CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

CENTRAL VALLEY REGION

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ORDER R5-2013-XXXX
NPDES NO. CA0083046

WASTE DISCHARGE REQUIREMENTS FOR THE THE VENDO COMPANY GROUNDWATER REMEDIATION SYSTEM FRESNO COUNTY

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

Table 1. Discharger Information

Discharger	The Vendo Company
Name of Facility	Groundwater Remediation System
Facility Address	698 West Locust Avenue
	Fresno, CA 93650
	Fresno County
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Quality Control Board have classified this discharge as a minor discharge.	

The discharge by the Vendo Company from the discharge point identified below is subject to waste discharge requirements as set forth in this Order:

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Treated Groundwater	36º 50' 14" N	119º 48' 8" W	Fresno Irrigation District Bullard Canal

Table 3. Administrative Information

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

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

_____
PAMELA C. CREEDON, Executive Officer

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I. FACILITY INFORMATION

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

Table 4. Facility Information

Discharger	The Vendo Company
Name of Facility	Groundwater Remediation System
Facility Address	698 West Locust Avenue Fresno, CA 93650 Fresno County
Facility Contact, Title, and Phone	John Mackenzie, Environmental Manager (559) 288-6511
Mailing Address	P.O. Box 3688 Oakhurst, CA 93644~~10710 Sanden Drive~~ ~~Dallas, TX 75238~~
Type of Facility	Groundwater extraction and treatment facility
Facility Design Flow	1.44 million gallons per day (mgd)

II. FINDINGS

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

A. Background. The Vendo Company (hereinafter Discharger) is currently discharging pursuant to Order No. R5-2006-0016 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0083046. The Discharger submitted a Report of Waste Discharge, dated 30 July 2010, and applied for a NPDES permit renewal to discharge up to 1.44 mgd of extracted groundwater from a Phase III Groundwater Remediation System**,** hereinafter Facility.

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

B. Facility Description. The Discharger owns and operates a groundwater collection, treatment, and disposal system. The treatment system consists of groundwater extraction wells and two 20,000-pound granular activated carbon (GAC) units. Treated groundwater is discharged from Discharge Point No. 001 (see table on cover page) to the Fresno Irrigation District’s (FID) Bullard Canal, which is hydraulically connected downstream of Discharge Point No. 001 to the San Joaquin River, a water of the United States, within the South Valley Floor Hydrologic Unit, Fresno Hydrologic Area (No. 551.30). Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the Facility.

C. Legal Authorities. This Order is issued pursuant to section 402 of the Clean Water Act (CWA) and implementing regulations adopted by USEPA and chapter 5.5, division 7 of the California Water Code (Water Code; commencing with section 13370). It shall serve as a NPDES permit for point source discharges from this facility to surface

waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the Water Code (commencing with section 13260).

D. Background and Rationale for Requirements. The Central Valley Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for Order requirements, is hereby incorporated into this Order and constitutes part of the Findings for this Order. Attachments A through E and G through I are also incorporated into this Order.

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

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

G. Water Quality-based Effluent Limitations (WQBELs). 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, WQBELs must be established using: (1) USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in 40 CFR 122.44(d)(1)(vi).

H. Water Quality Control Plans. The Central Valley Water Board adopted the *Water Quality Control Plan, Fourth Edition (Revised October 2011)*, for the Sacramento and San Joaquin River Basins (hereinafter San Joaquin Basin Plan) and the *Water Quality Control Plan, Second Edition (Revised January 2004),* for the Tulare Lake Basin (hereinafter Tulare Lake Basin Plan) (collectively hereinafter Basin Plans) that designate beneficial uses, establish water quality objectives, and contain

implementation programs and policies to achieve those objectives for all waters addressed through the plans. Table II-1 of both the Basin Plans identify the beneficial uses of certain specific water bodies. The Basin Plans do not specifically identify beneficial uses for Bullard Canal, but the San Joaquin Basin Plan does identify present and potential uses in Table II-1 for the San Joaquin River, to which Bullard Canal is hydraulically connected. Discharges to Bullard Canal must be protective of the beneficial uses of the San Joaquin River. Thus, for purposes of this Order, the beneficial uses of the San Joaquin River are considered applicable to Bullard Canal. In addition, the Basin Plans implement 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. As discussed in detail in the Fact Sheet, beneficial uses applicable to Bullard Canal are listed in Table 5 below.

The Tulare Lake Basin Plan designates beneficial uses for groundwater underlying Discharge Point 001. Groundwater underlying this point is in Detailed Analysis Unit (DAU) #233 of the Kings Basin. The designated beneficial uses of groundwater for this DAU are listed in Table 5 below.

Table 5. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Bullard Canal	<u>Existing:</u> Municipal and domestic supply (MUN); Agricultural supply, including irrigation and stock watering (AGR); Industrial process supply (PRO); Water contact recreation, including canoeing and rafting (REC-1); Non-contact water recreation (REC-2); Warm freshwater habitat (WARM); Cold freshwater habitat (COLD); Migration of aquatic organisms, warm and cold (MIGR); Spawning, reproduction, and/or early development, warm (SPWN); and Wildlife habitat (WILD) <u>Potential:</u> Spawning, reproduction, and/or early development, cold (SPWN)
--	Groundwater	<u>Existing:</u> Municipal and domestic supply (MUN); Agricultural supply, including irrigation and stock watering (AGR); Industrial process supply (PRO); Industrial service supply (IND) Water contact recreation (REC-1); Non-contact water recreation (REC-2)

The San Joaquin Basin Plan includes a list of Water Quality Limited Segments (WQLSs), which are defined as "…*those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources (40 CFR 130, et seq.)*." The San Joaquin Basin Plan also states, "*Additional treatment*

beyond minimum federal standards will be imposed on dischargers to WQLSs. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment." Bullard Canal is not listed as a WQLS, but the San Joaquin River (from Friant Dam to Mendota Pool) is listed as a WQLS for invasive species in the 303(d) list of impaired water bodies.

Requirements of this Order implement the Basin Plans.

I. National Toxics Rule (NTR) and California Toxics Rule (CTR). USEPA adopted the NTR on 22 December 1992, and later amended it on 4 May 1995 and 9 November 1999. About 40 criteria in the NTR applied in California. On 18 May 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on 13 February 2001. These rules contain water quality criteria for priority pollutants.

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

K. Compliance Schedules and Interim Requirements. In general, an NPDES permit must include final effluent limitations that are consistent with CWA section 301 and with 40 CFR 122.44(d). There are exceptions to this general rule. The State Water Board's *Policy for Compliance Schedules in National Pollutant Discharge Elimination System Permits* (Compliance Schedule Policy) allows compliance schedules for new, revised, or newly interpreted water quality objectives or criteria, or in accordance with a TMDL. All compliance schedules must be as short as possible, and may not exceed ten years from the effective date of the adoption, revision, or new interpretation of the applicable water quality objective or criterion, unless a TMDL allows a longer schedule. A Regional Water Board, however, is not required to include a compliance schedule, but may issue a Time Schedule Order pursuant to Water Code section 13300 or a Cease and Desist Order pursuant to Water Code section 13301 where it finds that the discharger is violating or threatening to violate the permit. The Central Valley 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 Compliance Schedule Policy, should consider feasibility of achieving compliance, and must impose a schedule that is as short as possible to achieve compliance with the effluent limit based on the objective or criteria.

The Compliance Schedule Policy and the SIP do not allow compliance schedules for priority pollutants beyond 18 May 2010, except for new or more stringent priority pollutant criteria adopted by USEPA after 17 December 2008.

Where a compliance schedule for a final effluent limitation exceeds one year, the Order must include interim numeric limitations for that constituent or parameter, interim milestones and compliance reporting within 14 days after each interim milestone. The permit may also include interim requirements to control the pollutant, such as pollutant minimization and source control measures. This Order does not include compliance schedules or interim effluent limitations.

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

M. Stringency of Requirements for Individual Pollutants. This Order contains both technology-based effluent limitations and WQBELs for individual pollutants. The technology-based effluent limitations consist of restrictions on flow, 1,1-dichloroethane, 1,1-dichloroethylene, cis-1,2-dichloroethylene, tetrachloroethylene, and trichloroethylene. The WQBELs consist of restrictions on acute and chronic whole effluent toxicity, copper, pH, and zinc. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements.

WQBELs have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant WQBELs were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR 131.38. The scientific procedures for calculating the individual WQBELs for priority pollutants are based on the CTR-SIP, which was approved by USEPA on 18 May 2000. All beneficial uses and water quality objectives contained in the Basin Plans were approved under state law and submitted to and approved by USEPA prior to 30 May 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to 30 May 2000, but not approved by USEPA before that date, are nonetheless "*applicable water quality standards for purposes of the [Clean Water] Act*" pursuant to 40 CFR 131.21(c)(1). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the technology-based requirements of the CWA and the applicable water quality standards for purposes of the CWA.

N. Antidegradation Policy. 40 CFR 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates 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 Central Valley Water Board's Basin Plans implement, and incorporate 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 Resolution No. 68-16.

O. Anti-Backsliding Requirements. Sections 303(d)(4) and 402(o)(2) of the CWA and federal regulations at 40 CFR 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions. Some effluent limitations in this Order are less stringent than those in Order R5-2006-0016. As discussed in detail in the Fact Sheet, this relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

P. 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.

Q. Monitoring and Reporting. 40 CFR 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorize the Central Valley Water Board to require technical and monitoring reports. The Monitoring and Reporting Program establishes monitoring and reporting requirements to implement federal and state requirements. The Monitoring and Reporting Program is provided in Attachment E.

The technical and monitoring reports in this Order are required in accordance with Water Code section 13267, which states the following in subsection (b)(1), "*In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports*."

The Discharger owns and operates the Facility subject to this Order. The monitoring reports required by this Order are necessary to determine compliance with this Order. The need for the monitoring reports is discussed in the Fact Sheet.

R. Standard and Special Provisions. Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR 122.42, are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under 40 CFR 122.42. The Central Valley Water Board has also included in this Order special provisions applicable to the Discharger. Some special provisions require submittal of technical reports. All technical reports are required in accordance with Water Code section 13267. The rationale for the special provisions and need for technical reports required in this Order is provided in the Fact Sheet.

S. Provisions and Requirements Implementing State Law. The provisions/requirements in sections V.B and VI.A.2.m of this Order are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.

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

U. Consideration of Public Comment. The Central Valley 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.

THEREFORE, IT IS HEREBY ORDERED, that Order No. R5-2006-0016 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

III. DISCHARGE PROHIBITIONS

A. Discharge of wastewater other than treated groundwater from the cleanup of volatile organic compounds (VOCs) as described in the Findings, or at a location or in a manner different form that described in the Findings is prohibited.

B. The by-pass or overflow of untreated or partially treated groundwater is prohibited, except as allowed by Federal Standard Provisions I.G. and I.H. (Attachment D).

C. Neither the discharge nor its treatment shall create a condition of pollution or nuisance as defined in section 13050 of the Water Code.

D. Discharge of waste classified as 'hazardous' as defined in Title 23, California Code of Regulations (CCR), Section 2521(a) , et seq., or 'designated', as defined in section 13173 of the Water Code, is prohibited.

E. Discharge of groundwater or pollutants not passing through at least two GAC vessels operated in series is prohibited.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point No. 001

1. Final Effluent Limitations – Discharge Point No. 001

The Discharger shall maintain compliance with the following effluent limitations at Discharge Point No. 001, with compliance measured at Monitoring Location EFF-001 as described in the Monitoring and Reporting Program:

a. The effluent limitations in Table 6:

Table 6. Final Effluent Limitations – Discharge Point No. 001

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants					
pH	standard units	--	--	6.5	8.5
Priority Pollutants					
Copper, Total Recoverable	µg/L	4.0	8.2	--	--
1,1-Dichloroethane	µg/L	--	<0.5	--	--
1,1-Dichloroethylene	µg/L	--	<0.5	--	--
cis-1,2-Dichloroethylene	µg/L	--	<0.5	--	--
Tetrachloroethylene	µg/L	--	<0.5	--	--
Trichloroethylene	µg/L	--	<0.5	--	--
Zinc, Total Recoverable	µg/L	37	74	--	--

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

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

c. **Chronic Whole Effluent Toxicity.** There shall be no chronic toxicity in the effluent discharge.

d. **Maximum Daily Flow.** The maximum daily discharge flow shall not exceed 1.44 mgd.

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

B. Land Discharge Specifications – Not Applicable

C. Reclamation Specifications – Not Applicable

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

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

1. **Bacteria.** The fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, to exceed a geometric mean of 200 MPN/100 mL, nor more than 10 percent of the total number of fecal coliform samples taken during any 30-day period to exceed 400 MPN/100 mL.

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 or adversely affects beneficial uses.

5. **Dissolved Oxygen:**

   a. The monthly median of the mean daily dissolved oxygen concentration to fall below 85 percent of saturation in the main water mass;

   b. The 95 percentile dissolved oxygen concentration to fall below 75 percent of saturation; nor

   c. The dissolved oxygen concentration to be reduced below 7.0 mg/L at any time.

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 nor raised above 8.5.

9. **Pesticides:**

   a. Pesticides to be present, individually or in combination, in concentrations that adversely affect beneficial uses;

   b. Pesticides to be present in bottom sediments or aquatic life in concentrations that adversely affect beneficial uses;

   c. Total identifiable persistent chlorinated hydrocarbon pesticides to be present in the water column at concentrations detectable within the accuracy of analytical methods approved by USEPA or the Executive Officer;

   d. Pesticide concentrations to exceed those allowable by applicable antidegradation policies (see State Water Board Resolution No. 68-16 and 40 CFR 131.12);

   e. Pesticide concentrations to exceed the lowest levels technically and economically achievable;

   f. Pesticides to be present in concentration in excess of the maximum contaminant levels set forth in CCR, Title 22, division 4, chapter 15; nor

   g. Thiobencarb to be present in excess of 1.0 µg/L.

10. **Radioactivity:**

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

   b. Radionuclides to be present in excess of the maximum contaminant levels (MCLs) specified in Table 64442 of section 64442 and Table 64443 of section 64443 of Title 22 of the California Code of Regulations.

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

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

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

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

15. **Temperature.** The natural temperature to be increased by more than 5°F. Compliance to be determined based on the difference in temperature at RSW-001 and RSW-002.

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 2 Nephelometric Turbidity Units (NTUs) where natural turbidity is less than 1 NTU;

    b. More than 1 NTU where natural turbidity is between 1 and 5 NTUs;

    c. More than 20 percent where natural turbidity is between 5 and 50 NTUs;

    d. More than 10 NTU where natural turbidity is between 50 and 100 NTUs; nor

    e. More than 10 percent where natural turbidity is greater than 100 NTUs.

B. Groundwater Limitations

1. The discharge, in combination with other sources, shall not cause groundwater within influence of the Facility to contain waste constituents in concentrations that adversely affect beneficial uses or that are greater than background water quality.

VI. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all Standard Provisions (federal NPDES standard conditions from 40 CFR Part 122) included in Attachment D of this Order.

2. The Discharger shall comply with the following provisions:

    a. If the Discharger's wastewater treatment plant is publicly owned or subject to regulation by California Public Utilities Commission, it shall be supervised and operated by persons possessing certificates of appropriate grade according to Title 23, CCR, division 3, chapter 26.

    b. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to:

i. violation of any term or condition contained in this Order;

ii. obtaining this Order by misrepresentation or by failing to disclose fully all relevant facts;

iii. a change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge; and

iv. a material change in the character, location, or volume of discharge.

The causes for modification include:

- *New regulations.* New regulations have been promulgated under section 405(d) of the CWA, or the standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision after the permit was issued.

- *Land application plans.* When required by a permit condition to incorporate a land application plan for beneficial reuse of sewage sludge, to revise an existing land application plan, or to add a land application plan.

- *Change in sludge use or disposal practice.* Under 40 CFR 122.62(a)(1), a change in the Discharger's sludge use or disposal practice is a cause for modification of the permit. It is cause for revocation and reissuance if the Discharger requests or agrees.

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

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

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

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

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

ii. Controls any pollutant limited in the Order.

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

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

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

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

h. 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.

i. 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 Central Valley Water Board, the Discharger shall submit a written description of safeguards. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures, or other means. A description of the safeguards provided shall include an analysis of the frequency, duration, and impact of power failures experienced over the past 5 years on effluent quality and on the capability of the Discharger to comply with the terms and conditions of the Order. The adequacy of the safeguards is subject to the approval of the Central Valley Water Board.

iii. Should the treatment works not include safeguards against reduction, loss, or failure of electric power, or should the Central Valley Water Board not approve the existing safeguards, the Discharger shall, within 90 days of having been advised in writing by the Central Valley Water Board that the existing safeguards are inadequate, provide to the Central Valley 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 Central Valley Water Board, become a condition of this Order.

j. The Discharger, upon written request of the Central Valley Water Board, shall file with the Board a technical report on its preventive (failsafe) and contingency (cleanup) plans for controlling accidental discharges, and for minimizing the effect of such events. This report may be combined with that required under the Central Valley Water Board Standard Provision contained in section VI.A.2.i of this Order.

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 Central Valley 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.

k. 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(s) responsible for the work.

l. The Central Valley Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13268, 13350, 13385, 13386, and 13387.

m. In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, instantaneous minimum effluent limitation, instantaneous maximum effluent limitation, maximum daily effluent limitation, acute toxicity effluent limitation, or receiving water limitation contained in this Order, the Discharger shall notify the Central Valley Water Board by telephone

(559) 445-5116 within 24 hours of having knowledge of such noncompliance, and shall confirm this notification in writing within 5 days, unless the Central Valley Water Board waives confirmation. The written notification shall include the information required by the Standard Provision contained in Attachment D section V.E.1. [40 CFR 122.41(l)(6)(i)].

n. Failure to comply with provisions or requirements of this Order, or violation of other applicable laws or regulations governing discharges from this facility, may subject the Discharger to administrative or civil liabilities, criminal penalties, and/or other enforcement remedies to ensure compliance. Additionally, certain violations may subject the Discharger to civil or criminal enforcement from appropriate local, state, or federal law enforcement entities.

o. 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 Central Valley 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 Central Valley Water Board and a statement. The statement shall comply with the signatory and certification requirements in the federal Standard Provisions (Attachment D, section V.B) and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the Water Code. Transfer shall be approved or disapproved in writing by the Executive Officer.

B. Monitoring and Reporting Program Requirements

The Discharger shall comply with the Monitoring and Reporting Program, and future revisions thereto, in Attachment E of this Order.

C. Special Provisions

1. Reopener Provisions

a. Conditions that necessitate a major modification of a permit are described in 40 CFR 122.62, including, but not limited to:

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

ii. When new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance.

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

c. Mercury. If mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted, or if the increased mercury monitoring required by this Order indicates that mercury exhibits reasonable potential to cause or contribute to an exceedance of applicable water quality objectives, this Order shall be reopened and an effluent concentration limitation imposed. If the Central Valley Water Board determines that a mercury offset program is feasible for Dischargers subject to a NPDES permit, then this Order may be reopened to reevaluate the need for a mercury offset program for the Discharger.

d. Lead. If lead is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted, or if the increased lead monitoring required by this Order indicates that lead exhibits reasonable potential to cause or contribute to an exceedance of applicable water quality objectives, this Order shall be reopened and an effluent concentration limitation imposed.

e. Whole Effluent Toxicity. As a result of a Toxicity Reduction Evaluation (TRE), this Order may be reopened to include a new 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.

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

2. Special Studies, Technical Reports and Additional Monitoring Requirements

a. Chronic Whole Effluent Toxicity. For compliance with the Basin Plan's' narrative toxicity objective and the narrative effluent limitation in this Order, this

Order requires the Discharger to conduct chronic whole effluent toxicity (WET) testing, as specified in the Monitoring and Reporting Program (Attachment E, section V). Furthermore, this Provision requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate, effluent toxicity. If the discharge exhibits toxicity, as described in subsection ii below, the Discharger is required to initiate a TRE in accordance with an approved TRE Work Plan, and take actions to mitigate the impact of the discharge and prevent recurrence 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 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. **TRE Work Plan**. By **<90 days of the effective date of this Order>**, the Discharger shall submit to the Central Valley 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 USEPA 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, the Discharger shall initiate accelerated monitoring as required in the Accelerated Monitoring Specifications. The Discharger shall initiate a TRE to address effluent toxicity if any WET testing results exceed the numeric toxicity monitoring trigger during accelerated monitoring.

iii. **Numeric Toxicity Monitoring Trigger.** The numeric toxicity monitoring trigger to initiate a TRE is > **1 TU_C** (where TU_C = 100/NOEC)(NOEC = No Observed Effect Concentration). The monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to begin accelerated monitoring and initiate a TRE when the effluent exhibits toxicity.

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

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

(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 evidence 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 (e.g., 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 begin 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 any test result exceeding the monitoring trigger during accelerated monitoring, the Discharger shall submit a TRE Action Plan to the Central Valley Water Board including, at minimum:

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

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

(3) A schedule for these actions.

3. Best Management Practices and Pollution Prevention – Not Applicable

4. Construction, Operation and Maintenance Specifications

a. By **<3 months following Order adoption>**, the Discharger shall develop or review and revise the existing operation and maintenance plan (O&M Plan) to ensure full compliance with the conditions and requirements set forth in this Order. The O&M Plan shall instruct operating personnel on how to manage the day-to-day discharge operation to comply with the terms and conditions of this order. The O&M Plan shall also detail how frequently each GAC unit is serviced and also describe how valves and plumbing are clearly labeled to ensure proper operation of the GWRS by operating personnel. The O&M Plan shall also include details for the following aspects of the proposed sampling process for monitoring influent, effluent, mid-treatment, and groundwater:

i. Method Summary (must be USEPA approved methods and capable of quantifying analytes to levels at or below those specified in Effluent Limitations and Receiving Water Limitations, above);

ii. Proposed list of analytes;

iii. Sample preservation, containers, handling, and storage;

iv. Interferences and potential problems;

v. Sampling and analysis equipment/apparatus;

vi. Reagents;

vii. Preparation and sample collection procedures;

viii. Quality assurance and quality control;

ix. Well purging;

x. Filtering; and

xi. Health and Safety.

The O&M Plan must be submitted to the Regional Board, by **<3 months + two weeks following Order adoption)**, for Executive Officer approval. A copy of the O&M Plan shall be kept at the Facility office for reference by operating personnel. Key operating personnel shall be familiar with its contents. The O&M Plan shall conform to Provision VI.A.2.k.

b. Spent carbon and other residual solids removed from liquid wastes or used to treat liquid wastes shall be recycled or disposed of in a manner that is consistent with Division 3, Title 27; Chapter 15, Division 3, Title 23; and Division 4.5, Title 22 of the CCR and approved by the Executive Officer.

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

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

6. Other Special Provisions

a. This Order does not pre-empt or supersede the authority of local agencies to prohibit, restrict, or control the discharge of treated groundwater subject to their control. Discharges allowed by this Order to local irrigation or storm water collection and conveyance facilities must obtain approval from the agency responsible for operation and maintenance of the facilities.

7. Compliance Schedules – Not Applicable

VII. COMPLIANCE DETERMINATION

A. Volatile Organic Compounds (VOCs) Maximum Daily Effluent Limitation (Section IV.A.1.a). This effluent limitation is only applicable to VOCs of concern, which include 1,1-dichloroethane, 1,1-dichloroethylene, cis-1,2-dichloroethylene, tetrachloroethylene, and trichloroethylene. The maximum daily effluent limitation of less than 0.5 µg/l applies to each VOC of concern.

B. Priority Pollutant Effluent Limitations (Section IV.A.1.a). Compliance with effluent limitations for priority pollutants shall be determined in accordance with Section 2.4 (Reporting Requirements) of the SIP, using sample reporting protocols defined in Attachment A and Attachment E of this Order. For purposes of reporting and administrative enforcement by the Central Valley Water Board and the State Water Board, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the priority pollutant in the monitoring sample is both greater than the effluent limitation <u>and</u> greater than or equal to the reporting level (RL).

Compliance with effluent limitations for priority pollutants shall be determined in accordance with Section 2.4.5 of the SIP, as follows:

1. Dischargers shall be deemed out of compliance with an effluent limitation, if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).

2. Dischargers shall be required to conduct a Pollutant Minimization Program (PMP) in accordance with section 2.4.5.2 of the SIP when there is evidence that the priority pollutant is present in the effluent above an effluent limitation and either:

a. A sample result is reported as detected, but not quantified (DNQ) and the effluent limitation is less than the RL; or

b. A sample result is reported as non-detect (ND) and the effluent limitation is less than the method detection limit (MDL).

3. When determining compliance with an average monthly effluent limitation (AMEL) and more than one sample result is available in a month, the discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of DNQ or 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, 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.

4. If a sample result, or the arithmetic mean or median of multiple sample results, is below the RL, and there is evidence that the priority pollutant is present in the effluent above an effluent limitation and the discharger conducts a PMP (as described in section 2.4.5.1), the discharger shall not be deemed out of compliance.

C. **Chronic Whole Effluent Toxicity Effluent Limitation (Section IV.A.1.c).** Compliance with the accelerated monitoring and TRE/TIE provisions of Provision VI.C.2.a shall constitute compliance with the effluent limitation.

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.

Bioaccumulative
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.

Best Practicable Treatment or Control (BPTC)
BPTC is a requirement of State Water Resources Control Board Resolution No. 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 of 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 Water Code section 13050(l). In general, an exceedance of a water quality objective in the Basin Plans constitutes "pollution".

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

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

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

The daily discharge may be determined by the analytical results of a composite sample taken over the course of 1 day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

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

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

Dilution Credit
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)
ECA is a value derived from the water quality criterion/objective, dilution credit, and ambient background concentration that is used, in conjunction with the coefficient of variation for the effluent monitoring data, to calculate a long-term average (LTA) discharge concentration. The ECA has the same meaning as waste load allocation (WLA) as used in USEPA guidance (Technical Support Document For Water Quality-based Toxics Control, March 1991, second printing, EPA/505/2-90-001).

Estimated Chemical Concentration
The estimated chemical concentration that results from the confirmed detection of the substance by the analytical method below the ML value, but above the MDL.

Inland Surface Waters
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)
The highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period). For poldisslutants 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
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)
MDL is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in 40 CFR Part 136, Appendix B, revised as of 14 May 1999.

Minimum Level (ML)
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
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)
Sample results which are less than the laboratory's MDL.

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

Pollutant Minimization Program (PMP)
Pollutant minimization 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 Central Valley Water Board may consider cost effectiveness when establishing the requirements of a PMP. The PMP shall be prepared in accordance with section 2.4.5.1 of the SIP. The completion and implementation of a Pollution Prevention Plan, required pursuant to Water Code section 13263.3(d), shall be considered to fulfill the PMP requirements of the SIP.

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

Reporting Level (RL)
The RL 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 RL 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 in the computation of the RL.

