonia result that exceeds the 30-day average, criteria continuous concentration that is protective of aquatic organisms does not provide enough reliable information to determine RP. Therefore, it is appropriate to require the Discharger to monitor its discharge and the receiving water for ammonia, temperature, and pH to determine if ammonia has RP to exceed water quality objectives. The permit contains a reopener to recalculate RP for ammonia and include limits, if necessary.

d. **Arsenic.** The USEPA Primary Maximum Contaminant Level (MCL) is 10 ug/L for arsenic. Pursuant to the Safe Drinking Water Act, DHS must revise the arsenic MCL in Title 22 CCR to be as low or lower than the USEPA MCL. The MEC for arsenic was 21 ug/L. The maximum observed upstream receiving water arsenic concentration was 6.0 ug/L, based on one sample collected by Discharger in October 2001.

   The MEC for arsenic exceeds the MCL. However, as described in Section III. A, both the contractual agreement between the Discharger and the CITY and KDWD and this Order prohibit discharges to the Carrier Canal when the CITY is using water in the Canal for MUN. Furthermore, the dilution requirement necessary to meet other receiving water limits will ensure that water in the Canal downstream from the discharge meets the MCL. Thus, effluent limitations for arsenic are not necessary. However, it is appropriate to require the Discharger to further characterize its discharge and the receiving water for arsenic. This Order includes appropriate monitoring for this purpose.

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

e. **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 MEC for bis (2-ethylhexyl) phthalate was 3.0 ug/L, based on three effluent samples 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) 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.

f. **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.

The MEC for mercury was 0.0636 ug/L based on one effluent sample collected by the Discharger in October 2001. The maximum observed upstream receiving water mercury concentration, 0.0692 ug/L, which is based on one sample collected by Discharger in October 2001, exceeds the MEC. The effluent sample was 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. Regional Water Board staff collected an effluent sample in April 2007, and mercury was not detected at or above the reporting limit of 0.20 ug/L. Given these results, there is not enough information to complete a RP analysis for mercury. This Order includes a requirement for the Discharger to monitor the effluent and receiving water for the Priority Pollutants (which includes mercury) twice, with sampling occurring during the first discharge event after

g. **pH.** The Basin Plan includes a water quality objective for surface waters which states that the "…*pH shall not be depressed below 6.5 nor raised above 8.3. Changes in normal ambient pH levels shall not exceed 0.3 in fresh waters with designated COLD or WARM beneficial uses.*" The Discharger has measured the pH of the treated produced water as low as 5.5. The low pH is reportedly caused by the presence of carbon dioxide in the produced water that forms carbonic acid. Since the source of low pH is from natural causes and the Carrier Canal has sufficient dilution capacity, it is appropriate to carry over the instantaneous minimum pH effluent limit of 5.5 from Order No. R5-2002-0052. The instantaneous maximum effluent limitation for pH of 8.3 is included in this Order based on the Basin Plan objective for pH. Also, the Order includes receiving water limitations for pH based on the Basin Plan objectives.

h. **Salinity.** The Basin Plan includes maximum salinity limits for electrical conductivity (EC), chloride, and boron for oilfield discharges of 1,000 umhos/cm, 200 mg/L, and 1 mg/L, respectively. The Basin Plan also states that the discharges of oilfield wastewater that exceed the maximum salinity limits may be permitted to unlined sumps, stream channels, or surface waters if the discharger successfully demonstrates to the Regional Water Board in a public hearing that the proposed discharge will not substantially affect water quality nor cause a violation of water quality objectives.

   i. **Electrical Conductivity (EC)**. A review of the Discharger's monitoring reports from December 2003 through March 2007 shows for 32 months the average monthly effluent EC ranged from 747 to 1,021 umhos/cm. The highest annual average EC concentration is 853 umhos/cm. These levels are consistent with the Basin Plan EC limit for oilfield discharges. Thus, this Order contains an effluent EC limit of 1,000 umhos/cm as an annual average.

      From September 2005 through June 2007, the Discharger's monitoring reports show for the full 22-month period, the background receiving water at the R-3 monitoring location had an average monthly EC ranging from 57 to 187 umhos/cm. The 2006 average annual EC concentration was 107 umhos/cm.

   ii. **Chloride**. A review of the Discharger's monitoring reports from December 2003 through March 2007 shows for 32 months the average monthly effluent chloride concentration ranged from 105.7 to 150.0 mg/L. The highest annual average chloride concentration is 135.2 mg/L. These levels are consistent with the Basin Plan chloride limit for oilfield discharges. Thus, this Order contains an effluent chloride limit of 200 mg/L as an annual average.

