

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2007-0014
NPDES NO. CA0083681

WASTE DISCHARGE REQUIREMENTS
FOR
COUNTY OF SACRAMENTO
PUBLIC WORKS AGENCY
KIEFER LANDFILL GROUNDWATER EXTRACTION AND TREATMENT PLANT
SACRAMENTO COUNTY

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

Table 1. Discharger Information

Discharger	County of Sacramento, Public Works Agency
Name of Facility	Kiefer Landfill Groundwater Extraction and Treatment Plant, Sacramento
Facility Address	12701 Kiefer Boulevard
	Sacramento, California 95827
	Sacramento 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 County of Sacramento, Public Works Agency from the discharge points identified below is subject to waste discharge requirements as set forth in this Order:

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Treated Groundwater	38°, 30', 20" N	121°, 10', 40" W	Deer Creek
002	Treated Groundwater	38°, 30', 24" N	121°, 10', 52" W	Sedimentation Basin

Table 3. Administrative Information

This Order was adopted by the Regional Water Quality Control Board on:	March 15, 2007
This Order shall become effective on:	May 4, 2007
This Order shall expire on:	March 1, 2012
The Discharger shall file a Report of Waste Discharge in accordance with title 23, California Code of Regulations, as application for issuance of new waste discharge requirements no later than:	September 2, 2011

IT IS HEREBY ORDERED, that Order No. 5-01-065 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act (CWA) and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on **March 15, 2007**.

PAMELA C. CREEDON, Executive Officer

TABLE OF CONTENTS

I.	Facility Information	1
II.	Findings.....	1
III.	Discharge Prohibitions.....	6
IV.	Effluent Limitations and Discharge Specifications	7
	A. Effluent Limitations – Discharge Point 001	7
	1. Final Effluent Limitations – Discharge Point 001	7
	2. Interim Effluent Limitations – Not Applicable.....	7
	B. Land Discharge Specifications – Discharge Point 002	8
	C. Reclamation Specifications – Not Applicable.....	8
V.	Receiving Water Limitations	8
	A. Surface Water Limitations.....	8
	B. Groundwater Limitations – Not Applicable.....	11
VI.	Provisions.....	11
	A. Standard Provisions	11
	B. Monitoring and Reporting Program Requirements	15
	C. Special Provisions	16
	1. Reopener Provisions	16
	2. Special Studies, Technical Reports and Additional Monitoring Requirements	16
	3. Best Management Practices and Pollution Prevention	18
	4. Construction, Operation and Maintenance Specifications.....	19
	5. Special Provisions for Municipal Facilities (POTWs Only) – Not Applicable	19
	6. Other Special Provisions.....	19
	7. Compliance Schedules – Not Applicable	20
VII.	Compliance Determination	20
	Attachment A – Definitions	A-1
	Attachment B – Topographic Map	B-1
	Attachment C – Flow Schematic	C-1
	Attachment D – Federal Standard Provisions.....	D-1
	Attachment E – Monitoring and Reporting Program (MRP).....	E-1
	Attachment F – Fact Sheet.....	F-1
	Attachment G – Reasonable Potential Analysis (RPA).....	G-1
	Attachment H – Water Quality-Based Effluent Limitation Calculations	H-1
	Attachment I – Volatile Organic Compounds	I-1
	Attachment J – Acronyms and Abbreviations	J-1

I. FACILITY INFORMATION

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

Table 4. Facility Information

Discharger	County of Sacramento, Public Works Agency
Name of Facility	Kiefer Landfill Groundwater Extraction and Treatment System
Facility Address	12701 Kiefer Boulevard
	Sloughhouse, CA 95683
	Sacramento County
Facility Contact Title, and Phone	Eric Vanderbilt, P.E. Senior Civil Engineer, (916) 875-6568
Mailing Address	9850 Goethe Road
	Sacramento, CA 95827
Type of Facility	Groundwater Extraction and Treatment Facility
Facility Design Flow	2.17 (in million gallons per day)

II. FINDINGS

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

A. Background. The County of Sacramento, Public Works Agency (hereinafter Discharger) is currently discharging under Order No. 5-01-065 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0083681. The Discharger submitted a Report of Waste Discharge, dated November 16, 2005 and applied for a NPDES permit renewal to discharge up to 2.17 mgd of treated groundwater from the Kiefer Landfill Groundwater Extraction and Treatment Plant, 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 municipal solid waste landfill with a groundwater treatment plant. The groundwater treatment system consists of a groundwater extraction well network and an air stripping system. Treated groundwater is discharged from Discharge Point 001 (see table on cover page) to Deer Creek, a water of the United States and a tributary to the Cosumnes River within the North Valley Floor Hydrologic Unit, Lower Cosumnes-Dry Hydrologic Area, Lower Deer Creek Hydrologic Sub-Area (5.31.12). During groundwater treatment system maintenance operations, the treated groundwater is discharged at Discharge Point 002 to an on-site sedimentation basin where it either evaporates to the air or percolates to the ground. Attachment B provides a map of the area in the vicinity of the Facility. Attachment C provides a flow schematic of the Facility.

- C. Legal Authorities.** This Order is issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and chapter 5.5, division 7 of the California Water Code (commencing with section 13370). It shall serve as a NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the Water Code (commencing with section 13260).
- D. Background and Rationale for Requirements.** The Regional Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. Attachment F (Fact Sheet), 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 J are also incorporated into this Order.
- E. California Environmental Quality Act (CEQA).** This action to adopt an NPDES permit is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21000, *et seq.*) in accordance with Section 13389 of the CWC.
- F. Technology-Based Effluent Limitations.** The Code of Federal Regulations (CFR) at 40 CFR §122.44(a) requires that permits include applicable technology-based limitations and standards. This Order includes technology-based effluent limitations 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.** Section 301(b) of the CWA and section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards.

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

- H. Water Quality Control Plans.** The Regional Water Board adopted a *Water Quality Control Plan, Fourth Edition (Revised September 2004)*, for the *Sacramento and San Joaquin River Basins* (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan.

The Basin Plan at page II-2.00 states that the “...*beneficial uses of any specifically identified*

water body generally apply to its tributary streams.” The Basin Plan does not specifically identify beneficial uses for Deer Creek, but does identify present and potential uses for the Cosumnes River, to which Deer Creek is tributary. These beneficial uses are as follows: municipal and domestic supply; agricultural supply, including stock watering; water contact recreation, including canoeing and rafting; non-contact water recreation, including aesthetic enjoyment; warm freshwater habitat; cold freshwater habitat; warm migration of aquatic organisms; cold migration of aquatic organisms; warm spawning, reproduction, and/or early development; cold spawning, reproduction, and /or early development; and wildlife habitat. In addition, State Water Resources Control Board (State Water Board) Resolution No. 88-63 requires that, with certain exceptions, the Regional Water Board assign the municipal and domestic supply use to water bodies that do not have beneficial uses listed in the Basin Plan. Thus, as discussed in detail in the Fact Sheet, beneficial uses applicable to Deer Creek are as follows:

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

Requirements of this Order specifically implement the applicable *Water Quality Control 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 forty criteria in the NTR applied in California. On May 18, 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on 13 February 2001. These rules contain water quality criteria for priority pollutants.
- J. State Implementation Policy.** On 2 March 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on 28 April 2000 with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Board in the Basin Plan. The SIP became effective on 18 May 2000 with respect to the priority pollutant criteria promulgated by the USEPA through the California Toxics Rule. The State Water Board adopted amendments to the SIP on 24 February 2005 that became effective on 13 July 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

K. Compliance Schedules and Interim Requirements. In general, an NPDES permit must include final effluent limitations that are consistent with Clean Water Act section 301 and with 40 CFR 122.44(d). There are exceptions to this general rule. The State Water Board has concluded that where the Regional Water Board's Basin Plan allows for schedules of compliance and the Regional Water Board is newly interpreting a narrative standard, it may include schedules of compliance in the permit to meet effluent limits that implement a narrative standard. See *In the Matter of Waste Discharge Requirements for Avon Refinery* (State Board Order WQ 2001-06 at pp. 53-55). See also *Communities for a Better Environment et al. v. State Water Resources Control Board*, 34 Cal.Rptr.3d 396, 410 (2005). The Basin Plan for the Sacramento and San Joaquin Rivers includes a provision that authorizes the use of compliance schedules in NPDES permits for water quality objectives that are adopted after the date of adoption of the Basin Plan, which was September 25, 1995 (See Basin Plan at page IV-16). Consistent with the State Water Board's Order in the CBE matter, the Regional Water Board has the discretion to include compliance schedules in NPDES permits when it is including an effluent limitation that is a "new interpretation" of a narrative water quality objective. This conclusion is also consistent with the United States Environmental Protection Agency policies and administrative decisions. See, e.g., Whole Effluent Toxicity (WET) Control Policy. The Regional Water Board, however, is not required to include a schedule of compliance, but may issue a Time Schedule Order pursuant to Water Code section 13300 or a Cease and Desist Order pursuant to Water Code section 13301 where it finds that the discharger is violating or threatening to violate the permit. The Regional Water Board will consider the merits of each case in determining whether it is appropriate to include a compliance schedule in a permit, and, consistent with the Basin Plan, should consider feasibility of achieving compliance, and must impose a schedule that is as short as practicable to achieve compliance with the objectives, criteria, or effluent limit based on the objective or criteria.

For CTR constituents, Section 2.1 of the SIP provides that, based on a Discharger's request and demonstration that it is infeasible for an existing Discharger to achieve immediate compliance with an effluent limitation derived from a CTR criterion, compliance schedules may be allowed in an NPDES permit. Unless an exception has been granted under section 5.3 of the SIP, a compliance schedule may not exceed 5 years from the date that the permit is issued or reissued, nor may it extend beyond 10 years from the effective date of the SIP (or May 18, 2010) to establish and comply with CTR criterion-based effluent limitations. Where a compliance schedule for a final effluent limitation that exceeds 1 year, the Order must include interim numeric limitations for that constituent or parameter. Where allowed by the Basin Plan, compliance schedules and interim effluent limitations or discharge specifications may also be granted to allow time to implement a new or revised water quality objective. This Order does not include compliance schedules.

L. Alaska Rule. On 30 March 2000, USEPA revised its regulation that specifies when new and revised State and Tribal water quality standards (WQS) become effective for CWA purposes (40 CFR 131.21, 65 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 and water quality-based effluent limitations for individual pollutants. The technology-based effluent limitations consist of restrictions on volatile organic compounds. The water quality-based effluent limitations consist of restrictions on pH, aluminum, manganese, nickel, organochlorine pesticides, total dissolved solids, and total residual chlorine. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements.

Water quality-based effluent limitations have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant water quality-based effluent limitations were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR section 131.38. The scientific procedures for calculating the individual water quality-based effluent limitations are based on the CTR-SIP, which was approved by USEPA on May 1, 2001. All beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by USEPA prior to May 30, 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to May 30, 2000, but not approved by USEPA before that date, are nonetheless "applicable water quality standards for purposes of the [Clean Water] Act" pursuant to 40 CFR section 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. Section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 is consistent with the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the state and federal antidegradation policies. As discussed in detail in the Fact Sheet the permitted discharge is consistent with the antidegradation provision of section 131.12 and State Water Board Resolution No. 68-16.

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

P. Monitoring and Reporting. Section 122.48 of 40 CFR requires that all NPDES permits specify requirements for recording and reporting monitoring results. Sections 13267 and 13383 of the CWA authorize the Regional Water Board to require technical and monitoring reports. The

Monitoring and Reporting Program establishes monitoring and reporting requirements to implement federal and State requirements. This Monitoring and Reporting Program (MRP) is provided in Attachment E.

- Q. Standard and Special Provisions.** Standard Provisions, which in accordance with 40 CFR §§122.41 and 122.42, apply to all NPDES discharges and must be included in every NPDES permit, are provided in Attachment D. The Regional Water Board has also included in this Order special provisions applicable to the Discharger. A rationale for the special provisions contained in this Order is provided in the attached Fact Sheet.
- R. Notification of Interested Parties.** The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe Waste Discharge Requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of notification are provided in the Fact Sheet of this Order.
- S. Consideration of Public Comment.** The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet of this Order.

III. DISCHARGE PROHIBITIONS

- A.** Discharge of wastewater at a location or in a manner different from that described in the Findings is prohibited.
- B.** The by-pass or overflow of wastes to surface waters is prohibited, except as allowed by Federal Standard Provision I.A.7. [See Attachment D – Federal Standard Provisions] and Regional Water Board Standard Provisions I.G. and I.H. (Attachment D).
- C.** Neither the discharge nor its treatment shall create a nuisance as defined in Section 13050 of the CWC.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point 001

1. Final Effluent Limitations – Discharge Point 001

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

- a. The Discharger shall maintain compliance with the effluent limitations in the following table:

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
pH	standard units	--	--	--	6.5	8.5
Aluminum, Total Recoverable	µg/L	71	--	143	--	--
Manganese, Total Recoverable	µg/L	50	--	--	--	--
Nickel, Total Recoverable	µg/L	18	--	59	--	--
Volatile Organic Compounds	µg/L		--	0.5	--	--
Organochlorine Pesticides	µg/L	--	--	--	--	ND
Total Dissolved Solids	mg/L	367	--	--	--	--

- b. **Total Residual Chlorine.** Effluent total residual chlorine shall not exceed:
 - i. 0.01 mg/L, as a 4-day average;
 - ii. 0.02 mg/L, as a 1-hour average;
- c. **Acute Toxicity:** Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:
 - Minimum for any one bioassays ----- 70%
 - Median for any three or more consecutive bioassays ----- 90%
- d. **Average Monthly Discharge Flow:** The average monthly discharge flow shall not exceed 2.17 mgd.