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

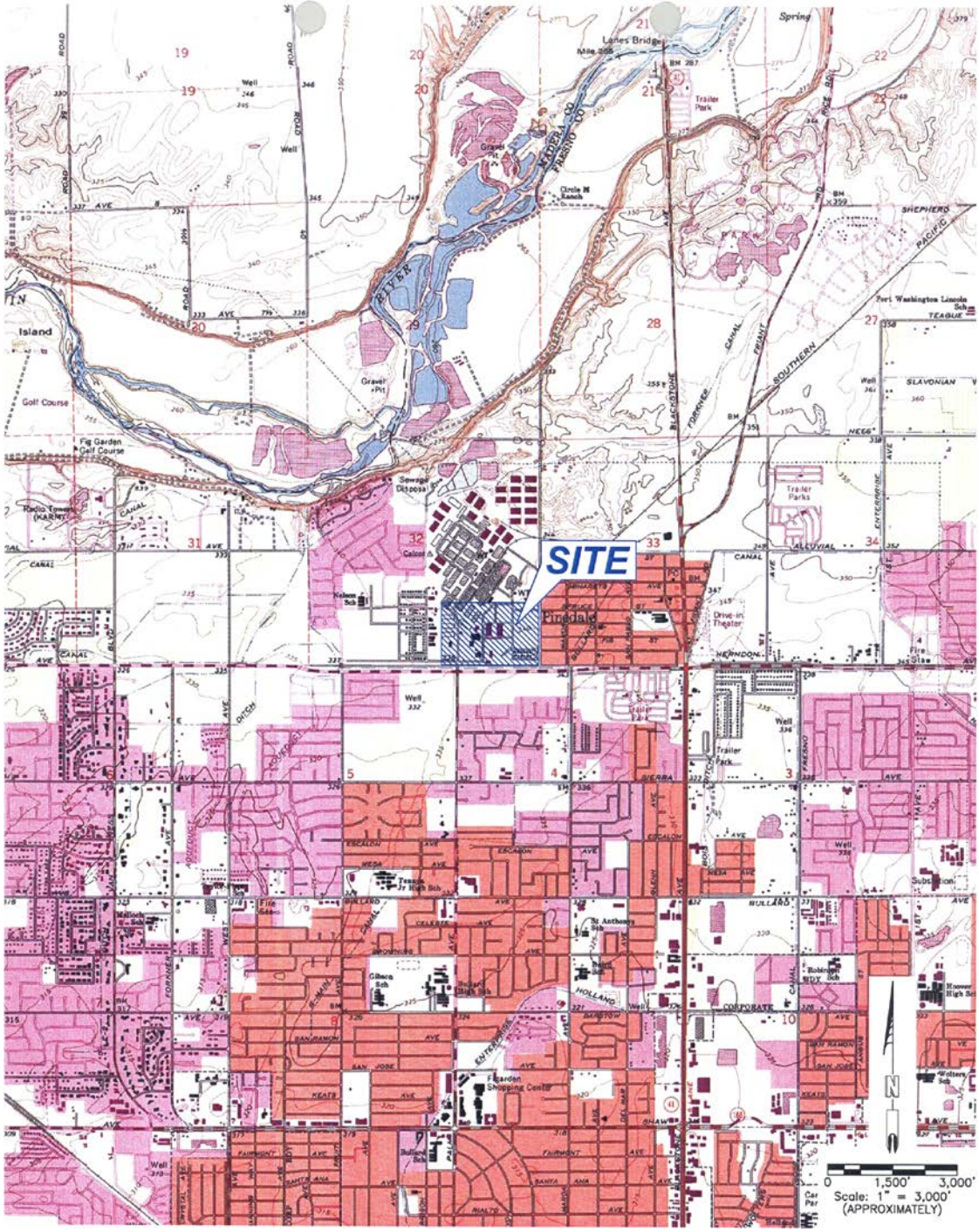
Standard Deviation (σ)
Standard Deviation is a measure of variability that is calculated as follows:

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

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

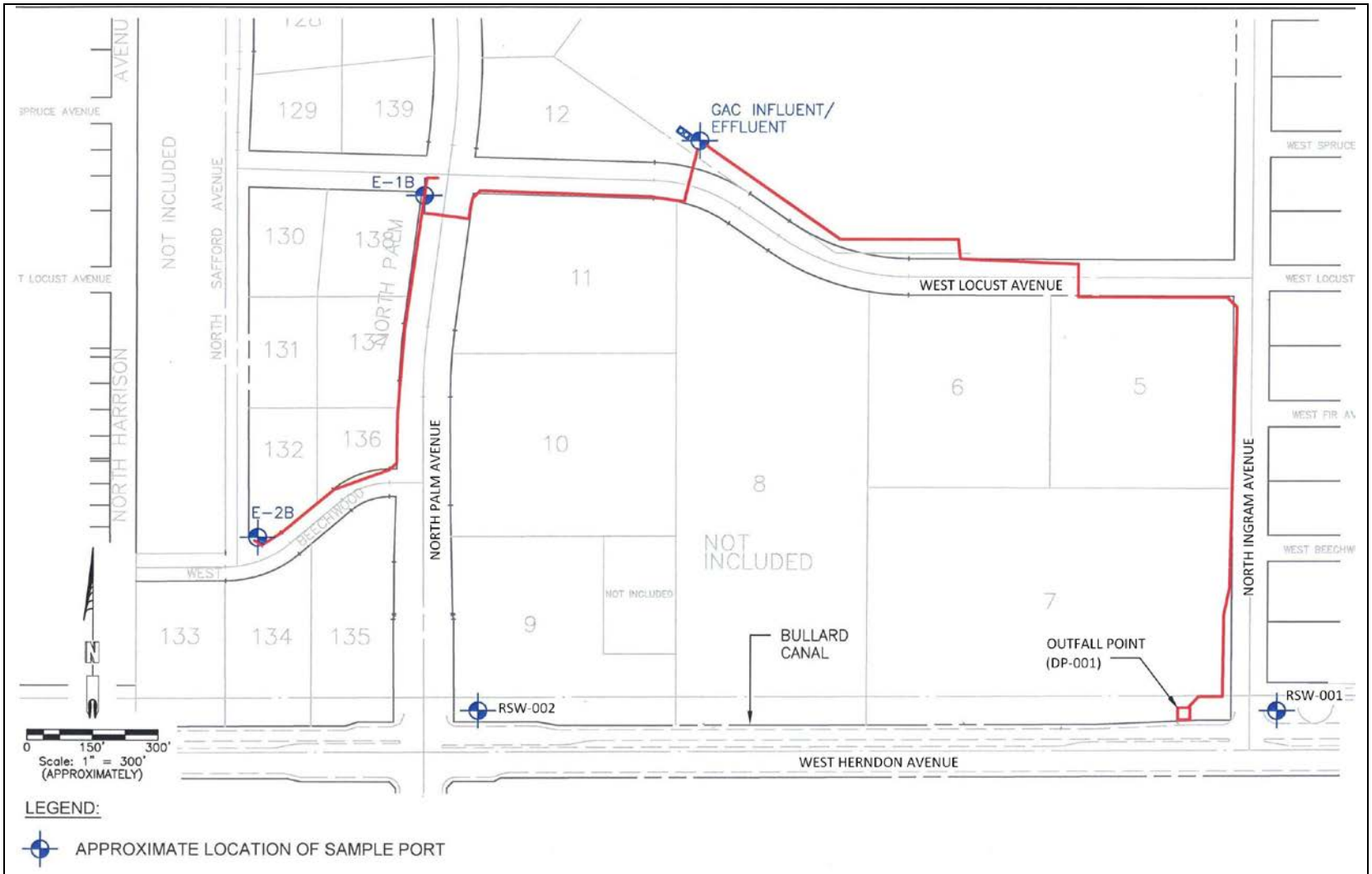
Toxicity Reduction Evaluation (TRE)
TRE is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first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

ATTACHMENT B – MAPS



SITE LOCATION MAP - 1

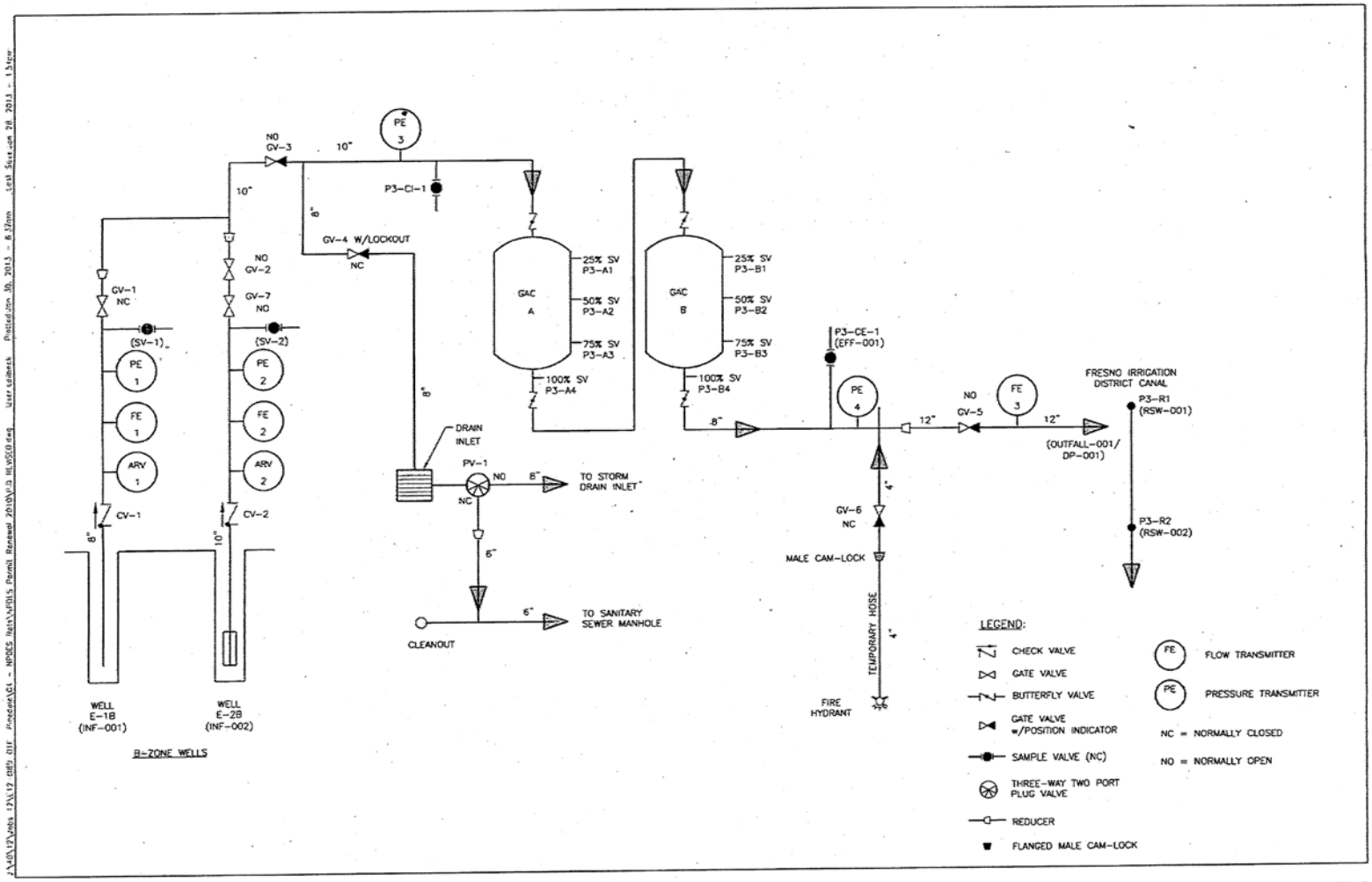
The Vendo Company
Groundwater Remediation System
Fresno County



SITE LOCATION MAP - 2

The Vendo Company
Groundwater Remediation System
Fresno County

ATTACHMENT C – FLOW SCHEMATIC



PHASE III REMEDIATION FACILITY
REVISED PIPING & INSTRUMENTATION DIAGRAM

BSK

Pinedale Groundwater Site
Fresno, California

E12.080.01F JRA PID REVISED.dwg 01/30/13

ATTACHMENT D – STANDARD PROVISIONS

~~VIII.~~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 (Water Code) and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (40 CFR 122.41(a).)

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

B. Need to Halt or Reduce Activity Not a Defense

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

C. Duty to Mitigate

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

D. Proper Operation and Maintenance

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

E. Property Rights

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

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

F. Inspection and Entry

The Discharger shall allow the Central Valley Water Board, State Water Board, United States Environmental Protection Agency (USEPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (40 CFR 122.41(i); Water Code 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 Water Code, any substances or parameters at any location. (40 CFR 122.41(i)(4))

G. Bypass

1. Definitions

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

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

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

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

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

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

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

4. The Central Valley Water Board may approve an anticipated bypass, after considering its adverse effects, if the Central Valley 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))

~~IX.~~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 Central Valley Water Board. The Central Valley Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the Water Code. (40 CFR 122.41(l)(3) and 122.61)

~~X.~~III. STANDARD PROVISIONS – MONITORING

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

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

~~XI.~~IV. STANDARD PROVISIONS – RECORDS

A. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least 5 years (or longer as required by 40 CFR Part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Central Valley 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))

~~XII.~~V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Central Valley Water Board, State Water Board, or USEPA within a reasonable time, any information which the Central Valley 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 Central Valley Water Board, State Water Board, or USEPA copies of records required to be kept by this Order. (40 CFR 122.41(h); Wat. Code, § 13267)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Central Valley 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 Central Valley 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 Central Valley 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 Central Valley 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 Central Valley Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 CFR 122.41(l)(4)(i))

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Central Valley 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 notify the California Emergency Management Agency (formerly the Office of Emergency Services) of any noncompliance that may endanger health or the environment within two (2) hours from the time the Discharger becomes aware of the circumstances. The Discharger shall notify the Central Valley Water Board of the noncompliance by telephone or fax within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided to the Central Valley Water Board 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 Central Valley 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 Central Valley 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 subject neither to effluent limitations in this Order nor to notification requirements

under 40 CFR 122.42(a)(1) (see Additional Provisions—Notification Levels VII.A.1). (40 CFR 122.41(l)(1)(ii))

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

G. Anticipated Noncompliance

The Discharger shall give advance notice to the Central Valley 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 Central Valley Water Board, State Water Board, or USEPA, the Discharger shall promptly submit such facts or information. (40 CFR 122.41(l)(8))

~~XIII.~~VI. STANDARD PROVISIONS – ENFORCEMENT

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

~~XIV.~~VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Non-Municipal Facilities

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

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

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

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

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

d. The level established by the Central Valley 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 (µg/L) (40 CFR 122.42(a)(2)(i));

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

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

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

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM

Title 40 of the Code of Federal Regulations (CFR), section 122.48 (40 CFR 122.48) requires that all NPDES permits specify monitoring and reporting requirements. California Water Code (Water Code) sections 13267 and 13383 also authorize the Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) to require technical and monitoring reports. This Monitoring and Reporting Program establishes monitoring and reporting requirements, which implement the federal and California 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 the Central Valley Water Board.

B. 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.

C. Chemical, bacteriological, and bioassay analyses shall be conducted at a laboratory certified for such analyses by the Department of Public Health (DPH). Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Central Valley Water Board. In the event a certified laboratory is not available to the Discharger for any onsite field measurements such as pH, dissolved oxygen, and temperature, such 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 Central Valley Water Board staff, State Water Board staff, USEPA staff, and/or their authorized representatives. The Discharger must demonstrate sufficient capability (qualified and trained employees, properly calibrated and maintained field instruments, etc) to adequately perform these field measurements. The Quality Assurance-Quality Control Program must conform to USEPA guidelines or to procedures approved by the Central Valley Water Board.

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, at least yearly, 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.

F. Laboratories analyzing monitoring samples shall be certified by DPH, in accordance with the provision of Water Code section 13176, and must include quality assurance/quality control data with their reports.

G. 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.

H. The Discharger shall file with the Central Valley Water Board technical reports on self-monitoring performed according to the detailed specifications contained in this Monitoring and Reporting Program.

I. The results of all monitoring required by this Order shall be reported to the Central Valley Water Board, and shall be submitted in such a format as to allow direct comparison with the limitations and requirements of this Order.

II. MONITORING LOCATIONS

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

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
--	INF-001	A location representative of the groundwater treatment system influent contribution from extraction well E-1B
--	INF-002	A location representative of the groundwater treatment system influent contribution from extraction well E-2B
001	EFF-001	A location representative of the final effluent from the groundwater treatment system and prior to discharge to Bullard Canal
--	RSW-001	In Bullard Canal, approximately 200 feet upstream of Discharge Point 001
--	RSW-002	In Bullard Canal, approximately 1,500 feet downstream of Discharge Point 001 at the northeast corner of Palm and Herndon Avenues

III. INFLUENT MONITORING REQUIREMENTS

A. Monitoring Locations INF-001 and INF-002

1. Influent samples shall be collected at approximately the same time as the effluent samples; the time of collection of samples shall be recorded.

2. The Discharger shall monitor influent to the Facility at INF-001 and INF-002 as follows:

Table E-2. Influent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	mgd	Meter	Continuous	--
1,1-Dichloroethane	µg/L	Grab	1/Quarter [1]	[2, 3]
1,1-Dichloroethylene	µg/L	Grab	1/Quarter [1]	[2, 3]
cis-1,2-Dichloroethylene	µg/L	Grab	1/Quarter [1]	[2, 3]
Tetrachloroethylene	µg/L	Grab	1/Quarter [1]	[2, 3]
Trichloroethylene	µg/L	Grab	1/Quarter [1]	[2, 3]
Other Volatile Organic Compounds[4]	µg/L	Grab	1/Quarter [1]	[2, 3]

[1] If the Facility has a scheduled or unscheduled shutdown that lasts longer than 72 hours or may result in noncompliance regardless of the downtime, the Discharger shall increase influent sampling. Samples shall be analyzed immediately upon startup, daily thereafter for the first five days of operation, and thereafter in accordance with the MRP regular monitoring.

[2] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136 or an EPA approved Alternate Testing Procedure; where no methods are specified for a given pollutant that meet a specific reporting limit or method performance standard, an alternate method can be approved by the Executive Officer.

[3] The maximum required Reporting Level is specified in Attachment I, Table I-1, Priority Pollutants and Other Constituents of Concern.

[4] Other volatile organic compounds that must be monitored are listed in Table 2a of Appendix 4 of the SIP.

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

1. The Discharger shall monitor treated groundwater at Monitoring Location EFF-001 as specified in Table E-3 below. 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. Where a CTR constituent is listed in Appendix 4 of the SIP, the Reporting Level specified in Attachment I must be achieved by the laboratory conducting the analysis.

Table E-3. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	mgd	Meter	Continuous	--
Conventional Pollutants				
pH	Standard Units	Grab	1/Month [1]	[2, 3]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Priority Pollutants				
Copper, Total Recoverable	µg/L	Grab	1/Month [1]	[2, 4]
Chromium (VI), Total Recoverable	µg/L	Grab	1/Quarter [1]	[2, 5]
1,1-Dichloroethane	µg/L	Grab	1/Month [1]	[2, 4]
1,1-Dichloroethylene	µg/L	Grab	1/Month [1]	[2, 4]
cis-1,2-Dichloroethylene	µg/L	Grab	1/Month [1]	[2, 4]
Lead, Total Recoverable	µg/L	Grab	1/Month [6]	[2, 5]
Mercury, Total Recoverable	µg/L	Grab	1/Month [6]	[2, 7]
Tetrachloroethylene	µg/L	Grab	1/Month [1]	[2, 4]
Trichloroethylene	µg/L	Grab	1/Month [1]	[2, 4]
Zinc, Total Recoverable	µg/L	Grab	1/Month [1]	[2, 4]
Priority Pollutants and Other Constituents of Concern	vary	Grab	2/Permit Term [11]	[2, 5, 12]
Non-Conventional Pollutants				
Electrical Conductivity @ 25 ºC	µmhos/cm	Grab	1/Quarter	[2, 3]
General Minerals [10]	mg/L	Grab	1/Year	[2]
Hardness (as $CaCO_3$)	mg/L	Grab	1/Quarter	[2]
Other VOCs [8, 9]	µg/L	Grab	1/Quarter [1]	[2, 5]
Temperature	ºF	Grab	1/Month	[2, 3]
Whole Effluent Toxicity (see Section V. below)	--	--	--	--

[1] If the Facility has a scheduled or unscheduled shutdown that lasts longer than 72 hours or may result in noncompliance regardless of the downtime, the Discharger shall increase effluent sampling. Samples shall be analyzed immediately upon startup, daily thereafter for the first five days of operation, and thereafter in accordance with the MRP regular monitoring.

[2] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136 or an EPA approved Alternate Testing Procedure; where no methods are specified for a given pollutant that meet a specific reporting limit or method performance standard, an alternate method can be approved by the Executive Officer.

[3] A hand-held field meter may be used, provided the meter utilizes a USEPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.

[4] The Reporting Level shall be below the effluent limitations. If the lowest 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~~ Policy or SIP) is not below the effluent limitation, the Reporting Level shall be the lowest ML.

[5] The maximum required Reporting Level is specified in Attachment I, Table I-1, Priority Pollutants and Other Constituents of Concern.

[6] If the results of 12 months of monitoring indicate that the discharge does not cause or have reasonable potential to cause or contribute to an excursion above applicable water quality criteria, the Discharger may submit a written request to the Executive Officer to reduce or eliminate this requirement.

[7] Total mercury samples shall be taken using clean hands/dirty hands procedures, as described in USEPA method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels, for collection of equipment blanks (section 9.4.4.2).

[8] Volatile Organic Compounds (VOCs)

[9] All typical VOCs listed in Table 2a of Appendix 4 of the SIP.

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

[11] Priority pollutants shall be sampled once between 1 July 2013 and 31 December 2013 and once between 1 January 2015 and 30 June 2015. Monitoring shall be conducted concurrently with upstream receiving water monitoring for priority pollutants and other constituents of concern. See Attachment I for a list of Priority Pollutants and Other Constituents of Concern as well as other information related to this monitoring.

[12] In order to verify if bis (2-ethylhexyl) phthalate is truly present in the effluent discharge, the Discharger shall take steps to ensure that sample containers, sampling apparatus, and analytical equipment are not sources of the detected contaminant.

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

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

1. *Monitoring Frequency* – The Discharger shall perform **annual (1/year)** acute toxicity testing.

2. *Sample Types* –Samples shall be grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent monitoring location EFF-001.

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

4. *Test Type and Duration* – Test type shall be static renewal, and the test duration shall be 96 hours.

5. *Dilutions* – The acute toxicity testing shall be performed using undiluted effluent.

6. *Test Methods* – The acute toxicity testing samples shall be analyzed using *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, Fifth edition, EPA-821-R-02-012. 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.

7. *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. If, after four consecutive quarterly sampling events, the Discharger can demonstrate that the discharge does not cause or have the reasonable potential to cause, or contribute to, chronic toxicity in the receiving water, the Discharger can request to reduce the frequency of chronic toxicity testing. The request is subject to the Executive Officer's approval. The Discharger shall meet the following chronic toxicity testing requirements:

1. *Monitoring Frequency* – The Discharger shall perform **quarterly (1/quarter)** (unless otherwise approved by the Executive Officer), three species chronic toxicity testing.

2. *Sample Types* – Effluent samples shall grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent monitoring location EFF-001. The receiving water control shall be a grab sample obtained from the RSW-001 sampling location, as identified in this 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, (Method Manual) 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* – For regular and accelerated chronic toxicity monitoring, it is not necessary to perform the test using a dilution series. The test may be performed using 100% effluent and two controls. For TRE monitoring, the chronic toxicity testing shall be performed using the dilution series identified in Table E-4, below. The receiving water control shall be used as the diluent (unless the receiving water is toxic).

Table E-4. Chronic Toxicity Testing Dilution Series

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

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 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 the Special Provision at section VI.C.2.a.iii. of the Order.)

C. **WET Testing Notification Requirements.** The Discharger shall notify the Central Valley Water Board within 24-hours 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 Central Valley Water Board **within 30 days** following completion of the test, and shall contain, at minimum:

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

   b. 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 Toxicity Reduction Evaluation (TRE).

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

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

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

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

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

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

VI. LAND DISCHARGE MONITORING REQUIREMENTS – NOT APPLICABLE

VII. RECLAMATION MONITORING REQUIREMENTS – NOT APPLICABLE

VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER

A. Monitoring Location RSW-001 and RSW-002

1. The Discharger shall monitor Bullard Canal at Monitoring Locations RSW-001 and RSW-002 as specified in Table E-5 below. Receiving water samples shall be collected at approximately the same time as effluent samples. Receiving water monitoring is not required when there is no effluent discharged during the monitoring period. Where a CTR constituent is listed in Appendix 4 of the SIP, the Reporting Level (RL) specified in Attachment I must be achieved by the laboratory conducting the analysis.

Table E-5. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	mgd	Calculated	1/Month	--
Copper, Total Recoverable	µg/L	Grab	1/Quarter	1,6
Lead, Total Recoverable	µg/L	Grab	1/Quarter [2]	1, 6
Mercury, Total Recoverable	µg/L	Grab	1/Quarter [2]	1, 3
Zinc, Total Recoverable	µg/L	Grab	1/Quarter	1, 6
Dissolved Oxygen	mg/L	Grab	1/Quarter	1, 7
Electrical Conductivity @ 25 ºC	µmhos/cm	Grab	1/Quarter	1, 7
Hardness (as $CaCO_3$)	mg/L	Grab	1/Quarter	1
pH	standard units	Grab	1/Quarter	1, 7
Temperature	ºF	Grab	1/Quarter	1, 7
General Minerals [4]	mg/L	Grab	1/Year	1
Priority Pollutants and Other Constituents of Concern	µg/L	Grab	2/Permit Term [5]	1, 6, 8

[1] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136 or an EPA approved Alternate Testing Procedure; where no methods are specified for a given pollutant that meet a specific reporting limit or method performance standard, an alternate method can be approved by the Executive Officer.

[2] Monitoring required at RSW-001 only. If the results of four quarterly monitoring events indicate that the discharge does not cause or have reasonable potential to cause or contribute to an excursion above applicable water quality criteria, the Discharger may submit a written request to the Executive Officer to reduce or eliminate this requirement.

[3] Total mercury samples shall be taken using clean hands/dirty hands procedures, as described in USEPA method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels, for collection of equipment blanks (section 9.4.4.2).

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

[5] Monitoring only required at RSW-001. Priority pollutants shall be sampled once between 1 July 2013 and 31 December 2013 and once between 1 January 2015 and 30 June 2015. Monitoring shall be conducted concurrently with effluent monitoring for priority pollutants and other constituents of concern. See Attachment I for a list of Priority Pollutants and Other Constituents of Concern as well as other information related to this monitoring.

[6] The maximum required Reporting Level is specified in Attachment I, Table I-1, Priority Pollutants and Other Constituents of Concern.

[7] A hand-held field meter may be used, provided the meter utilizes a USEPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.