      From September 2005 through June 2007, the Discharger's monitoring reports show for the full 22-month period, the background receiving water at the R-3 monitoring location has an average monthly chloride concentration

ranging from 5.9 to 22.5 mg/L. The 2006 average annual chloride concentration was 11.3 mg/L.

iii. **Boron.** A review of the Discharger's monitoring reports from December 2003 through March 2007 shows that for the full 40-month period the average monthly effluent boron concentration ranged from 0.84 to 1.29 mg/L. The highest daily boron concentration is 1.36 mg/L. The highest average annual boron concentration is 1.08 mg/L. This annual average is only slightly above the Basin Plan boron limit for oilfield discharges.

From September 2005 through June 2007, the Discharger's monitoring reports show for the full 22-month period, the upstream receiving water in the Carrier Canal at the R-3 sampling location had an average monthly boron concentration ranging from 0.02 to 0.16 mg/L. The 2006 average annual boron concentration was 0.08 mg/L.

The Discharger's monitoring reports show that effluent was discharged to the Carrier Canal for a total of 302 days during the periods from September 2005 through April 2006 and from January through March 2007. During these periods the downstream receiving water in the Carrier Canal at the R-4 sampling location had an average monthly boron concentration ranging from 0.05 to 0.33 mg/L and an average concentration of 0.15 mg/L. The highest daily boron concentration was 0.41 mg/L.

It is appropriate to continue the previously authorized exception for boron. This Order includes an annual average effluent limit for boron of 1.1 mg/L based on the previously authorized exception and historic discharge performance. Contractual obligations and prohibitions and provisions in this Order ensure that the concentration in the receiving water downstream from the discharge shall not exceed 0.5 mg/L.

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

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.

a. **Acute Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at III-6) The Basin Plan also states that,

"…*effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate*…". USEPA Region 9 provided guidance for the development of acute toxicity effluent limitations in the absence of numeric water quality objectives for toxicity in its document titled "Guidance for NPDES Permit Issuance", dated February 1994. In section B.2. "Toxicity Requirements" (pgs. 14-15) it states that, "*In the absence of specific numeric water quality objectives for acute and chronic toxicity, the narrative criterion 'no toxics in toxic amounts' applies. Achievement of the narrative criterion, as applied herein, means that ambient waters shall not demonstrate for acute toxicity: 1) less than 90% survival, 50% of the time, based on the monthly median, or 2) less than 70% survival, 10% of the time, based on any monthly median. For chronic toxicity, ambient waters shall not demonstrate a test result of greater than 1 TUc."* Accordingly, effluent limitations for acute toxicity have been included in this Order as follows:

> **Acute Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than the following:
>
> | | |
> |---|---|
> | Minimum for any one bioassay---------- | 70% |
> | Minimum median for any three consecutive bioassays ------- | 90% |

b. **Chronic Aquatic Toxicity.** Based on whole effluent chronic toxicity testing performed by Regional Water Board staff in April 2007, the discharge has reasonable potential to cause or contribute to an to an in-canal excursion above of the Basin Plan's narrative toxicity objective.

Numeric chronic WET effluent limitations have not been included in this order. The SIP contains implementation gaps regarding the appropriate form and implementation of chronic toxicity limits. This has resulted in the petitioning of a NPDES permit in the Los Angeles Region[1] that contained numeric chronic toxicity effluent limitations. To address the petition, the State Water Board adopted WQO 2003-012 directing its staff to revise the toxicity control provisions in the SIP. The State Water Board states the following in WQO 2003-012*, "In reviewing this petition and receiving comments from numerous interested persons on the propriety of including numeric effluent limitations for chronic toxicity in NPDES permits for publicly-owned treatment works that discharge to inland waters, we have determined that this issue should be considered in a regulatory setting, in order to allow for full public discussion and deliberation. We intend to modify the SIP to specifically address the issue. We anticipate that review will occur within the next year. We therefore decline to make a determination here regarding the propriety of the final numeric effluent limitations for chronic toxicity contained in these permits."* The process to revise the SIP is

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

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

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

D. Final Effluent Limitations

1. Mass-based Effluent Limitations.

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

Mass-based effluent limitations were calculated by multiplying the concentration limitation by the Facility's permitted discharge flow of 18 mgd and an appropriate unit conversion factor.