2. Interim Effluent Limitations – Not Applicable

B. Land Discharge Specifications – Discharge Point 002

1. Discharge from the groundwater treatment system to the sedimentation basin shall be conducted only during well and groundwater treatment system maintenance events or in case of an emergency.
2. The sedimentation basin must be operated such that there is adequate capacity to contain run-off produced from a 100-year, 24-hour storm event in addition to the volume of non-storm water discharged to the sedimentation basin during approved maintenance events. If adequate capacity is not available in the sedimentation basin, then non-storm water discharges to the sedimentation basin are prohibited.
3. Freeboard shall never be less than two feet (measured vertically to the lowest point of overflow).
4. Sedimentation basin shall be managed to prevent breeding of mosquitoes. In particular,
 - a. An erosion control program should assure that small coves and irregularities are not created around the perimeter of the water surface.
 - b. Weeds shall be minimized.
 - c. Dead algae, vegetation, and debris shall not accumulate on the water surface.
5. **Effective immediately**, the discharge of treated groundwater to the sedimentation basin shall maintain compliance with the following limitations at Discharge Point 002, with compliance measured at Monitoring Location LND-001 as described in the attached MRP.

Parameter	Units	Land Discharge Specifications		
		Average Monthly	Maximum Daily	Annual Average
Total Dissolved Solids	mg/L	--	1000	450
Total Residual Chlorine	mg/L	--	4.0	--

C. Reclamation Specifications – Not Applicable

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

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

1. **Biostimulatory Substances.** Water to contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.
2. **Chemical Constituents.** Chemical constituents to be present in concentrations that adversely affect beneficial uses.
3. **Discoloration.** Discoloration that causes nuisance or adversely affects beneficial uses.
4. **Dissolved Oxygen:**
 - a. The monthly median of the mean daily dissolved oxygen concentration to fall below 85 percent of saturation in the main water mass;
 - b. The 95 percentile dissolved oxygen concentration to fall below 75 percent of saturation; nor
 - c. The dissolved oxygen concentration to be reduced below 7.0 mg/L at any time.
5. **Floating Material.** Floating material to be present in amounts that cause nuisance or adversely affect beneficial uses.
6. **Oils and Greases.** Oils, greases, waxes, or other materials to be present in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.
7. **pH.** The pH to be depressed below 6.5 nor raised above 8.5.
8. **Pesticides:**
 - a. Pesticides to be present, individually or in combination, in concentrations that adversely affect beneficial uses;
 - b. Pesticides to be present in bottom sediments or aquatic life in concentrations that adversely affect beneficial uses;
 - c. Total identifiable persistent chlorinated hydrocarbon pesticides to be present in the water column at concentrations detectable within the accuracy of analytical methods approved by USEPA or the Executive Officer.
 - d. Pesticide concentrations to exceed those allowable by applicable antidegradation policies (see State Water Board Resolution No. 68-16 and 40 CFR §131.12.).
 - e. Pesticide concentrations to exceed the lowest levels technically and economically achievable.

- f. Pesticides to be present in concentration in excess of the maximum contaminant levels set forth in California Code of Regulations (CCR), Title 22, Division 4, Chapter 15.
- g. Thiobencarb to be present in excess of 1.0 µg/L.

9. Radioactivity:

- a. Radionuclides to be present in concentrations that are harmful to human, plant, animal, or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.
- b. Radionuclides to be present in excess of the maximum contaminant levels specified in Table 4 (MCL Radioactivity) of Section 64443 of Title 22 of the CCR.

10. 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.

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

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

13. Taste- or Odor-Producing Substances. 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.

14. Temperature. The temperature to exceed the objectives specified in Table 5 below:

Table 5: Deer Creek Temperature Objectives

Date	Daily Maximum (°F) ^a	Monthly Average (°F) ^b
January and February	63	58
March	65	60
April	71	64
May	77	68
June	81	74
July through September	81	77
October	77	72
November	73	65
December	65	58

^a Maximum not to be exceeded

^b Defined as a calendar month

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

16. **Turbidity.**

- a. The daily average turbidity to exceed 2 Nephelometric Turbidity Units (NTU) or daily maximum turbidity to exceed 5 NTUs where natural turbidity is less than 1 NTU.
- b. The daily average turbidity to increase more than 1 NTU or daily maximum turbidity to exceed 5 NTUs where natural turbidity is between 1 and 5 NTUs.
- c. The turbidity to increase more than 20 percent where natural turbidity is between 5 and 50 NTUs.
- d. The turbidity to increase more than 10 NTU where natural turbidity is between 50 and 100 NTUs.
- e. The turbidity to increase more than 10 percent where natural turbidity is greater than 100 NTUs.

B. Groundwater Limitations – Not Applicable

VI. PROVISIONS

A. Standard Provisions

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

- iii. a change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge; and
- iv. a material change in the character, location, or volume of discharge.

The causes for modification include:

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

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

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

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

- d. This Order shall be modified, or alternately revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the CWA, if the effluent standard or limitation so issued or approved:
 - i. contains different conditions or is otherwise more stringent than any effluent limitation in the Order; or
 - ii. controls any pollutant limited in the Order.

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

- e. The provisions of this Order are severable. If any provision of this Order is found invalid, the remainder of this Order shall not be affected.
- f. The Discharger shall take all reasonable steps to minimize any adverse effects to waters of the State or users of those waters resulting from any discharge or sludge use or disposal in violation of this Order. Reasonable steps shall include such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge or sludge use or disposal.
- g. The Discharger shall ensure compliance with any existing or future pretreatment standard promulgated by USEPA under Section 307 of the CWA, or amendment thereto, for any discharge to the municipal system.
- h. The discharge of any radiological, chemical or biological warfare agent or high-level, radiological waste is prohibited.
- i. A copy of this Order shall be maintained at the discharge facility and be available at all times to operating personnel. Key operating personnel shall be familiar with its content.
- j. Safeguard to electric power failure:
 - i. The Discharger shall provide safeguards to assure that, should there be reduction, loss, or failure of electric power, the discharge shall comply with the terms and conditions of this Order.
 - ii. Upon written request by the Regional Water Board the Discharger shall submit a written description of safeguards. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures, or other means. A description of the safeguards provided shall include an analysis of the frequency, duration, and impact of power failures experienced over the past five years on effluent quality and on the capability of the Discharger to comply with the terms and conditions of the Order. The adequacy of the safeguards is subject to the approval of the Regional Water Board.
 - iii. Should the treatment works not include safeguards against reduction, loss, or failure of electric power, or should the Regional Water Board not approve the existing safeguards, the Discharger shall, within ninety days of having been advised in writing by the Regional Water Board that the existing safeguards are inadequate, provide to the Regional Water Board and USEPA a schedule of compliance for providing safeguards such that in the event of reduction, loss, or failure of electric power, the Discharger shall comply with the terms and conditions of this Order. The schedule of compliance shall, upon approval of the Regional Water Board, become a condition of this Order.
- k. The Discharger, upon written request of the Regional Water Board, shall file with the Board a technical report on its preventive (failsafe) and contingency (cleanup) plans for controlling accidental discharges, and for minimizing the effect of such events. This

report may be combined with that required under Regional Water Board Standard Provision VI.A.2.m.

The technical report shall:

- i. Identify the possible sources of spills, leaks, untreated waste by-pass, and contaminated drainage. Loading and storage areas, power outage, waste treatment unit outage, and failure of process equipment, tanks and pipes should be considered.
- ii. Evaluate the effectiveness of present facilities and procedures and state when they became operational.
- iii. Predict the effectiveness of the proposed facilities and procedures and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational.

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

- l. A publicly owned treatment works (POTW) whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment and disposal facilities. The projections shall be made in January, based on the last three years' average dry weather flows, peak wet weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in four years, the Discharger shall notify the Regional Water Board by 31 January. A copy of the notification shall be sent to appropriate local elected officials, local permitting agencies and the press. Within 120 days of the notification, the Discharger shall submit a technical report showing how it will prevent flow volumes from exceeding capacity or how it will increase capacity to handle the larger flows. The Regional Water Board may extend the time for submitting the report.
- m. The Discharger shall submit technical reports as directed by the Executive Officer. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code, sections 6735, 7835, and 7835.1. To demonstrate compliance with Title 16, CCR, sections 415 and 3065, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.
- n. Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Regional Water Board and USEPA.

- o. The Discharger shall conduct analysis on any sample provided by USEPA as part of the Discharge Monitoring Quality Assurance (DMQA) program. The results of any such analysis shall be submitted to USEPA's DMQA manager.
- p. Effluent samples shall be taken downstream of the last addition of wastes to the treatment or discharge works where a representative sample may be obtained prior to mixing with the receiving waters. Samples shall be collected at such a point and in such a manner to ensure a representative sample of the discharge.
- q. All monitoring and analysis instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary, at least yearly, to ensure their continued accuracy.
- r. The Discharger shall file with the Regional Water Board technical reports on self-monitoring performed according to the detailed specifications contained in the Monitoring and Reporting Program attached to this Order.
- s. The results of all monitoring required by this Order shall be reported to the Regional Water Board, and shall be submitted in such a format as to allow direct comparison with the limitations and requirements of this Order. Unless otherwise specified, discharge flows shall be reported in terms of the monthly average and the daily maximum discharge flows.
- t. The Regional Water Board is authorized to enforce the terms of this permit under several provisions of the CWC, including, but not limited to, sections 13385, 13386, and 13387.
- u. For POTWs, prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater that results in a decrease of flow in any portion of a watercourse, the Discharger must file a petition with the State Water Board, Division of Water Rights, and receive approval for such a change. (CWC section 1211).
- v. In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, maximum daily effluent limitation, 1-hour average effluent limitation, or receiving water limitation contained in this Order, the Discharger shall notify the Regional Water Board by telephone (916) 464-3291 within 24 hours of having knowledge of such noncompliance, and shall confirm this notification in writing within five days, unless the Regional Water Board waives confirmation. The written notification shall include the information required by Attachment D, Section V.E.1 [40 CFR section 122.41(l)(6)(i)].

B. Monitoring and Reporting Program Requirements

1. The discharger shall comply with the MRP, and future revisions thereto, in Attachment E of this Order.

C. Special Provisions

1. Reopener Provisions

- a. This Order may be reopened for modification, or revocation and reissuance, as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are not limited to, fish tissue sampling, whole effluent toxicity, monitoring requirements on internal waste stream(s), and monitoring for surrogate parameters. Additional requirements may be included in this Order as a result of the special condition monitoring data.
- b. Conditions that necessitate a major modification of a permit are described in 40 CFR section 122.62, including:
 - i. If new or amended applicable water quality standards are promulgated or approved pursuant to Section 303 of the CWA, or amendments thereto, this permit may be reopened and modified in accordance with the new or amended standards.
 - ii. When new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance.
- c. **Whole Effluent Toxicity.** As a result of a Toxicity Reduction Evaluation (TRE), this Order may be reopened to include a chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if the State Water Board revises the SIP's toxicity control provisions that would require the establishment of numeric chronic toxicity effluent limitations, this Order may be reopened to include a numeric chronic toxicity effluent limitation based on the new provisions.
- d. If after review of effluent monitoring results or the study results it is determined that the discharge has reasonable potential to cause or contribute to an exceedance of a water quality objective, this Order will be reopened and effluent limitations added for the subject constituents, and subsequent monitoring may be required.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

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

and sources of whole effluent toxicity, evaluate the effectiveness of the toxicity control options, and confirm the reduction in effluent toxicity. This Provision includes requirements for the Discharger to develop and submit a TRE Work Plan and includes procedures for accelerated chronic toxicity monitoring and TRE initiation.