[8] In order to verify if bis (2-ethylhexyl) phthalate is truly present in the receiving water, the Discharger shall take steps to ensure that sample containers, sampling apparatus, and analytical equipment are not sources of the detected contaminant.

IX. OTHER MONITORING REQUIREMENTS – NOT APPLICABLE

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.

2. Upon written request of the Central Valley 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 – Not Applicable

4. The Discharger shall report to the Central Valley Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "*Emergency Planning and Community Right to Know Act*" of 1986.

B. Self-Monitoring Reports (SMRs)

1. The Discharger shall continue to submit electronic SMRs (eSMRs) using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web

site (http: ciwqs.waterboards.ca.gov/). The Discharger shall maintain sufficient staffing and resources to ensure it submits eSMRs during the effective duration of this Order. This includes provision of training and supervision of individuals (e.g., Discharger personnel or consultant) on how to prepare and submit eSMRs. The CIWQS web site will provide additional directions for eSMR submittal in the event there will be service interruption.

2. With the exception of flow, all constituents monitored on a continuous basis (metered) shall be reported as daily maximums, daily minimums, and daily averages; flow shall be reported as the total volume discharged per day for each day of discharge.

3. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMRs.

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

Table E-6. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
Continuous	First day of the calendar month following the permit effective date or on the permit effective date if that date is the first day of the month	All	Submit with monthly SMR (due first day of second month following month of sampling)
1/Day	First day of the calendar month following the permit effective date or on the permit effective date if that date is the first day of the month	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.	Submit with monthly SMR (due first day of second month following month of sampling)
1/Month	First day of the calendar month following the permit effective date or on the permit effective date if that date is the first day of the month	First day of calendar month through last day of calendar month	Submit with monthly SMR (due first day of second month following month of sampling)
1/Quarter	Closest of 1 January, 1 April, 1 July, or 1 October following (or on) permit effective date	1 January through 31 March 1 April through 30 June 1 July through 30 September 1 October through 31 December	1 May 1 August 1 November 1 February
1/Year	1 January following (or on) permit effective date	1 January through 31 December	Submit with the monthly SMR in which sample was taken (e.g. if a sample is taken in March, the result must be included in the March SMR [due 1 May])

2/Permit Term	1 July 2013 (1st event) 1 January 2015 (2nd event)	Once between 1 July 2013 and 31 December 2013 and once between 1 January 2015 and 30 June 2015	Submit with the monthly SMR in which sample was taken (e.g. if a sample is taken in March, the result must be included in the March SMR [due 1 May])

5. **Reporting Protocols.** The Discharger shall report with each sample result the applicable reported Reporting Level (RL) and the current Method Detection Limit (MDL), as determined by the procedure in 40 CFR Part 136.

   The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

   a. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

   b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

   For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (+ a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

   c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.

   d. Dischargers are to instruct laboratories to establish calibration standards so that the Minimum Level (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. The Discharger's laboratory(ies) may, as allowed by the rules governing alterations to ML values in section 2.4.3 of the SIP, employ a calibration standard lower than the ML value in Appendix 4 of the SIP.

6. **Multiple Sample Data.** When determining compliance with an AMEL 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.

7. **Reporting Requirements.** The Discharger shall submit eSMRs in accordance with the following requirements:

a. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format under the Attachments tab.

b. The Discharger shall attach all laboratory analysis sheets, including quality assurance/quality control information, with all its eSMRs for which sample analyses were performed.

c. The Discharger shall attach a cover letter with each eSMR. The information contained in the cover letter shall clearly identify violations of the WDRs; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation. Violations must also be entered into the CIWQS web site under the Violations tab for the reporting period in which the violation occurred.

d. eSMRs must be submitted to the Central Valley Water Board, signed and certified as required by the Standard Provisions (Attachment D), through the CIWQS web site.

e. Reports must clearly show when discharging to Discharge Point No. 001. Reports must show the date that the discharge started and stopped.

8. **Calculation Requirements.** The following shall be calculated and reported in the eSMRs:

a. Dissolved Oxygen Receiving Water Limitations. The Discharger shall calculate and report monthly in the self-monitoring report: i) the dissolved oxygen concentration, ii) the percent of saturation in the main water mass, and iii) the 95th percentile dissolved oxygen concentration.

b. Temperature Receiving Water Limitations. The Discharger shall calculate and report the temperature increase in the receiving water based on the difference in temperature at Monitoring Locations RSW-001 and RSW-002.

C. Discharge Monitoring Reports (DMRs) – Not Applicable

D. Other Reports

1. The Discharger shall report the results of any special studies, chronic toxicity testing, and TRE/TIE required by Special Provisions VI.C.2 of this Order. The Discharger shall report the progress in satisfaction of compliance schedule dates specified in the Special Provision at section VI.C.7 of this Order. The Discharger shall submit reports with the first monthly SMR scheduled to be submitted on or immediately following the report due date AND/OR in compliance with SMR reporting requirements described in subsection X.B. above.

2. **By <60 days of permit adoption>**, the Discharger shall submit a report outlining reporting levels (RLs), method detection limits, and analytical methods for approval. The Discharger shall comply with the monitoring and reporting requirements for CTR constituents as outlined in section 2.3 and 2.4 of the SIP. The maximum required reporting levels for priority pollutant constituents shall be based on the Minimum Levels (MLs) contained in Appendix 4 of the SIP, determined in accordance with Section 2.4.2 and Section 2.4.3 of the SIP. In accordance with Section 2.4.2 of the SIP, when there is more than one ML value for a given substance, the Central Valley Water Board shall include as RLs, in the permit, all ML values, and their associated analytical methods, in Appendix 4 that are below the calculated effluent limitation. The Discharger may select any one of those cited analytical methods for compliance determination. If no ML value is below the effluent limitation, then the Central Valley Water Board shall select as the RL, the lowest ML value, and its associated analytical method, listed in Appendix 4 for inclusion in the permit. Table I-1 (Attachment I) provides required maximum reporting levels in accordance with the SIP.

3. **Annual Operations Report.** By **1 February** of each year, the Discharger shall submit a written report to the Executive Officer through the CIWQS web site 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. A statement certifying whether the current operation and maintenance manual, and contingency plan, reflect the groundwater extraction and treatment plant as

currently constructed and operated, and the dates when these documents were last revised and last reviewed for adequacy.

e. The Discharger may also be requested to submit an annual report to the Central Valley 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. The Discharger is not required to report violations using the CIWQS~~s~~ web site (Violations tab) if the violations have previously been reported.

~~**d.**~~

ATTACHMENT F – FACT SHEET

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ATTACHMENT F – FACT SHEET

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

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

I. PERMIT INFORMATION

The following table summarizes administrative information related to the Facility.

Table F-1. Facility Information

WDID	5C102029001
Discharger	The Vendo Company
Name of Facility	Groundwater Remediation System
Facility Address	698 West Locust Avenue
	Fresno, CA 93650
	Fresno County
Facility Contact, Title and Phone	John Mackenzie, Environmental Manager, (559) 288-6511
Authorized Person to Sign and Submit Reports	John Mackenzie, Environmental Manager, (559) 288-6511
Mailing Address	P.O. Box 3688 Oakhurst, CA 93644
Billing Address	SAME
Type of Facility	Groundwater extraction and treatment facility
Major or Minor Facility	Minor
Threat to Water Quality	2
Complexity	B
Pretreatment Program	Not Applicable
Reclamation Requirements	Not Applicable
Facility Permitted Flow	1.44 million gallons per day (mgd)
Facility Design Flow	1.44 mgd
Watershed	South Valley Floor Hydrologic Unit, Fresno Hydrologic Area (No. 551.30)
Receiving Water	Bullard Canal and the San Joaquin River
Receiving Water Type	Inland surface water

A. The Vendo Company (hereinafter Discharger) is the owner and operator of a Phase III Groundwater Remediation System (hereinafter Facility), a groundwater extraction and treatment facility.

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

B. The Facility discharges treated groundwater to Fresno Irrigation District's (FID) Bullard Canal, which is hydraulically connected to the San Joaquin River, a water of the United States, and was regulated by Order R5-2006-0016 which was adopted on 26 January 2006 and expired on 27 January 2011. The terms and conditions of Order R5-2006-0016 were administratively extended and remained in effect until new Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit were adopted pursuant to this Order.

C. The Discharger filed a report of waste discharge and submitted an application for renewal of its Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit on 30 July 2010.

II. FACILITY DESCRIPTION

The Facility is within the Pinedale area of Fresno at 698 West Locust Avenue (Site) in Section 32, T12S, R20E, MDB&M, as shown in Attachment B, a part of this Order. In 1963, the Discharger purchased approximately 36 acres from the Vendorlator Company to manufacture vending machines. In 2005, the Discharger moved its headquarters and operations to Dallas, Texas. The property has been subdivided and issued new addresses. The Discharger continues to operate a groundwater collection, treatment, and disposal system at the Site. The Facility is part of a larger groundwater remediation project in north Fresno.

The Site is part of a 500-acre tract that has been used over the last 80 years as a lumber mill, warehouse, and military base (Camp Pinedale). Activities conducted at the Site include the manufacturing of mattresses, military hardware, airplane parts, mainframe computers, and automatic teller machines. These activities have historically generated hazardous wastes, including metals (e.g., zinc and chromium), acids, caustics, paints, waste oil, and solvents.

Other industries and parties who now occupy, or formerly occupied, properties within the tract that may have contributed to area soil and groundwater contamination include: Calcot; Industrial Waste Processing Corporation; the Pinedale Solid Waste Disposal Site; the Kepco Dry Dump solid waste disposal site; and the U.S. Army's Camp Pinedale.

The Pinedale Groundwater Site (PGS) encompasses the area where constituents of concern, which primarily originated from the Pinedale Industrial Area (PIA), exist in groundwater. The PIA is defined within the PGS as the 375-acre parcel bounded by Ingram, Herndon, and Harrison Avenues and the San Joaquin River Bluffs.

The Discharger submitted reports entitled "Implementation of A-Zone Groundwater Interim Remedial Measure System" (27 May 1992) and "Task Work Plan B-Zone Groundwater Interim Remedial Measure" (9 July 1992). According to the reports, there are two dissimilar hydrogeologic water-bearing zones in the upper portion of the aquifer, which the reports

refer to as the “A-Zone” and “B-Zone.” The reports describe the A-Zone as more interbedded and finer grained than the underlying B-Zone. Groundwater in both zones has been polluted by metals and volatile organic compounds (VOCs).

On 19 November 1998, the California Environmental Protection Agency (Cal/EPA), Department of Toxic Substances Control (DTSC), approved the Final Remedial Action Plan (RAP) for the PGS. The RAP partitioned the remediation project into three phases - Phase I, Phase II, and Phase III. As of April 2012, an estimated 3,111 pounds of trichloroethylene has been removed from groundwater and approximately 21.3 billion gallons of groundwater has been treated. Treated groundwater from Phases I and II goes into the City of Fresno water supply distribution system, while treated water from Phase III is discharged to the Bullard Canal. The Phase III remediation system did not operate during 2012 because of low contaminant concentrations. However, contaminant concentrations in the Phase III area began to increase in late 2012 and the Phase III remediation system was recently restarted.

Phase III implements an expanded granular activated carbon (GAC) system capable of treating substantially higher flows of extracted groundwater. The RAP indicates the chemicals of concern for the site were 1,1-dichloroethylene, 1,2-dichloroethylene, 1,1-dichloroethane, tetrachloroethylene, 1,1,1,-trichloroethane, trichloroethylene, and chromium. The RAP identifies 1,2-dichloroethylene as a VOC detected in on-site monitoring wells, but the specific chemical form of 1,2-dichloroethylene (i.e., cis-1,2-dichloroethylene or trans-1,2-dichloroethylene) was not identified. However, VOC monitoring indicates that cis-1,2-dichloroethylene is consistently present in the influent to the treatment system and is therefore a constituent of concern in the groundwater. When originally installed, the GAC system was primarily designed to treat VOCs; however, the GAC system was also able to reduce chromium concentrations enough to meet applicable effluent limits.

Effluent limits have been retained for 1,1-dichloroethylene, cis-1,2-dichloroethylene, 1,1-dichloroethane, tetrachloroethylene ,and trichloroethylene. However, a robust data set shows that 1,1,1-trichloroethane is consistently not detected in the influent, effluent, and surrounding groundwater~~ concentrations are consistently below analytical levels~~. Therefore, technology-based effluent limits for 1,1,1-trichloroethane have not been retained in this Order (see Section IV.B.2.a. of the Fact Sheet for details). In addition, the Facility discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the applicable CTR criteria based on the upstream receiving water and effluent monitoring results for chromium (III),chromium (VI), and total chromium. Therefore, water quality based effluent limits (WQBELs) for chromium (III) and chromium (VI) are not retained in this Order (see Section IV.C.3.b. of this Fact Sheet for details)

A. Description of Groundwater Treatment or Controls

The Phase III system has been operational since 13 January 2004. The Phase III groundwater remediation system (GWRS) includes: (a) extraction of groundwater from wells E-1B and E-2B only, (b) two 20,000 pound GAC units, and (c) a maximum discharge flow of 2.88 million gallons per day (mgd). The GAC units have a reported

design flow capacity of 1,000 gallons per minute (gpm) (1.44 mgd) when operated in series and 2,200 gpm (3.17 mgd) when operated in parallel.

Extraction wells E-1B and E-2B are within the PIA and intended to intercept plume migration. Extraction well E-1B is at the intersection of Palm and Locust Avenues with a screened interval from 130 to 160 feet below ground surface (bgs). Well E-2B is at the northeast corner of Palm Bluffs and Beechwood Avenues with a screened interval from 150 to 265 feet bgs. In July 2006, extraction well E-1B was removed from operation due to decreasing groundwater elevations and is only operated when conducting groundwater monitoring. However, E-1B remains connected to the GAC units and could be placed back into service if there is a need to do so.

Presently, groundwater in the PIA is monitored semi-annually using a network of 23 monitoring and four extraction wells. Nine monitoring wells and two extraction wells are completed in the shallow zone, 125 to 140 feet bgs; thirteen monitoring wells and one extraction well are completed in the intermediate zone, 135 to 170 feet bgs; and one monitoring well and one extraction well are completed in the deep zone, below 170 feet. Water levels in the PIA have dropped significantly since the installation of many of the shallow monitoring wells, only allowing samples to be collected intermittently. Metals and organics including the VOCs are continuously monitored in the groundwater through the monitoring and extraction wells.

Groundwater from extraction wells E-1B and E-2B is conveyed through two 10-inch pipelines to the two GAC vessels. Treated water from the GAC units are combined in a single iron pipe where it is metered before being discharged to the Fresno Irrigation District's (FID) Bullard Canal at Discharge Point No. 001. An agreement exists between the Discharger and the FID to allow the discharge of up to 2.44 mgd of treated groundwater to the Bullard Canal.

Discharge Point No. 001 is near the northwest corner of Ingram and Herndon Avenues and is completely underground due to the development of the property. The Bullard Canal is a closed conduit for a good portion of its reach downstream of the discharge. Access to the canal water can only be gained through manholes and vents.

An agreement between Calcot and the Discharger allows for placement and operation of the pipeline on Calcot property (now Palm Bluffs Corporate Center) connecting the groundwater extraction wells, GAC system, and the outfall at Discharge Point No. 001 to the Bullard Canal. The agreement also allows for continuous access to the monitoring lines for sampling.

B. Discharge Points and Receiving Waters

1. The Facility is located in Section 32, T12 South, R20 East, MDB&M, as shown in Attachment B, a part of this Order.

2. Treated groundwater is discharged at Discharge Point No. 001 to FID Bullard Canal at a point latitude 36° 50' 14" N and longitude 119° 48' 8" W. FID Bullard Canal is hydraulically connected to the San Joaquin River, a water of the United States.

3. Soils beneath the Site are generally described as sandy silts and silty sands, with small clay lenses. Groundwater beneath the Site is about 140 feet bgs and moves southwesterly.

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

Effluent limitations contained in Order No. R5-2006-0016 for discharges from Discharge Point No. 001 (Monitoring Location EFF-001) and representative monitoring data from the term of Order No. R5-2006-0016 are as follows:

Table F-2. Historic Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitation		Monitoring Data (From January 2006 To July 2010)	
		Average Monthly	Maximum Daily	Highest Average Monthly Discharge	Highest Daily Discharge
Flow	mgd	--	1.44	--	1.34[7]
Chloroform	µg/L	--	<0.5	--	ND[1]
Chromium (III)	µg/L	23	46	5.4 (DNQ)[2]	5.4 (DNQ)[2]
Chromium (VI)	µg/L	8	16	3.6[3]	3.6[3]
Copper	µg/L	0.7	1.4	1.2	1.2
Dichlorodifluoromethane	µg/L	0.19	0.38	ND[1]	ND[1]
1,1-Dichloroethane	µg/L	--	<0.5	--	0.28 (DNQ)[2]
1,1-Dichloroethylene	µg/L	0.06	0.11	ND[1]	ND[1]
cis-1,2-Dichloroethylene	µg/L	--	<0.5	--	0.82
1,2-Dichloropropane	µg/L	--	<0.5	--	ND[1]
Methylene Chloride	µg/L	--	<0.5	--	0.81[5]
Tetrachloroethylene	µg/L	--	<0.5	--	ND[1]
trans-1,2-Dichloroethylene	µg/L	--	<0.5	--	ND[1]
1,1,1-Trichloroethane	µg/L	--	<0.5	--	ND[1]
Trichlorofluoromethane	µg/L	0.19	0.38	ND[1]	ND[1]
Trichloroethylene	µg/L	--	<0.5	--	ND[1]
Zinc	µg/L	7.6	15	16.99 (DNQ)[2, 4]	16.99 (DNQ)[2, 4]
Other VOCs	µg/L	--	<0.5	--	0.84[6]
Sum of VOC concentrations	µg/L	--	<0.5	--	0.93
pH	standard units	--	6.5-8.5		5.76-8.56

[1] ND – Reported as Not Detected
[2] DNQ – Reported as Detected, but Not Quantified
[3] Highest detected value of 19 µg/L appears to be an outlier. The second highest reported chromium (VI) detection is ~~(~~3.6 µg/L~~) is considered the highest daily discharge~~. See section IV.C.3 of this Fact Sheet for details.
[4] MEC of 16.99 µg/L is dissolved.
[5] One reported detection out of ~~50~~ 51 effluent samples. Methylene chloride was reported non-detect in all 48 influent samples. See section IV.B.2.a. of this Fact Sheet for details.
[6] The MEC for chloromethane is 0.84 µg/L. Chloromethane had only two reported effluent detections (39 samples) and one reported influent detection (38 samples). See Section IV.B.2.a. of this Fact Sheet for details.

[7] A flow of 1.66 mgd was reported on 23 July 2006. The Discharger used the measured flow in extraction well E-1B and E-2B to determine the total effluent flow. Subsequently, the Discharger stated the 23 July 2006 flow reading for E-1B was an erroneous measurement. The next highest reported flow was 1.34 mgd.

D. Compliance Summary

The following compliance summary applies to the Facility during the term of Order No. R5-2006-0016 (NPDES Permit No. CA0083046) up to July 2010:

1. Administrative Civil Liability (ACL) Order No. R5-2009-0550 assessed mandatory penalties for violations of Waste Discharge Requirements Orders 99-012 and R5-2006-0016 (NPDES No. CA0083046) in the amount of $21,000. The Discharger paid the mandatory minimum penalties.

2. Based on the data contained in self-monitoring reports from January 2006 to July 2010, the Facility exceeded effluent limitations for copper, cis-1,2-dichloroethylene, methylene chloride, pH, other VOCs, zinc, and the sum of the concentrations of VOC constituents.

Order R5-2006-0016 included a technology-based effluent limitation of 0.5 µg/L for the sum of the VOC concentrations in any single sample. From January 2006 to July 2010, monitoring results from seven effluent samples exceeded this effluent limitation. The following summarizes the seven exceedances: four exceedances were due to reported detections of cis-1,2-dichloroethylene (0.52 µg/L, 0.82, µg/L, 0.81 µg/L, and 0.56 µg/L), two exceedances were due to the only two detections of chloromethane (0.84 µg/L and 0.6 µg/L), and one exceedance was due to the only reported detection of methylene chloride (0.81 µg/L).

3. An inspection of the Facility was conducted on 11 September 2008. The major findings from the inspection report:

Based on the review of self-monitoring reports for the period of January through August 2008, the Discharger reported metal results as dissolved from January through May 2008. The MRP requires concentrations of metals to be reported as total recoverable.

E. Planned Changes

No changes are planned for the Facility.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in this Order are based on the applicable plans, policies, and regulations identified in the Findings in section II of this Order. The applicable plans, policies, and regulations relevant to the discharge include the following:

A. Legal Authorities

This Order is issued pursuant to regulations in the Clean Water Act (CWA) and the California Water Code (Water Code) as specified in the Finding contained at section II.C of this Order.

B. California Environmental Quality Act (CEQA)

This Order meets the requirements of CEQA as specified in the Finding contained at section II.E of this Order.

C. State and Federal Regulations, Policies, and Plans

1. **Water Quality Control Plans.** This Order implements the following water quality control plans as specified in the Finding contained at section II.H of this Order.

   a. *Water Quality Control Plan, Fourth Edition (Revised October 2011), for the Sacramento and San Joaquin River Basins* (hereafter San Joaquin Basin Plan) and *Water Quality Control Plan, Second Edition (Revised January 2004), for the Tulare Lake Basin* (hereafter Tulare Lake Basin Plan) (collectively hereinafter Basin Plans)

2. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** This Order implements the NTR and CTR as specified in the Finding contained at section II.I of this Order.

3. **State Implementation Policy (SIP).** This Order implements the SIP as specified in the Finding contained at section II.J of this Order.

4. **Alaska Rule.** This Order is consistent with the Alaska Rule as specified in the Finding contained at section II.L of this Order.

5. **Antidegradation Policy.** As specified in the Finding contained at section II.N of this Order and 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 Resources Control Board (State Water Board) Resolution 68-16.

6. **Anti-Backsliding Requirements.** This Order is consistent with anti-backsliding policies as specified in the Finding contained at section II.O of this Order. Compliance with the anti-backsliding requirements is discussed in the Fact Sheet (Attachment F, Section IV.D.3).

7. **Endangered Species Act.** This Order is consistent with the Endangered Species Act as specified in the Finding contained at section II.P of this Order.

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

1. Under section 303(d) of the 1972 CWA, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists

do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On 11 October 2011, USEPA gave final approval to California's 2008-2010 Section 303(d) List of Water Quality Limited Segments. The San Joaquin Basin Plan references this list of Water Quality Limited Segments (WQLSs), which are defined as "…*those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources* (*40 CFR 130, et seq.*)." The San Joaquin Basin Plan also states, "*Additional treatment beyond minimum federal requirements will be imposed on dischargers to WQLSs. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment*." Bullard Canal is not listed on the 303(d) list as impaired.

2. **Total Maximum Daily Loads (TMDLs).** USEPA requires the Central Valley Water Board to develop TMDLs for each 303(d) listed pollutant and water body combination. A TMDL that will address invasive species is scheduled to be completed in 2019.

3. The 303(d) listings and TMDLs have been considered in the development of the Order. A pollutant-by-pollutant evaluation of each pollutant of concern is described in section IV.C.3 of this Fact Sheet.

E. Other Plans, Policies and Regulations – Not Applicable

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

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

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

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the Code of Federal Regulations: 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 WQBELs 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 San Joaquin Basin Plan at page IV-16.00 and the Tulare Lake Basin Plan at page IV-21 contains an implementation policy, "*Policy for Application of Water Quality Objectives*" and "*Application of Water Quality Objectives*", respectively, that specifies that the Central Valley 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 Central Valley Water Board must establish effluent limitations using one or more of three specified sources, including: (1) USEPA's published water quality criteria, (2) a proposed state criterion (i.e., water quality objective) or an explicit state policy interpreting its narrative water quality criteria (i.e., the Central Valley 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 Plans include numeric site-specific water quality objectives and narrative objectives for toxicity, chemical constituents, discoloration, radionuclides, and tastes and odors. The narrative toxicity objective states: "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*." (San Joaquin Basin Plan at page III-8.01 and Tulare Lake Basin Plan at page III-6) The Basin Plans state 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 narrative chemical constituents objective states that waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At minimum, "…*water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs)…"* in Title 22 of the CCR. The Basin Plans further state that, to protect all beneficial uses, the Central Valley Water Board may apply limits more stringent than MCLs. The narrative tastes and odors objective requires that water not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.

A. Discharge Prohibitions

1. **Prohibition III.A (No discharge or application of waste other than that described in this Order).** This prohibition is based on Water Code section 13260 that requires filing of a report of waste discharge (ROWD) before discharges can occur. The Discharger submitted a ROWD for the discharges described in this Order; therefore, discharges not described in this Order are prohibited.

2. **Prohibition III.B (No bypasses or overflow of untreated treated groundwater, except under the conditions at CFR Part 122.41(m)(4)).** As stated in section I.G of Attachment D, Standard Provisions, this Order prohibits bypass from any portion of the treatment facility. Federal regulations, 40 CFR 122.41(m), define "bypass" as the intentional diversion of waste streams from any portion of a treatment facility. This section of the federal regulations, 40 CFR 122.41(m)(4), prohibits bypass unless it is unavoidable to prevent loss of life, personal injury, or severe property damage. In considering the Central Valley Water Board's prohibition of bypasses, the State Water Board adopted a precedential decision, Order No. WQO 2002-0015, which cites the federal regulations, 40 CFR 122.41(m), as allowing bypass only for essential maintenance to assure efficient operation.

3. **Pollution III.C (No controllable condition shall create a nuisance).** This prohibition is based on Water Code section 13050 that requires water quality objectives established for the prevention of nuisance within a specific area. The Basin Plans prohibit conditions that create a nuisance. Prohibition III.C also reflects general situations that, if created, justify cleanup or abatement enforcement activities and assessment of administrative civil liabilities.

4. **Prohibition III.D (No discharge of "hazardous" wastes).** This prohibition concerns two categories of waste that are subject to full containment as prescribed by Title 23 and Title 27 of the CCR and, if discharged, have high potential for creating a condition that would violate Prohibition III.C as well.

5. **Prohibition III.E (No discharge unless treated groundwater passes through two GAC vessels operated in series).** The GAC vessels have a design flow capacity of 1,000 gpm (1.44 mgd) when operated in series. Operating the GAC vessels in parallel is not consistent with industry standards and is not best practicable treatment or control (BPTC). Parallel operation of the GAC vessels would not provide the safety factor necessary to ensure compliance with effluent limitations. Therefore, the discharge of treated groundwater or pollutants not passing through at least two GAC vessels operated in series is prohibited. This prohibition is retained from Order No. R5-2006-0016.

B. Technology-Based Effluent Limitations

1. Scope and Authority

Section 301(b) of the CWA and implementing USEPA permit regulations at 40 CFR 122.44 require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Best Professional Judgment (BPJ) in accordance with 40 CFR 125.3.