2. Averaging Periods for Effluent Limitations. – Not Applicable

3. Satisfaction of Anti-Backsliding Requirements.

All effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order.

4. Satisfaction of Antidegradation Policy

The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution 68-16. This Order does not allow for increases in flow. The limits herein represent a reduction in the mass of pollutants previously authorized for discharge. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge.

Summary of Final Effluent Limitations
Discharge Point 001

Table G-4. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations				Basis
		Annual Average	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Flow	mgd		18	--	--	--
pH	Standard	--	--	5.5	8.3	Basin Plan
Electrical Conductivity @ 25° C	umhos/cm	1,000	--	--	--	
Chloride	mg/L	200	--	--	--	
	lbs/day	30,043[1]	--	--	--	
Boron, Total Recoverable	mg/L	1.1	--	--	--	
	lbs/day	165[2]	--	--	--	
Oil and Grease	mg/L	--	35	--	--	BPT, Basin Plan, USEPA
	lbs/day	--	5,258	--	--	

[1] Using the highest annual average effluent chloride concentration of 135.2 mg/L, the mass is 20,309 lbs/day. The discharge is limited to 480 hours (20 days) per year.

[2] Using the highest annual average effluent boron concentration of 1.08 mg/L, the mass is 162 lbs/day. The discharge is limited to 480 hours (20 days) per year.

E. Interim Effluent Limitations. – Not Applicable

F. Land Discharge Specifications. – Not Applicable

G. Reclamation Specifications. – Not Applicable

VI. 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. Rationale for receiving water limitations based on the Basin Plan objectives is described below.

A. Surface Water

1. 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, pesticides, radioactivity, salinity, sediment, settleable material, suspended material, tastes and odors, temperature, toxicity, turbidity, and electrical conductivity.

   Numeric Basin Plan objectives for dissolved oxygen, pH, temperature, and turbidity are applicable to this discharge and have been incorporated as Receiving Surface Water Limitations. Rational for these numeric receiving surface water limitations are as follows:

   a. **Ammonia.** The Basin Plan states that, "[w]*aters shall not contain un-ionized ammonia in amounts which adversely affect beneficial uses. In no case shall the discharge of wastes cause concentrations of un-ionized ammonia (NH_3) to exceed 0.025 mg/l (as N) in receiving waters.*"

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

   c. **Color**. The Basin Plan includes a water quality objective that "*[W]ater shall be free of discoloration that causes nuisance or adversely affects beneficial uses."* Receiving Water Limitations for color are included in this Order and are based on the Basin Plan objective.

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

   e. **Dissolved Oxygen.** For surface water bodies, the Basin Plan includes the water quality objective that "…*waste discharges shall not cause the monthly median dissolved oxygen (DO) concentration in the main water mass (at centroid of flow) of streams …to fall below 85 percent of saturation concentration, and the 95 percentile concentration to fall below 75 percent of saturation concentration.*" This objective is included as a receiving water limitation in this Order.

   f. **Floating Material**. The Basin Plan includes a water quality objective that *"[W]aters shall not contain floating material, including but not limited to solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses."* Receiving Water Limitations for floating material are included in this Order and are based on the Basin Plan objective.

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

h. **pH**. The Basin Plan includes water quality objective 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.

i. **Radioactivity**. The Basin Plan includes a water quality objective that *"[R]adionuclides shall not be present in concentrations that are harmful to human, plant, animal or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal or aquatic life."* The Basin Plan states further that *"[A]t a minimum, waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of radionuclides in excess of the maximum contaminant levels (MCLs) specified in Table 4 (MCL Radioactivity) of Section 64443 of Title 22 of the California Code of Regulations…"* Receiving Water Limitations for radioactivity are included in this Order and are based on the Basin Plan objective.

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

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

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

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

n. **Temperature.** The Kern River below Kern River Powerhouse #1 has the WARM beneficial use. The Basin Plan includes the objective that "[e]*levated temperature wastes shall not cause the temperature of waters designated COLD or WARM to increase by more than 5º* F above natural receiving water temperature." This Order includes a receiving water limitation based on this objective.