- i. **Initial Investigative Toxicity Reduction Evaluation (TRE) Work Plan. Within 90 days of the effective date of this Order,** the Discharger shall submit to the Regional Water Board an Initial Investigative TRE Work Plan for approval by the Executive Officer. This should be a one to two page document including, at minimum:
 - a) A description of the investigation and evaluation techniques that will be used to identify potential causes and sources of effluent toxicity, effluent variability, and treatment system efficiency;
 - b) A description of the facility's methods of maximizing in-house treatment efficiency and good housekeeping practices, and a list of all chemicals used in operation of the facility; and
 - c) A discussion of who will conduct the Toxicity Identification Evaluation (TIE), if necessary (i.e. an in-house expert or outside contractor).
- ii. **Accelerated Monitoring and TRE Initiation.** When the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity monitoring, and the testing meets all test acceptability criteria, the Discharger shall initiate accelerated monitoring as required in the Accelerated Monitoring Specifications. WET testing results exceeding the monitoring trigger during accelerated monitoring demonstrates a pattern of toxicity and requires the Discharger to initiate a TRE to address the effluent toxicity.
- iii. **Numeric Monitoring Trigger.** The numeric toxicity monitoring trigger is $> 1 \text{ TUc}$ (where $\text{TUc} = 100/\text{NOEC}$). The monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to begin accelerated monitoring and initiate a TRE.
- iv. **Accelerated Monitoring Specifications.** If the monitoring trigger is exceeded during regular chronic toxicity testing, within 14-days of notification by the laboratory of the test results, the Discharger shall initiate accelerated monitoring. Accelerated monitoring shall consist of four (4) chronic toxicity tests in a six-week period (i.e. one test every two weeks) using the species that exhibited toxicity. The following protocol shall be used for accelerated monitoring and TRE initiation:
 - a) If the results of four (4) consecutive accelerated monitoring tests do not exceed the monitoring trigger, the Discharger may cease accelerated monitoring and resume regular chronic toxicity monitoring. However, notwithstanding the accelerated monitoring results, if there is adequate evidence of a pattern of

effluent toxicity, the Executive Officer may require that the Discharger initiate a TRE.

- b) If the source(s) of the toxicity is easily identified (i.e. temporary plant upset), the Discharger shall make necessary corrections to the facility and shall continue accelerated monitoring until four (4) consecutive accelerated tests do not exceed the monitoring trigger. Upon confirmation that the effluent toxicity has been removed, the Discharger may cease accelerated monitoring and resume regular chronic toxicity monitoring.
- c) If the result of any accelerated toxicity test exceeds the monitoring trigger, the Discharger shall cease accelerated monitoring and initiate a TRE to investigate the cause(s) of, and identify corrective actions to reduce or eliminate effluent toxicity. Within thirty (30) days of notification by the laboratory of the test results exceeding the monitoring trigger during accelerated monitoring, the Discharger shall submit a TRE Action Plan to the Regional Water Board including, at minimum:
 - 1) Specific actions the Discharger will take to investigate and identify the cause(s) of toxicity, including TRE WET monitoring schedule;
 - 2) Specific actions the Discharger will take to mitigate the impact of the discharge and prevent the recurrence of toxicity; and
 - 3) A schedule for these actions.

Within sixty (60) days of notification by the laboratory of the test results, the Discharger shall submit to the Regional Water Board a TRE Work Plan for approval by the Executive Officer. The TRE Work Plan shall outline the procedures for identifying the source(s) of, and reducing or eliminating effluent toxicity. The TRE Work Plan must be developed in accordance with EPA guidance¹.

3. Best Management Practices and Pollution Prevention

- a. Stormwater discharges from the Facility are regulated under the General Permit for Discharges of Stormwater Associated with Industrial Activities (State Water Resources Control Board, Water Quality Order No. 97-03-DWQ, NPDES General Permit No. CAS000001). The Discharger's waste discharge identification (WDID) number for the stormwater permit is 5A340311002.

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

4. **Construction, Operation and Maintenance Specifications**

- a. The Discharger is currently operating under the *Operations & Maintenance Program and Standard Operating Procedures for Kiefer Treatment Plant* (O&M Program). The O&M Program outlines the ways in which groundwater extraction well rehabilitation and maintenance, and tower maintenance are conducted at the Facility, including ways to minimize impacts of maintenance operations on surface water discharges and discharges to the on-site sedimentation basin. The Discharger must maintain an Executive Officer approved O&M Program in order to discharge treated groundwater to the on-site sedimentation basin. **Within 90 days of the effective date of this Order**, the Discharger shall submit to the Regional Water Board an updated O&M Program for approval by the Executive Officer. Any changes thereafter in the O&M Program are subject Executive Officer approval.

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

6. **Other Special Provisions**

- a. The Discharger shall use the best practicable treatment or control technique currently available to limit mineralization to no more than a reasonable increment.
- b. Treated groundwater may be used for dust control at the landfill in accordance with a submitted plan that has been approved by the Executive Officer.
- c. Under an agreed upon mitigation measure with the California Department of Fish & Game, if a discharge to Deer Creek is occurring, the flow will be constant and uninterrupted, and a minimum flow of 0.18 mgd will be maintained. Continuous flow may be interrupted for repair of the system or in the event of unusual or emergency circumstances. It is not the intent of the mitigation measure, or these requirements, to preclude the beneficial reuse of treated water for other than discharge to Deer Creek.
- d. 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 this office.

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

7. Compliance Schedules – Not Applicable

VII. COMPLIANCE DETERMINATION

Compliance with the effluent limitations contained in Section IV of this Order will be determined as specified below:

A. Aluminum Effluent Limitations

Compliance with the final effluent limitations for aluminum can be demonstrated using either total or acid-soluble (inductively coupled plasma/atomic emission spectrometry or inductively coupled plasma/mass spectrometry) analysis methods, as supported by US EPA's Ambient Water Quality Criteria for Aluminum document (EPA 440/5-86-008), or other standard methods that exclude aluminum silicate particles as approved by the Executive Officer.

B. Organochlorine Pesticides Instantaneous Maximum Effluent Limitation

Organochlorine pesticides include aldrin, alpha-BHC, beta-BHC, delta-BHC gamma-BHC, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, chlordane, dieldrin, endrin, endrin aldehyde, alpha-endosulfan, beta-endosulfan, endosulfan sulfate, heptachlor, heptachlor epoxide, and toxaphene. The ND instantaneous maximum effluent limitation for organochlorine pesticides applies to each individual pesticide. No individual pesticide may be present in the discharge at detectable concentrations. The Discharger shall use USEPA standard analytical techniques with the lowest possible detectable level for organochlorine pesticides with a minimum acceptable reporting level as indicated in appendix 4 of the SIP. If the analytical result of a single effluent grab sample is detected for any organochlorine pesticide, a violation will be flagged and the discharger will be considered out of compliance for that single sample. Non-compliance for each sample will be considered separately (*e.g.*, the results of two grab samples taken within a calendar day that both exceed the instantaneous maximum effluent limitation would result in two instances of non-compliance with the instantaneous maximum effluent limitation).

C. Volatile Organic Compounds (VOCs) Maximum Daily Effluent Limitation

VOCs include all constituents listed in EPA Method 502.2 (Attachment I). The maximum daily effluent limitation of 0.5 µg/L applies to each VOC.

ATTACHMENT A – DEFINITIONS

Average Four-Day Effluent Limitation: the highest allowable average of daily discharges over a four-day period, calculated as the sum of all daily discharges measured during a four-day period divided by the number of daily discharges measured during that four-day period.

Average Hourly Effluent Limitation: the highest allowable average of discharges over a one-hour period, calculated as the sum of all discharges measured during that one-hour period divided by the number of discharges measured during that one-hour period.

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.

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

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

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

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.

Best Practicable Treatment or Control (BPTC): BPTC is a requirement of the Antidegradation Policy (Resolution 68-16). BPTC is the treatment or control of a discharge necessary to assure that, “(a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.”

Chronic Toxic Unit (TU_c): the reciprocal of the effluent concentration that causes no observable effect on the test organisms in a chronic toxicity test ($TU_c = 100/NOEC$) (see NOEC)

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

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

Effect Concentration (EC): a point estimate of the toxicant concentration that would cause an observable adverse effect (e.g. death, immobilization, or serious incapacitation) in a given percent of the test organisms, calculated from a continuous model (e.g. Probit Model). EC₂₅ is a point estimate of the toxicant concentration that would cause an observable adverse effect in 25 percent of the test organisms.

Inhibition Concentration (IC): a point estimate of the toxicant concentration that would cause a given percent reduction in a non-lethal biological measurement (e.g. reproduction or growth), calculated from a continuous model (e.g. Interpolation Method). IC₂₅ is a point estimate of the toxicant concentration that would cause a 25 percent reduction in a non-lethal biological measurement.

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

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

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

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

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

Reporting Level (RL) is the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the

Regional Water Board either from Appendix 4 of the SIP in accordance with section 2.4.2 of the SIP or established in accordance with section 2.4.3 of the SIP. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

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

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

where:

x is the observed value;

μ is the arithmetic mean of the observed values; and

n is the number of samples.

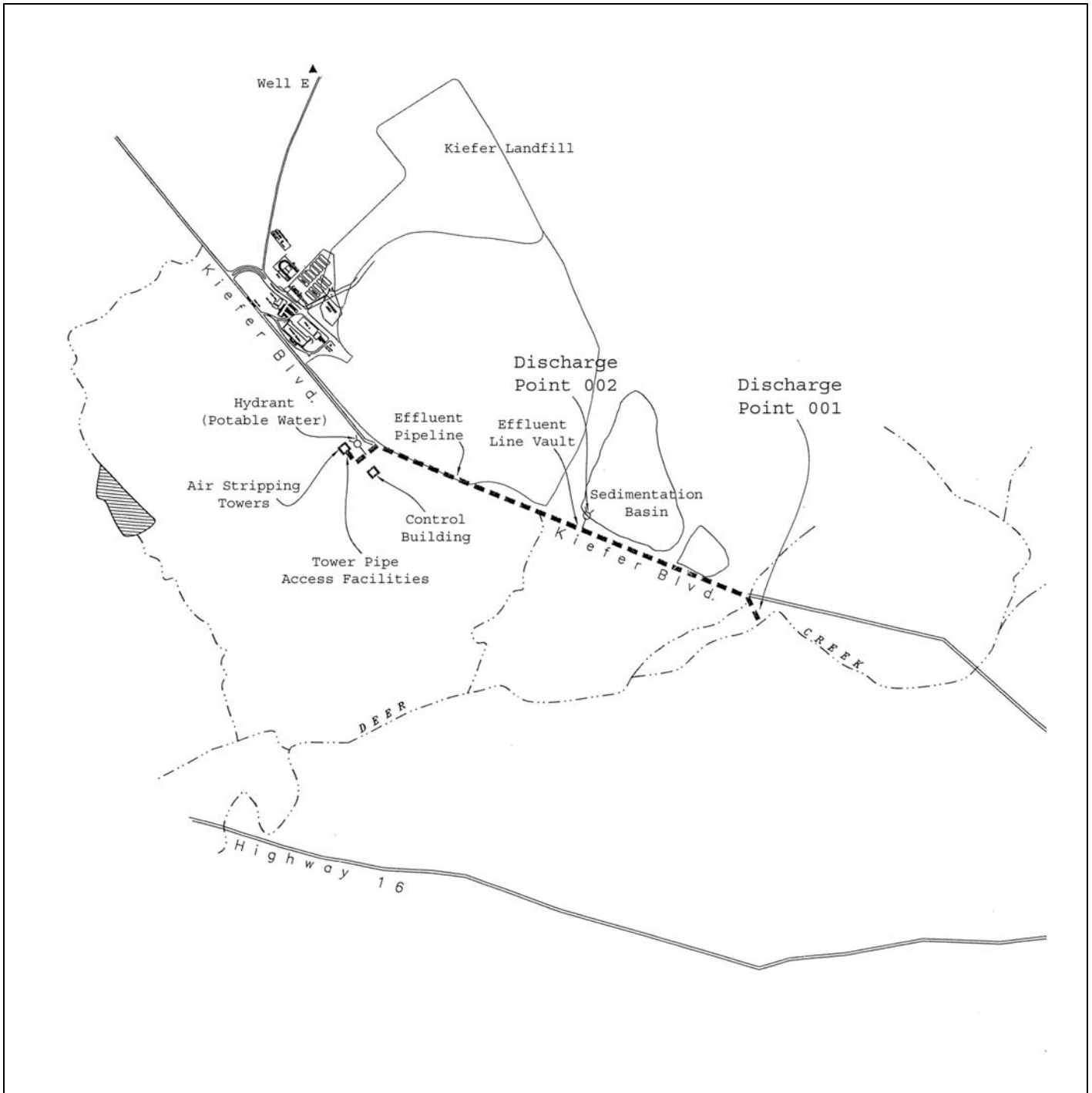
Toxicity Reduction Evaluation (TRE) is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps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

NOEC, No Observed Effect Concentration: the highest tested concentration of an effluent or test sample whose effect is not different from the control effect, according to the statistical test used (see LOEC). The NOEC is usually the highest tested concentration of an effluent or toxic that causes no observable effects on the test organisms (i.e. the highest concentration of toxicity at which the values for the observed responses do not statistically differ from the controls).

Toxicity Test: the procedure using living organisms to determine whether a chemical or an effluent is toxic. A toxicity test measures the degree of the effect of a specific chemical or effluent on exposed test organisms.

Toxic Unit: the measure of toxicity in an effluent as determined by the acute toxic units (TU_a) or chronic toxic units (TU_c) measured. The larger the TU, the greater the toxicity.