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

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

b. 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.

c. 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.

d. 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. CWA section 402(a)(1) 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. Volatile Organic Compounds. There are no promulgated ELGs for VOCs in groundwater extracted for cleanup; therefore, technology-based effluent limitations are established on a case-by-case basis utilizing the BPJ of the Central Valley Water Board staff. State Water Board Resolution No. 68-16 also requires that any activity which produces or may produce a discharge to an existing high quality water "*will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the 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.*" Several dischargers, including the Discharger, in the Central Valley Region have implemented groundwater treatment systems and have been able to consistently treat and remove VOCs in the treated groundwater to concentrations below laboratory detection levels or non-detect. Such treatment systems can be technically and economically employed to treat the discharge regulated by this Order. To determine compliance, limits for VOCs in this Order are set to the lowest quantifiable limit based on BPJ. Setting a discharge standard to the lowest quantifiable limit will result in the BPTC of the

discharge and is consistent with and complies with State Board Resolution 68-16.

Federal regulations require effluent limits representing best available technology economically achievable (BAT) for all toxic pollutants. For VOCs in groundwater, BAT is consistent with BPTC. With respect to the specific discharges permitted herein, and particularly the GAC treatment system, the following have been considered, as required by 40 CFR 125.3 for establishing technology-based effluent limitations in NPDES permits on a case-by-case basis:

i. **Appropriate technology for category or class of discharges –** GAC treatment systems are commonly used to remove VOCs from extracted groundwater at cleanup sites. GAC treatment systems are designed to remove VOCs to unquantifiable concentrations. Properly operated and maintained systems perform reliably and ensure essentially complete removal of VOCs. The Discharger employs a GAC treatment system to treat impacted groundwater.

ii. **Unique factors relating to the Discharger –** The Discharger has not identified any unique factors that would justify discharges equaling or exceeding quantifiable concentrations of VOCs.

iii. **Age of equipment –** Portions of Phase III GWRS were installed in 1999. The GAC treatment system installation was completed in 2003. The Discharger has not identified any concerns related to the ability to treat the contaminated groundwater due to the age of the equipment.

iv. **Non-water quality environmental impacts, including energy requirements and cost of achieving proposed effluent reduction –** The GAC treatment system currently in place reliably removes VOCs to unquantifiable concentrations of less than 0.5 µg/L. Use of GAC as compared to other systems, such as air stripping to remove VOCs, reduces the potential releases of VOCs to air. Therefore, continued compliance with the maximum daily effluent limitations would not create additional non-water quality impacts.

    The Discharger has indicated that treating cis-1,2-dichloroethylene to levels protective of human health (i.e., the primary Maximum Contaminant Level), as compared to the technology-based effluent limit of less than 0.5 µg/L, would cost significantly less to operate the GAC system ($400,000 less over five years) and would result in the need for less frequent carbon changeouts. The Discharger estimated that breakthrough for trichloroethylene, the primary pollutant of concern at the Site, would occur every two years.

    The Discharger submitted a Carbon Loading Evaluation to the Central Valley Water Board on 30 January 2012. The Discharger evaluated the seven most recent carbon cycles that took place at the Facility. The Carbon Loading Evaluation demonstrated that cis-1,2-dichloroethylene and 1,1-dichloroethane

breaks through the GAC at a faster rate than trichloroethylene. The Discharger estimates that cis-1,2-dichloroethylene breaks through the carbon bedding at twice the rate of trichloroethylene. USEPA, Region 9 published *NPDES Permit Limitations for Discharge of Contaminated Groundwater: Guidance Document* (Guidance Document) in June of 1986, which accounted for various VOCs having significantly different carbon adsorption capacities. The Guidance Document determined that an effluent limitation of non-detect (5 µg/L at the time) for organic contaminants in treated ground water was consistent with BAT.

The Discharger has not provided evidence which demonstrates that factors at this Facility are fundamentally different than other facilities subject to TBELs for VOCs or demonstrated that meeting TBELs for cis-1,2-dichloroethylene is economically unachievable. In fact, a 1996 feasibility study prepared on behalf of the Discharger identified GAC as a feasible means to treat VOCs (including cis-1,2,-dichloroethylene) to non-detect levels. Furthermore, the duration of the carbon cycle has generally increased since 2005. The carbon cycle duration has increased from 128 days in 2005 to 239 days in 2011. Since the durations between carbon change-outs have generally increased over time, it does not appear the Discharger will acquire an increased financial burden to continue treating cis-1,2,-dichloroethylene to less than 0.5 µg/L. Lastly, the Discharger has not provided information showing that the Facility meets one of the six backsliding exceptions listed in Section 402 (o) (1) of the Clean Water Act. Consequently, removing the TBEL for cis-1,2-dichloroethylene would be prohibited backsliding.

v. **Influent and effluent data –** The monitoring data provided by the Discharger indicates that its Facility has the ability to consistently remove VOCs in the groundwater to a level below the established lowest quantifiable limit of 0.5 µg/L for each VOC.

Order No. R5-2006-0016 contained a technology-based MDEL for all VOCs of 0.5 µg/L. As previously mentioned, the Department of Toxic Substances Control (DTSC) approved a Final Remedial Action Plan (RAP) on 19 November 1998 for the Site. The RAP indicated the chemicals of concern for the site were 1,1-dichloroethylene, 1,2-dichloroethylene, 1,1-dichloroethane, tetrachloroethylene,1,1,1,-trichloroethane, trichloroethylene, and chromium.

The RAP identified 1,2-dichloroethylene as a VOC detected in on-site monitoring wells, but the specific chemical form of 1,2-dichloroethylene (i.e., cis-1,2-dichloroethylene or trans-1,2-dichloroethylene) was not identified. However, VOC monitoring indicates that cis-1,2-dichloroethylene is consistently present in the influent to the treatment system and is therefore a constituent of concern in the groundwater.

This Order retains the MDEL for 1,1-dichloroethylene, cis-1,2-dichloroethylene, 1,1-dichloroethane, tetrachloroethylene, and trichloroethylene, but discontinues the technology-based effluent limitations for those VOCs that were consistently

~~detected below analytical levels in the~~not detected in the influent groundwater, treated effluent, and surrounding groundwater~~ monitoring data~~. Therefore, this Order discontinues the technology-based effluent limits for the following VOCs: chloroform, 1,2-dichloropropane, methylene chloride, trans-1,2-dichloroethylene, 1,1,1-trichloroethane, other VOCs, and total VOCs. A summary of the monitoring results for the above-mentioned VOCs ~~are listed~~is presented below.

Chloroform. The MEC for chloroform was reported as below analytical detection levels (MDL = 0.048 µg/L) based on ~~50~~ 51 effluent samples. In addition, chloroform was only detected once in the influent based on 48 samples. The only reported detection was at a concentration of 0.09 µg/L (estimated value, MDL = 0.048 µg/L, ~~RL~~ ML = 0.5 µg/L). Chloroform is not a listed constituent of concern in the DTSC's RAP.

1,2-Dichloropropane. The MEC for 1,2-dichloropropane was reported as below analytical method detection levels (MDL = 0.044 µg/L) based on ~~50~~ 51 effluent samples. In addition, 1,2-dichloropropane was not detected ~~reported as below analytical detection levels~~ in the influent ~~based on(~~ 48 monitoring results). 1,2-Dichloropropane is not a listed constituent of concern in the DTSC's RAP.

Methylene Chloride. The MEC for methylene chloride is 0.81 µg/L. However, m~~M~~ethylene chloride was only detected once out of ~~50~~ 51 samples in the effluent~~. Methylene chloride also was~~ and not detected in the influent ~~reported as below analytical detection levels in all~~ (48 influent monitoring results). In addition, there was not a reported detection, estimated or quantifiable, in the surrounding groundwater monitoring results for methylene chloride. Furthermore, the method document for USEPA Method 8260~~B~~ (the method used to test for methylene chloride) states that a sample is susceptible to contamination of methylene chloride if special precautions are not followed. According to the method document, a~~A~~ sample can be contaminated by diffusion of methylene chloride through the septum seal of the sample container. Therefore, since methylene chloride is only detected once out of ~~50~~ 51 effluent samples and not detected in ~~any~~ the influent ~~and~~ or surrounding groundwater monitoring ~~results~~wells between January 2006 to July 2010, it is reasonable to assume that the one methylene chloride effluent detection is anomalous, unrepresentative, and could be the result of sample contamination. Methylene chloride is also not a listed constituent of concern in the DTSC's RAP.

trans-1,2-Dichloroethylene. The MEC for trans-1,2-dichloroethylene was reported as below analytical method detection levels (MDL = 0.05 µg/L) based on ~~50~~ 51 effluent samples. In addition, trans-1,2-dichloroethylene was not detected in the ~~reported as below analytical detection levels in the~~ influent based on 48 monitoring results. trans-1,2-Dichloroethylene is not a listed constituent of concern in the DTSC's RAP.

1,1,1-Trichloroethane. The MEC ~~and maximum observed upstream receiving water concentrations~~ for 1,1,1-trichloroethane ~~were~~ was ~~both~~ reported as below analytical method detection levels (MDL = 0.04 µg/L). The Discharger reported

~~50~~ 51 effluent ~~and 17 upstream receiving water~~ monitoring results for 1,1,1-trichloroethane~~trans-1,2-dichloroethylene~~. In addition, 1,1,1-trichloroethane was ~~reported as below analytical detection levels in the~~not detected in the influent ~~based on~~ (48 monitoring results) or surrounding groundwater. ~~Groundwater monitoring results also show 1,1,1-trichloroethane concentrations as below analytical detection levels in the surrounding groundwater.~~

Other VOCs. Order R5-2006-0016 included a technology-based effluent limitation for other VOCs not specifically identified in Order R5-2006-0016. Chloromethane was the only other VOC that was not specifically identified in previous Order R5-2006-0016 that had a reported quantifiable effluent concentrations above the 0.5 µg/L effluent limit. The MEC for chloromethane was 0.84 µg/L based on 39 effluent samples. The only other reported chloromethane effluent detection was 0.6 µg/L. The other 37 reported effluent monitoring results for chloromethane were reported as below analytical method detection levels (minimum MDL = 0.1 µg/L). In addition, the only reported influent chloromethane detection was 0.59 µg/L (out of 38 influent samples). Chloromethane is not a listed constituent of concern in the DTSC's RAP or in previous Order R5-2006-0016.

Total VOCs. Previous Order R5-2006-0016 included a technology-based effluent limitation of 0.5 µg/L for the sum of the VOC concentrations in any single sample. From January 2006 to July 2010, monitoring results from seven effluent samples exceeded this effluent limitation. The following summarizes the seven exceedances: four exceedances were due to reported detections of cis-1,2-dichloroethylene (0.52 µg/L, 0.82, µg/L, 0.81 µg/L, and 0.56 µg/L), two exceedances were due to the only two detections of chloromethane (0.84 µg/L and 0.6 µg/L), and one exceedance was due to the only reported detection of methylene chloride (0.81 µg/L).

Removal of technology-based effluent limitations for these VOCs is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet). This Order will continue to require monitoring for all VOCs listed in Table 2a of Appendix 4 of the SIP to characterize the effluent for future permit renewals.

b. Flow. The Facility has a reported design flow capacity of 1,000 gpm (1.44 mgd) when the GAC vessels are operated in series and 2,200 gpm (3.17 mgd) when operated in parallel. A 22 August 2005 letter from the Discharger's consultant, BSK, Inc., stated that the vessels are currently operated in series, due to low extraction rates; and it reaffirmed its request for a maximum permitted flow of 2,000 gpm (2.88 mgd). Industry standard GAC treatment system design provides for two GAC vessels: (a) the first operated in a lead position, and (b) the second operated in a polishing position. The role of the second vessel is to remove any pollutants that may break through the carbon in the first vessel; thus providing a factor of safety to ensure that discharges reliably meet effluent limits. The Discharger has not demonstrated how it will treat flows up to 2.88 mgd while maintaining industry standard design. Operating the GAC in parallel is not

considered BPTC. Parallel operation would not provide the safety factor necessary to ensure compliance with effluent limits and protection of receiving water beneficial uses. This Order prohibits parallel operation of primary GAC vessels without secondary polishing and retains the maximum daily effluent limitation of 1,000 gpm (1.44 mgd).

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

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

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Flow	mgd	--	1.44	--	--
1,1-Dichloroethane	µg/L	--	<0.5	--	--
1,1-Dichloroethylene	µg/L	--	<0.5	--	--
cis-1,2-Dichloroethylene	µg/L	--	<0.5	--	--
Tetrachloroethylene	µg/L	--	<0.5	--	--
Trichloroethylene	µg/L	--	<0.5	--	--

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

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, WQBELs must be established using: (1) USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in 40 CFR 122.44(d)(1)(vi).

The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plans, 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

The Basin Plans designate beneficial uses, establish water quality objectives, and contain implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, the Basin Plans implement 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.

The Tulare Lake 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."* With respect to disposal of wastewaters, the Tulare Lake Basin Plan also states "...*use of waters for disposal of wastewaters is not included as a beneficial use…and are subject to regulation as activities that may harm protected uses."* The San Joaquin Basin Plan includes the same requirement.

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 provides for recreation in and on the water be achieved by July 1, 1983.*" Federal Regulations, developed to implement the requirements of the CWA, create a rebuttable presumption that all waters be designated as fishable and swimmable. Federal Regulations, 40 CFR sections 131.2 and 131.10, require that all waters of the State be regulated to protect the beneficial uses of public water supply, protection and propagation of fish, shell fish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation. 40 CFR 131.3(e) defines existing beneficial uses as those uses actually attained after 28 November 1975, whether or not they are included in the water quality standards. Federal Regulation, 40 CFR section 131.10 requires that uses be obtained by implementing effluent limitations, requires that all downstream uses be protected and states that in no case shall a state adopt waste transport or waste assimilation as a beneficial use for any waters of the United States.

a. Receiving Water and Beneficial Uses. The Tulare Lake Basin Plan in Table II-1, Section II, does not specifically identify beneficial uses for Bullard Canal, but the San Joaquin Basin Plan does identify present and potential uses for the San Joaquin River, to which Bullard Canal is hydraulically connected. Discharges to Bullard Canal must be protective of the beneficial uses of the San Joaquin River. Thus, the beneficial uses of the San Joaquin River are, for the purposes of this Order, considered applicable to Bullard Canal as shown in Table F-4 below.

In addition, the Central Valley Water Board is required to apply the beneficial use of municipal and domestic supply to Bullard Canal based on State Water Board Resolution No. 88-63 which was incorporated into the Tulare Lake Basin Plan pursuant to Central Valley Water Board Resolution No. 89-056.

Table F-4. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Bullard Canal	Existing: Municipal and domestic supply (MUN); Agricultural supply, including irrigation and stock watering (AGR); Industrial process supply (PRO); Water contact recreation, including canoeing and rafting (REC-1); Non-contact water recreation (REC-2); Warm freshwater habitat (WARM); Cold freshwater habitat (COLD); Migration of aquatic organisms, warm and cold (MIGR); Spawning, reproduction, and/or early development, warm (SPWN); and Wildlife habitat (WILD) Potential: Spawning, reproduction, and/or early development, cold (SPWN)
--	Groundwater	Existing: Municipal and domestic supply (MUN); Agricultural supply, including irrigation and stock watering (AGR); Industrial process supply (PRO); Industrial service supply (IND)

b. **Effluent and Ambient Background Data.** The reasonable potential analysis (RPA), as described in section IV.C.3 of this Fact Sheet, was based on data from January 2006 through July 2010 (unless otherwise indicated herein), which includes effluent and ambient background data submitted in SMRs.

c. **Assimilative Capacity.** Bullard Canal, absent the discharge, may at times be dry. During these periods, the beneficial uses made possible by the discharge must be protected, and no credit for receiving water dilution is available. At other times, other flows within the canal help support beneficial uses. Both conditions may exist within a short time span, where Bullard Canal would be dry without the discharge and periods when sufficient background flows provide hydraulic continuity with the San Joaquin River. Dry conditions may occur throughout the year, particularly during the non-irrigation season. The lack of dilution results in more stringent effluent limitations to protect contact recreational uses, drinking water standards, agricultural water quality goals and aquatic life. Significant dilution may occur during and immediately following high rainfall events or at times during the irrigation season.

At times, treated groundwater may be the main, or only, source of flow, with little or no dilution. The worst-case dilution in Bullard Canal is assumed to be zero to provide protection for the receiving water beneficial uses. The impact of assuming zero dilution within the receiving water is that discharge limitations must be end-of-pipe limits, rather than allowing for dilution provided by the receiving water. Therefore, this Order contains end-of-pipe effluent limitations.

d. Conversion Factors. The CTR contains aquatic life criteria for arsenic, cadmium, chromium (III), chromium (VI), copper, lead, nickel, silver, and zinc which are presented in dissolved concentrations. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. The default USEPA conversion factors contained in Appendix 3 of the SIP were used to convert the applicable dissolved criteria to total recoverable criteria.

e. Hardness-Dependent CTR Metals Criteria. The *California Toxics Rule* and the *National Toxics Rule* contain water quality criteria for seven metals that vary as a function of hardness. The lower the hardness the lower the water quality criteria. The metals with hardness-dependent criteria include cadmium, copper, chromium (III), lead, nickel, silver, and zinc.

This Order has established the criteria for hardness-dependent metals based on the reasonable worst-case ambient hardness as required by the SIP[1], the CTR[2] and State Water Board Order No. WQ 2008-0008 (City of Davis). The SIP and the CTR require the use of "receiving water" or "actual ambient" hardness, respectively, to determine effluent limitations for these metals. (SIP, § 1.2; 40 CFR 131.38(c)(4)) The CTR does not define whether the term "ambient," as applied in the regulations, necessarily requires the consideration of upstream as opposed to downstream hardness conditions. Therefore, where reliable, representative data are available, the hardness value for calculating criteria can be the downstream receiving water hardness, after mixing with the effluent (Order WQ 2008-0008, p. 11). The Central Valley Water Board thus has considerable discretion in determining ambient hardness (Id., p.10).

As discussed below, scientific literature provides a reliable method for calculating protective hardness-dependent CTR criteria, considering all discharge conditions. This methodology produces hardness-dependent CTR criteria based on the reasonable worst-case downstream ambient hardness that ensure these metals do not cause receiving water toxicity under any downstream receiving water condition. Under this methodology, the Central Valley Water Board considers all hardness conditions that could occur in the ambient downstream receiving water after the effluent has mixed with the water body[3]. This ensures that effluent limitations are fully protective of aquatic life in all areas of the receiving water affected by the discharge under all flow conditions, at the fully mixed location, and throughout the water body including at the point of discharge into the water body.

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[1] The SIP does not address how to determine the hardness for application to the equations for the protection of aquatic life when using hardness-dependent metals criteria. It simply states, in Section 1.2, that the criteria shall be properly adjusted for hardness using the hardness of the receiving water.

[2] The CTR requires that, for waters with a hardness of 400 mg/L (as $CaCO_3$), or less, the actual ambient hardness of the surface water must be used. It further requires that the hardness values used must be consistent with the design discharge conditions for design flows and mixing zones.

[3] All effluent discharges will change the ambient downstream metals concentration and hardness. It is not possible to change the metals concentration without also changing the hardness.

i. Conducting the Reasonable Potential Analysis (RPA). The SIP in Section 1.3 states, "*The RWQCB shall…determine whether a discharge may: (1) cause, (2) have a reasonable potential to cause, or (3) contribute to an excursion above any applicable priority pollutant criterion or objective*." Section 1.3 provides a step-by-step procedure for conducting the RPA. The procedure requires the comparison of the maximum effluent concentration (MEC) and maximum ambient background concentration to the applicable criterion that has been properly adjusted for hardness. Unless otherwise noted, for the hardness-dependent CTR metals criteria the following procedures were followed for properly adjusting the criterion for hardness when conducting the RPA.

(a) The SIP requires WQBELs if the MEC is equal to or exceeds the applicable criterion, adjusted for hardness. For comparing the MEC to the applicable criterion, the "fully mixed" reasonable worst-case downstream ambient hardness was used to adjust the criterion. In this evaluation the portion of the receiving water affected by the discharge is analyzed. For hardness-dependent criteria, the hardness of the effluent has an impact on the determination of the applicable criterion in areas of the receiving water affected by the discharge. Therefore, for comparing the MEC to the applicable criterion, the reasonable worst-case downstream ambient hardness was used to adjust the criterion. For this situation it is necessary to consider the hardness of the effluent in determining the applicable hardness to adjust the criterion. The procedures for determining the applicable criterion after proper adjustment using the reasonable worst-case downstream ambient hardness are outlined in subsection ii, below.

(b) The SIP requires WQBELs if the receiving water is impaired upstream (outside the influence) of the discharge, i.e., if the Maximum Ambient Background Concentration of a pollutant exceeds the applicable criterion, adjusted for hardness[1]. For comparing the maximum ambient background concentration to the applicable criterion, the reasonable worst-case upstream ambient hardness was used to adjust the criteria. This is appropriate, because this area is outside the influence of the discharge. Since the discharge does not impact the upstream hardness, the effect of the effluent hardness was not included in this evaluation.

ii. Calculating WQBELs. The remaining discussion in this section relates to the development of WQBELs when it has been determined that the discharge has reasonable potential to cause or contribute to an exceedance of the CTR hardness-dependent metals criteria in the receiving water.

[1] The pollutant must also be detected in the effluent.

A 2006 Study[1] developed procedures for calculating the effluent concentration allowance (ECA)[2] for CTR hardness-dependent metals. The 2006 Study demonstrated that it is necessary to evaluate all discharge conditions (e.g., high and low flow conditions) and the hardness and metals concentrations of the effluent and receiving water when determining the appropriate ECA for these hardness-dependent metals. This method is superior to relying on downstream receiving water samples alone because it captures all possible mixed conditions in the receiving water. Both receiving water and effluent hardness vary based on flow and other factors, but the variability of receiving water and effluent hardness is sometimes independent. Using a calculated hardness value ensures that the Central Valley Water Board considers all possible mixed downstream values that may result from these two independent variables. Relying on receiving water sampling alone is less likely to capture all possible mixed downstream conditions.

The equation describing the total recoverable regulatory criterion, as established in the CTR[3], is as follows:

$$\text{CTR Criterion} = \text{WER} \times (e^{m[\ln(H)]+b}) \qquad \text{(Equation 1)}$$

Where:

H = hardness (as $CaCO_3$)[4]
WER = water-effect ratio
m, b = metal- and criterion-specific constants

In accordance with the CTR, the default value for the WER is 1. A WER study must be conducted to use a value other than 1. The constants “m” and “b” are specific to both the metal under consideration and the type of total recoverable criterion (i.e., acute or chronic). The metal-specific values for these constants are provided in the CTR at paragraph (b)(2), Table 1.

The equation for the ECA is defined in Section 1.4, Step 2, of the SIP and is as follows:

$$\text{ECA} = C \quad (\text{when } C \leq B)^{5} \qquad \text{(Equation 2)}$$

Where:

[1] Emerick, R.W.; Borroum, Y.; & Pedri, J.E., 2006. California and National Toxics Rule Implementation and Development of Protective Hardness Based Metal Effluent Limitations. WEFTEC, Chicago, Ill.
[2] The ECA is defined in Appendix 1 of the SIP (page Appendix 1-2). The ECA is used to calculate WQBELs in accordance with Section 1.4 of the SIP.
[3] 40 CFR 131.38(b)(2).
[4] For this discussion, all hardness values are in mg/L as $CaCO_3$.
[5] The 2006 Study assumes the ambient background metals concentration is equal to the CTR criterion (i.e., $C \leq B$)

C = the priority pollutant criterion/objective, adjusted for hardness (see Equation 1, above)
B = the ambient background concentration

The 2006 Study demonstrated that the relationship between hardness and the calculated criteria is the same for some metals, so the same procedure for calculating the ECA may be used for these metals. The same procedure can be used for chronic cadmium, chromium III, copper, nickel, and zinc. These metals are hereinafter referred to as "Concave Down Metals". "Concave Down" refers to the shape of the curve represented by the relationship between hardness and the CTR criteria in Equation 1. Another similar procedure can be used for determining the ECA for acute cadmium, lead, and acute silver, which are referred to hereafter as "Concave Up Metals".

ECA for Chronic Cadmium, Chromium III, Copper, Nickel, and Zinc – For Concave Down Metals (i.e., chronic cadmium, chromium III, copper, nickel, and zinc) the 2006 Study demonstrates that when the effluent is in compliance with the CTR criteria and the upstream receiving water is in compliance with the CTR criteria, any mixture of the effluent and receiving water will always be in compliance with the CTR criteria[1]. The 2006 Study proves that regardless of whether the effluent hardness is lower or greater than the upstream hardness, the reasonable worst-case flow condition is the effluent dominated condition (i.e., no receiving water flow)[2]. Consequently, for Concave Down Metals, the CTR criteria have been calculated using the downstream ambient hardness under this condition.

The effluent hardness ranged from 57 mg/L to 120 mg/L, based on 35 samples from January 2006 to July 2010. The upstream receiving water hardness varied from 7.7 mg/L to 130 mg/L, based on 42 samples from January 2006 to July 2010, and the downstream receiving water hardness varied from 14 mg/L to 140 mg/L, during the same period. Under the effluent dominated condition, the reasonable worst-case downstream ambient hardness is 57 mg/L. As demonstrated in the example shown in Table F-5, below, using this hardness to calculate the ECA for all Concave Down Metals will result in WQBELs that are protective under all flow conditions, from the effluent dominated condition to high flow condition. This example for copper assumes the following conservative conditions for the upstream receiving water:

- Upstream receiving water <u>always</u> at the lowest observed upstream receiving water hardness (i.e., 7.7 mg/L)

[1] 2006 Study, p. 5700
[2] There are two typographical errors in the 2006 Study in the discussion of Concave Down Metals when the effluent hardness is less than the receiving water hardness. The effluent and receiving water hardness were transposed in the discussion, but the correct hardness values were used in the calculations. The typographical errors were confirmed by the author of the 2006 Study, by email dated 1 April 2011, from Dr. Robert Emerick to Mr. James Marshall, Central Valley Water Board.

- Upstream receiving water copper concentration always at the CTR criteria (i.e., no assimilative capacity).

Using these reasonable worst-case receiving water conditions, a simple mass balance (as shown in Equation 3, below) accounts for all possible mixtures of effluent and receiving water under all flow conditions.

$$C_{MIX} = C_{RW} \times (1\text{-}EF) + C_{Eff} \times (EF) \qquad \text{(Equation 3)}$$

Where:

C_{MIX} = Mixed concentration (e.g. metals or hardness)
C_{RW} = Upstream receiving water concentration
C_{Eff} = Effluent concentration
EF = Effluent Fraction

In this example, for copper, for any receiving water flow condition (high flow to low flow), the fully-mixed downstream ambient copper concentration is in compliance with the CTR criteria[1].