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

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

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

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

B. Groundwater

1. The beneficial uses of the underlying groundwater are MUN; AGR, IND, PRO, REC-1; REC-2, and WILD.

2. Basin Plan water quality objectives include narrative objectives for chemical constituents, tastes and odors, and toxicity of groundwater. The toxicity objective requires that 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 states groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use. The tastes and odors objective prohibits taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan also establishes numerical water quality objectives for chemical constituents and radioactivity in groundwaters designated as municipal supply. These include, at a minimum, compliance with MCLs in Title 22 of the CCR. The Basin Plan requires

the application of the most stringent objective necessary to ensure that waters do not contain chemical constituents, toxic substances, radionuclides, taste- or odor-producing substances, or bacteria in concentrations that adversely affect municipal or domestic supply, agricultural supply, industrial supply or some other beneficial use.

3. The underlying groundwater is of high quality and intensively managed in conjunction with surface water. Under terms of the permit, the Carrier Canal during the short periods of discharge must, as a minimum, always achieve the water quality objectives applied to surface water. These are consistent with the water quality objectives for groundwater. Thus, at times of discharge under the very worst-case scenario, the infiltrating blend of freshwater and treated produced water that percolates and recharges groundwater will never exceed the applicable water quality objectives. On an annual basis, the small, short-duration nature of this contingency discharge in this general area of managed year-round freshwater recharge will have no measurable affect on groundwater quality. Thus, it is reasonable in this circumstance to include a groundwater limitation that does not allow degradation.

VII. 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 authorize the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (MRP), Attachment E of this Order, establishes monitoring and reporting requirements to implement federal and State requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this facility:

A. Influent Monitoring - Not Applicable

B. Effluent Monitoring

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

2. The SIP states that if "…*all reported detection limits of the pollutant in the effluent are greater than or equal to the C* [water quality criterion or objective] *value, the RWQCB* [Regional Water Board] *shall establish interim requirements…that require additional monitoring for the pollutant….*" All reported detection limits for arsenic and ammonia are greater than or equal to corresponding applicable water quality criteria or objectives. Monitoring for arsenic and ammonia has been included in this Order in accordance with the SIP. Mercury was detected in a single effluent sample collected prior to the Discharger consolidating its discharge with Texaco's in June 2002. The Order requires effluent and upstream monitoring for the full list of Priority Pollutants (which includes mercury) during the first discharge event after adoption of the Order.

C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** 96-hour bioassay testing is required at least once during the first discharge event and at least once during any subsequent discharge event after adoption of the Order to demonstrate compliance with the effluent limitation for acute toxicity.

2. **Chronic Toxicity.** Chronic whole effluent toxicity testing is required at least once during the first discharge event and at least once during any subsequent discharge event after adoption of the 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 water.

2. Groundwater

The benefit of monitoring groundwater quality under these circumstances does not exceed the burden of the monitoring and as such is not justified.

E. Other Monitoring Requirements. – Not Applicable

VIII. 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 E. 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. **Whole Effluent Toxicity.** Should whole effluent toxicity monitoring indicate toxicity, then 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 excursion above the Basin Plan's narrative toxicity objective. Attachment E of this Order requires chronic WET monitoring at least twice during the first discharge event and at least once during any subsequent discharge event after adoption of the Order 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 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. In addition, the provision provides a numeric toxicity monitoring trigger and requirements for accelerated monitoring, as well as, requirements for TRE initiation if a pattern of toxicity is demonstrated.

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

Accelerated Monitoring. The provision requires accelerated WET testing when a regular WET test result exceeds the monitoring trigger. The purpose of accelerated monitoring is to determine, in an expedient manner, whether there is a pattern of toxicity before requiring the implementation of a TRE. Due to 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 G-1), below, for further clarification of the accelerated monitoring requirements and for the decision points for determining the need for TRE initiation.