ATTACHMENT B – TOPOGRAPHIC MAP

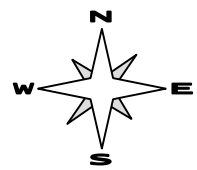


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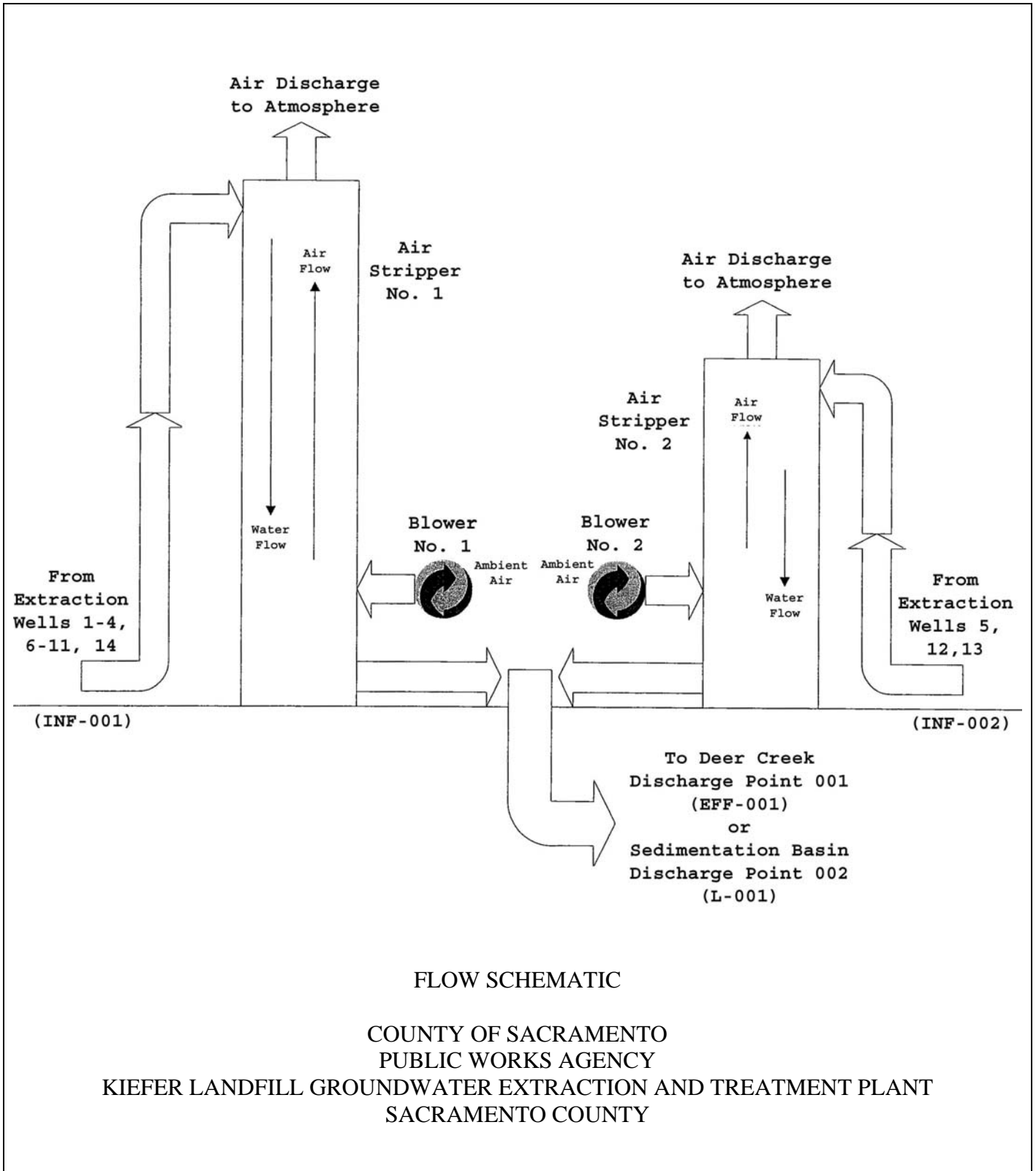
GENERAL SITE PLAN
KIEFER LANDFILL
June 2001
Not to scale

SITE LOCATION MAP

COUNTY OF SACRAMENTO
PUBLIC WORKS AGENCY
KIEFER LANDFILL GROUNDWATER
EXTRACTION AND TREATMENT PLANT



ATTACHMENT C – FLOW SCHEMATIC



ATTACHMENT D – FEDERAL STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code (CWC) and is grounds for enforcement action, for permit termination, revocation and reissuance, or 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 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 §122.41I].

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 §122.51].

F. Inspection and Entry

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

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

G. Bypass

1. Definitions
 - a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility [40 CFR §122.41(m)(1)(i)].
 - b. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production [40 CFR §122.41(m)(1)(ii)].
2. Bypass not exceeding limitations – The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below [40 CFR §122.41(m)(2)].

3. Prohibition of bypass – Bypass is prohibited, and the Regional Water Board may take enforcement action against a Discharger for bypass, unless [40 CFR §122.41(m)(4)(i)]:
 - a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage [40 CFR §122.41(m)(4)(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)(B)]; and
 - c. The Discharger submitted notice to the Regional Water Board as required under Standard Provisions – Permit Compliance I.G.5 below [40 CFR §122.41(m)(4)I].
4. The Regional Water Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above [40 CFR §122.41(m)(4)(ii)].
5. Notice
 - a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass [40 CFR §122.41(m)(3)(i)].
 - b. Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions – Reporting V.E below (24-hour notice) [40 CFR §122.41(m)(3)(ii)].

H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. 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)(i)];
 - c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) [40 CFR §122.41(n)(3)(iii)]; and
 - d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above [40 CFR §122.41(n)(3)(iv)].
3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof [40 CFR §122.41(n)(4)].

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

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

B. Duty to Reapply

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

C. Transfers

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

III. STANDARD PROVISIONS – MONITORING

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

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

IV. STANDARD PROVISIONS – RECORDS

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

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements [40 CFR §122.41(j)(3)(i)];
2. The individual(s) who performed the sampling or measurements [40 CFR §122.41(j)(3)(ii)];
3. The date(s) analyses were performed [40 CFR §122.41(j)(3)(iii)];
4. The individual(s) who performed the analyses [40 CFR §122.41(j)(3)(iv)];
5. The analytical techniques or methods used [40 CFR §122.41(j)(3)(v)]; and
6. The results of such analyses [40 CFR §122.41(j)(3)(vi)].

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

1. The name and address of any permit applicant or Discharger [40 CFR §122.7(b)(1)]; and
2. Permit applications and attachments, permits and effluent data [40 CFR §122.7(b)(2)].

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Regional Water Board, State Water Board, or USEPA within a reasonable time, any information which the Regional Water Board, State Water Board, or

USEPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Regional Water Board, State Water Board, or USEPA copies of records required to be kept by this Order [40 CFR §122.41(h)] [CWC 13267].

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or USEPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below [40 CFR §122.41(k)].
2. All permit applications shall be signed as follows:
 - a. For a corporation: 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)];
 - b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively [40 CFR §122.22(a)(2)]; or
 - c. For a municipality, State, federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (*e.g.*, Regional Administrators of USEPA) [40 CFR §122.22(a)(3)].
3. All reports required by this Order and other information requested by the Regional Water Board, State Water Board, or USEPA shall be signed by a person described in paragraph (b) of this provision, 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 paragraph (2.) of this provision [40 CFR §122.22(b)(1)];

- b. The authorization specified either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company (a duly authorized representative may thus be either a named individual or any individual occupying a named position) [40 CFR §122.22(b)(2)]; and
 - c. The written authorization is submitted to the Regional Water Board, State Water Board, or USEPA [40 CFR §122.22(b)(3)].
4. If an authorization under paragraph (3.) of this provision 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 paragraph (3.) of this provision must be submitted to the Regional Water Board, State Water Board, or USEPA prior to or together with any reports, information, or applications, to be signed by an authorized representative [40 CFR §122.22I].
 5. Any person signing a document under paragraph (2.) or (3.) of this provision 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 in this Order [40 CFR §122.41(l)(4)].
2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices [40 CFR §122.41(l)(4)(i)].
3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Water Board [40 CFR §122.41(l)(4)(ii)].

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

D. Compliance Schedules

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

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance [40 CFR §122.41(l)(6)(i)].
2. The following shall be included as information that must be reported within 24 hours under this paragraph [40 CFR §122.41(l)(6)(ii)]:
 - a. Any unanticipated bypass that exceeds any effluent limitation in this Order [40 CFR §122.41(l)(6)(ii)(A)].
 - b. Any upset that exceeds any effluent limitation in this Order [40 CFR §122.41(l)(6)(ii)(B)].
3. The Regional Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours [40 CFR §122.41(l)(6)(iii)].

F. Planned Changes

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

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR §122.29(b) [40 CFR §122.41(l)(1)(i)]; or
2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are not subject to effluent limitations in this Order. [40 CFR § 122.41(l)(1)(ii)].

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

G. Anticipated Noncompliance

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

H. Other Noncompliance

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

I. Other Information

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

VI. STANDARD PROVISIONS – ENFORCEMENT—NOT APPLICABLE

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Non-Municipal Facilities

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

1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following “notification levels” [40 CFR §122.42(a)(1)]:
 - a. 100 micrograms per liter ($\mu\text{g/L}$) [40 CFR §122.42(a)(1)(i)];
 - b. 200 $\mu\text{g/L}$ for acrolein and acrylonitrile; 500 $\mu\text{g/L}$ for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and 1 milligram per liter (mg/L) for antimony [40 CFR

- §122.42(a)(1)(ii)*;
- c. Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge [*40 CFR §122.42(a)(1)(iii)*]; or
 - d. The level established by the Regional Water Board in accordance with 40 CFR §122.44(f) [*40 CFR §122.42(a)(1)(iv)*].
2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following “notification levels” [*40 CFR §122.42(a)(2)*]:
- a. 500 micrograms per liter ($\mu\text{g/L}$) [*40 CFR §122.42(a)(2)(i)*];
 - b. 1 milligram per liter (mg/L) for antimony [*40 CFR §122.42(a)(2)(ii)*];
 - c. Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge [*40 CFR §122.42(a)(2)(iii)*]; or
 - d. The level established by the Regional Water Board in accordance with 40 CFR §122.44(f) [*40 CFR §122.42(a)(2)(iv)*].

Attachment E – Monitoring and Reporting Program – Table of Contents

Attachment E – Monitoring and Reporting Program (MRP).....E-2

I. General Monitoring Provisions.....E-2

II. Monitoring Locations.....E-2

III. Influent Monitoring Requirements – Not Applicable.....E-3

IV. Effluent Monitoring RequirementsE-3

 A. Monitoring Location EFF-001E-3

V. Whole Effluent Toxicity (WET) Testing Requirements.....E-4

 A. Acute Toxicity TestingE-4

 B. Chronic Toxicity Testing.....E-5

 C. WET Testing Notification Requirements.....E-6

 D. WET Testing Reporting RequirementsE-6

VI. Land Discharge Monitoring Requirements.....E-8

 A. Sedimentation Basin Monitoring—Monitoring Location LND-001.....E-8

VII. Reclamation Monitoring Requirements – Not ApplicableE-8

VIII. Receiving Water Monitoring Requirements – Surface Water and GroundwaterE-8

 A. Monitoring Locations RSW-001 and RSW-002E-8

 B. Groundwater Monitoring - Not Applicable.....E-9

IX. Other Monitoring Requirements – Not ApplicableE-9

X. Reporting RequirementsE-10

 A. General Monitoring and Reporting RequirementsE-10

 B. Self Monitoring Reports (SMRs)E-11

 C. Discharge Monitoring Reports (DMRs) – Not ApplicableE-12

 D. Other ReportsE-12

ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

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

I. GENERAL MONITORING PROVISIONS

- A.** Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring locations specified below and, unless otherwise specified, before the monitored flow joins or is diluted by any other waste stream, body of water, or substance. Monitoring locations shall not be changed without notification to and the approval of this Regional Water Board.
- B.** Chemical, bacteriological, and bioassay analyses shall be conducted at a laboratory certified for such analyses by the State Department of Health Services. In the event a certified laboratory is not available to the Discharger, analyses performed by a noncertified laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program must be kept in the laboratory and shall be available for inspection by Regional Water Board staff. The Quality Assurance-Quality Control Program must conform to USEPA guidelines or to procedures approved by the Regional Water Board.
- C.** All analyses shall be performed in a laboratory certified to perform such analyses by the California Department of Health Services. Laboratories that perform sample analyses shall be identified in all monitoring reports.
- D.** Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year to ensure continued accuracy of the devices.
- E.** Monitoring results, including noncompliance, shall be reported at intervals and in a manner specified in this Monitoring and Reporting Program.