Table F-5. Copper ECA Evaluation

Lowest Observed Effluent Hardness	**57 mg/L (as $CaCO_3$)**
Lowest Observed Upstream Receiving Water Hardness	**7.7 mg/L (as $CaCO_3$)**
Highest Assumed Upstream Receiving Water Copper Concentration	**1.0 µg/L[1]**
Copper $ECA_{chronic}$[2]	**5.8 µg/L**

Effluent Fraction[6]		**Fully Mixed Downstream Ambient Concentration**			
		Hardness[3] (mg/L)	**CTR Criteria[4] (µg/L)**	**Copper[5] (µg/L)**	**Complies with CTR Criteria?**
High Flow	1%	8	1.1	1.1	**Yes**
	5%	10	1.3	1.3	**Yes**
	15%	15	1.9	1.8	**Yes**
	25%	20	2.4	2.2	**Yes**
	50%	32	3.6	3.4	**Yes**
	75%	45	4.7	4.6	**Yes**
Low Flow	100%	57	5.8	5.8	**Yes**

1 Highest assumed upstream receiving water copper concentration calculated using Equation 1 for chronic criterion at a hardness of 7.7 mg/L.

2 ECA calculated using Equation 1 for chronic criterion at a hardness of 57 mg/L.

3 Fully mixed downstream ambient hardness is the mixture of the receiving water and effluent hardness at the applicable effluent fraction using Equation 3.

[1] This method considers the actual lowest observed upstream hardness and actual lowest observed effluent hardness to determine the reasonable worst-case ambient downstream hardness under all possible receiving water flow conditions. Table F-5 demonstrates that the receiving water is always in compliance with the CTR criteria at the fully-mixed location in the receiving water. It also demonstrates that the receiving water is in compliance with the CTR criteria for all mixtures from the point of discharge to the fully-mixed location. Therefore, a mixing zone is not used for compliance.

[4] Fully mixed downstream ambient criteria are the chronic criteria calculated using Equation 1 at the mixed hardness.

[5] Fully mixed downstream ambient copper concentration is the mixture of the receiving water and effluent copper concentrations at the applicable effluent fraction using Equation 3.

[6] The effluent fraction ranges from 1% at the high receiving water flow condition, to 100% at the lowest receiving water flow condition (i.e., effluent dominated).

ECA for Acute Cadmium, Lead, and Acute Silver – For Concave Up Metals (i.e., acute cadmium, lead, and acute silver), the relationship between hardness and the metals criteria is different than for Concave Down Metals. The 2006 Study demonstrates that for Concave Up Metals, the effluent and upstream receiving water can be in compliance with the CTR criteria, but the resulting mixture may contain metals concentrations that exceed the CTR criteria and could cause toxicity. For these metals, the 2006 Study provides a mathematical approach to calculate the ECA that is protective of aquatic life, in all areas of the receiving water affected by the discharge, under all discharge and receiving water flow conditions (see Equation 4, below).

The ECA, as calculated using Equation 4, is based on the reasonable worst-case upstream receiving water hardness, the lowest observed effluent hardness, and assuming no receiving water assimilative capacity for metals (i.e., ambient background metals concentrations are at their respective CTR criterion). Equation 4 is not used in place of the CTR equation (Equation 1). Rather, Equation 4, which is derived using the CTR equation, is used as a direct approach for calculating the ECA. This replaces an iterative approach for calculating the ECA. The CTR equation has been used to evaluate the receiving water downstream of the discharge at all discharge and flow conditions to ensure the ECA is protective (e.g., see Table F-6).

$$\text{ECA} \quad \left(\frac{m(H_e - H_{rw})\left(e^{m\{ln(H_{rw})\}+b}\right)}{H_{rw}} \right) + e^{m\{ln(H_{rw})\}+b} \qquad \text{(Equation 4)}$$

Where:

m, b = criterion specific constants (from CTR)
H_e = lowest observed effluent hardness
H_{rw} = reasonable worst-case upstream receiving water hardness

An example similar to the Concave Down Metals is shown for lead, a Concave Up Metal, in Table F-6, below. As previously mentioned, the lowest effluent hardness is 57 mg/L, while the upstream receiving water hardness ranged from 7.7 mg/L to 130 mg/L, and the downstream receiving water hardness ranged from 14 mg/L to 140 mg/L. In this case, the reasonable worst-case upstream receiving water hardness to use in Equation 4 to calculate the ECA is 7.7 mg/L.

Using the procedures discussed above to calculate the ECA for all Concave Up Metals will result in WQBELs that are protective under all potential effluent/receiving water flow conditions (high flow to low flow) and under all known hardness conditions, as demonstrated in Table F-6, for lead.

Table F-6. Lead ECA Evaluation

Lowest Observed Effluent Hardness	**57 mg/L**
Reasonable Worst-case Upstream Receiving Water Hardness	**7.7 mg/L**
Reasonable Worst-case Upstream Receiving Water Lead Concentration	**0.12 µg/L[1]**
Lead $ECA_{chronic}$[2]	**1.1 µg/L**

Effluent Fraction[6]		**Fully Mixed Downstream Ambient Concentration**			
		Hardness[3] (mg/L) (as $CaCO_3$)	**CTR Criteria[4] (µg/L)**	**Lead[5] (µg/L)**	**Complies with CTR Criteria?**
High Flow	1%	8	0.13	0.13	**Yes**
	5%	10	0.17	0.17	**Yes**
	15%	15	0.29	0.27	**Yes**
	25%	20	0.41	0.37	**Yes**
	50%	32	0.76	0.62	**Yes**
	75%	45	1.1	0.89	**Yes**
Low Flow	100%	57	1.6	1.1	**Yes**

1 Reasonable worst-case upstream receiving water lead concentration calculated using Equation 1 for chronic criterion at a hardness of 7.7 mg/L.

2 ECA calculated using Equation 4 for chronic criteria.

3 Fully mixed downstream ambient hardness is the mixture of the receiving water and effluent hardness at the applicable effluent fraction.

4 Fully mixed downstream ambient criteria are the chronic criteria calculated using Equation 1 at the mixed hardness.

5 Fully mixed downstream ambient lead concentration is the mixture of the receiving water and effluent lead concentrations at the applicable effluent fraction.

6 The effluent fraction ranges from 1% at the high receiving water flow condition, to 100% at the lowest receiving water flow condition (i.e., effluent dominated).

Based on the procedures discussed above, Table F-7 lists all the CTR hardness-dependent metals and the associated ECA used in this Order.

Table F-7. Summary of ECA Evaluations for CTR Hardness-dependent Metals

CTR Metals	ECA (µg/L, total recoverable)	
	acute	chronic
Copper	8.2	5.8
Chromium III	1100	130
Cadmium	2.1	1.6
Lead	29	1.1
Nickel	290	32
Silver	0.22	--
Zinc	74	74

3. Determining the Need for WQBELs

a. In this Order, the RPA procedures from section 1.3 of the SIP were used to evaluate reasonable potential for CTR/NTR constituents based on information submitted as part of the application, in studies, and as directed by monitoring and reporting programs. Non-CTR constituents were evaluated on an individual basis.

Estimated concentrations (J-Flags) are not quantifiable but do confirm the presence of a substance below the analytical method's minimum level. Section 1.3, Step 8 of the SIP allows the Central Valley Water Board to require additional monitoring for a pollutant in place of an effluent limitation if data are unavailable or insufficient. Additionally, Section 2.4 of the SIP allows the Central Valley Water Board to require in the permit that the discharger shall report the Reporting Level (RL) selected from the MLs listed in Appendix 4 of the SIP.

b. Constituents with No Reasonable Potential. WQBELs are not included in this Order for constituents that do not demonstrate reasonable potential; however, monitoring for those pollutants is established in this Order as required by the SIP. If the results of effluent monitoring demonstrate reasonable potential, this Order may be reopened and modified by adding an appropriate effluent limitation.

Most constituents with no reasonable potential are not discussed in this Order. However, the following constituents were found to have no reasonable potential after assessment of the data:

i. Chloroform

(a) WQO. Chloroform is a priority pollutant; however, there are not applicable CTR criteria or MCLs for chloroform. DPH has developed a Primary MCL for total trihalomethanes (THMs), which includes chloroform of 80 µg/L. In addition to chloroform, THMs include bromoform, chlorodibromomethane, and dichlorobromomethane. This Order uses the Primary MCL of 80 µg/L to interpret the narrative toxicity and chemical constituents objective in the San Joaquin Basin Plan for the protection of the MUN beneficial use.

(b) RPA Results. The MEC and maximum observed upstream receiving water concentration~~s~~ for chloroform were both reported as below analytical detection levels (MDL = 0.048 µg/L). The Discharger reported ~~50~~ 51 effluent and 17 upstream receiving water monitoring results for chloroform. Therefore, the discharge does not demonstrate reasonable potential to exceed the Primary MCL of 80 µg/L for chloroform and WQBELs for chloroform are not included in this Order. However, this Order requires the Discharger to sample for chloroform in the effluent quarterly (as part of the requirement to monitor for other VOCs).

ii. Chloromethane.

(a) WQO. There are no applicable criteria for the protection human health or freshwater aquatic life for chloromethane.

(b) RPA Results. The Discharger reported 39 effluent and 14 upstream receiving water monitoring results for chloromethane. The MEC and maximum observed upstream receiving water concentration for chloromethane were 0.84 µg/L and 0.74 µg/L (estimated value, MDL = 0.1 µg/L and ML = 1 µg/L), respectively. Since there are no applicable human health or freshwater aquatic life criteria for chloromethane, WQBELs for chloromethane are not included in this Order. However, this Order requires the Discharger to sample for chloromethane in the effluent quarterly (as part of the requirement to monitor for other VOCs).

~~ii.~~iii. Chromium (III)

(a) WQO. The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for chromium (III). Waste Discharge Requirements Order R5-2006-0016 included effluent limitations for chromium (III) based on the CTR chronic criterion for the protection of aquatic life. Using the default conversion factors and reasonable worst-case measured hardness as described in section IV.C.2.e, the applicable acute (1-hour average) and chronic (4-day average) criteria for the effluent are 1,100 µg/L and 130 µg/L, respectively, as total recoverable. Using the default conversion factors and reasonable worst-case measured hardness as described in section IV.C.2.e of this Fact Sheet, the applicable acute (1-hour average)

and chronic (4-day average) criteria for the receiving water are 210 µg/L and 25 µg/L, respectively, as total recoverable.

(b) RPA Results. The Discharger reported three effluent and two upstream receiving water for chromium (III). The MEC was 5.4 µg/L (estimated value, MDL and ML not reported). The maximum observed upstream receiving water concentration was 22.85 µg/L. In addition, the Discharger reported 15 total recoverable and 28 dissolved effluent monitoring results for total chromium~~-~~. The MEC for total chromium was 6.17 µg/L, as total recoverable. The Discharger also reported eight total recoverable and 10 dissolved upstream receiving water monitoring results for total chromium. The maximum observed upstream receiving water concentration for total chromium was 23 µg/L, as total recoverable. Therefore, chromium (III) in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion, and the WQBELs for chromium (III) have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

~~iii.~~iv. Chromium (VI)

(a) WQO. The CTR includes maximum 1-hour average and 4-day average criteria of 16 µg/L and 11 µg/L, respectively, for ~~total recoverable~~ chromium (VI) (as total recoverable and dissolved) for the protection of freshwater aquatic life.

(b) RPA Results. The maximum observed upstream receiving water concentration for chromium (VI) was 3.1 µg/L, as dissolved, based on 16 samples. The Discharger reported 40 effluent monitoring results for dissolved chromium (VI). The MEC was 19 µg/L, as ~~total recoverable~~dissolved.

The Central Valley Water Board considers the 19 µg/L chromium (VI) detection unrepresentative of the Facility's discharge and inappropriate for use in the RPA for the following reasons:

(1) ~~However, T~~the second highest observed effluent concentration was 3.6 µg/L, as dissolved. In addition, using ½ the MDL (.06 µg/L or 0.044 µg/L), or ½ the ML (0.2 µg/L or 1.0 µg/L) if no MDL was reported, the mean is 2.1 µg/L and the standard deviation is 3.0. The 99.9th percentile of the data set (i.e., 3.3 standard deviations + the mean) is 12.0 µg/L. The result of 19 µg/L is more than five standard deviations from the mean of the data and over five times greater than any other effluent sample from January 2006 to July 2010.

Central Valley Water Board staff conducted an additional statistical test of the chromium (VI) effluent data to evaluate the 19 µg/L chromium (VI) detection further. This test assumes that the data are normally

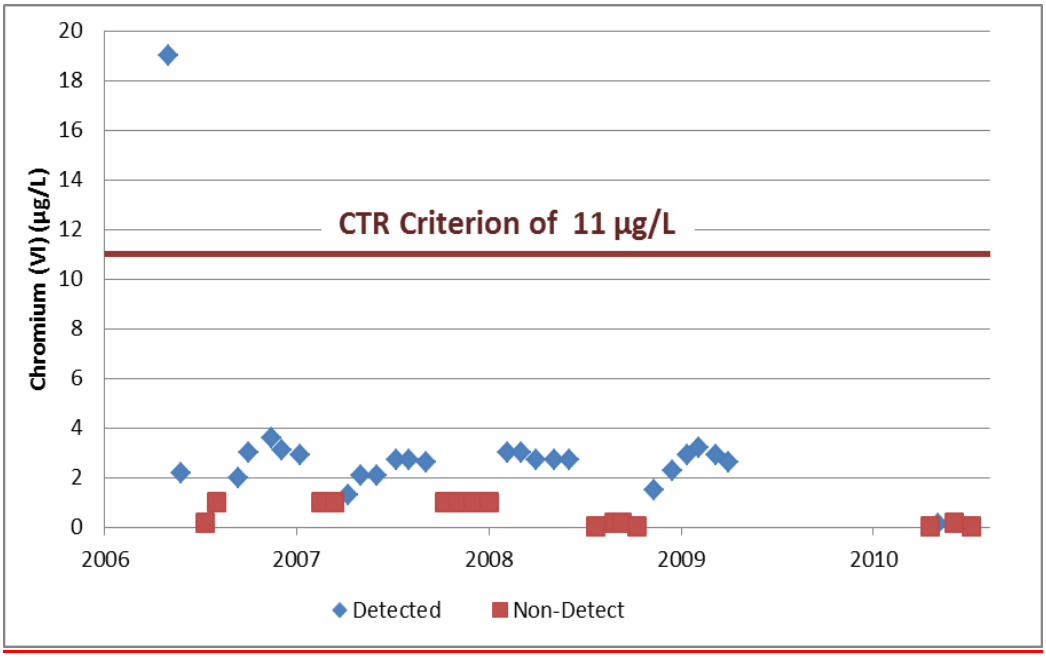
distributed. Prior to using the Shapiro-Wilk W test to determine if the chromium (VI) effluent data are normally distributed, the regression on order statistics method for normal distribution was used to extrapolate and estimate the non-detect results. The result of the Shapiro-Wilk W test shows that chromium (VI) effluent data are approximately normally distributed at a 99% confidence level (α = 0.01). The Rosner's test for outliers was then used to determine if the 19 µg/L chromium (VI) detection was an outlier. When a 99% confidence level (α = 0.01) is used, the test value of 5.9 is significantly greater than the crucial value (3.38). Therefore, the Central Valley Water Board concludes the 19 µg/L chromium (VI) detection is a statistical outlier.

~~**(b)** In addition, the Discharger reported 15 total recoverable and 28 dissolved effluent monitoring results for total chromium. The MEC for total chromium was 6.17 µg/L, as total recoverable.~~

(2) The Discharger also monitored for chromium (VI) ~~and total chromium~~ in the influent. The maximum observed chromium (VI) influent concentration was 2.7 µg/L (39 samples), as dissolved. Influent monitoring data were not used to determine if the discharge has reasonable potential to exceed the CTR aquatic life criteria; however, it is further evidence that the May 2006 chromium (VI) concentration of 19 µg/L is an outlier, suspect, and not representative of the Facility's effluent.

(3) The Discharger reported total chromium results for the influent, effluent, and surrounding groundwater monitoring wells. The Discharger reported 15 total recoverable and 28 dissolved effluent monitoring results for total chromium. The MEC for total chromium was 6.17 µg/L, as total recoverable. The maximum observed total chromium influent concentration was 8.1 µg/L (41 samples), as total recoverable. The maximum observed dissolved total chromium concentration detected in the nearby groundwater monitoring wells was 13 µg/L. The 13 µg/L dissolved total chromium was the result of a 16 April 2008 sample of an intermediate monitoring well. Besides the 16 April 2008 result, all the reported surrounding groundwater monitoring results for dissolved total chromium either were estimated values below the CTR criterion of 11 µg/L or reported as below analytical method detection levels (i.e., non-detect).

(4) The 19 µg/L result was the oldest effluent monitoring result reported during the previous permit term (2 May 2006). The Discharger, since the May 2006 chromium (VI) detection, has operated the GAC system over 1,229 days and replaced the carbon in the GAC system over five times. As illustrated in the figure below, the chromium (VI) concentration levels, excluding the May 2006 result of 19 µg/L, are significantly below the CTR criterion of 11 µg/L.



Therefore, the Central Valley Water Board considers the May 2006 19 µg/L chromium (VI) detection unrepresentative of the Facility's discharge and inappropriate for use in the RPA. Based on the rest of the effluent monitoring data for chromium (VI), chromium (VI) in the discharge does not have reasonable potential to cause or contribute to an in-stream excursion above applicable water quality criteria or objectives. Therefore, WQBELs for chromium (VI) have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet). This Order requires quarterly effluent monitoring for chromium (VI). Should the monitoring results indicate that that the discharge has the reasonable potential to cause or contribute to an exceedance of applicable criteria, then this Order may be reopened and modified by adding an appropriate effluent limitation.

v. 1,1-Dichloroethane

(a) WQO. DPH has adopted a Primary MCL for 1,1-dichloroethane of 5 µg/L, which is the numeric objective used to implement the Basin Plans' chemical constituent objective.

(b) RPA Results. The Discharger reported 51 effluent monitoring results for 1,1-dichloroethane. The MEC for 1,1-dichloroethane was 0.28 µg/L (estimated value, MDL = 0.54 µg/L, ML = 1.0 µg/L). In addition, 1,1-dichloroethane was not detected in the upstream receiving water (17 samples). Therefore, the discharge does not have reasonable potential to exceed the Primary MCL of 5 µg/L for 1,1-dichloroethane and WQBELs for 1,1-dichloroethane are not included in this Order. However, 1,1-dichloroethane is a constituent of concern in the influent groundwater.

This Order establishes a technology-based effluent limitation of 0.5 µg/L for 1,1-dichloroethane, as discussed in section IV.B.2. of this Fact Sheet.

~~iv.~~vi. 1,1-Dichloroethylene

(a) WQO. The CTR includes a criterion of 0.057 µg/L for 1,1-dichloroethylene for the protection of human health for waters from which both water and organisms are consumed.

(b) RPA Results. The Discharger reported ~~50~~ 51 effluent and 17 upstream receiving water monitoring results for 1,1-dichloroethylene. The MEC and maximum observed upstream receiving water concentration~~s~~ for 1,1-~~-~~dichloroethylene were both reported as below analytical method detection levels (MDL = 0.067 µg/L). In addition, all 48 influent monitoring results were reported below analytical method detection levels (MDL = 0.067 µg/L) as well. Therefore, the discharge does not have reasonable potential to cause or contribute to the Basin Plans' narrative chemical constituent objective and WQBELs for 1,1-dichloroethylene are not retained in this Order. Removal of these effluent limitations is in accordance with federal antibacksliding regulations (see section IV.D.3 of this Fact Sheet).

vii. cis-1,2-Dichloroethylene

(a) WQO. DPH has adopted a Primary MCL for cis-1,2-dichloroethylene of 6 µg/L, which is protective of the Basin Plans' chemical constituent objective.

(b) RPA Results. The Discharger reported 51 effluent and 17 upstream receiving water monitoring results for cis-1,2-dichloroethylene. The MEC for cis-1,2-dichloroethylene was reported as 0.82 µg/L. cis-1,2-Dichloroethylene was not detected in the upstream receiving water (MDL = 0.046 µg/L). Therefore, the discharge does not have reasonable potential to exceed the Primary MCL of 6 µg/L for cis-1,2-dichloroethylene and WQBELs for cis-1,2-dichloroethylene are not included in this Order. However, cis-1,2-dichloroethylene is a constituent of concern in the influent groundwater. This Order includes a technology-based effluent limitation of 0.5 µg/L for cis-1,2-dichloroethylene, as discussed in section IV.B.2. of this Fact Sheet.

~~v.~~viii. trans-1,2-Dichloroethylene

(a) WQO. DPH had adopted a Primary MCL for trans-1,2-dichloroethylene of 10 µg/L, which is ~~protective of~~ the numeric objective used to implement the Basin Plan's chemical constituent objective.

(b) RPA Results. The MEC and maximum observed upstream receiving water concentration~~s~~ were both reported as below analytical method

detection levels (MDL = 0.05 µg/L). The Discharger reported ~~50~~ 51 effluent and 17 upstream receiving water monitoring results for trans-1,2-dichloroethylene. Therefore, the discharge does not have reasonable potential to cause or contribute to an exceedance above the CTR criterion for human health and WQBELs for trans-1,2-dichloroethylene are not included in this Order. However, this Order requires the Discharger to sample for trans-1,2-dichloroethylene in the effluent quarterly (as part of the requirement to monitor for other VOCs).

~~vi.~~ix. 1,2-Dichloropropane

(a) WQO. The CTR includes a criterion of 0.52 µg/L for 1,2-dichloropropane for the protection of human health for waters from which both water an organisms are consumed. In addition, DPH has developed a Primary MCL of 5 µg/L for 1,2-dichloropropane.

(b) RPA Results. The MEC and maximum observed upstream receiving water concentration~~s~~ were both reported as below analytical method detection levels (MDL = 0.044 µg/L). The Discharger reported ~~50~~ 51 effluent and 17 upstream receiving water monitoring results for 1,2-dichloropropane Therefore, the discharge does not have reasonable potential to cause or contribute to exceedance above the CTR criterion for human health and WQBELs for 1,2-dichloropropane are not included in this Order. However, this Order requires the Discharger to sample for chloroform in the effluent quarterly (as part of the requirement to monitor for other VOCs).

x. Dichlorodifluoromethane

(a) WQO. Order No. R5-2006-0016 included individual effluent limitations for dichlorodifluoromethane and trichlorofluoromethane based on the USEPA National Recommended Ambient Water Quality Criteria (NAWQC) for protection of human health for halomethanes. The current version of the NAWQC does not include human health criteria for halomethanes. Therefore, there are no applicable criteria for the protection human health or freshwater aquatic life for dichlorodifluoromethane.

(b) RPA Results. Dichlorodifluoromethane was not detected in the effluent or the upstream receiving water (minimum MDL = 0.074 µg/L). The Discharger reported 51 effluent and 17 upstream receiving water monitoring results for dichlorodifluoromethane. Therefore, the discharge does not have reasonable potential to cause or contribute to the Basin Plans' narrative chemical constituent objective and WQBELs for dichlorodifluoromethane are not retained in this Order. Removal of these effluent limitations is in accordance with federal antibacksliding regulations (see section IV.D.3 of this Fact Sheet). Effluent monitoring has been included for dichlorodifluoromethane (as part of the requirement to monitor for other VOCs).

~~vii.~~xi. Trichlorofluoromethane

(a) WQO. ~~USEPA developed National Recommended Ambient Water Quality Criteria (NAWQC) for protection of human health for halomethanes (including chloromethane, bromomethane, dichloromethane, bromodichloromethane, tribromomethane, dichlorodifluoromethane, and trichlorofluoromethane) of 0.19 µg/L. Order No. R5-2006-0016 included individual effluent limitations for dichlorodifluoromethane and trichlorofluoromethane based on this criterion for halomethanes.~~Order No. R5-2006-0016 included individual effluent limitations for dichlorodifluoromethane and trichlorofluoromethane based on the USEPA National Recommended Ambient Water Quality Criteria (NAWQC) for protection of human health for halomethanes. The current version of the NAWQC does not include human health criteria for halomethanes. DPH has adopted a Primary MCL for trichloruoromethane of 150 µg/L, which is the numeric objective used to implement the Basin Plans' chemical constituent objective.

(b) RPA Results. Trichlorofluoromethane was not detected in the effluent or the upstream receiving water (minimum MDL = 0.99 µg/L). The Discharger reported 50 effluent and 17 upstream receiving water monitoring results for trichlorofluoromethane. Therefore, the discharge does not have reasonable potential to exceed the Primary MCL for trichlorofluoromethane and WQBELs for trichlorofluoromethane are not retained in this Order. Removal of these effluent limitations is in accordance with federal antibacksliding regulations (see section IV.D.3 of this Fact Sheet). Effluent monitoring has been included for trichlorofluoromethane (as part of the requirement to monitor for other VOCs).

~~viii.~~xii. Iron

(a) WQOs. The Secondary Maximum Contaminant Level (MCL) – Consumer Acceptance Limit for iron is 300 µg/L, which is used to implement the Basin Plans' chemical constituent objective for the protection of municipal and domestic supply.

(b) RPA Results. For the effluent, one total recoverable and two dissolved data points for iron were reported. The total recoverable iron data point was reported as below analytical method detection levels (MDL = 50 µg/L). The dissolved iron data points were also reported as below analytical method detection levels (MDL not reported, ML = 50 µg/L). The maximum observed upstream receiving water concentration was 380 µg/L (one data point). Therefore, iron in the discharge does not have reasonable potential to cause or contribute to an in-stream excursion above applicable water quality criteria or objectives. However, this Order requires additional iron monitoring. Should monitoring results indicate that the discharge has reasonable potential to cause or contribute to an

exceedance of a water quality standard, this Order may be reopened or modified by adding an appropriate effluent limitation.

~~ix.~~xiii. Methylene Chloride

(a) WQO. The CTR includes a criterion of 4.7 µg/L for methylene chloride for the protection of human health for waters from which both water and organisms are consumed.

(b) RPA Results. The MEC for methylene chloride is 0.81 µg/L. Methylene chloride was only detected once out of ~~50~~ 51 samples in the effluent. However, the methylene chloride effluent detection is considered to be anomalous and unrepresentative. See section IV.B.2.a. of this Fact Sheet for further information. The Discharger did not report a detectable concentration in any of the 17 reported upstream monitoring results. Therefore, the discharge does not have reasonable potential to cause or contribute to exceedance above the CTR criterion for human health and WQBELs for methylene chloride are not included in this Order. However, this Order requires the Discharger to sample for methylene chloride in the effluent quarterly (as part of the requirement to monitor for other VOCs).

~~x.~~xiv. Nickel

(a) WQOs. The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for nickel. Using the default conversion factors and reasonable worst-case measured hardness as described in section IV.C.2.e of this Fact Sheet, the applicable acute (1-hour average) and chronic (4-day average) criteria for the effluent are 290 µg/L and 32 µg/L, respectively, as total recoverable. Using the default conversion factors and reasonable worst-case measured hardness as described in section IV.C.2.e of this Fact Sheet, the applicable acute (1-hour average) and chronic (4-day average) criteria for the receiving water are 54 µg/L and 6.0 µg/L, respectively, as total recoverable.