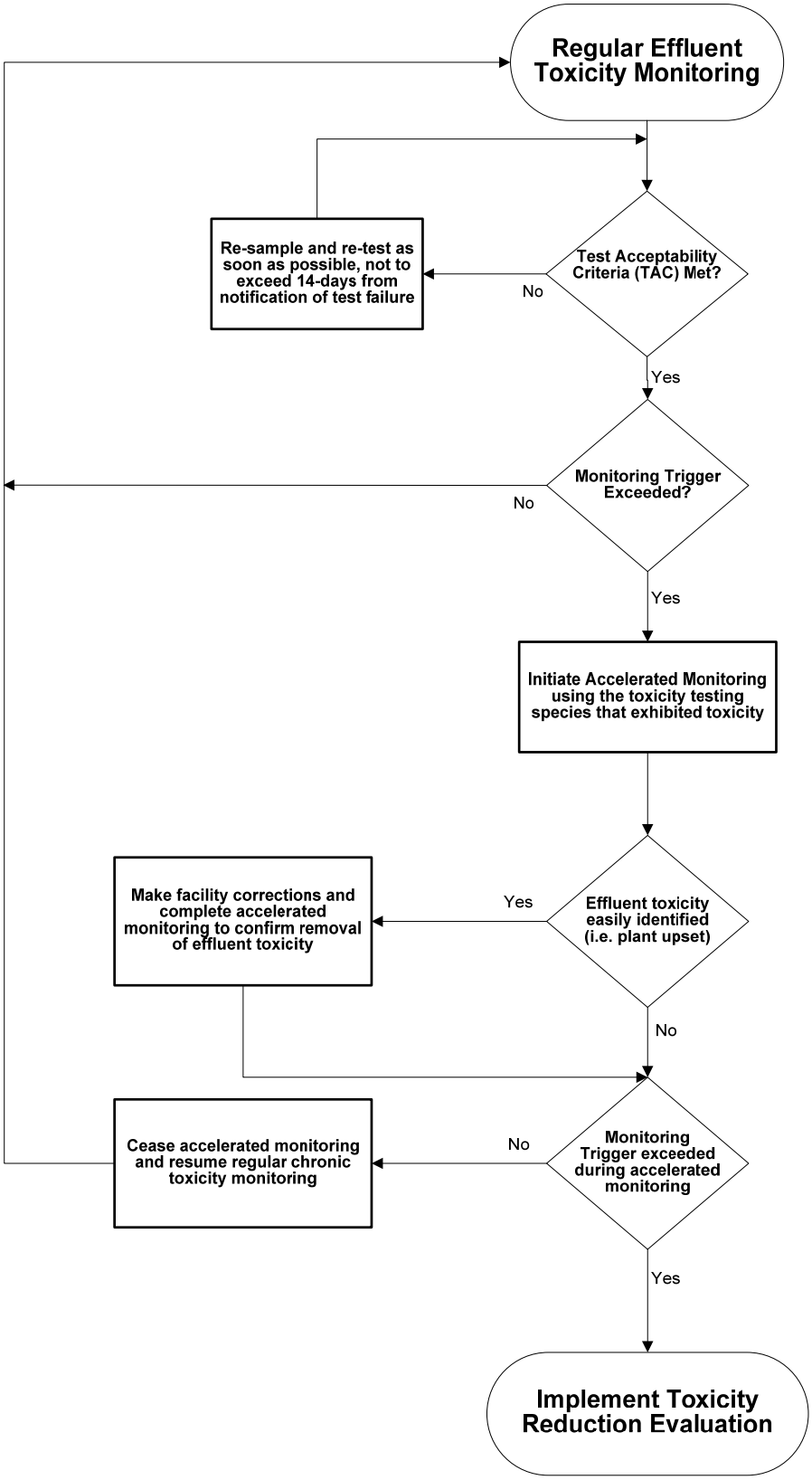
TRE Guidance. The Discharger is required to prepare a TRE Work Plan in accordance with USEPA guidance. Numerous guidance documents are available, as identified below:

- *Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants,* (EPA/833B-99/002), August 1999.
- Generalized Methodology for Conducting Industrial TREs*, (EPA/600/2-88/070), April 1989.*
- *Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures,* Second Edition, EPA 600/6-91/005F, February 1991.
- *Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I*, EPA 600/6-91/005F, May 1992.
- *Methods for Aquatic Toxicity Identification Evaluations: Phase II Toxicity Identification Procedures for Samples Exhibiting acute and Chronic Toxicity,* Second Edition, EPA 600/R-92/080, September 1993.
- *Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity*, Second Edition, EPA 600/R-92/081, September 1993.
- *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, Fifth Edition, EPA-821-R-02-012, October 2002.