II. MONITORING LOCATIONS

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

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
001	EFF-001	After all treatment units, prior to discharge to Deer Creek. 38° 30' 20" N, Latitude and 121° 10' 40" W, Longitude.
002	LND-002	After all treatment units, prior to discharge to on-site sedimentation basin. 38° 30' 24" N, Latitude and 121° 10' 52" W, Longitude
--	RSW-001	700 feet upstream at the point of discharge to Deer Creek 38° 30' 16" N, Latitude and 121° 10' 32" W, Longitude
--	RSW-002	400 feet downstream at the point of discharge to Deer Creek 38° 30' 18" N, Latitude and 121° 10' 44" W, Longitude

III. INFLUENT MONITORING REQUIREMENTS – NOT APPLICABLE

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

1. Effluent samples shall be collected downstream from the last connection through which wastes can be admitted into the outfall, following the last unit process. Effluent samples should be representative of the volume and quality of the discharge. Time of collection of samples shall be recorded. The Discharger shall monitor treated groundwater at EFF-001 as follows:

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	mgd	Meter	Continuous	[1]
pH	standard units	Grab	1/week	[1]
Chlorine, Total Residual	mg/L	Grab or Meter ⁵	1/week or Continuous ⁵	[1]
Turbidity	NTU	Grab	1/week	[1]
Dissolved Oxygen	mg/L	Grab	1/week	[1]
Electrical Conductivity @ 25 °C	µmhos/cm	Grab	1/week	[1]
Hardness (as CaCO ₃)	mg/L	Grab	1/quarter	[1]
Temperature	°F (°C)	Grab	1/week	[1]
Total Dissolved Solids	mg/L, lbs/day	Grab	1/week	[1]
Volatile Organic Compounds ²	µg/L	Grab	1/week	[1]
Aluminum	µg/L, lbs/day	Grab	1/quarter	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Manganese	µg/L, lbs/day	Grab	1/quarter	[1]
Nickel, Total Recoverable	µg/L, lbs/day	Grab	1/quarter	[1]
Organochlorine Pesticides ³	µg/L	Grab	1/quarter	[1]
Fluoride	µg/L	Grab	1/quarter	[1]
Priority Pollutants ⁴	µg/L, lbs/day	Grab	1/Permit Lifecycle	[1]

¹ Pollutants shall be analyzed using the analytical methods described in 40 CFR 136;

² All volatile organic compounds listed in EPA Method 502.2.

³ Organochlorine pesticides include aldrin, alpha-BHC, beta-BHC, delta-BHC gamma-BHC, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, chlordane, dieldrin, endrin, endrin aldehyde, alpha-endosulfan, beta-endosulfan, endosulfan sulfate, heptachlor, heptachlor epoxide, and toxaphene.

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

⁵ Continuous chlorine residual monitoring is required for a minimum of 24-hours after the discharge to Deer Creek resumes following well and groundwater treatment system maintenance events.

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

V. WHOLE EFFLUENT TOXICITY (WET) TESTING REQUIREMENTS

A. Acute Toxicity Testing.

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

1. Monitoring Frequency – the Discharger shall perform quarterly acute toxicity testing.
2. Sample Types – For static non-renewal and static renewal testing, the samples shall be grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent monitoring location EFF-001.

3. Test Species – Test species shall be fathead minnows (*Pimephales promelas*).
4. Methods – The acute toxicity testing samples shall be analyzed using EPA-821-R-02-012, Fifth Edition. Temperature, total residual chlorine, and pH shall be recorded at the time of sample collection. No pH adjustment may be made unless approved by the Executive Officer.
5. Test Failure – If an acute toxicity test does not meet all test acceptability criteria, as specified in the test method, the Discharger must re-sample and re-test as soon as possible, not to exceed 7 days following notification of test failure.

B. Chronic Toxicity Testing.

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

1. Monitoring Frequency – the Discharger shall perform quarterly three-species, chronic toxicity testing.
2. Sample Types – Effluent samples shall be grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent monitoring location specified in the Monitoring and Reporting Program. The receiving water control shall be a grab sample obtained from the RSW-001 sampling location, as identified in the Monitoring and Reporting Program.
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:
 - a. The cladoceran, water flea, *Ceriodaphnia dubia* (survival and reproduction test);
 - b. The fathead minnow, *Pimephales promelas* (larval survival and growth test); and
 - c. The green alga, *Selenastrum capricornutum* (growth test).
5. Methods – The presence of chronic toxicity shall be estimated as specified in *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*, EPA/821-R-02-013, October 2002, or later amendment with Executive Officer approval.
6. Reference Toxicant – As required by the SIP, all chronic toxicity tests shall be conducted with concurrent testing with a reference toxicant and shall be reported with the chronic

toxicity test results.

7. *Dilutions* – The chronic toxicity testing shall be performed using 100% effluent and two controls. If toxicity is found in any effluent test, the Discharger must immediately retest using the dilution series identified in Table E-1, below. The receiving water control shall be used as the diluent (unless the receiving water is toxic or sufficient flow is not available).

Table E-1 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 *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*, EPA/821-R-02-013, October 2002 (Method Manual), and its subsequent amendments or revisions; or
 - b. The percent minimum significant difference (PMSD) measured for the test exceeds the upper PMSD bound variability criterion in Table 6 on page 52 of the Method Manual. (A retest is only required in this case if the test results do not exceed the monitoring trigger specified in Special Provisions Section VI.C.2.a.iii. of this Order)

C. WET Testing Notification Requirements

The Discharger shall notify the Regional 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 Regional Water Board within 30 days following completion of the test, and shall contain, at minimum:
 - a. The results expressed in TUc, measured as 100/NOEC, and also measured as 100/LC₅₀, 100/EC₂₅, 100/IC₂₅, and 100/IC₅₀, as appropriate.
 - b. The statistical methods used to calculate endpoints;
 - c. The statistical output page, which includes the calculation of the percent minimum significant difference (PMSD);
 - d. The dates of sample collection and initiation of each toxicity test; and
 - e. The results compared to the numeric toxicity monitoring trigger.

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

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

A. Sedimentation Basin Monitoring—Monitoring Location LND-001

1. Sedimentation basin monitoring shall be conducted during maintenance operations of the groundwater treatment plant when treated groundwater is discharged to the on-site sedimentation basin. All sedimentation basin samples shall be grab samples. The Discharger shall monitor extracted groundwater at LND-001, at a minimum as follows:

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	mgd	Calculated	[2]	[1]
pH	standard units	Grab	[2]	[1]
Chlorine, Total Residual	mg/L	Grab	[2]	[1]
Dissolved Oxygen	mg/L	Grab	[2]	[1]
Electrical Conductivity @ 25 °C	µmhos/cm	Grab	[2]	[1]
Total Dissolved Solids	mg/L	Grab	[2]	[1]
Volatile Organic Compounds ³	µg/L	Grab	[2]	[1]
Title 22 Metals ^{4,5}	µg/L	Grab	[2]	[1]

¹ Pollutants shall be analyzed using the analytical methods described in 40 CFR 136;

² Samples shall be collected during post tower maintenance, post well maintenance, and post well rehabilitation discharges which represent the quality of effluent discharged to the sedimentation basin.

³ All volatile organic compounds listed in EPA Method 502.2

⁴ Title 22 metals shall include the analyses of arsenic, cadmium, chromium, copper, lead, manganese, mercury, nickel, and zinc.

⁵ For priority pollutant constituents with effluent limitations, detection limits shall be below the effluent limitations. If the lowest minimum level (ML) published in Appendix 4 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Plan or SIP) is not below the effluent limitation, the detection limit shall be the lowest ML. For priority pollutant constituents without effluent limitations, the detection limits shall be equal to or less than the lowest ML published in Appendix 4 of the SIP.

VII. RECLAMATION MONITORING REQUIREMENTS – NOT APPLICABLE

VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER AND GROUNDWATER

A. Monitoring Locations RSW-001 and RSW-002

1. The Discharger shall monitor Deer Creek at RSW-001 and RSW-002 as follows:

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow ²	cfs	Meter	1/month	[1]
pH	standard units	Grab	1/month	[1]
Dissolved Oxygen	mg/L	Grab	1/month	[1]
Electrical Conductivity @ 25 °C	µmhos/cm	Grab	1/month	[1]
Hardness (as CaCO ₃)	mg/L	Grab	1/month	[1]
Temperature	°F (°C)	Grab	1/month	[1]
Turbidity	NTU	Grab	1/month	[1]
Priority Pollutants ³	µg/L	Grab	1/Permit Lifecycle	[1]

¹ Pollutants shall be analyzed using the analytical methods described in 40 CFR 136;

² Estimate of receiving water flow, recorded for each day of sample collection. Use nearby gauging station, if available.

³ For priority pollutant constituents with effluent limitations, detection limits shall be below the effluent limitations. If the lowest minimum level (ML) published in Appendix 4 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Plan or SIP) is not below the effluent limitation, the detection limit shall be the lowest ML. For priority pollutant constituents without effluent limitations, the detection limits shall be equal to or less than the lowest ML published in Appendix 4 of the SIP.

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

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

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

B. Groundwater Monitoring - Not Applicable

IX. OTHER MONITORING REQUIREMENTS – NOT APPLICABLE

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.
2. Upon written request of the Regional Water Board, the Discharger shall submit a summary monitoring report. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year(s).
3. **Compliance Time Schedules.** For compliance time schedules included in the Order, the Discharger shall submit to the Regional Water Board, on or before each compliance due date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Water Board by letter when it returns to compliance with the compliance time schedule.
4. **Reporting Protocols.** The Discharger shall report with each sample result the applicable Reporting Level (RL) and the current Method Detection Limit (MDL), as determined by the procedure in 40 CFR Part 136.

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

- a. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (*i.e.*, the measured chemical concentration in the sample).
- b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

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

- c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.
- d. Dischargers are to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to

calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from *extrapolation* beyond the lowest point of the calibration curve.

B. Self Monitoring Reports (SMRs)

1. At any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit Self-Monitoring Reports (SMRs) using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (<http://www.waterboards.ca.gov/ciwqs/index.html>). Until such notification is given, the Discharger shall submit hard copy SMRs. The CIWQS Web site will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.
2. The Discharger shall report in the SMR the results for all monitoring specified in this MRP under sections III through IX. Additionally, the Discharger shall report in the SMR the results of any special studies and acute and chronic toxicity testing required by Special Provisions – VI.C.2 of this Order. The Discharger shall submit monthly, quarterly, annual SMRs including the results of all required monitoring using USEPA-approved test methods or other test methods specified in this Order. 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 SMR.
3. In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the reported analytical result are readily discernible. The data shall be summarized in such a manner to clearly illustrate whether the discharge complies with waste discharge requirements. Monthly maximums, minimums, and averages shall be reported for each monitored constituent and parameter.
4. With the exception of flow, all constituents monitored on a continuous basis (metered), shall be reported as daily maximums, daily minimums, and daily averages; flow shall be reported as the total volume discharged per day for each day of discharge.
5. If the Discharger monitors any pollutant at the locations designated herein more frequently than is required by this Order, the results of such monitoring shall be included in the calculation and reporting of the values required in the discharge monitoring report form. Such increased frequency shall be indicated on the discharge monitoring report form.
6. A letter transmitting the self-monitoring reports shall accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions,

reference to the previous correspondence will be satisfactory. The transmittal letter shall contain the penalty of perjury statement by the Discharger, or the Discharger's authorized agent, as described in the Standard Provisions.

7. SMRs must be submitted to the Regional Water Board, signed and certified as required by the Standard Provisions (Attachment D), to the address listed below:

California Regional Water Quality Control Board
 Central Valley Region
 11020 Sun Center Drive, #200
 Rancho Cordova, CA 95670

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

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period	SMR Due Date
Continuous	Permit effective date	All	Submit with monthly SMR
1 / Day	Sunday following permit effective date or on permit effective date if on a Sunday	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.	Submit with monthly SMR
1 / Week	First day of calendar month following permit effective date or on permit effective date if that date is first day of the month	Sunday through Saturday	Submit with monthly SMR
1 / Month	Closest of January 1, April 1, July 1, or October 1 following (or on) permit effective date	1 st day of calendar month through last day of calendar month	30 days from the end of the monitoring period
1 / Quarter	Closest of January 1 or July 1 following (or on) permit effective date	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31	30 days from the end of the monitoring period
1 / Semi-annual Period	January 1 following (or on) permit effective date	January 1 through June 30 July 1 through December 31	30 days from the end of the monitoring period
1 / Year	Permit effective date	January 1 through December 31	Submit with monthly SMR
1 / Permit Lifecycle	Permit effective date	one time no more than 365 days and no less than 180 days prior to expiration of this Order	30 days from the end of the monitoring period

C. Discharge Monitoring Reports (DMRs) – Not Applicable

D. Other Reports

1. By **1 February** of each year, the Discharger shall submit a written report to the Executive Officer containing the following:
 - a. The names and telephone numbers of persons to contact regarding the plant for emergency and routine situations.
 - b. A statement certifying when the flow meter and other monitoring instruments and devices were last calibrated, including identification of who performed the

calibration.