(b) RPA Results. For the effluent, one total recoverable and one dissolved data points for nickel were reported. The total recoverable nickel data point was reported as below analytical methods (MDL = 4.5 µg/L). The dissolved nickel data point was also reported as below analytical minimum ~~detection~~ levels (MDL not reported, ML = 10 µg/L). The maximum observed upstream receiving water concentration was 51 µg/L, as total recoverable (three data points). Therefore, nickel in the discharge does not have reasonable potential to cause or contribute to an in-stream excursion above applicable water quality criteria or objectives. However, this Order requires additional nickel monitoring. Should monitoring results indicate that the discharge has reasonable potential to cause or contribute to an exceedance of a water quality standard, this Order may be reopened or modified by adding an appropriate effluent limitation.

~~xi.~~xv. 1,1,2,2-Tetrachloroethane

(a) WQO. The CTR includes a criterion of 0.17 µg/L for 1,1,2,2-tetrachloroethane for the protection of human health for waters from which both water and organisms are consumed.

(b) RPA Results. The MEC for 1,1,2,2-tetrachloroethane was 0.3 µg/L (estimated value, MDL = 0.125, ML = 0.50) while the maximum observed upstream receiving water concentration~~s~~ were all reported as below analytical method detection levels (i.e., non-detect).

The discharge does not have reasonable potential to cause or contribute to an exceedance of water quality standards for the following reasons:

(1) One out of ~~50~~ 51 effluent monitoring results had a reported detection.

(2) The only effluent monitoring result detection was an estimated value and does not provide an adequate level of scientific certainty to use as evidence that the effluent exceeds water quality criteria.

(3) All 48 influent monitoring results were reported below analytical method detection levels (i.e., non-detect).

(4) 1,1,2,2-tetrachloroethane is not listed in the RAP as a constituent of concern.

Therefore, 1,1,2,2-tetrachloroethane in the discharge does not have reasonable potential to cause or contribute to an in-stream excursion above applicable water quality criteria or objectives. ~~Due to the nature of the contaminated groundwater, e~~Effluent monitoring has been established for 1,1,2,2-tetrachloroethane (as part of the requirement to monitor for other VOCs). If monitoring results indicate that the discharge has the reasonable potential to cause or contribute to an exceedance of a water quality standard, Central Valley Regional Board will reopen the Order and establish applicable WQBELs for 1,1,2,2-tetrachloroethane.

xvi. Tetrachloroethylene

(a) WQO. The CTR includes a criterion of 0.8 µg/L for tetrachlorethylene for the protection of human health for waters from which both water and organisms are consumed.

(b) RPA Results. The Discharger reported 51 effluent and 17 upstream receiving water monitoring results for tetrachlorethylene. Tetrachlorethylene was not detected in the effluent or upstream receiving water (MDL = 0.085 µg/L). Therefore, the discharge does not have reasonable potential to exceed the CTR criterion for the protection of human health for tetrachloroethylene. However, tetrachlorethylene is a constituent of concern in the influent groundwater. This Order includes a

technology-based effluent limitation of 0.5 µg/L for tetrachlorethylene, as discussed in section IV.B.2. of this Fact Sheet.

~~xii.~~xvii. 1,1,1-Trichloroethane

(a) WQO. DPH had adopted a Primary MCL for 1,1,1-trichloroethane of 200 µg/L, which is the numeric objective used to implement~~protective of~~ the Basin Plan~~'~~s' chemical constituent objective.

(b) RPA Results. The MEC and maximum observed upstream receiving water concentration~~s~~ were both reported as below analytical method detection levels (MDL = 0.04 µg/L). The Discharger reported ~~50~~ 51 effluent and 17 upstream receiving water monitoring results for 1,1,1-trichloroethane. Therefore, the discharge does not have reasonable potential to cause or contribute to an exceedance above the CTR criterion for human health and WQBELs for 1,1,1-trichloroethane are not included in this Order. However, this Order requires the Discharger to sample for 1,1,1-trichloroethane in the effluent quarterly (as part of the requirement to monitor for other VOCs).

xviii. Trichloroethylene.

(a) WQO. The CTR includes a criterion of 2.7 µg/L for trichloroethylene for the protection of human health for waters from which both water and organisms are consumed.

(b) RPA Results. The Discharger reported 51 effluent and 17 upstream receiving water monitoring results for trichloroethylene. Trichloroethylene was not detected in the effluent or upstream receiving water (MDL = 0.049 µg/L). Therefore, the discharge does not have reasonable potential to exceed the CTR criterion for the protection of human health for trichloroethylene. However, trichloroethylene is a constituent of concern in the influent groundwater. This Order establishes a technology-based effluent limitation of 0.5 µg/L for trichloroethylene, as discussed in section IV.B.2. of this Fact Sheet.

~~xiii.~~xix. Salinity

(a) WQO. The Basin Plans contain a narrative chemical constituent objective, a narrative toxicity objective, and, for certain specified water bodies, numeric water quality objectives for electrical conductivity, total dissolved solids, sulfate, and chloride. There are no Basin Plan site-specific objectives for salinity for the receiving water. Therefore, this Order applies the Basin Plans' narrative objectives.

For protection of the MUN beneficial use, this Order implements the narrative chemical constituent objective using the state MCLs, which are incorporated in the Basin Plans. There are no USEPA numeric water

quality criteria for the protection of agriculture, industrial, and livestock usage. Numeric values for the protection of agriculture are typically applied based on site-specific conditions and evaluations to determine the appropriate threshold necessary to interpret the narrative chemical constituents Basin Plan objective.

The Central Valley Water Board is currently implementing the CV-SALTS initiative to develop a Basin Plan Amendment that will establish a salt and nitrate Management Plan for the Central Valley. Through this effort the Basin Plans will be amended to define how the narrative water quality objective is be interpreted for the protection of agricultural use.

The USEPA Ambient Water Quality Criteria for Chloride recommends acute and chronic criteria for the protection of aquatic life beneficial use. There are no USEPA water quality criteria for the protection of aquatic life for electrical conductivity, total dissolved solids, and sulfate.

Table F-8. Salinity Water Quality Criteria/Objectives

Parameter	Agricultural WQ Goal[1]	Secondary MCL[2]	USEPA NAWQC	Effluent	
				Average	Maximum
EC (µmhos/cm)	Varies[3]	900, 1600, 2200	N/A	325	764
TDS (mg/L)	Varies	500, 1000, 1500	N/A	220	220
Sulfate (mg/L)	Varies	250, 500, 600	N/A	9.23	11
Chloride (mg/L)	Varies	250, 500, 600	860 1-hr 230 4-day	7.2	7.7

[1] Narrative chemical constituent objective of the Basin Plans. Procedures for establishing the applicable numeric limitation to implement the narrative objective can be found in the Policy for Application of Water Quality, Chapter IV, Section 8 of the San Joaquin Basin Plan and in Application of Water Quality Objectives, Chapter IV of the Tulare Lake Basin Plan. However, the Basin Plans do not require improvement over naturally occurring background concentrations. In cases where the natural background concentration of a particular constituent exceeds an applicable water quality objective, the natural background concentration will be considered to comply with the objective.

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

[3] The EC level in irrigation water that harms crop production depends on the crop type, soil type, irrigation methods, rainfall, and other factors.

(1) Chloride. The secondary MCL for chloride is 250 mg/L, as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum. The Central Valley Water Board must determine the applicable numeric limit to implement the narrative objective for the protection of agricultural supply. The most limiting agricultural water quality goal to interpret the narrative chemical constituents objective is 106 mg/L as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations-Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). The 106 mg/L water quality goal is intended to protect against adverse effects on sensitive crops when irrigated via sprinklers. However, the

agricultural water quality goal is not a site-specific goal or objective, but rather a general measure to protect salt-sensitive crops. Site-specific levels of chloride for the receiving waters are necessary to interpret the narrative chemical constituents objective for protection of agricultural supply.

(2) Electrical Conductivity. The secondary MCL for EC is 900 µmhos/cm as a recommended level, 1600 µmhos/cm as an upper level, and 2200 µmhos/cm as a short-term maximum. The Central Valley Water Board must determine the applicable numeric limit to implement the narrative chemical constituent objective for the protection of agricultural supply. The most limiting agricultural water quality goal to interpret the narrative chemical constituent objective for EC is 700 µmhos/cm as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). However, the 700 µmhos/cm agricultural water quality goal is not a site-specific goal or objective, but rather a general measure of EC that was determined to protect salt-sensitive crops, such as beans, carrots, turnips, and strawberries. Most other crops can tolerate higher EC concentrations without harm. Site-specific levels of EC for the receiving waters to interpret the narrative chemical constituents objective in the Basin Plans for protection of agricultural supply are necessary. Overall, salinity of agricultural irrigation water must be maintained at levels in which growers do not need to take extra measures to minimize or eliminate any harmful impacts.

(3) Sulfate. The secondary MCL for sulfate is 250 mg/L as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum.

(4) Total Dissolved Solids. The secondary MCL for TDS is 500 mg/L as a recommended level, 1000 mg/L as an upper level, and 1500 mg/L as a short-term maximum. The Central Valley Water Board must determine the applicable numeric limit to implement the narrative chemical constituent objective for the protection of agricultural supply. The most limiting agricultural water quality goal to interpret the narrative chemical constituent objective for TDS is 450 mg/L as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). However, the 450 mg/L agricultural water quality goal is not a site-specific goal or objective, but rather a general measure to protect salt-sensitive crops, such as beans, carrots, turnips, and strawberries. Most other crops can tolerate higher EC concentrations without harm. Site-specific levels of TDS for the receiving waters to interpret the narrative chemical

constituents objective in the Basin Plan for protection of agricultural supply are necessary. Overall, salinity for the agricultural irrigation water must be maintained at levels in which growers do not need to take measures to minimize or eliminate any harmful impacts.

(b) RPA Results.

(1) Chloride. The average chloride effluent concentration was 7.2 mg/L with concentrations ranging from 6.6 mg/L to 7.7 mg/L. The Discharger reported three effluent monitoring results for chloride. Based on these results, the discharge does not have reasonable potential to cause or contribute to an in stream excursion of the applicable water quality objective for chloride.

(2) Electrical Conductivity. The average EC effluent concentration was 325 µmhos/cm with concentrations ranging from 195 µmhos/cm to 764 µmhos/cm. The Discharger reported 40 effluent monitoring results for electrical conductivity. The maximum reported downstream electrical conductivity concentration was 357 µmhos/cm (40 samples). Based on these results, the discharge does not have reasonable potential to cause or contribute to an in stream excursion of the applicable water quality objective for EC.

(3) Sulfate. The average sulfate effluent concentration was 9.23 mg/L with concentrations ranging from 7.6 mg/L to 11 mg/L. The Discharger reported three effluent monitoring results for sulfate. Based on these results, the discharge does not have reasonable potential to cause or contribute to an in stream excursion of the applicable water quality objective for sulfate.

(4) Total Dissolved Solids. The Discharger reported three effluent monitoring results for TDS. All three effluent monitoring results for TDS had a reported concentration of 220 mg/L. Based on these results the discharge does not have reasonable potential to cause or contribute to an in stream excursion of the applicable water quality objective for TDS.

(c) WQBELs. The discharge does not have reasonable potential to cause or contribute to an in-stream excursion of water quality objectives for salinity; therefore, WQBELs are not added. However, since the Facility discharges to Bullard Canal, which is hydraulically connected to the San Joaquin River, and eventually the Sacramento-San Joaquin Delta, of additional concern is the salt contribution to Delta waters. Allowing the Discharger to increase its current salt loading is contrary to the Region-wide effort to address salinity in the Central Valley. Therefore, this Order requires continued salinity monitoring of the discharge to verify that salinity is not increasing.

xx. Total VOCs.

(a) WQO. There are no applicable criteria for the protection of human health or freshwater aquatic life for the sum of VOC constituents. However, there are water quality criteria for specific VOC constituents, as described above.

~~(c)~~**(b) RPA Results.** The MEC and maximum observed upstream receiving water concentration for the sum of all VOC constituents listed in Table 2a of Appendix 4 of the SIP was 0.93 µg/L (the result of an April 2009 effluent sample that had reported estimated values for 1,1-dichloroethane, cis-1,2-dichloroethylene, and 1,1,2,2-tetrachloroethane) and 0.74 µg/L (the result of a May 2010 upstream receiving sample that had an estimated value of 0.74 µg/L for chloromethane), respectively. Since there are no applicable human health or freshwater aquatic life criteria for the sum of VOC constituents, WQBELs for the sum of VOC constituents are not included in this Order. However, this Order includes a technology-based effluent limitation of 0.5 µg/L for the VOCs of concern, as discussed in section IV.B.2. of this Fact Sheet. This Order also includes quarterly effluent monitoring for all VOC constituents listed in Table 2a of Appendix 4 of the SIP.

c. Constituents with Insufficient Data. Reasonable potential cannot be determined for the following constituents because effluent data are insufficient. The Discharger is required to continue to monitor for these constituents in the effluent using analytical methods that provide the best feasible detection limits. When additional data become available, further analysis will be conducted to determine whether to add numeric effluent limitations or to continue monitoring.

i. Lead

(a) WQOs. The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for lead. Using the default conversion factors and reasonable worst-case measured hardness as described in section IV.C.2.e of this Fact Sheet, the applicable acute (1-hour average) and chronic (4-day average) criteria for the effluent are 29 µg/L and 1.1 µg/L, respectively, as total recoverable. Using the default conversion factors and reasonable worst-case measured hardness as described in section IV.C.2.e of this Fact Sheet, the applicable acute (1-hour average) and chronic (4-day average) criteria for the receiving water are 3.1 µg/L and 0.12 µg/L, respectively, as total recoverable.

(b) RPA Results. For the effluent, the Discharger reported two total recoverable and one dissolved lead results. The total recoverable lead results were reported as 0.14 µg/L (estimated value, MDL = 0.08 µg/L, ML = 5.0 µg/L) in 2009 and below analytical method detection levels (MDL = 2.3 µg/L) in 2010. The dissolved lead sample was reported as below analytical method detection levels (MDL not reported, ML = 5 µg/L). The

Discharger sampled the upstream receiving water for total lead twice and dissolved lead once. The total recoverable lead concentrations were reported as 29 µg/L and 27 µg/L and the dissolved lead concentration was reported as below analytical method detection levels (MDL not reported, ML = 5 µg/L).

Effluent and receiving water lead data are summarized in Table F-9 below:

Table F-9. Lead Monitoring Results

Date	Location	Result (µg/L)	MDL (µg/L)	RL (µg/L)	SIP Minimum Level (µg/L)	Criteria (µg/L)
7/11/2006	Effluent	ND[1, 4]	N/A[3]	5	0.5	1.1
3/09/2009	Effluent	DNQ[2] (0.14)	0.08	5	0.5	1.1
5/05/2010	Effluent	ND[1]	2.3	5	0.5	1.1
7/11/2006	Receiving Water	ND[1, 4]	N/A[3]	5	0.5	0.12
3/09/2009	Receiving Water	29	0.08	5	0.5	0.12
5/05/2010	Receiving Water	27	2.3	5	0.5	0.12

[1] ND – Reported as Not Detected
[2] DNQ – Reported as Detected, but Not Quantified
[3] N/A – MDL not reported
[4] Result reported as dissolved

Section 2.4.2 of the SIP states that the Minimum Level (ML) is the lowest quantifiable concentration in a sample based on the proper application of all method-based analytical procedures and the absence of any matrix interferences.

a) Required MLs are listed in Appendix 4 of the SIP. Where more than one ML is listed in Appendix 4, the discharger may select any one of the cited analytical methods for compliance determination. The selected ML used for compliance determination is referred to as the Reported Level (RL).

b) A Reporting Level can be lower than the Minimum Level in Appendix 4 only when the discharger agrees to use a Reporting Level that is lower than the Minimum Level listed in Appendix 4. The Regional Board and the discharger have no agreement to use a Reporting Limit lower than the listed Minimum Levels.

c) Section 1.2 of the SIP requires that the Regional Board use all available, valid, relevant, representative data and information, as determined by the Regional Board, to implement the SIP. Section 1.2 further states that the Regional Board has the discretion to consider if any data are inappropriate or insufficient for use in implementing the SIP.

d) Data reported below the Minimum Level indicates the data may not be valid due to possible matrix interferences during the analytical procedure.

e) Further, Section 2.4.5 of the SIP (Compliance Determination) supports the insufficiency of data reported below the Minimum Level or Reporting

Level. In part it states, "Dischargers shall be deemed out of compliance with an effluent limitation, for reporting and administrative enforcement purposes, if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the RL." Thus, if submitted data are below the Reporting Limit, that data cannot be used to determine compliance with effluent limitations.

f) Data reported below the Minimum Level are not considered valid data for use in determining Reasonable Potential. Therefore, in accordance with Section 1.2 of the SIP, the Board has determined that data reported below the Minimum Level are inappropriate and insufficient to be used to determine Reasonable Potential.

g) In implementing its discretion, the Board is not finding that Reasonable Potential does not exist; rather the Board cannot make such a determination given the invalid data. Therefore, the Board will require additional monitoring for such constituents until such time a determination can be made in accordance with the SIP.

Appendix 4 of the SIP cites several Minimum Levels (ML) for lead. The lowest ML cited for lead is 0.5 µg/L. The only reported effluent detection was an estimated value, which was estimated at a concentration below the required ML (refer to Table F-9). Therefore, the submitted effluent data are insufficient to determine reasonable potential under the SIP.

The upstream receiving water concentration of 27 µg/L and 29 µg/L exceed the CTR criteria for the protection of freshwater aquatic life for lead. Section 1.3, Step 6 of the SIP states that if the receiving water concentration exceeds the criteria and the pollutant is detected in the effluent, an effluent limitation is required. However, only one of three effluent samples collected detected lead and the detected value was a laboratory estimate below the SIP Minimum Level. Therefore, as discussed in detail above, the effluent data available are insufficient to justify establishing an effluent limitation for lead at this time.

Section 1.3, Step 8 of the SIP allows the Central Valley Water Board to require additional monitoring for a pollutant in place of an effluent limitation if data are unavailable or insufficient. Instead of limitations, additional monitoring has been established for lead. Should monitoring results indicate that the discharge has reasonable potential to cause or contribute to an exceedance of a water quality standard, this Order may be reopened and modified by adding an appropriate effluent limitation.

ii. Mercury

(a) WQO. The current NAWQC for protection of freshwater aquatic life, continuous concentration, for mercury is 0.77 µg/L (30-day average, chronic criteria). The CTR contains a human health criterion (based on a

threshold dose level causing neurological effects in infants) of 0.050 µg/L for waters from which both water and aquatic organisms are consumed. Both values are controversial and subject to change. In 40 CFR Part 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.

(b) RPA Results. The MEC and maximum observed upstream receiving water concentration for mercury were both reported as 0.19 µg/L (estimated value, MDL = 0.05 µg/L, ML = 0.40 µg/L) and both sampled on the same date in 2009. The Discharger sampled the effluent for total mercury twice and dissolved mercury once. The 2009 0.19 µg/L effluent mercury detection was the only reported mercury detection in the effluent. The Discharger sampled the upstream receiving water for total mercury twice and dissolved mercury once. The 2009 0.19 µg/L upstream receiving water mercury detection was the only reported detection in the upstream receiving water.

Effluent and receiving water mercury data are summarized in Table F-10 below:

Table F-10. Mercury Monitoring Results

Date	Location	Result (µg/L)	MDL (µg/L)	RL (µg/L)	SIP Minimum Level (µg/L)	Criteria (µg/L)
7/11/2006	Effluent	ND[1, 4]	N/A[3]	0.4	0.2	0.05
3/09/2009	Effluent	DNQ[2] (0.19)	0.05	0.4	0.2	0.05
5/05/2010	Effluent	ND[1]	0.18	0.4	0.2	0.05
7/11/2006	Receiving Water	ND[1, 4]	N/A[3]	0.4	0.2	0.05
3/09/2009	Receiving Water	DNQ[2] (0.19)	0.05	0.4	0.2	0.05
5/05/2010	Receiving Water	ND[1]	0.18	0.4	0.2	0.05

[1] ND – Reported as Not Detected
[2] DNQ – Reported as Detected, but Not Quantified
[3] N/A – MDL not reported
[4] Result reported as dissolved

Section 2.4.2 of the SIP states that the Minimum Level (ML) is the lowest quantifiable concentration in a sample based on the proper application of all method-based analytical procedures and the absence of any matrix interferences.

a) Required MLs are listed in Appendix 4 of the SIP. Where more than one ML is listed in Appendix 4, the discharger may select any one of the cited analytical methods for compliance determination. The selected ML used for compliance determination is referred to as the Reported Level (RL).

b) A Reporting Level can be lower than the Minimum Level in Appendix 4 only when the discharger agrees to use a Reporting Level that is lower than the Minimum Level listed in Appendix 4. The Regional Board and the discharger have no agreement to use a Reporting Limit lower than the listed Minimum Levels.

c) Section 1.2 of the SIP requires that the Regional Board use all available, valid, relevant, representative data and information, as determined by the Regional Board, to implement the SIP. Section 1.2 further states that the Regional Board has the discretion to consider if any data are inappropriate or insufficient for use in implementing the SIP.

d) Data reported below the Minimum Level indicates the data may not be valid due to possible matrix interferences during the analytical procedure.

e) Further, Section 2.4.5 of the SIP (Compliance Determination) supports the insufficiency of data reported below the Minimum Level or Reporting Level. In part it states, “Dischargers shall be deemed out of compliance with an effluent limitation, for reporting and administrative enforcement purposes, if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the RL.” Thus, if submitted data are below the Reporting Limit, that data cannot be used to determine compliance with effluent limitations.

f) Data reported below the Minimum Level are not considered valid data for use in determining Reasonable Potential. Therefore, in accordance with Section 1.2 of the SIP, the Board has determined that data reported below the Minimum Level are inappropriate and insufficient to be used to determine Reasonable Potential.

g) In implementing its discretion, the Board is not finding that Reasonable Potential does not exist; rather the Board cannot make such a determination given the invalid data. Therefore, the Board will require additional monitoring for such constituents until such time a determination can be made in accordance with the SIP.

Appendix 4 of the SIP cites two Minimum Levels (ML) for mercury. The lowest ML cited for mercury is 0.2 µg/L. The only reported effluent and upstream receiving water detection were estimated values, which were reported at a concentration below the required ML (refer to Table F-10). Therefore, the submitted effluent data are insufficient to determine reasonable potential under the SIP.

The Central Valley Water Board has evidence that low level mercury results are not consistently accurate and reliable when EPA sampling method 1669 is not used. For example, another groundwater remediation site (Rockwell Automation) had shown similar mercury estimated concentration values when EPA sampling method 1669 was not used.

However, after Rockwell Automation started using EPA test method 1630/1631 and EPA sampling method 1669, mercury sampling results were consistently detected below 0.0007 µg/L, which is significantly lower than the mercury water quality criterion of 0.05 µg/L. Mercury can easily be introduced into a sample and, consequently, contaminate the sample. EPA sampling method 1669 lists clean hands/dirty hands procedures that help reduce the potential contamination of mercury in the sample. The Discharger could not verify that these clean sampling methods were followed by sample collection personnel when sampling for mercury. Furthermore, the Discharger indicated to Central Valley Water Board staff that that sample collection personnel could have breathed on the sample which could have accidently contaminated the sample due to mercury amalgam fillings in the mouth of sample collection personnel.

In accordance with Section 1.3, Step 8 of the SIP, the Central Valley Water Board considers the mercury data insufficient to determine whether mercury in the discharge has reasonable potential to cause or contribute to an in-stream excursion above applicable water quality criteria or objectives. This Order requires additional monitoring for mercury using clean hands/dirty hands procedures, as described in EPA Method 1669. Should the monitoring results indicate that that the discharge has the reasonable potential to cause or contribute to an exceedance of applicable criteria, then this Order may be reopened and modified by adding an appropriate effluent limitation.

d. Constituents with Reasonable Potential. The Central Valley Water Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for copper, pH, and zinc. WQBELs for these constituents are included in this Order. A summary of the RPA is provided in Attachment G, and a detailed discussion of the RPA for each constituent is provided below.

i. Copper

(a) WQO. The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for copper. Using the default conversion factors and reasonable worst-case measured hardness as described in section IV.C.2.e of this Fact Sheet, the applicable acute (1-hour average) and chronic (4-day average) criteria are 8.2 µg/L and 5.8 µg/L, respectively, as total recoverable. Using the default conversion factors and reasonable worst-case measured hardness as described in section IV.C.2.e of this Fact Sheet, the applicable acute (1-hour average) and chronic (4-day average) criteria for the upstream receiving water are 1.3 µg/L and 1.0 µg/L, respectively, as total recoverable.

(b) RPA Results. The MEC for total recoverable copper was 1.2 µg/L while the maximum observed upstream receiving water concentration for total recoverable copper was 370 µg/L. The Discharger reported 28 dissolved

and 15 total recoverable copper effluent monitoring results. The Discharger also reported 10 dissolved and eight total recoverable copper upstream receiving water monitoring results. Section 1.3 of the SIP states that when the receiving water concentration of a pollutant exceeds the applicable criteria and the pollutant is detected in the effluent, an effluent limitation is required. Therefore, copper has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for the protection of freshwater aquatic life.

(c) WQBELs. Dilution credits are not allowed for the development of WQBELs based on aquatic life criteria, as discussed further in section IV.C.2.c of this Fact Sheet. This Order contains a final AMEL and MDEL for copper of 4.0 µg/L and 8.2 µg/L, respectively, based on the CTR criteria for the protection of freshwater aquatic life.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the MEC of 1.2 µg/L is less than the applicable WQBELs. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

ii. pH

(a) WQO. The San Joaquin Basin Plan includes a water quality objective for surface waters (except for Goose Lake) that the *"…pH shall not be depressed below 6.5 nor raised above 8.5."*

(b) RPA Results. The discharge of treated groundwater has a reasonable potential to cause or contribute to an excursion above the Basin Plan's numeric objectives for pH.

(c) WQBELs. Effluent limitations for pH of 6.5 as an instantaneous minimum and 8.5 as an instantaneous maximum are included in this Order based on protection of the San Joaquin Basin Plan objectives for pH. These effluent limitations are retained from Order No. R5-2006-0016.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the Facility is capable of achieving the applicable WQBELs. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

iii. Zinc

(a) WQO. The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for zinc. Using the default conversion factors and reasonable worst-case measured hardness as described in section IV.C.2.e of this Fact Sheet, the applicable acute (1-hour average) and chronic (4-day average) criteria are both 74 µg/L, as total recoverable. Using the default conversion factors and reasonable worst-case measured

hardness as described in section IV.C.2.e of this Fact Sheet, the applicable acute (1-hour average) and chronic (4-day average) criteria for the upstream receiving water are both 14 µg/L, as total recoverable.