- *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, Fourth Edition, EPA-821-R-02-013, October 2002.

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

Figure G-1
WET Accelerated Monitoring Flow Chart



3. Best Management Practices and Pollution Prevention – Not Applicable

4. Construction, Operation, and Maintenance Specifications – Not Applicable

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

6. Other Special Provisions

Other special provisions in this Order include specific requirements for the Discharger to submit a report that evaluates effluent salinity and a plan to minimize effluent salinity.

7. Compliance Schedules – Not Applicable

IX. PUBLIC PARTICIPATION

The Regional Water Board is considering the issuance of waste discharge requirements (WDRs) that will serve as a National Pollutant Discharge Elimination System (NPDES) permit for Chevron U.S.A. Inc. Station 36 - Carrier Canal. As a step in the WDR adoption process, the Regional Water Board staff has developed tentative WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through mailing to interested parties on 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 these tentative WDRs. Comments must be submitted either in person or by mail to the Executive Office at the Regional Water Board at the address above on the cover page of this Order.

To be fully responded to by staff and considered by the Regional Water Board, written comments should be received at the Regional Water Board offices by 12:00 p.m. on 15 October 2007.

C. Public Hearing

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

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

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

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

D. Waste Discharge Requirements Petitions

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

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

E. Information and Copying

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

F. Register of Interested Persons

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

G. Additional Information

Requests for additional information or questions regarding this order should be directed to Dane Mathis at (559) 488-4287.