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

Attachment F – Fact Sheet – Table of Contents

Attachment F – Fact Sheet.....F-3

I. Permit Information.....F-3

II. Facility Description.....F-4

A. Description of Wastewater Treatment and ControlsF-4

B. Discharge Points and Receiving WatersF-4

C. Summary of Existing Requirements and Self-Monitoring Report (SMR) DataF-5

D. Compliance SummaryF-6

E. Planned ChangesF-6

III. Applicable Plans, Policies, and Regulations.....F-7

A. Legal AuthoritiesF-7

B. California Environmental Quality Act (CEQA).....F-7

C. State and Federal Regulations, Policies, and PlansF-7

D. Impaired Water Bodies on CWA 303(d) ListF-10

E. Other Plans, Policies, and Regulations – Not ApplicableF-10

IV. Rationale For Effluent Limitations and Discharge SpecificationsF-11

A. Discharge ProhibitionsF-12

B. Technology-Based Effluent LimitationsF-12

 1. Scope and AuthorityF-12

 2. Applicable Technology-Based Effluent LimitationsF-12

C. Water Quality-Based Effluent Limitations (WQBELs)F-14

 1. Scope and AuthorityF-14

 2. Applicable Beneficial Uses and Water Quality Criteria and ObjectivesF-14

 3. Determining the Need for WQBELs.....F-15

 4. WQBEL CalculationsF-21

 5. Whole Effluent Toxicity (WET).....F-23

D. Final Effluent LimitationsF-24

 1. Satisfaction of Anti-Backsliding Requirements.....F-24

 2. Satisfaction of Antidegradation PolicyF-25

E. Interim Effluent Limitations – Not ApplicableF-26

F. Land Discharge SpecificationsF-26

G. Reclamation Specifications – Not Applicable.....F-27

V. Rationale for Receiving Water LimitationsF-27

A. Surface WaterF-27

VI. Rationale for Monitoring and Reporting RequirementsF-29

A. Influent Monitoring – Not Applicable.....F-29

B. Effluent Monitoring.....F-29

C. Whole Effluent Toxicity Testing RequirementsF-30

D. Receiving Water Monitoring.....F-30

 1. Surface Water.....F-30

 2. Groundwater – Not Applicable.....F-30

E. Other Monitoring RequirementsF-30

VII. Rationale for Provisions.....F-30

A. Standard ProvisionsF-30

B. Special ProvisionsF-31

1. Reopener Provisions	F-31
2. Special Studies and Additional Monitoring Requirements.....	F-31
3. Best Management Practices and Pollution Prevention	F-35
4. Construction, Operation, and Maintenance Specifications.....	F-35
5. Special Provisions for Municipal Facilities (POTWs Only) – Not Applicable	F-35
6. Other Special Provisions.....	F-35
7. Compliance Schedules – Not Applicable	F-35
VIII. Public Participation.....	F-35
A. Notification of Interested Parties.....	F-36
B. Written Comments	F-36
C. Public Hearing.....	F-36
D. Waste Discharge Requirements Petitions.....	F-36
E. Information and Copying	F-37
F. Register of Interested Persons	F-37
G. Additional Information.....	F-37

ATTACHMENT F – FACT SHEET

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

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

I. PERMIT INFORMATION

The following table summarizes administrative information related to the facility.

WDID	5A340311002
Discharger	County of Sacramento, Public Works Agency
Name of Facility	Kiefer Landfill Groundwater Extraction and Treatment Plant
Facility Address	12701 Kiefer Boulevard
	Sloughhouse, CA 95683
	Sacramento County
Facility Contact Title and Phone	Eric Vanderbilt, P.E. Senior Civil Engineer, (916) 875-6568
Authorized Person to Sign and Submit Reports	Eric Vanderbilt, P.E. Senior Civil Engineer, (916) 875-6568
Mailing Address	9850 Goethe Road
	Sacramento, CA 95827
Billing Address	SAME
Type of Facility	Groundwater Extraction and Treatment Facility with SIC code 4953
Major or Minor Facility	Minor
Threat to Water Quality	3
Complexity	C
Pretreatment Program	Not Applicable
Reclamation Requirements	Not Applicable
Facility Permitted Flow	2.17 (in millions of gallons per day)
Facility Design Flow	2.17 (in millions of gallons per day)
Watershed	North Valley Floor Hydrologic Unit, Lower Cosumnes-Dry Hydrologic Area, Lower Deer Creek Hydrologic Sub-Area (531.12)
Receiving Water	Deer Creek
Receiving Water Type	Ephemeral Stream

A. The County of Sacramento, Public Works Agency (hereinafter Discharger) is the owner and operator of the Kiefer Landfill Groundwater Extraction and Treatment Plant (hereinafter Facility), a groundwater extraction and treatment plant within a municipal solid waste landfill.

- B. The Facility discharges treated groundwater to Deer Creek, a water of the United States, and is currently regulated by Order 5-01-065 which was adopted on March 16, 2001 and expired on March 1, 2006. The terms of the existing Order automatically continued in effect after the permit expiration date.
- 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 November 16, 2005.

II. FACILITY DESCRIPTION

The Discharger owns and operates the Kiefer Landfill, a Class III solid waste disposal facility, which includes an on-site groundwater extraction and treatment system. The landfill is at the intersection of Grant Line Road and Kiefer Boulevard, in the eastern portion of Sacramento County, about 15 miles east of the City of Sacramento, one mile north of Sloughhouse, and six miles northwest of the City of Rancho Murieta, in Sections 22, 26, 27, 34, and 35, TN8, R7E, MDB&M. A 1987 Solid Wastewater Quality Assessment Test indicated that disposal operations at the landfill have resulted in contamination of groundwater with volatile organic compounds (VOCs). The Discharger has been directed to remediate the groundwater under an approved Correction Action Plan (CAP) required under Cleanup and Abatement Order No. 91-725. The CAP called for the extraction and treatment of the contaminated groundwater.

A. Description of Wastewater Treatment and Controls

The groundwater extraction and treatment system has been established for Kiefer Landfill as a means of controlling contaminant migration and removing contaminants from groundwater. The treatment system at this facility consists of a groundwater extraction well network and an air stripping system.

1. **Extraction Well Network.** The groundwater treatment system is fed by a groundwater extraction network consists of 14 extraction wells. When fully operational, the daily average flow for the system is 1.5 million gallons per day (mgd), with an estimated daily maximum flow of 2.17 mgd.
2. **Air Stripping System.** Groundwater extracted from the extraction well network is delivered to a central air stripping facility that includes two air stripping towers for the removal of VOCs from groundwater and a vapor-phase carbon bed for the treatment of off-gas. The Sacramento Metropolitan Air Quality Management District has authorized atmospheric discharge of vapor phase organics based on daily VOC mass removal and the Sacramento Metropolitan Air Quality Management District's policy for emission.

B. Discharge Points and Receiving Waters

1. The treatment plant is in Section 35, T8N, R7E, MDB&M, as shown on Attachment B, a part of this Order. Treated groundwater is discharged to Deer Creek, a water of the United States

and a tributary to the Cosumnes River at the Discharge Point 001, latitude 38, 30, 20 (deg, min, sec) and longitude 121, 10, 40 (deg, min, sec). During groundwater treatment system maintenance operations, the Discharger may discharge treated groundwater to the on-site sedimentation basin at point, latitude 38, 30, 24 (deg, min, sec) and longitude 121, 10, 52 (deg, min, sec).

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

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

Parameter (units)	Effluent Limitation			Monitoring Data (From February 2002 To August 2005)		
	Average Annually	Average Monthly	Maximum Daily	Highest Average Annually Discharge	Highest Average Monthly Discharge	Highest Daily Discharge
Flow (mgd)	--	2.17	--	--	1.88	--
pH (standard unit)	--	--	[6.5 , 8.5] ¹	--	--	[6.69 , 8.53]
Chlorine, Total Residual (mg/L)	--	0.01	0.02	--	ND	0.01
Total Dissolved Solids (mg/L)	450	500	1500	276	302	360
Arsenic, Total Recoverable (µg/L)	--	5	5	--	2.2	4.2
Cadmium Total Recoverable (µg/L)	--	3	9.4	--	ND	ND
Chromium Total Recoverable (µg/L)	--	11	16	--	7.7	7.7
Copper Total Recoverable (µg/L)	--	16	25	--	0.5	0.87
Lead Total Recoverable (µg/L)	--	7.3	50	--	ND	ND
Mercury, Total Recoverable (µg/L)	--	0.012	2.4	--	0.00137	0.00137
Nickel, Total recoverable (µg/L)	--	90	600	--	110	110
Zinc, Total Recoverable (µg/L)	--	210	210	--	2.6	4.1
Volatile Organics Compounds (µg/L)	--	<0.5	--	--	<0.5	--

¹ Instantaneous minimum-maximum range.

2. The Report of Waste Discharge describes the treated groundwater discharge as follows:

Design Flow:	2.17	million gallons per day (mgd)
Annual Average Daily Flow Rate:	1.35	mgd
Temperature, Summer:	19.1	°C
Temperature, Winter:	20.7	°C
Biochemical Oxygen Demand (5-day @ 20 °C):	3	mg/L
Total Suspended Solids:	2	mg/L

D. Compliance Summary

During the monitoring period of February 2002 through August 2005 the Discharger violated the following effluent and receiving water limitations established by WDRs Order No. 5-01-065 for Discharge Point 001.

1. Effluent Limitations

- a. Order No. 5-01-065 have effluent limitations for total recoverable nickel of 90 µg/L and 600 µg/L for average monthly and maximum daily effluent limitations, respectively. Results from effluent samples collected on January 19, 2005 indicated a nickel level of 110 µg/L. Since it is the only nickel effluent sample for the month, 110 µg/L of nickel is also the monthly average which exceeds the average monthly effluent limitation.

2. Receiving Water Limitations

- a. Review of receiving water monitoring data indicates there were 5 instances where receiving water limitation for the ambient pH not to change by more than 0.5 units was exceeded.
- b. There were 3 instances where receiving water limitation for “*ambient temperature to increase more than 5°F*” was exceeded.
- c. There was 1 instance where receiving water limitation for turbidity “*to increase ... [m]ore than 20 percent where natural turbidity is between 5 and 100 NTUs*” was exceeded.

E. Planned Changes

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

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in the proposed Order are based on the requirements and authorities described in this section.

A. Legal Authorities

This Order is issued pursuant to section 402 of the Federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and Chapter 5.5, Division 7 of the California Water Code (CWC). 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 of the CWC for discharges that are not subject to regulation under CWA section 402.

B. California Environmental Quality Act (CEQA)

The action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of the CEQA (Public Resources Code Section 21000, *et seq.*), requiring preparation of an environmental impact report or negative declaration in accordance with Section 13389 of the CWC.

C. State and Federal Regulations, Policies, and Plans

1. **Water Quality Control Plans.** The Regional Water Board adopted a *Water Quality Control Plan, Fourth Edition*, for the *Sacramento and San Joaquin River Basins* (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan.

The Basin Plan at page II-2.00 states that the “...*beneficial uses of any specifically identified water body generally apply to its tributary streams.*” The Basin Plan does not specifically identify beneficial uses for Deer Creek, but does identify present and potential uses for the Cosumnes River, to which Deer Creek, is tributary. These beneficial uses are as follows: municipal and domestic supply; agricultural supply, including stock watering; water contact recreation, including canoeing and rafting; non-contact water recreation, including aesthetic enjoyment; warm freshwater habitat; cold freshwater habitat; warm migration of aquatic organisms; cold migration of aquatic organisms; warm spawning, reproduction, and/or early development; cold spawning, reproduction, and/or early development; and wildlife habitat. In addition, State Water Resources Control Board (State Water Board) Resolution No. 88-63 requires that, with certain exceptions, the Regional Water Board assign the municipal and domestic supply use to water bodies that do not have beneficial uses listed in the Basin Plan. The beneficial uses applicable to Deer Creek are as follows:

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Deer Creek	<u>Existing:</u> municipal and domestic supply (MUN); agricultural supply, including stock watering (AGR); water contact recreation, including canoeing and rafting (REC-1); non-contact water recreation, including aesthetic enjoyment (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); warm migration of aquatic organisms (MIGR); cold migration of aquatic organisms (MIGR); warm spawning, reproduction, and/or early development and cold spawning, reproduction, and /or early development (SPWN); and wildlife habitat (WILD).
002	Groundwater	MUN, industrial service supply (IND), industrial process supply (PRO), and AGR.

The Basin Plan on page II-1.00 states: *“Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning...” and with respect to disposal of wastewaters states that “...disposal of wastewaters is [not] a prohibited use of waters of the State; it is merely a use which cannot be satisfied to the detriment of beneficial uses.”*

The federal CWA, Section 101(a)(2), states: *“it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water be achieved by July 1, 1983.”* Federal Regulations, developed to implement the requirements of the CWA, create a rebuttable presumption that all waters be designated as fishable and swimmable. Federal Regulations, 40 CFR §§ 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. Section 131.3(e), 40 CFR, defines existing beneficial uses as those uses actually attained after 28 November 1975, whether or not they are included in the water quality standards. Federal Regulation, 40 CFR § 131.10, requires that uses be obtained by implementing effluent limitations, requires that all downstream uses be protected and states that in no case shall a state adopt waste transport or waste assimilation as a beneficial use for any waters of the United States.