(b) RPA Results. The MEC for total recoverable and dissolved zinc was 15.52 µg/L (estimated, MDL = 2 µg/L, ML = 50 µg/L) and 16.99 µg/L (estimated, MDL = 2 µg/L, ML = 50 µg/L), respectively. The maximum observed upstream receiving water concentration was 330 µg/L (as total recoverable). The Discharger reported 45 effluent and 17 upstream receiving water monitoring results. However, the RL for 43 of the 45 reported effluent results was 50 µg/L, which is two orders of magnitude greater than the ML required in previous Order R5-2006-0016 and the SIP (0.5 µg/L). The other two reported effluent results also had an RL (10 µg/L) greater than the required ML. The upstream receiving water had reported quantifiable detections above the applicable criteria and reported, but not quantifiable, detections in the effluent. Based on the current monitoring data and that reasonable potential was found in previous Order R5-2006-0016, there is currently not enough information to show that the discharge no longer has reasonable potential. Section 1.3 of the SIP states that when the receiving water concentration of a pollutant exceeds the applicable criteria and the pollutant is detected in the effluent, an effluent limitation is required. Therefore, zinc has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for the protection of freshwater aquatic life.

(c) WQBELs. Dilution credits are not allowed for the development of WQBELs based on aquatic life criteria, as discussed further in section IV.C.2.c of this Fact Sheet. This Order contains a final AMEL and MDEL for zinc of 37 µg/L and 74 µg/L, respectively, based on the CTR criteria for the protection of freshwater aquatic life.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the MEC of 16.99 µg/L as dissolved and 15.52 µg/L as total recoverable is less than the applicable WQBELs. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

iv. Whole Effluent Toxicity (See Section IV.C.5 of the Fact Sheet)

4. WQBEL Calculations

a. This Order includes WQBELs for copper, pH, and zinc. The general methodology for calculating WQBELs based on the different criteria/objectives is described in subsections IV.C.4.b through e, below. See Attachment H for the WQBEL calculations.

b. Effluent Concentration Allowance. For each water quality criterion/objective, the ECA is calculated using the following steady-state mass balance equation from Section 1.4 of the SIP:

ECA = C + D(C – B) where C>B, and
ECA = C where C≤B

where:

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

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

c. Basin Plan Objectives and MCLs. For WQBELs based on site-specific numeric Basin Plan objectives or MCLs, the effluent limitations are applied directly as the ECA as either an MDEL, AMEL, or average annual effluent limitations, depending on the averaging period of the objective.

d. Aquatic Toxicity Criteria. WQBELs based on acute and chronic aquatic toxicity criteria are calculated in accordance with Section 1.4 of the SIP. The ECAs are converted to equivalent long-term averages (i.e., LTA_{acute} and $LTA_{chronic}$) using statistical multipliers and the lowest LTA is used to calculate the AMEL and MDEL using additional statistical multipliers.

e. Human Health Criteria. WQBELs based on human health criteria, are also calculated in accordance with Section 1.4 of the SIP. The ECAs are set equal to the AMEL and a statistical multiplier was used to calculate the MDEL.

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

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

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

where:

$mult_{AMEL}$ = statistical multiplier converting minimum LTA to AMEL

$mult_{MDEL}$ = statistical multiplier converting minimum LTA to MDEL

M_A = statistical multiplier converting acute ECA to LTA_{acute}

M_C = statistical multiplier converting chronic ECA to $LTA_{chronic}$

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

Table F-11. Summary of Water Quality-Based Effluent Limitations

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Copper, Total Recoverable	µg/L	4.0	8.2	--	--
Zinc, Total Recoverable	µg/L	37	74	--	--
pH	standard units	--	--	6.5	8.5

5. Whole Effluent Toxicity (WET)

For compliance with the Basin Plans' 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 and chronic 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 Plans contain 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.*" (San Joaquin Basin Plan at page III-8.01 and Tulare Lake Basin Plan at page III-6) The Basin Plans also state that, *"…effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate…*".

For priority pollutants, the SIP dictates the procedures for conducting the RPA. Acute toxicity is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. The Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA. USEPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "*State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available…A permitting authority might also determine that WQBELs are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBELs for pathogens in all permits for POTWs discharging to contact recreational waters).*" Acute toxicity effluent limits are required to ensure compliance with the Basin Plan's narrative toxicity objective.

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

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

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

b. Chronic Aquatic Toxicity. The Basin Plans contain 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.*" (San Joaquin Basin Plan at page III-8.01 and Tulare Lake Basin Plan at III-6.) Based on chronic WET testing performed by the Discharger from July 2006 through January 2007, the discharge has reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plans' narrative toxicity objective as shown in Table F-12 below.

Table F-12. Whole Effluent Chronic Toxicity Testing Results

	Fathead Minnow *Pimephales promelas*		**Water Flea** *Ceriodaphnia dubia*		**Green Algae** *Selenastrum capricornutum*
Date	**Survival (TUc)**	**Growth (TUc)**	**Survival (TUc)**	**Reproduction (TUc)**	**Growth (TUc)**
07/18/2006	1	1	1	>1	1
10/03/2006	1	>1	1	>1	1
01/09/2007	1	1	1	>1	1

No dilution has been granted for the chronic condition. Therefore, chronic toxicity testing results exceeding 1 chronic toxicity unit (TUc) demonstrates the discharge has a reasonable potential to cause or contribute to an exceedance of the Basin Plans' 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 2003-0012 directing its staff to revise the toxicity control provisions in the SIP. The State Water Board states the following in WQO 2003-0012, "*In reviewing this petition and receiving comments from numerous interested persons on the propriety of including numeric effluent limitations for chronic toxicity in NPDES permits for publicly-owned treatment works that discharge to inland waters, we have determined that this issue should be considered in a regulatory setting, in order to allow for full public discussion and deliberation. We intend to modify the SIP to specifically address the issue. We anticipate that review will occur within the next year. We therefore decline to make a determination here regarding the propriety of the final numeric effluent limitations for chronic toxicity contained in these permits."* The process to revise the SIP is currently underway. Proposed changes include clarifying the appropriate form of effluent toxicity limits in NPDES permits and general expansion and standardization of toxicity control implementation related to the NPDES permitting process. Since the toxicity control provisions in the SIP are under revision it is infeasible to develop numeric effluent limitations for chronic toxicity. Therefore, this Order requires that the Discharger meet best management practices for compliance with the Basin Plans' narrative toxicity objective, as allowed under 40 CFR 122.44(k).

To ensure compliance with the Basin Plans' narrative toxicity objective, the Discharger is required to conduct chronic WET testing, as specified in the Monitoring and Reporting Program (Attachment E section V.). Furthermore, the Special Provision contained at 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 toxicity exceeding the numeric toxicity monitoring trigger, the Discharger is required to initiate a Toxicity Reduction Evaluation (TRE) in accordance with an approved TRE workplan. 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 effluent toxicity has been demonstrated.

D. Final Effluent Limitations

1. Mass-based Effluent Limitations

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

[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)

includes effluent limitations expressed in terms of concentration. 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 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.

2. Averaging Periods for Effluent Limitations

40 CFR 122.45 (d) requires maximum daily and average monthly discharge limitations for all dischargers other than publicly owned treatment works unless impracticable. The rationale for using alternative averaging periods for pH is discussed in section IV.C.3 of this Fact Sheet

3. Satisfaction of Anti-Backsliding Requirements

The CWA specifies that a revised permit may not include effluent limitations that are less stringent than the previous permit unless a less stringent limitation is justified based on exceptions to the anti-backsliding provisions contained in CWA sections 402(o) or 303(d)(4), or, where applicable, 40 CFR 122.44(l).

The effluent limitations in this Order are at least as stringent as the effluent limitations in the existing Order, with the exception of effluent limitations for chromium (III), chromium (VI), chloroform, copper, 1,1-dichloroethylene, dichlorodifluoromethane, 1,2-dichloropropane, methylene chloride, trans-1,2-dichloroethylene, 1,1,1-trichloroethane, trichlorofluoromethane, zinc, other VOCs, and total VOCs. The effluent limitations for these pollutants are less stringent than those in Order No. R5-2006-0016. This relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulation, as discussed in detail below.

a. CWA section 402(o)(1) and 303(d)(4). CWA section 402(o)(1) specifies that, in the case of effluent limitations established on the basis of CWA section 301(b)(1)(c) (i.e., WQBELs), a permit may not be renewed reissued, or modified to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit unless requirements in CWA section 303(d)(4) are met. The WQBELs established in Order R5-2006-0016 for chromium (III), chromium (VI), copper, dichlorodifluoromethane, 1,1-dichloroethylene, trichlorofluoromethane, and zinc are removed or relaxed in this Order in accordance with CWA section 303(d)(4).

CWA section 303(d)(4) has two parts: paragraph (A) which applies to nonattainment waters and paragraph (B) which applies to attainment waters. For attainment waters, CWA section 303(d)(4)(B) specifies that a limitation based on a water quality standard may be relaxed where the action is consistent with the antidegredation policy. The 303(d) listings for the San Joaquin River from Friant Dam to Mendota Pool, as described in section III.D.1 of this Fact Sheet, do not include chromium (III), chromium (VI), copper, dichlorodifluoromethane,

1,1-dichloroethylene, trichlorofluoromethane, and zinc. Thus, the receiving water is an attainment water for these constituents. As discussed in section IV.D.4, the removal or relaxation of WQBELs for chromium (III), chromium (VI), copper, dichlorodifluoromethane, 1,1-dichloroethylene, trichlorofluoromethane, and zinc is consistent with the antidegredation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16. Therefore, the modifications to these effluent limitations do not violate anti-backsliding requirements.

b. CWA section 402(o)(2). CWA section 402(o)(2) provides specific exceptions to the anti-backsliding prohibition contained in section 402(o)(1). CWA 402(o)(2)(B)(i) allows a renewed, reissued, or modified permit to contain a less stringent effluent limitation for a pollutant if information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance.

As described in section IV.C.3.b of this Fact Sheet, updated information that was not available at the time Order R5-2006-0016 was issued indicates that chromium (III), chromium (VI), 1,1-dichloroethylene, dichlorodifluoromethane, and trichlorofluoromethane in the discharge do not exhibit reasonable potential to cause or contribute to an exceedance of water quality objectives in the receiving water.

As described in section IV.B.2 of this Fact Sheet, this order discontinues technology-based effluent limitations for VOCs that were consistently not detected above analytical method detection levels. Order No. R5-2006-0016 contained TBELs for chloroform, 1,2-dichloropropane, methylene chloride, trans-1,2-dichloroethylene, 1,1,1-trichloroethane, other VOCs and total VOCs. New monitoring data that were not available at the time R5-2006-0016 was issued indicate that VOCs, besides 1,1-dichloroethylene, cis-1,2-dichloroethylene, 1,1-dichloroethane, tetrachloroethylene, and trichloroethylene, were consistently not detected in influent groundwater or treated effluent. This new information justifies less stringent effluent limitations because TBELs based on best professional judgment would have been unnecessary for pollutants that are not consistently detected in the waste stream or treated effluent. Thus, only TBELs for 1,1-dichloroethylene, cis-1,2-dichloroethylene, 1,1-dichloroethane, tetrachloroethylene, and trichloroethylene are retained in this Order.

4. Satisfaction of Antidegradation Policy

The Central Valley Water Board found in Order R5-2006-0016 that "*The permitted discharge is consistent with the anti-degradation provisions of 40 CFR 131.12 and Resolution No. 68-16.*" This Order does not allow for an expansion or an increase in flow to the receiving water from the previously authorized discharge rate of 1.44 mgd. Therefore, a complete antidegradation analysis is not necessary. The Order requires compliance with applicable federal technology-based standards and with WQBELs where the discharge could have the reasonable potential to cause or contribute to an exceedance of water quality standards. The permitted discharge is

consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.

This Order does the following: 1) removes existing effluent limitations for certain constituents (chromium (III), chromium (VI), dichlorodifluoromethane, and trichlorofluoromethane) in which new monitoring data demonstrates that the effluent does not cause or contribute to an exceedance of the applicable water quality criteria or objectives in the receiving water; 2) removes existing effluent limitations for certain constituents (chloroform, 1,2-dichloropropane, methylene chloride, trans-1,2-dichloroethylene, 1,1,1-trichloroethane, and other VOCs) in which new monitoring data demonstrates were not consistently detected above analytical method detection levels; and 3) relaxes effluent limitations for 1,1-dichloroethylene, copper, and zinc.

The copper and zinc effluent limitations in this Order are relaxed from those in the previous order because the Central Valley Water Board used a different method of calculating the water quality criteria. Copper and zinc are both CTR hardness-dependent metals. This Order uses the method developed in the 2006 Study, as described in Section IV.C.2.e.ii. of this Fact Sheet, to calculate the effluent concentration allowance (ECA) for CTR hardness-dependent metals. This method differs from the previous method of using the lowest observed upstream receiving water hardness result in that it captures all possible reasonable worst case mixing conditions in the receiving water. Both receiving water and effluent hardness vary based on flow and other factors, but the variability of receiving water and effluent hardness is sometimes independent. Using a calculated hardness value ensures that the Central Valley Water Board considers all possible reasonable worst case mixed downstream conditions that may result from these two independent variables. See Section IV.C.2.e.ii of this Fact Sheet for further information.

The Central Valley Water Board finds that neither the removal nor relaxation of the~~se~~ effluent limitations mentioned above (chromium (III), chromium (VI), dichlorodifluoromethane, trichlorofluoromethane, chloroform, 1,2-dichloropropane, methylene chloride, trans-1,2-dichloroethylene, 1,1,1-trichloroethane, other VOCs, 1,1-dichloroethylene, copper and zinc) is reasonably expected to result in an increase in pollutants or any additional degradation of the receiving water. In addition, removal of the sum of the concentrations of VOC constituents effluent limitation is not expected to result in lower water quality or additional degradation of the receiving water since this Order retains effluent limitations for the VOCs of concern (cis-1,2-dichloroethylene, 1,2-dichloroethylene, 1,1-dichloroethane, tetrachloroethylene ,1,1,1,-trichloroethane, and trichloroethylene). As explained in this Fact Sheet, the discharge is treated groundwater, and the Discharger does not add chemicals or other sources of pollutants to the discharge. Neither the removal nor relaxation of these effluent limitations is expected to trigger any change in the Facility operation that would increase the mass of pollutants. Thus, there is no reason to believe that existing water quality will be reduced due to adoption of this Order. Consequently, the removal or relaxation of effluent limitations mentioned

above is consistent with the antidegradation provisions 40 CFR 131.12 and State Water Board Resolution No. 68-16.

5. Stringency of Requirements for Individual Pollutants

This Order contains both technology-based effluent limitations and WQBELs for individual pollutants. The technology-based effluent limitations consist of restrictions on flow and VOCs. The WQBELs consist of restrictions on acute and chronic WET, copper, pH, and zinc. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements.

WQBELs have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant WQBELs were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR 131.38. The scientific procedures for calculating the individual WQBELs for priority pollutants are based on the CTR-SIP, which was approved by USEPA on 18 May 2000. All beneficial uses and water quality objectives contained in the Basin Plans were approved under state law and submitted to and approved by USEPA prior to 30 May 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to 30 May 2000, but not approved by USEPA before that date, are nonetheless "applicable water quality standards for purposes of the CWA" 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 requirements of the CWA.

Summary of Final Effluent Limitations
Discharge Point No. 001

Table F-13. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations				Basis[1]
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Flow	mgd	--	1.44	--	--	BPJ
Copper, Total Recoverable	µg/L	4.0	8.2	--	--	CTR
1,1-Dichloroethane	µg/L	--	<0.5	--	--	BPJ
1,1-Dichloroethylene	µg/L	--	<0.5	--	--	BPJ
cis-1,2-Dichloroethylene	µg/L	--	<0.5	--	--	BPJ
Tetrachloroethylene	µg/L	--	<0.5	--	--	BPJ
Trichloroethylene	µg/L	--	<0.5	--	--	BPJ
Zinc, Total Recoverable	µg/L	37	74	--	--	CTR
pH	standard units	--	--	6.5	8.5	BP

[1] CTR – Based on water quality criteria contained in the California Toxics Rule and applied as specified in the SIP
BPJ – Best professional judgment
BP – Based on water quality objectives contained in the Basin Plan.

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

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

b. **Chronic Whole Effluent Toxicity.** There shall be no chronic toxicity in the effluent discharge.

E. Interim Effluent Limitations – Not Applicable

F. Land Discharge Specifications – Not Applicable

G. Reclamation Specifications – Not Applicable

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

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

A. Surface Water

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

a. pH. Order R5-2006-0016 established a receiving water limitation for pH specifying that discharges from the Facility shall not cause the ambient pH to change by more than 0.5 units based on the water quality objective for pH in the San Joaquin Basin Plan. The Central Valley Water Board adopted Resolution R5-2007-0136 on 25 October 2007, amending the San Joaquin Basin Plan to delete the portion of the pH water quality objective that limits the change in pH to 0.5 units. The State Water Board, the Office of Administrative Law, and USEPA have approved the Basin Plan amendment. Consistent with the revised water quality objective in the San Joaquin Basin Plan, this Order does not require a receiving water limitation for pH change.

In Finding No. 14 of Resolution R5-2007-0136 the Central Valley Water Board found that the change in the pH receiving water objective is consistent with the State Water Board Resolution No. 68-16, in that the changes to water quality objectives (i) consider maximum benefit to the people of the State,(ii) will not unreasonably affect present and anticipated beneficial use of waters, and (iii) will not result in water quality less than that prescribed in policies, and is consistent with the federal Antidegradation Policy (40 CFR 131.12).

There are no other constituents regulated by this Order directly related to pH. Therefore, the relaxation of the pH receiving water limitation will protect aquatic life and other beneficial uses and will not unreasonably affect present and anticipated beneficial uses nor result in water quality less than described in applicable policies. The relaxation of the receiving water limitation is not expected to cause other impacts on water quality. The Central Valley Water Board finds that the relaxation of the pH receiving water limitation (i) is to the maximum benefit to the people of the State, (ii) will not unreasonably affect present and anticipated beneficial use of waters, and (iii) will not result in water quality less than that prescribed in policies, and is consistent with the federal Antidegradation Policy (40 CFR 131.12).

The revised receiving water limitation for pH, which is based on the amendment to the San Joaquin Basin Plan's pH water quality objective, reflects current scientifically supported pH requirements for the protection of aquatic life and other beneficial uses. The revised receiving water limitation for pH is more consistent with the current USEPA recommended criteria and is fully protective of aquatic life and the other beneficial uses listed in the San Joaquin Basin Plan. Changes in pH when pH is maintained within the range of 6.5 to 8.5 are neither beneficial nor adverse and, therefore, are not considered to be degradation in water quality. Attempting to restrict pH changes to 0.5 pH would incur substantial costs without demonstrable benefits to beneficial uses. Thus, any changes in pH that would occur under the revised pH limitation would not only be protective of beneficial uses, but also would be consistent with maximum benefit to people of the State. Therefore, the proposed amendment will not violate antidegradation policies.

b. Turbidity. Order R5-2006-0016 established a receiving water limitation for turbidity specifying that discharges form the Facility shall not cause the turbidity

to increase more than 1 NTU where natural turbidity is between 0 and 5 NTU based on the water quality objective for turbidity in the San Joaquin Basin Plan. The Central Valley Water Board adopted Resolution R5-2007-0136 on 25 October 2007, amending the San Joaquin Basin Plan to limit turbidity to 2 NTU when the natural turbidity is less than 1 NTU.

In Finding No.14 of Resolution R5-2007-0136 the Central Valley Water Board found that the change in the turbidity receiving water objective is consistent with the State Water Board Resolution No. 68-16, in that the changes to water quality objectives (i) consider maximum benefit to the people of the State, (ii) will not unreasonably affect present and anticipated beneficial use of waters, and (iii) will not result in water quality less than that prescribed in policies, and is consistent with the federal Antidegradation Policy (40 CFR 131.12).

This Order will be protective of the receiving water under all natural background conditions as defined in the San Joaquin Basin Plan's revised water quality turbidity objective. The relaxation of the turbidity receiving water limitation will protect aquatic life and other beneficial uses and will not unreasonably affect present and anticipated beneficial uses nor result in water quality less than described applicable policies. The relaxation of the receiving water limitation is not expected to cause other impacts on water quality. The Central Valley Water Board finds that the relaxation of the turbidity receiving water limitation is to the maximum benefit to the people of the State, (ii) will not unreasonably affect present and anticipated beneficial use of waters, and (iii) will not result in water quality less than that prescribed in policies, and is consistent with the federal Antidegradation Policy (40 CFR 131.12).

The revised receiving water limitation for turbidity, which is based on the amendment to the San Joaquin Basin Plan's turbidity water quality objective, reflects current scientifically supported turbidity requirements for the protection of aquatic life and other beneficial uses and, therefore, will be fully protective of aquatic life and other beneficial uses listed in the San Joaquin Basin Plan. Changes in turbidity allowed by the revised receiving water limitation, when ambient is below 1 NTU, would not adversely affect beneficial uses and would maintain water quality at a level higher than necessary to protect beneficial uses. Restricting low-level turbidity changes further may require costly upgrades, which would not provide any additional protection of beneficial uses. Thus, any changes in turbidity that would occur under the amended turbidity receiving water limitation would not only be protective of beneficial uses, but also would be consistent with maximum benefit to people of the State. Therefore, the relaxed receiving water limitations for turbidity will not violate antidegradation policies.

B. Groundwater

1. The beneficial uses of the underlying ground water are municipal and domestic supply, industrial service supply, industrial process supply, agricultural supply, water contact recreation, and non-contact water recreation.

2. Given that the discharge consists of groundwater that is pumped and treated to remove primary constituents of concern, the discharge is not expected to degrade groundwater.

3. Consistent with Order No. R5-2006-0016, groundwater limitations are retained in this Order to protect the beneficial uses of the underlying groundwater.

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

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

A. Influent Monitoring

1. Influent VOC monitoring is required to collect data on the characteristics of the extracted groundwater prior to treatment. These data are necessary to assess the need for TBELS. Influent monitoring is no longer being required for the following parameters: chromium (III), chromium (VI), copper, EC, iron, nickel, and zinc; however, besides chromium (III), iron, and nickel, this Order requires effluent monitoring for these parameters.

2. The influent monitoring frequency is being revised from monthly to quarterly for all VOCs; as a robust data set has been established for the influent and less frequent monitoring is warranted.

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. Effluent monitoring frequencies and sample types for flow (daily), copper (monthly), pH (monthly), 1,1-dichloroethane (monthly),1,1-dichloroethylene (monthly), cis-1,2-dichloroethylene (monthly), tetrachloroethylene (monthly), trichloroethylene (monthly), and zinc (monthly) have been retained from Order No. R5-2006-0016 to determine compliance with effluent limitations for these parameters.

3. Monitoring data collected over the term of Order R5-2006-0016 for lead and mercury are insufficient to determine if the discharge has reasonable potential to cause or contribute to an exceedance of applicable water quality criteria. Therefore, this Order requires monthly lead and mercury effluent monitoring for at least 12 months

to determine if each constituent is present in the discharge at concentrations that have reasonable potential to cause or contribute to an exceedance of applicable criteria.

4. Annual effluent monitoring for general minerals and monthly effluent monitoring for temperature contained in Order No. R5-2006-0016 will be retained in this Order to monitor general effluent quality.

5. The monitoring frequency for hardness has been revised from monthly to quarterly, as a robust data set has been established for the effluent and less frequent monitoring is warranted.

6. Monitoring data collected over the existing permit term for chromium (III), chromium (VI), dichlorodifluoromethane, and trichlorofluoromethane did not demonstrate reasonable potential to exceed water quality objectives/criteria. Thus, monthly monitoring requirements for these parameters have not been retained from Order No. R5-2006-0016. However, this Order will continue to require quarterly effluent monitoring for chromium (VI) to determine if the discharge a reasonable potential to cause or contribute to an exceedance of applicable water quality criteria.

7. Order R5-2006-0016 included monthly monitoring requirements for all VOCs listed in Appendix 4 of the SIP. The RAP and extensive VOC monitoring of the influent and surrounding groundwater indicate that the VOCs of concern in the influent groundwater include 1,1-dichloroethane,1,1-dichloroethylene, cis-1,2-dichloroethylene, tetrachloroethylene, and trichloroethylene. Therefore, this Order establishes TBELs for these constituents and discontinues effluent limitations for the remaining VOCs. This Order retains monthly effluent monitoring for the above-mentioned VOCs of concern in order to determine compliance with the applicable effluent limitations and reduces monitoring frequency from monthly to quarterly for all other VOCs listed in Appendix 4 of the SIP to characterize the effluent discharged for future permit renewals.

8. The Central Valley Water Board used the priority pollutant monitoring data submitted by the Discharger over the term of Order R5-2006-0016 to conduct a meaningful RPA. In accordance with Section 1.3 of the SIP, periodic monitoring is required for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established. The monitoring frequency for priority pollutants has been established once between 1 July 2013 and 31 December 2013 and once between 1 January 2015 and 30 June 2015. See Attachment I for more detailed requirements related to performing priority pollutant monitoring.

9. This Order contains a monitoring program for startup of the system after shutdown. If the Facility has a shutdown that may result in noncompliance, the Discharger shall increase effluent sampling frequency as described in the MRP. In summary, samples shall be analyzed immediately upon startup, daily thereafter, and monthly thereafter in accordance with the influent and effluent monitoring schedules. The Discharger shall ensure that there is sufficient time between sample collections to avoid sample clustering.

10. Water Code section 13176, subdivision (a), states: "*The analysis of any material required by [Water Code sections 13000-16104] shall be performed by a laboratory that has accreditation or certification to Article 3 (commencing with Section 100825) of Chapter 4 of Part 1 of Division 101 of the Health and Safety Code.*" The Department of Public Health certifies laboratories through its Environmental Laboratory Accreditation Program (ELAP).

Section 13176 cannot be interpreted in a manner that would violate federal holding time requirements that apply to NPDES permits pursuant to the Clean Water Act. (Wat. Code §§ 13370, subd. (c), 13372, 13377.) Section 13176 is inapplicable to NPDES permits to the extent it is inconsistent with Clean Water Act requirements. (Wat. Code § 13372, subd. (a).) The holding time requirements are 15 minutes for chlorine residual, dissolved oxygen, and pH, and immediate analysis is required for temperature. (40 C.F.R. § 136.3(e), Table II) Due to the location of the Facility, it is both legally and factually impossible for the Discharger to comply with section 13176 for constituents with short holding times.

C. Whole Effluent Toxicity Testing Requirements

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

2. **Chronic Toxicity.** Quarterly chronic whole effluent toxicity testing is required in order to demonstrate compliance with the Basin Plans' narrative toxicity objective. This Order authorizes a reduction in the frequency of chronic toxicity monitoring if, after four successive quarters, no toxicity is reported and approval by the Executive Officer is provided.

D. Receiving Water Monitoring

1. Surface Water

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

b. The Discharger submitted priority pollutant upstream receiving monitoring data over the term of Order R5-2006-0016. The Central Valley Water Board used the priority pollutant monitoring data to conduct a meaningful RPA. In accordance with Section 1.3 of the SIP, periodic monitoring is required for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established. The monitoring frequency for priority pollutants has been established once between 1 July 2013 and 31 December 2013 and once between 1 January 2015 and 30 June 2015 in order to collect data to conduct an RPA. See Attachment I for more detailed requirements related to performing priority pollutant monitoring.