DAM: 12/6/07

CALIFORNIA TOXICS RULE
REASONABLE POTENTIAL ANALYSIS

CTR#	Parameter	Effluent 4/30/01 (ug/L)	Effluent 8/19/01 (pg/L)	Effluent 10/25/01 (ug/L)	Effluent 2/15/02 (pg/L)	Effluent 4/23/07 (ug/L)	MEC (ug/L)	Applicable WQO/Criteria	WQO/Criteria Reference	RP
1	Antimony, Sb	<0.02		**6.0**		<5	**6.0**	6	Num BP Obj	N
2	Arsenic, As	**19**		**17**		**14**	**21**(1)	**10**	Num BP Obj	**Y**
3	Beryllium, Be	<0.06		<0.06		<1	<1			
4	Cadmium, Cd	<0.05		<0.05		<1	<1			
	Chromium (total), Cr	**1 DNQ**		**4.0**		<5	**4.0**	see Cr+3		
5a	Chromium (III), Cr+3	--		--		--	--	118	CCC @ 50.4 mg/L	N
5b	Chromium (VI), Cr+6	<0.2		<0.2		<10	<10			
6	Copper, Cu	<0.05		<0.05		<5	<5			
7	Lead, Pb	<0.25		<0.25		<2.0	<2.0			
8	Mercury, Hg	**0.0007**		**0.0636**		<0.2	**0.0636**	**0.050**	H Health Water & Org	ID
9	Nickel, Ni	<0.05		<0.05		<5	<5			
10	Selenium, Se	<0.5		<0.5		<20	<20			
11	Silver, Ag	<0.2		<0.2		<5	<5			
12	Thallium, Tl	<0.025		<0.025		<1.0	<1.0			
13	Zinc, Zn	<2		<2		<5	<5			
14	Cyanide, CN (mg/L)	<0.005		<0.005		--	<0.005			
15	Asbestos (MFL)	<7.65		<0.26		--	<7.65			
16	2,3,7,8 TCDD (dioxin, +congeners, pg/L)		<10-<100		<10-<100	<10	<10-<100			
17	Acrolein	no hits on MS		--		<10	<10			
18	Acrylonitrile	no hits on MS		--		<5	<5			
19	Benzene	**0.62 DNQ**		<0.134		**0.92**	**0.92**	1	Num BP Obj	N
20	Bromoform	<0.390		<0.390		<0.5	<0.5			
21	Carbon Tetrachloride	<0.184		<0.184		<0.5	<0.5			
22	Chlorobenzene	<0.095		<0.095		<0.5	<0.5			
23	Chlorodibromomethane	<0.188		<0.188		<0.5	<0.5			
24	Chloroethane	<0.226		<0.226		<0.5	<0.5			
25	2-Chloroethylvinyl ether	no hits on MS		--		--	--			
26	Chloroform	<0.160		<0.160		<0.5	<0.5			
27	Dichlorobromomethane	<0.117		<0.117		<0.5	<0.5			
28	1,1-Dichloroethane	<0.195		<0.195		<0.5	<0.5			
29	1,2-Dichloroethane	<0.195		<0.195		<2.0	<2.0			
30	1,1-Dichloroethylene	<0.256		<0.256		<0.5	<0.5			
31	1,2-Dichloropropane	<0.167		<0.167		<0.5	<0.5			
32	1,3-Dichloropropylene	<0.217		0.262		<0.5	<0.5			
33	Ethylbenzene	<0.151		<0.151		**1.5**	**1.5**	700	Num BP Obj	N
34	Methyl Bromide (bromomethane)	no hits on MS		--		<0.5	<0.5			
35	Methyl Chloride (chloromethane)	no hits on MS		--		<0.5	<0.5			
36	Methylene Chloride	<5.0		<5.0		<1.0	<5.0			
37	1,1,2,2-Tetrachloroethane	<0.372		<0.160		<0.5	<0.5			
38	Tetrachloroethylene	<0.452		<0.452		<0.5	<0.5			
39	Toluene	**0.69 DNQ**		<0.191		<0.5	**0.69 DNQ**	150	Num BP Obj	N
40	1,2-Trans-Dichloroethylene	<0.196		<0.196		<0.5	<0.5			
41	1,1,1-Trichloroethane	<0.274		<0.270		<0.5	<0.5			
42	1,1,2-Trichloroethane	<0.160		<0.219		--	<0.219			
43	Trichloroethylene	<0.206		<0.206		<0.5	<0.5			
44	Vinyl Chloride	no hits on MS		<0.238		<0.5	<0.5			
45	2-Chlorophenol	<2.786		<2.786		<5	<5			
46	2,4-Dichlorophenol	<2.344		<2.344		<5	<5			
47	2,4-Dimethylphenol	<2.318		<2.318		<2	<2.318			
48	2-Methyl- 4,6-Dinitrophenol	no hits on MS		<1.340		<5	<5			
49	2,4-Dinitrophenol	<3.699		<3.699		<5	<5			
50	2-Nitrophenol	<2.291		<2.291		<10	<10			
51	4-Nitrophenol	<3.775		<3.775		<10	<10			
52	3-Methyl 4-Chlorophenol	no hits on MS		<2.260		<1	<2.260			
53	Pentachlorophenol	<1.386		<1.386		<5	<5			
54	Phenol	<2.699		<2.699		<1	<2.699			
55	2,4,6-Trichlorophenol	<1.469		<1.469		<10	<10			
56	Acenaphthene	<1.089		<1.089		<1	<1.089			
57	Acenaphthylene	<1.506		<1.506		<10	<10			
58	Anthracene	<1.073		<1.073		<10	<10			
59	Benzidine	no hits on MS		no hits on MS		<5	<5			
60	Benzo(a)Anthracene	<1.726		<1.726		--	<1.726			
61	Benzo(a)Pyrene	<1.213		<1.213		--	<1.213			
62	Benzo(b)Fluoranthene	<2.661		<1.298		--	<2.661			
63	Benzo(ghi)Perylene	<1.887		<1.887		<5	<5			