In reviewing whether the existing and/or potential uses of the Cosumnes River apply to the Deer Creek, the Regional Water Board has considered the following facts:

a. Domestic Supply and Agricultural Supply

The Regional Water Board is required to apply the beneficial uses of municipal and domestic supply to the Deer Creek based on State Water Board Resolution No. 88-63 which was incorporated in the Basin Plan pursuant to Regional Water Board Resolution No. 89-056. In addition, the State Water Board has issued water rights to existing water users along Deer Creek and the Cosumnes River downstream of the discharge for domestic and irrigation uses. Since Deer Creek is an ephemeral stream, the Deer Creek likely provides groundwater recharge during periods of low flow. The groundwater is a source of drinking water. In addition to the existing water uses, growth in the area,

downstream of the discharge is expected to continue, which presents a potential for increased domestic and agricultural uses of the water in Deer Creek.

b. Water Contact and Noncontact Recreation and Esthetic Enjoyment

The Regional Water Board finds that the discharge flows through residential areas, there is ready public access to Deer Creek, exclusion of the public is unrealistic and contact recreational activities currently exist along Deer Creek and downstream waters and these uses are likely to increase as the population in the area grows. Prior to flowing into the Cosumnes River, Deer Creek flows through areas of general public access, meadows, residential areas, and parks. The Cosumnes River also offers recreational opportunities.

c. Groundwater Recharge

In areas where groundwater elevations are below the stream bottom, water from the stream will percolate to groundwater. Since Deer Creek is at times dry, it is reasonable to assume that the stream water is lost by evaporation, flow downstream and percolation to groundwater providing a source of municipal and irrigation water supply.

d. Freshwater Replenishment

When water is present in Deer Creek, there may be hydraulic continuity between Deer Creek and the Cosumnes River. During periods of hydraulic continuity, Deer Creek adds to the water quantity and may impact the quality of water flowing down stream in the Cosumnes River.

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

Deer Creek flows to the Cosumnes River. The Basin Plan (Table II-1) designates the Cosumnes River as being both a cold and warm freshwater habitat. Therefore, pursuant to the Basin Plan (Table II-1, Footnote (2)), the cold designation applies to Deer Creek. The cold-water habitat designation necessitates that the in-stream dissolved oxygen concentration be maintained at, or above, 7.0 mg/L.

Upon review of the flow conditions, habitat values, and beneficial uses of Deer Creek, and the facts described above, the Regional Water Board finds that the beneficial uses identified in the Basin Plan for the Cosumnes River are applicable to Deer Creek.

The Regional Water Board also finds that based on the available information and on the Discharger's application, that Deer Creek, absent the discharge, is an ephemeral stream. The ephemeral nature of Deer Creek means that the designated beneficial uses must be protected, but that no credit for receiving water dilution is available. Although the discharge, at times, maintains the aquatic habitat, constituents may not be discharged that may cause harm to aquatic life. At other times, natural flows within Deer Creek help support the aquatic life. Both conditions may exist within a short time span, where Deer Creek would be dry without the discharge and periods when sufficient background flows provide hydraulic continuity

with the Cosumnes River. Dry conditions occur primarily in the summer months, but dry conditions may also occur throughout the year, particularly in low rainfall years. 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.

2. ***Antidegradation Policy.*** Section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. 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 section 131.12 and State Water Board Resolution 68-16.
3. ***Anti-Backsliding Requirements.*** Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at title 40, Code of Federal Regulations section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed. Compliance with the Anti-Backsliding requirements is discussed in Section IV.D.2.
4. ***Monitoring and Reporting Requirements.*** Section 122.48 of 40 CFR requires that all NPDES permits specify requirements for recording and reporting monitoring results. Sections 13267 and 13383 of the CWC authorize the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (MRP) establishes monitoring and reporting requirements to implement federal and State requirements. This MRP is provided in Attachment E.
5. ***Stormwater Requirements.*** USEPA promulgated Federal Regulations for stormwater on 16 November 1990 in 40 CFR Parts 122, 123, and 124. The NPDES Industrial Stormwater Program does not regulate stormwater discharges from groundwater treatment plant. However, the groundwater treatment plant is within the confines of a landfill. Landfills are an applicable industry under the stormwater program and are obligated to comply with the Federal Regulations. The Discharger's waste discharge identification number (WDID) for the stormwater permit is 5A340311002.

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

Deer Creek is not listed as an impaired water body.

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 Clean Water Act (CWA) and amendments thereto are applicable to the discharge.

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

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

limits chemical constituents in concentrations that adversely affect surface water beneficial uses. For waters designated as municipal, the Basin Plan specifies that, at a minimum, waters shall not contain concentrations of constituents that exceed Maximum Contaminant Levels (MCL) of CCR Title 22. The Basin Plan further states that, to protect all beneficial uses, the Regional Water Board may apply limits more stringent than MCLs.

A. Discharge Prohibitions

1. As stated in the Federal Standard Provisions (Attachment D), this Order prohibits bypass from any portion of the treatment facility. Federal Regulations, 40 CFR 122.41 (m), define “bypass” as the intentional diversion of waste streams from any portion of a treatment facility. This section of the Federal Regulations, 40 CFR 122.41 (m)(4), prohibits bypass unless it is unavoidable to prevent loss of life, personal injury, or severe property damage. In considering the Regional Water Board’s prohibition of bypasses, the State Water Resources Control 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. In the case of *United States v. City of Toledo, Ohio* (63 F. Supp 2d 834, N.D. Ohio 1999) the Federal Court ruled that “*any bypass which occurs because of inadequate plant capacity is unauthorized...to the extent that there are ‘feasible alternatives’, including the construction or installation of additional treatment capacity*”.

B. Technology-Based Effluent Limitations

1. Scope and Authority

As specified in 40 CFR §122.44 (a)(1), technology-based effluent limitations (TBELs) shall be applied when applicable based on: effluent limitations and standards promulgated under section 301 of the CWA, new source performance standards promulgated under section 306 of CWA, effluent limitations determined on a case-by-case under section 402(a)(1) of CWA, or a combination of the three, in accordance with 40 CFR §125.3

In cases where Effluent Limitation Guidelines are not available for, or do not regulate, a particular pollutant of concern, Best Professional Judgment (BPJ) limits are established. BPJ-based limits are technology-based limits derived on a case-by-case basis for non-municipal (industrial) facilities. BPJ is defined as the highest quality technical opinion developed by a permit writer after consideration of all reasonably available and pertinent data or information that forms the basis for the terms and conditions of an NPDES permit. Permit limits are generally set at the upper bounds of acceptable performance.

2. Applicable Technology-Based Effluent Limitations

- a. **Flow.** Order No. 5-01-065 established a 30-average daily discharge effluent flow limitation of 2.17 mgd for the Facility. The flow limitation is based on the design flow of the groundwater treatment plant. This Order replaces the 30-average daily discharge of 2.17 mgd as an average monthly discharge effluent flow limitation to a maximum daily flow limitation for discharge to Deer Creek. Based on the effluent monitoring data

provided by the Discharger from February 2002 through August 2005, flow results did not exceed the proposed 2.17 mgd maximum daily flow limitation. The Discharger should be able to comply with the flow effluent limitation immediately upon adoption of this Order and a compliance schedule is not necessary.

- b. **Volatile Organic Compounds.** CWA section 301(b)(1) requires NPDES permits to include effluent limitations that achieve technology-based standards and any more stringent limitations necessary to meet water quality standards. Water quality standards include the Basin Plan's beneficial uses and narrative and numeric water quality objectives, State Water Board adopted standards and federal standards including NTR and CTR. These standards include the Basin Plan's toxicity objective and State Water Board Resolution 68-16. Since there are no promulgated effluent limitations for VOCs in groundwater extracted for cleanup, technology-based effluent limitations are established based upon consideration of the Regional Water Board staff's best professional judgment (BPJ). With respect to the specific discharges permitted herein, and particularly the air stripper, the following have been considered as required by 40 CFR 125 for establishing best available technology economically achievable (BAT) based upon BPJ:
- **Appropriate technology for category or class of discharges** – Air stripping treatment systems are commonly used to remove VOCs from extracted groundwater at cleanup sites. Properly operated and maintained systems perform reliably and ensure essentially complete removal of VOCs. The Discharger employs an air stripper system.
 - **Unique factors relating to the applicant** – The Discharger has not identified any unique factors that would justify discharges equaling or exceeding quantifiable concentrations of VOCs.
 - **Age of equipment** – The Facility was constructed on April 1995. There have been no significant upgrades to any of the system components since 1995.
 - **Non-water quality environmental impacts, including energy requirements and cost of achieving proposed effluent reduction** – The system currently in place reliably removes VOCs to concentrations of less than 0.5 µg/L. Changing the effluent limit from an average monthly to a maximum daily, as described below, would not create additional non-water quality impacts, or financial costs for the Discharger.
 - **Influent and effluent data** – The monitoring data provided by the Discharger indicates that its air stripper system has the ability to consistently remove VOCs in the groundwater to less than 0.5 µg/L. No VOC exceeded the 0.5 µg/L average monthly effluent limitations set by Order No. 5-01-065.

Air stripping systems are appropriate technologies for VOC removal from extracted groundwater. The above supports the conclusion that the Discharger can meet a daily maximum effluent limit of 0.5 µg/L. Therefore, the effluent limits for VOCs have

been changed from <0.5 µg/L as a monthly average, to 0.5 µg/L as a daily maximum to reflect best practicable control technology currently available and best available technology economically achievable. Additionally, the Discharger must properly operate and maintain its treatment systems as specified in Section VI.C.4.a of this Order. With continued proper operation and maintenance of the Facility, the Discharger can meet the more stringent effluent limitations for VOCs.

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

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Flow	mgd	2.17	--	--	--
Volatile Organic Compounds ¹	µg/L		0.5	--	--

¹ All volatile organic constituents listed in EPA Method 502.2

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

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

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

- a. **Receiving Water**—The receiving stream is Deer Creek, which is tributary to the Cosumnes River. The beneficial uses of Deer Creek, as described above in III.C.1, are municipal and domestic supply; agricultural supply, including stock watering; water contact recreation, including canoeing and rafting; non-contact water recreation, including aesthetic enjoyment; warm freshwater habitat; cold freshwater habitat; warm migration of aquatic organisms; cold migration of aquatic organisms; warm spawning, reproduction, and/or early development and cold spawning, reproduction, and /or early development; and wildlife habitat.
- b. **Hardness**—While no Effluent Limitation for hardness is necessary in this Order, hardness is critical to the assessment of the need for, and the development of, Effluent Limitations for certain metals. The *California Toxics Rule*, at (c)(4), states the following:

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

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

Effluent Limitations for the discharge must be set to protect the beneficial uses of the receiving water for all discharge conditions. In the absence of the option of including condition-dependent, “floating” effluent limitations that are reflective of actual conditions at the time of discharge, Effluent Limitations must be set using a reasonable worst-case condition in order to protect beneficial uses for all discharge conditions. This Order uses the receiving water hardness of 64 mg/L as CaCO₃.

- c. **Assimilative Capacity/Mixing Zone**—Based on the available information, the worst-case dilution is assumed to be zero to provide protection for the receiving water beneficial uses. The impact of assuming zero assimilative capacity within the receiving water is that discharge limitations are end-of-pipe limits with no allowance for dilution within the receiving water.
- d. **Translators**—USEPA regulations at 40 CFR 122.45(c) require effluent limitations for metals to be expressed as total recoverable metal, and therefore, attention must be given to ensure that analytical data and water quality standards for metals are expressed accordingly. Appendix 3 of the SIP provides Conversion Factors (CFs) or translators, for certain metals including arsenic, cadmium, copper, silver, and zinc, to convert total recoverable concentrations to dissolved concentrations and vice versa. Since the Discharger did not provide translators specific to the receiving water, this Order used CFs from Appendix 3-1 of the SIP.

3. Determining the Need for WQBELs

- a. CWA section 301 (b)(1) requires NPDES permits to include effluent limitations that achieve technology-based standards and any more stringent limitations necessary to meet water quality standards. Water quality standards include Regional Water Board Basin Plan beneficial uses and narrative and numeric water quality objectives, State Water Board-adopted standards, and federal standards, including the CTR and NTR. The Basin Plan includes numeric site-specific water quality objectives and narrative objectives for toxicity, chemical constituents, and tastes and odors. The narrative toxicity objective states: “*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*” (Basin Plan at III-8.00.) With regards to the narrative chemical constituents objective,

the Basin Plan states that waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At minimum, “...*water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs)*” in Title 22 of CCR. The narrative tastes and odors objective states: “*Water shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.*”

- b. Federal regulations require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause, or contribute to an in-stream excursion above a narrative or numerical water quality standard. Based on information submitted as part of the application, in studies, and as directed by monitoring and reporting programs, the Regional Water Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for aluminum, manganese, nickel, organochlorine pesticides, total dissolved solids, and total residual chlorine. Water quality-based effluent limitations (WQBELs) for these constituents are included in this Order. A summary of the reasonable potential analysis (RPA) is provided in Attachment G, and a detailed discussion of the RPA for each constituent is provided below.
- c. The Regional Water Board conducted the RPA in accordance with Section 1.3 of the SIP. Although the SIP applies directly to the control of CTR priority pollutants, the State Water Board has held that the Regional Water Board may use the SIP as guidance for water quality-based toxics control.² The SIP states in the introduction “*The goal of this Policy is to establish a standardized approach for permitting discharges of toxic pollutants to non-ocean surface waters in a manner that promotes statewide consistency.*” Therefore, in this Order the RPA procedures from the SIP were used to evaluate reasonable potential for both CTR and non-CTR constituents.
- d. WQBELs were calculated in accordance with section 1.4 of the SIP, as described in Attachment F, Section IV.C.4.
- e. **Aluminum**—Aluminum in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a level necessary to protect aquatic life, and, therefore to violate the Basin Plan’s narrative toxicity objective. USEPA developed National Recommended Ambient Water Quality Criteria for protection of freshwater aquatic life for aluminum. The recommended four-day average (chronic) and one-hour average (acute) criteria for aluminum are 87 µg/L and 750 µg/L, respectively, for waters with a pH of 6.5 to 9.0. USEPA recommends that the ambient criteria are protective of the aquatic beneficial uses of receiving waters in lieu of site-specific criteria. Applying 40 CFR §122.44(d)(1)(vi)(B), Effluent Limitations for aluminum are included in this Order and are based on USEPA’s Ambient Water Quality Criteria for the protection of the beneficial use of freshwater aquatic habitat.