2. Groundwater

a. This Order includes groundwater limitations to protect groundwater quality in accordance with the Tulare Lake Basin Plan. Although not required as part of this Order, the Discharger is required to conduct extensive groundwater monitoring in accordance with the requirements from DTSC.

E. Other Monitoring Requirements – Not Applicable

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions

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

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

B. Special Provisions

1. Reopener Provisions

a. Mercury. There are indications that the discharge may contain mercury in concentrations that have a reasonable potential to cause or contribute to an exceedance of applicable water quality objectives. This Order requires the Discharger to conduct additional monitoring to determine the presence of mercury in the effluent. This reopener provision allows the Central Valley Water Board to reopen this Order for addition of effluent limitations and requirements for mercury, if after review of the additional monitoring data, it is determined that the discharge has reasonable potential to cause or contribute to an exceedance of applicable water quality objectives.

b. Lead. There are indications that the discharge may contain lead in concentrations that have a reasonable potential to cause or contribute to an exceedance of applicable water quality objectives. This Order requires the Discharger to conduct additional monitoring to determine the presence of lead in the effluent. This reopener provision allows the Central Valley Water Board to

reopen this Order for addition of effluent limitations and requirements for lead, if after review of the additional monitoring data, it is determined that the discharge has reasonable potential to cause or contribute to an exceedance of applicable water quality objectives.

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

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

2. **Special Studies and Additional Monitoring Requirements**

a. **Chronic Whole Effluent Toxicity Requirements.** The Basin Plans contain 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*." (San Joaquin Basin Plan at page III-8.01 and Tulare Lake Basin Plan at page III-6) Based on whole effluent chronic toxicity testing performed by the Discharger from July 2006 through July 2010, the discharge does have reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plans' narrative toxicity objective.

This provision requires the Discharger to develop a TRE Workplan in accordance with USEPA guidance. In addition, the provision provides a numeric toxicity monitoring trigger and requirements for accelerated monitoring, as well as, requirements for TRE initiation if toxicity has been 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 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 toxicity before requiring the implementation of a TRE. Due to possible

seasonality of the toxicity, the accelerated monitoring should be performed in a timely manner, preferably taking no more than 2 to 3 months to complete.

The provision requires accelerated monitoring consisting of four chronic toxicity tests in a six-week period (i.e., one test every two weeks) using the species that exhibited toxicity. Guidance regarding accelerated monitoring and TRE initiation is provided in the *Technical Support Document for Water Quality-based Toxics Control,* EPA/505/2-90-001, March 1991 (TSD). The TSD at page 118 states, "*EPA recommends if toxicity is repeatedly or periodically present at levels above effluent limits more than 20 percent of the time, a TRE should be required.*" Therefore, four accelerated monitoring tests are required in this provision. If no toxicity is demonstrated in the four accelerated tests, then it demonstrates that toxicity is not present at levels above the monitoring trigger more than 20 percent of the time (only 1 of 5 tests are toxic, including the initial test). However, notwithstanding the accelerated monitoring results, if there is adequate evidence of effluent toxicity (i.e., toxicity present exceeding the monitoring trigger more than 20 percent of the time), the Executive Officer may require that the Discharger initiate a TRE.

See the WET Accelerated Monitoring Flow Chart (Figure F-1), below, for further clarification of the accelerated monitoring requirements and for the decision points for determining the need for TRE initiation.

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

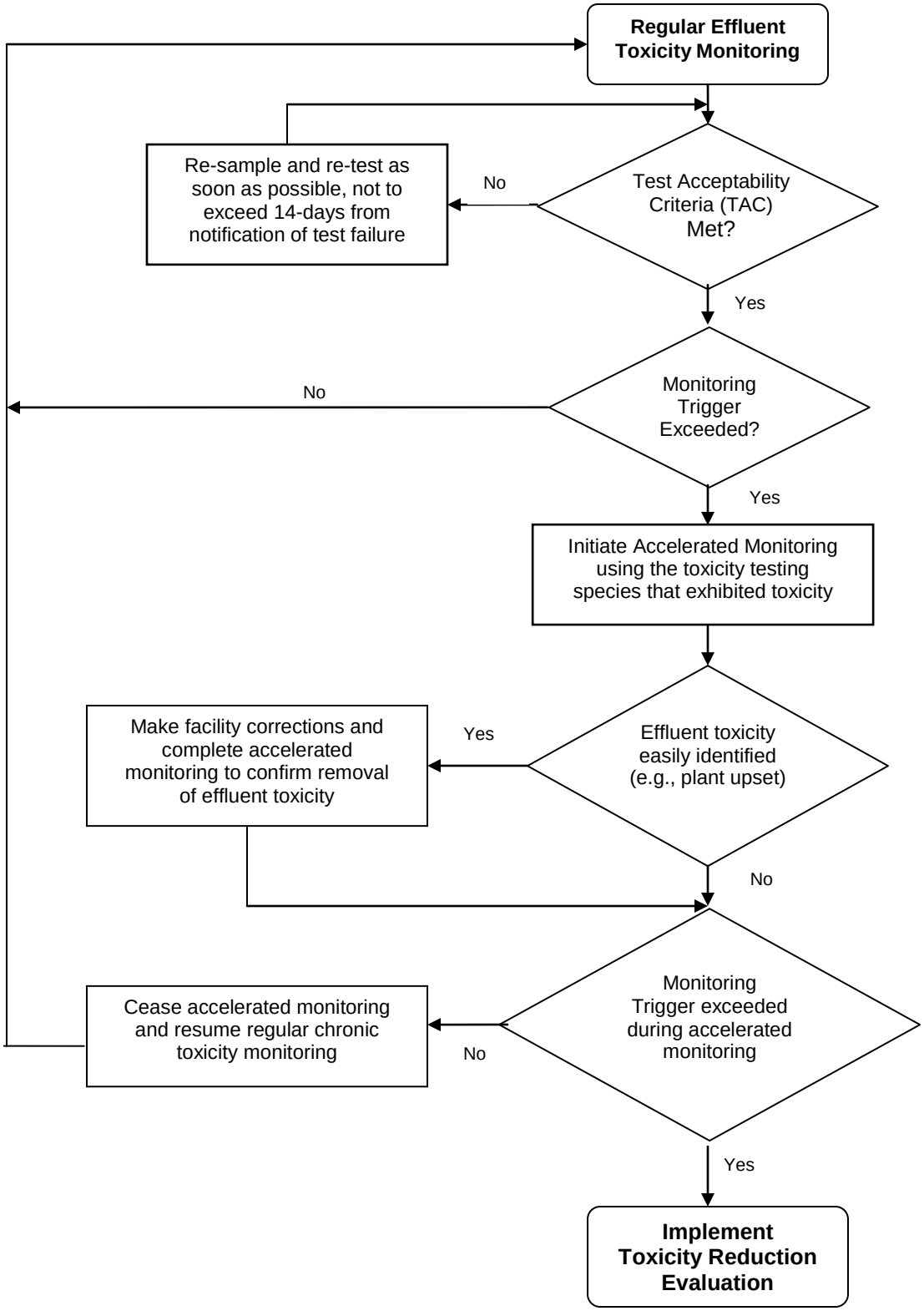
- Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants, EPA/833-B-99/002, August 1999.
- Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations (TREs), EPA/600/2-88/070, April 1989.
- Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures, Second Edition, EPA 600/6-91/003, February 1991.
- Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I, EPA/600/6-91/005F, May 1992.
- Methods for Aquatic Toxicity Identification Evaluations: Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity, Second Edition, EPA/600/R-92/080, September 1993.
- Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity, Second Edition, EPA 600/R-92/081, September 1993.

- Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, EPA-821-R-02-012, October 2002.

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

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

Figure F-1
WET Accelerated Monitoring Flow Chart



3. Best Management Practices and Pollution Prevention – Not Applicable

4. Construction, Operation, and Maintenance Specifications

a. The Discharger submitted the Updated Operation and Maintenance Manual and Sampling and Analysis Plan (O&M Plan) on 1 September 2009. The O&M Plan was approved by the Executive Officer. This Order requires the Discharger to develop or review and revise the existing O&M to ensure compliance with this Order. Section X.C.2.d in Attachment E of this Order also requires the Discharger to submit with the annual operations report a statement certifying whether the O&M Plan is current and when it was last revised.

b. Spent carbon and other residual solids removed from liquid wastes or used to treat liquid wastes shall be recycled or disposed of in a manner that is consistent with Division 3, Title 27; Chapter 15, Division 3, Title 23; and Division 4.5, Title 22 of the CCR and approved by the Executive Officer.

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

6. Other Special Provisions

a. This Order does not pre-empt or supersede the authority of local agencies to prohibit, restrict, or control the discharge of treated groundwater subject to their control. Discharges allowed by this Order to local irrigation or storm water collection and conveyance facilities must obtain approval from the agency responsible for operation and maintenance of the facilities.

7. Compliance Schedules – Not Applicable

VIII. PUBLIC PARTICIPATION

The Central Valley Water Board is considering the issuance of WDRs that will serve as an NPDES permit for the Facility. As a step in the WDR adoption process, the Central Valley Water Board staff has developed tentative WDRs. The Central Valley Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The Central Valley Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through the posting at the Facility, at the nearest city hall or county courthouse, at the local post office, and on the Central Valley Water Board's web site.

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 Officer at the Central Valley Water Board at the address on the cover page of this Order.

To be fully responded to by staff and considered by the Central Valley Water Board, written comments must be received at the Central Valley Water Board offices by 5:00 p.m. on **11 March 2013**.

C. Public Hearing

The Central Valley 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: 11/12 April 2013
Time: 8:30 a.m.
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 Central Valley 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 www.waterboards.ca.gov/centralvalley where you can access the current agenda for changes in dates, time, and locations.

D. Waste Discharge Requirements Petitions

Any aggrieved person may petition the State Water Board to review the decision of the Central Valley Water Board regarding the final WDRs. The petition must be received by the State Water Board within 30 days of the Central Valley Water Board's action, and must be submitted 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, related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the following address between 8:00 a.m. and 4:30 p.m., Monday through Friday. The Central Valley Regional Water Board office is at 1685 "E" Street, Fresno, CA 93706. Copying of documents may be arranged through the Central Valley 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 Central Valley 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 Alexander Mushegan at (559) 488-4397.

ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS FOR CONSTITUENTS OF CONCERN

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Chloroform	µg/L	ND	ND	80	--	--	68	2400	--	80	No[2]
Chromium (III), Total Recoverable	µg/L	5.4[1]	22.85	130[3]/25[4]	1,100[3]/210[4]	130[3]/25[4]	--	--	--	50	No[2]
Chromium (VI), Total Recoverable	µg/L	3.6[5]	3.1	11	16	11	--	--	--	50	No[2]
Copper, Total Recoverable	µg/L	1.2	370	5.8[3]/1.0[4]	8.2[3]/1.3[4]	5.8[3]/1.0[4]	1,300	--	--	1,300	Yes
Chloromethane	µg/L	0.84	0.74	N/A	--	--	--	---	--	--	No[2]
Dichlorodifluoromethane	µg/L	ND	ND	~~0.19~~[6]N/A	--	--	--	--	--	--	No[2]
1,1-Dichloroethane	µg/L	0.28[1]	ND	5	--	--	--	--	--	5	No[2]
1,1-Dichloroethylene	µg/L	ND	ND	0.057	--	--	.057	3.2	--	6.0	No[2]
cis-1,2-Dichloroethylene	µg/L	0.82	ND	6	--	--	--	--	--	6	No[2]
trans-1,2-Dichloroethylene	µg/L	ND	ND	10	--	--	700	140000	--	10	No[2]
1,2-Dichloropropane	µg/L	ND	ND	0.52	--	--	0.52	39	--	5	No[2]
Electrical Conductivity @ 25˚C	µmhos/cm	764	357	700						900	No[2]
Iron, Total Recoverable	µg/L	ND	1900	300	--	--	--	--	--	300	No[2]
Lead, Total Recoverable	µg/L	0.14[1]	29	1.1[3]/0.12[4]	29[3]/3.1[4]	1.1[3]/0.12[4]	--	--	--	--	Insufficient ~~Data~~[7]Data[6]
Mercury, Total Recoverable	µg/L	0.19[1]	0.19[1]	0.05	--	0.77	0.050	0.051	--	2.0	Insufficient ~~Data~~[7]Data[6]
Methylene Chloride	µg/L	ND[8]~~0.81~~	ND	4.7	--	--	4.7	1600	--	5	No[2]
Nickel, Total Recoverable	µg/L	ND	51	32[3]/6.0[4]	290[3]/54[4]	32[3]/6.0[4]	610	4,600	--	100	No[2]
1,1,2,2-Tetrachloroethane	µg/L	0.3[1]	ND	0.17	--	--	0.17	11	--	1	No[2]
1,1,1-Trichloroethane	µg/L	ND	ND	200	--	--	--	--	--	200	No[2]
Tetrachloroethylene	µg/L	ND	ND	0.8	--	--	0.8	8.85	--	5	No[2]
Total VOCs	µg/L	0.93[1]	0.74	N/A	--	--	--	--	--	--	No[2]
Trichloroethylene	µg/L	ND	ND	2.7	--	--	2.7	81	--	5	No[2]
Trichlorofluoromethane	µg/L	ND	ND	~~0.19~~[6]150	--	--	--	--	--	150	No[2]
Zinc, Total Recoverable	µg/L	16.99[1, ~~8~~7]	330	74[3]/14[4]	74[3]/14[4]	74[3]/14[4]	--	--	--	5,000	Yes

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential

General Note: All inorganic concentrations are given as a total recoverable.
MEC = Maximum Effluent Concentration
B = Maximum Receiving Water Concentration
C = Criterion used for Reasonable Potential Analysis
CMC = Criterion Maximum Concentration (CTR or NTR)
CCC = Criterion Continuous Concentration (CTR or NTR)
Water & Org = Human Health Criterion for Consumption of Water & Organisms (CTR or NTR)
Org. Only = Human Health Criterion for Consumption of Organisms Only (CTR or NTR)
Basin Plan = Numeric Site-specific Basin Plan Water Quality Objective
MCL = Drinking Water Standards Maximum Contaminant Level
ND = Non-detect
N/A = No applicable criteria

Footnotes:
(1) Estimated value(s)
(2) Pollutant does not exhibit reasonable potential to cause or contribute to an exceedance of water quality objectives. See section IV.C.3.b of the Fact Sheet (Attachment F).
(3) Criterion to be compared to the maximum effluent concentration.
(4) Criterion to be compared to the maximum ambient background receiving water concentration.
(5) MEC of 19 µg/L is considered an outlying data point, second highest detected chromium (VI) concentration is 3.6 µg/L. See section IV.C.3 of the Fact Sheet (Attachment F).
~~(6) USEPA's NAWQC for protection of human health for halomethanes~~
~~(7)~~(6) Insufficient data to conduct RPA. See section IV.C.3 of the Fact Sheet (Attachment F)
(7) MEC of 16.99 µg/L is dissolved. MEC as total recoverable is 15.52 µg/L (estimated value).
(8) MEC of 0.81 µg/L appears to be anomalous and unrepresentative. The 0.81 methylene chloride was the only reported effluent detection for methylene chloride. See Section IV.B.2.a. of the Fact Sheet (Attachment F).

ATTACHMENT H – CALCULATION OF WQBELS

Parameter	Units	Most Stringent Criteria			Dilution Factors			HH Calculations			Aquatic Life Calculations									Final Effluent Limitations	
		HH	CMC	CCC	HH	CMC	CCC	ECA_{HH} = $AMEL_{HH}$	AMEL/MDEL $Multiplier_{HH}$	$MDEL_{HH}$	ECA $Multiplier_{acute}$	LTA_{acute}	ECA $Multiplier_{chronic}$	$LTA_{chronic}$	Lowest LTA	AMEL $Multiplier_{95}$	$AMEL_{AL}$	MDEL $Multiplier_{99}$	$MDEL_{AL}$	Lowest AMEL	Lowest MDEL
Copper, Total Recoverable	µg/L	1300	8.2	5.8	--	--	--	1300	2.06	2677	0.31	2.5	0.51	3.0	2.5	1.59	4.0	3.27	8.2	4.0	8.2
Zinc, Total Recoverable	µg/L	2100	74	74	--	--	--	2100	2.01	4213	0.32	23.8	0.53	39	23.8	1.55	37	3.11	74	37	74

ATTACHMENT I – EFFLUENT AND RECEIVING WATER CHARACTERIZATION

I. Background. Sections 2.4.1 through 2.4.4 of the SIP provide minimum standards for analyses and reporting. (Copies of the SIP may be obtained from the State Water Resources Control Board, or downloaded from http://www.waterboards.ca.gov/water_issues/programs/state_implementation_policy/docs/sip2005.pdf). To implement the SIP, effluent and receiving water data are needed for all priority pollutants. Effluent and receiving water pH and hardness are required to evaluate the toxicity of certain priority pollutants (such as heavy metals) where the toxicity of the constituents varies with pH and/or hardness. In addition to specific requirements of the SIP, the Central Valley Water Board is requiring the following monitoring:

A. Drinking water constituents. Constituents for which drinking water Maximum Contaminant Levels (MCLs) have been prescribed in the California Code of Regulation are included in the *Water Quality Control Plan, Fourth Edition*, for the Sacramento and San Joaquin River Basins and the *Water Quality Control Plan, Second Edition,* for the Tulare Lake Basin (collectively hereinafter Basin Plans)**.** The Basin Plans define virtually all surface waters within the Central Valley Region as having existing or potential beneficial uses for municipal and domestic supply. The Basin Plans further require that, at a minimum, water designated for use as domestic or municipal supply shall not contain concentrations of chemical constituents in excess of the MCLs contained in the California Code of Regulations.

B. Effluent and receiving water temperature. This is both a concern for application of certain temperature-sensitive constituents, such as fluoride, and for compliance with the Basin Plans' thermal discharge requirements.

C. Effluent and receiving water hardness and pH. These are necessary because several of the CTR constituents are hardness and pH dependent.

II. Monitoring Requirements.

A. Priority pollutant samples shall be collected once between **1 July 2013 – 31 December 2013** and once between **1 January 2015 and 30 June 2015** from the effluent and upstream receiving water (EFF-001 and RSW-001) and analyzed for the constituents listed in Table I-1. Each individual monitoring event shall provide representative sample results for the effluent and upstream receiving water.

B. Concurrent Sampling. Effluent and receiving water sampling shall be performed at approximately the same time, on the same date.

C. Sample type. All effluent samples shall be taken as grab samples. All receiving water samples shall be taken as grab samples.

D. Additional Monitoring/Reporting Requirements. The Discharger shall conduct the monitoring and reporting in accordance with the General Monitoring Provisions and Reporting Requirements in Attachment E.

Table I-1. Priority Pollutants and Other Constituents of Concern

CTR #	Constituent	CAS Number	Maximum Reporting Level (µg/L or noted)
28	1,1-Dichloroethane	75343	0.5
30	1,1-Dichloroethylene	75354	0.5
41	1,1,1-Trichloroethane	71556	0.5
42	1,1,2-Trichloroethane	79005	0.5
37	1,1,2,2-Tetrachloroethane	79345	0.5
75	1,2-Dichlorobenzene	95501	0.5
29	1,2-Dichloroethylene	107062	0.5
	cis-1,2-Dichloroethylene	156592	0.5
31	1,2-Dichloropropane	78875	0.5
101	1,2,4-Trichlorobenzene	120821	0.5
76	1,3-Dichlorobenzene	541731	0.5
32	1,3-Dichloropropene	542756	0.5
77	1,4-Dichlorobenzene	106467	0.5
17	Acrolein	107028	2
18	Acrylonitrile	107131	2
19	Benzene	71432	0.5
20	Bromoform	75252	0.5
34	Bromomethane	74839	1
21	Carbon tetrachloride	56235	0.5
22	Chlorobenzene (mono chlorobenzene)	108907	0.5
24	Chloroethane	75003	0.5
25	2- Chloroethyl vinyl ether	110758	1
26	Chloroform	67663	0.5
35	Chloromethane	74873	0.5
23	Dibromochloromethane	124481	0.5
27	Dichlorobromomethane	75274	0.5
36	Dichloromethane	75092	0.5
33	Ethylbenzene	100414	0.5
88	Hexachlorobenzene	118741	1
89	Hexachlorobutadiene	87683	1
91	Hexachloroethane	67721	1
94	Naphthalene	91203	10
38	Tetrachloroethene	127184	0.5
39	Toluene	108883	0.5
40	trans-1,2-Dichloroethylene	156605	0.5
43	Trichloroethene	79016	0.5

CTR #	Constituent	CAS Number	Maximum Reporting Level (µg/L or noted)
44	Vinyl chloride	75014	0.5
	Methyl-tert-butyl ether (MTBE)	1634044	--
	Trichlorofluoromethane	75694	--
	1,1,2-Trichloro-1,2,2-Trifluoroethane	76131	--
	Styrene	100425	--
	Xylenes	1330207	--
60	1,2-Benzanthracene	56553	5
85	1,2-Diphenylhydrazine	122667	1
45	2-Chlorophenol	95578	5
46	2,4-Dichlorophenol	120832	5
47	2,4-Dimethylphenol	105679	2
49	2,4-Dinitrophenol	51285	5
82	2,4-Dinitrotoluene	121142	5
55	2,4,6-Trichlorophenol	88062	10
83	2,6-Dinitrotoluene	606202	5
50	2-Nitrophenol	25154557	10
71	2-Chloronaphthalene	91587	10
78	3,3'-Dichlorobenzidine	91941	5
62	3,4-Benzofluoranthene	205992	10
52	4-Chloro-3-methylphenol	59507	5
48	4,6-Dinitro-2-methylphenol	534521	10
51	4-Nitrophenol	100027	5
69	4-Bromophenyl phenyl ether	101553	10
72	4-Chlorophenyl phenyl ether	7005723	5
56	Acenaphthene	83329	1
57	Acenaphthylene	208968	10
58	Anthracene	120127	10
59	Benzidine	92875	5
61	Benzo(a)pyrene (3,4-Benzopyrene)	50328	2
63	Benzo(g,h,i)perylene	191242	5
64	Benzo(k)fluoranthene	207089	2
65	Bis(2-chloroethoxy) methane	111911	5
66	Bis(2-chloroethyl) ether	111444	1
67	Bis(2-chloroisopropyl) ether	39638329	10
68	Bis(2-ethylhexyl) phthalate	117817	5
70	Butyl benzyl phthalate	85687	10

CTR #	Constituent	CAS Number	Maximum Reporting Level (µg/L or noted)
73	Chrysene	218019	5
81	Di-n-butylphthalate	84742	10
84	Di-n-octylphthalate	117840	10
74	Dibenzo(a,h)-anthracene	53703	0.1
79	Diethyl phthalate	84662	10
80	Dimethyl phthalate	131113	10
86	Fluoranthene	206440	10
87	Fluorene	86737	10
90	Hexachlorocyclopentadiene	77474	5
92	Indeno(1,2,3-c,d)pyrene	193395	0.05
93	Isophorone	78591	1
98	N-Nitrosodiphenylamine	86306	1
96	N-Nitrosodimethylamine	62759	5
97	N-Nitrosodi-n-propylamine	621647	5
95	Nitrobenzene	98953	10
53	Pentachlorophenol	87865	1
99	Phenanthrene	85018	5
54	Phenol	108952	1
100	Pyrene	129000	10
	Aluminum	7429905	--
1	Antimony	7440360	5
2	Arsenic	7440382	1
15	Asbestos	1332214	--
	Barium	7440393	--
3	Beryllium	7440417	2
4	Cadmium	7440439	0.25
5a	Chromium (total)	7440473	2
5b	Chromium (VI)	18540299	10
6	Copper	7440508	0.5
14	Cyanide	57125	5
	Fluoride	7782414	--
	Iron	7439896	--
7	Lead	7439921	0.5
8	Mercury	7439976	0.2
	Manganese	7439965	--
	Molybdenum	7439987	--
9	Nickel	7440020	1

CTR #	Constituent	CAS Number	Maximum Reporting Level (µg/L or noted)
10	Selenium	7782492	5
11	Silver	7440224	0.25
12	Thallium	7440280	1
	Tributyltin	688733	--
13	Zinc	7440666	10
110	4,4'-DDD	72548	0.05
109	4,4'-DDE	72559	0.05
108	4,4'-DDT	50293	0.01
112	alpha-Endosulfan	959988	0.02
103	alpha-Hexachlorocyclohexane (BHC)	319846	0.01
	Alachlor	15972608	--
102	Aldrin	309002	0.005
113	beta-Endosulfan	33213659	0.01
104	beta-Hexachlorocyclohexane	319857	0.005
107	Chlordane	57749	0.1
106	delta-Hexachlorocyclohexane	319868	0.005
111	Dieldrin	60571	0.01
114	Endosulfan sulfate	1031078	0.05
115	Endrin	72208	0.01
116	Endrin Aldehyde	7421934	0.01
117	Heptachlor	76448	0.01
118	Heptachlor Epoxide	1024573	0.01
105	Lindane (gamma-Hexachlorocyclohexane)	58899	0.02
119	PCB-1016	12674112	0.5
120	PCB-1221	11104282	0.5
121	PCB-1232	11141165	0.5
122	PCB-1242	53469219	0.5
123	PCB-1248	12672296	0.5
124	PCB-1254	11097691	0.5
125	PCB-1260	11096825	0.5
126	Toxaphene	8001352	0.5
	Atrazine	1912249	--
	Bentazon	25057890	--
	Carbofuran	1563662	--
	2,4-D	94757	--
	Dalapon	75990	--

CTR #	Constituent	CAS Number	Maximum Reporting Level (µg/L or noted)
	1,2-Dibromo-3-chloropropane (DBCP)	96128	--
	Di(2-ethylhexyl)adipate	103231	--
	Dinoseb	88857	--
	Diquat	85007	--
	Endothal	145733	--
	Ethylene Dibromide	106934	--
	Glyphosate	1071836	--
	Methoxychlor	72435	--
	Molinate (Ordram)	2212671	--
	Oxamyl	23135220	--
	Picloram	1918021	--
	Simazine (Princep)	122349	--
	Thiobencarb	28249776	--
16	2,3,7,8-TCDD (Dioxin)	1746016	--
	2,4,5-TP (Silvex)	93765	--
	Diazinon	333415	--
	Chlorpyrifos	2921882	--
	Ammonia (as N)	7664417	--
	Chloride	16887006	--
	Hardness (as $CaCO_3$)		--
	Foaming Agents (MBAS)		--
	Nitrate (as N)	14797558	--
	Nitrite (as N)	14797650	--
	pH		--
	Phosphorus, Total (as P)	7723140	--
	Specific conductance (EC)		--
	Sulfate		--
	Sulfide (as S)		--
	Sulfite (as SO_3)		--
	Temperature		--
	Total Dissolved Solids (TDS)		--