CTR#	Parameter	Effluent 4/30/01 (ug/L)	Effluent 8/19/01 (pg/L)	Effluent 10/25/01 (ug/L)	Effluent 2/15/02 (pg/L)	Effluent 4/23/07 (ug/L)	MEC (ug/L)	Applicable WQO/Criteria	WQO/Criteria Reference	RP
64	Benzo(k)Fluoranthene	<2.661		<2.661		<10	<10			
65	Bis(2-Chloroethoxy)Methane	<1.869		<1.869		--	<1.869			
66	Bis(2-Chloroethyl)Ether	<2.321		<2.321		<1	<2.321			
67	Bis(2-Chloroisopropyl)Ether	<3.270		<3.270		<2	<3.270			
68	Bis(2-Ethylhexyl)Phthalate	<4.044		<4.044		**3**	**3**	1.8	H Health Water & Org	ID
69	4-Bromophenyl Phenyl Ether	<1.333		<1.333		<5	<5			
70	Butylbenzyl Phthalate	<1.332		<1.332		<10	<10			
71	2-Chloronaphthalene	<1.762		<1.762		<10	<10			
72	4-Chlorophenyl Phenyl Ether	<1.116		<1.116		<5	<5			
73	Chrysene	<1.240		<1.240		<10	<10			
74	Dibenzo(a,h)Anthracene	<1.638		<1.638		<10	<10			
75	1,2-Dichlorobenzene	<4.017		<0.172		<5	<5			
76	1,3-Dichlorobenzene	<3.976		<0.186		<1	<3.976			
77	1,4-Dichlorobenzene	<4.363		<0.188		<1	<4.363			
78	3,3-Dichlorobenzidine	<2.579		<2.579		<5	<5			
79	Diethyl Phthalate	<2.165		<2.165		<2	<2.165			
80	Dimethyl Phthalate	<2.237		<2.237		<2	<2.237			
81	Di-n-Butyl Phthalate	<4.337		<4.337		<10	<10			
82	2,4-Dinitrotoluene	<1.201		<3.699		<5	<5			
83	2,6-Dinitrotoluene	<1.245		<1.245		<5	<5			
84	Di-n-Octyl Phthalate	<0.934		<0.934		<10	<10			
85	1,2-Diphenylhydrazine	no hits on MS		no hits on MS		<1	<1			
86	Fluoranthene	<1.2		<1.2		<1	<1.2			
87	Fluorene	<0.953		<0.953		<10	<10			
88	Hexachlorobenzene	<1.527		<1.527		<1	<1.527			
89	Hexachlorobutadiene	<4.205		<4.205		<1	<4.205			
90	Hexachlorocyclopentadiene	no hits on MS		no hits on MS		<5	<5			
91	Hexachloroethane	<0.295		<0.295		<1	<1			
92	Indeno(1,2,3-cd)Pyrene	<1.499		<1.499		<10	<10			
93	Isophorone	<1.493		<1.493		<1	<1.493			
94	Naphthalene	<3.053		<3.053		<1	<3.053			
95	Nitrobenzene	<15.0		<15.0		<1	<15.0			
96	N-Nitrosodimethylamine	no hits on MS		<2.162		<5	<5			
97	N-Nitrosodi-n-Propylamine	<2.034		<2.034		<5	<5			
98	N-Nitrosodiphenylamine	<2.162		no hits on MS		<5	<5			
99	Phenanthrene	<1.522		<1.522		<5	<5			
100	Pyrene	<1.346		<1.346		<10	<10			
101	1,2,4-Trichlorobenzene	<3.764		<3.764		<5	<5			
102	Aldrin	<0.001		<0.001		<0.005	<0.005			
103	alpha-BHC (hexachloro-cyclohexane)	<0.001		<0.001		<0.010	<0.010			
104	beta-BHC	<0.003		<0.003		<0.005	<0.005			
105	gamma-BHC	<0.001		<0.001		<0.02	<0.02			
106	delta-BHC	<0.001		<0.001		<0.005	<0.005			
107	Chlordane	<0.061		<0.063		<0.1	<0.1			
108	4,4'-DDT	<0.001		<1.548		<0.01	<1.548			
109	4,4'-DDE (linked to DDT)	<0.001		<1.448		<0.05	<1.448			
110	4,4'-DDD	<0.001		<2.086		<0.05	<2.086			
111	Dieldrin	<0.001		<0.001		<0.10	<0.10			
112	alpha-Endosulfan	<0.001		<0.001		<0.02	<0.02			
113	beta-Endolsulfan	<0.001		<0.001		<0.10	<0.10			
114	Endosulfan Sulfate	<0.001		<0.001		<0.05	<0.05			
115	Endrin	<0.001		<0.001		<0.10	<0.10			
116	Endrin Aldehyde	<0.016		<0.016		<0.10	<0.10			
117	Heptachlor	<0.001		<0.001		<0.01	<0.01			
118	Heptachlor Epoxide	<0.002		<0.002		<0.01	<0.01			
119-125	PCBs	<0.12		<0.12		<0.5	<0.5			
126	Toxaphene	<0.87		<0.12		<0.50	<0.87			

Notes: (1) result provided in RWD, sample collected 6/29/05
ID=insufficient data, Y=yes, N=no