² See, Order WQO 2001-16 (Napa) and Order WQO 2004-0013 (Yuba City)

Aluminum was detected in an effluent sample collected August 13, 2002 at a concentration of 110 µg/L. The recommended criterion continuous concentration (maximum four-day average concentration or CCC) is 87 µg/L and the recommended criterion maximum concentration (maximum one-hour average concentration or CMC) is 750 µg/L. The observed MEC is greater than the water quality criteria; therefore, effluent limitations for aluminum are required.

The USEPA *Technical Support Document for Water Quality-Based Toxics Control* [EPA/505/2-90-001] contains statistical methods for converting chronic (four-day) and acute (one-hour) aquatic life criteria to average monthly and maximum daily effluent limitations based on the variability of the existing data and the expected frequency of monitoring.

In USEPA's *Ambient Water Quality Criteria for Aluminum—1988* [EPA 440/5-86-008], USEPA states that “[a]cid-soluble aluminum... is probably the best measurement at the present...”; however, USEPA has not yet approved an acid-soluble test method for aluminum. Replacing the ICP/AES portion of the analytical procedure with ICP/MS would allow lower detection limits to be achieved. Based on USEPA's discussion of aluminum analytical methods, this Order allows the use of the alternate aluminum testing protocol described above to meet monitoring requirements.

This Order contains final Average Monthly Effluent Limitations (AMEL) and Maximum Daily Effluent Limitations (MDEL) for aluminum of 71 µg/L and 143 µg/L, respectively, based on USEPA's National Ambient Water Quality Criteria for the protection of freshwater aquatic life (See Attachment H, for WQBEL calculations). Based on recent effluent monitoring the Discharger believes it can comply with the new effluent limitations for aluminum.

- f. **Fluoride**— Insufficient information is available to determine whether fluoride levels in the discharge have reasonable potential to cause or contribute to an in-stream excursion above applicable water quality objectives. There is limited effluent data available for fluoride; also as indicated in Attachment G, detected effluent data points are less than the respective water quality objective. Instead of limitations, additional monitoring has been established for fluoride with a reopener provision should monitoring results indicate that the discharge has the reasonable potential to cause or contribute to an exceedance of water quality objectives for this constituent.
- g. **Manganese**—The discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Secondary Maximum Contaminant Level (MCL) -Consumer Acceptance Limit of 50 µg/L for manganese.

The observed manganese MEC was detected in an effluent sample collected March 28, 2002 at a concentration of 150 µg/L, which exceeds the water quality criteria. Therefore, an Effluent Limitation for manganese is required. The maximum observed upstream receiving water manganese concentration was 71 µg/L, from a sample collected on June 25, 2002, which indicates that there is no assimilative capacity for manganese in the receiving stream at the point of discharge. An Effluent Limitation for manganese is

included in this Order and is based on the Basin Plan water quality objectives for chemical constituents, color, and tastes and odors and the DHS Secondary MCL.

This Order includes an average monthly Effluent Limitation for manganese that is equal to the Secondary MCL. Based on the sample results in the effluent, the limitations appear to put the Discharger in immediate non-compliance. New or modified control measures may be necessary in order to comply with the effluent limitations, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. Furthermore, the effluent limitations for manganese are a new regulatory requirement within this permit, which becomes applicable to the waste discharge with the adoption of this Order, which was adopted after July 1, 2000. Therefore, a compliance time schedule for compliance with the manganese effluent limitations is established in TSO No. R5-2007-____ in accordance with CWC section 13300.

- h. *Nickel*—The discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR standards for nickel. The CTR includes hardness-dependent standards for the protection of both freshwater and saltwater aquatic life for nickel. The standards for metals are presented in dissolved concentrations. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. The conversion factors for nickel in freshwater are 0.998 for the acute criteria and 0.997 for the chronic criteria.

The observed nickel MEC was detected in an effluent sample collected January 19, 2005 at a concentration of 110 µg/L. Using the worst-case (lowest) measured hardness from the receiving water, (64 mg/L as CaCO₃), the applicable criterion continuous concentration (maximum four-day average concentration) criterion is 36 µg/L and the applicable criterion maximum concentration (maximum one-hour average concentration) criterion is 320 µg/L. The observed MEC is greater than the applicable continuous concentration water quality criterion. Additionally, Order No. 5-01-065 established a monthly average effluent limitation of 90 µg/L and a daily maximum effluent limitation of 600 µg/L for nickel. The observed nickel MEC detected on January 19, 2005 was the only nickel sample collected for the month, consequently, the average monthly concentration was also 110 µg/L for January 2005. The January 2005 average monthly nickel concentration exceeds the 90 µg/L average monthly effluent limitation set by Order No. 5-01-065; therefore continued effluent limitation for nickel is required. The effluent limitations for nickel included in this Order are presented in total concentrations, and are based on the CTR standards for the protection of freshwater aquatic life.

Order No. 5-01-65 established effluent limitations for hardness-dependent metals based on the lowest effluent hardness of 191 mg/L. Based on new monitoring data submitted by the Discharger from February 2002 through August 2005, the lowest receiving water hardness is 64 mg/L. Nickel effluent limitations are adjusted to reflect the current worst-case condition (lowest ambient hardness) in order to protect beneficial uses for all discharge conditions.

The SIP requires converting CTR chronic (four-day) and acute (one-hour) aquatic life criteria to average monthly and maximum daily effluent limitations based on the variability of the existing data and the expected frequency of monitoring. Equations summarizing the conversion are shown below:

$$CCC = e^{[0.8460\ln(\text{hardness})+0.0584]}$$
$$CMC = e^{[0.8460\ln(\text{hardness})+2.255]}$$
$$AMEL = 3.11[\min(32.19CMC, 5.92CCC)] = 18 \mu\text{g/L}$$
$$MDEL = 9.94[\min(32.19CMC, 5.92CCC)] = 59 \mu\text{g/L}$$

Based on recent effluent monitoring the Discharger believes it can comply with the new effluent limitations for nickel.

- i. **Organochlorine Pesticides**—Alpha-BHC (alpha-hexachlorocyclohexane), lindane (gamma-BHC), 4,4'-DDD, and endrin aldehyde were detected in the effluent in concentrations as estimated 0.0063 $\mu\text{g/L}$, estimated 0.0084 $\mu\text{g/L}$, estimated 0.0035 $\mu\text{g/L}$, and 0.082 $\mu\text{g/L}$, respectively. Each of these constituents is a chlorinated hydrocarbon pesticide. The Basin Plan requires that no individual pesticides shall be present in concentrations that adversely affect beneficial uses; discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses; total chlorinated hydrocarbon pesticides shall not be present in the water column at detectable concentrations; and pesticide concentrations shall not exceed those allowable by applicable antidegradation policies. The CTR contains numeric criteria for alpha-BHC, gamma-BHC, 4,4'-DDD, and endrin aldehyde of 0.0039 $\mu\text{g/L}$, 0.019 $\mu\text{g/L}$, 0.00083 $\mu\text{g/L}$, and 0.76 $\mu\text{g/L}$, respectively, for freshwaters from which both water and organisms are consumed. The detection of alpha-BHC at an estimated 0.0063 $\mu\text{g/L}$, gamma-BHC at an estimated 0.0084 $\mu\text{g/L}$, 4,4'-DDD at an estimated 0.0035 $\mu\text{g/L}$, and endrin aldehyde at 0.082 $\mu\text{g/L}$ in the effluent presents a reasonable potential to exceed the Basin Plan water quality objective for chlorinated hydrocarbon pesticides and the CTR criteria for alpha-BHC, and 4,4'-DDD. In addition to alpha-BHC, gamma-BHC, 4,4'-DDD, and endrin aldehyde; chlorinated hydrocarbon pesticides include aldrin, beta-endosulfan, beta-BHC, delta-BHC, 4,4'-DDE, 4,4'-DDT, chlordane, dieldrin, endrin, alpha-endosulfan, endosulfan sulfate, heptachlor, heptachlor epoxide, and toxaphene. Effluent limitations for organochlorine pesticides are included in this Order and are based on the Basin Plan objective of no detectable concentrations of chlorinated hydrocarbon pesticides. Since the Basin Plan objective is no detectable concentrations, there can be no assimilative capacity. The limitation for chlorinated hydrocarbon pesticides is included in this Order based on reasonable potential to cause or contribute to an in-stream excursion of the water quality objective. Based on recent effluent monitoring the Discharger believes it can comply with the new effluent limitations for organochlorine pesticides.
- j. **pH**. The Basin Plan includes a water quality objective for Deer Creek, source to Consumnes River, that the "...pH shall not be depressed below 6.5 nor raised above

8.5.” Effluent Limitations for pH are included in this Order and are based on the Basin Plan objectives for pH.

k. **Total Dissolved Solids.** Order No. 5-01-065 established effluent limitations of 450 mg/L, 500 mg/L, and 1500 mg/L as annual average, monthly average, and daily maximum, respectively. These effluent limitations were based on the protection of agricultural use of the water and the water quality objectives for the secondary drinking water standard. A review of the Discharger’s monitoring reports from February 2002 through August 2005 indicates an average TDS effluent concentration of 272 mg/L, a minimum effluent concentration of 110 mg/L, and a maximum effluent concentration of 360 mg/L (based on 162 data points). Background concentrations in Deer Creek range from 190 to 400 mg/L based on the same monitoring period. Based on this data, the discharge does not have a reasonable potential to cause or contribute to an exceedance of the applicable water quality objectives for TDS. However, since water from Deer Creek ultimately flows into the Sacramento-San Joaquin Delta, of additional concern is the salt contribution to Delta waters. Allowing the Discharger to increase its current salt loading may be contrary to the Region wide effort to address salinity in the Central Valley. Therefore, this Order includes a performance-based effluent limitation of 367 mg/L for TDS as a monthly average to limit the discharge to current levels.

l. **Total Residual Chlorine.** The Discharger currently uses chlorine for prevention and treatment of biofouling in the extraction wells to maintain VOC removal efficiency. Chlorine can cause toxicity to aquatic organisms when discharged to surface waters. USEPA recommends, in its Ambient Water Quality Criteria for the protection of fresh water aquatic life, maximum 1-hour average and 4-day average chlorine concentrations of 0.019 mg/L and 0.011 mg/L, respectively. The use of chlorine as a disinfectant for well maintenance presents a reasonable potential that it could be discharged in toxic concentrations.

The USEPA Technical Support Document for Water Quality-Based Toxics Control [EPA/505/2-90-001] contains statistical methods for converting chronic (four-day) and acute (one-hour) aquatic life criteria to average monthly and maximum daily effluent limitations based on the variability of the existing data and the expected frequency of monitoring. However, because chlorine is an acutely toxic constituent that will be monitored continuously for a period after well maintenance events, an average one-hour limitation is considered more appropriate than an average daily limitation. Average one-hour and four-day limitations for chlorine, based on these criteria, are included in this Order. The Discharger can immediately comply with these new effluent limitations for chlorine residual.

The chlorine residual limitations required in this Order are protective of aquatic organisms in the undiluted discharge. If compliance is maintained, the Regional Water Board does not anticipate residual chlorine impacts to benthic organisms.

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

4. WQBEL Calculations

- a. The Discharger conducted monitoring for priority and non-priority pollutants. The analytical results were submitted to the Regional Water Board. The results of these sampling events were used in developing this Order. All detectable results from these analyses are summarized in Attachment G. Effluent limitations are included in the Order to protect the beneficial uses of the receiving stream and to ensure that the discharge complies with the Basin Plan objective that toxic substances not be discharged in toxic amounts. Unless otherwise noted, all mass limitations in this Order were calculated by multiplying the concentration limitation by the design flow and the appropriate unit conversion factors.
- b. Effluent Limitations for nickel and aluminum were calculated in accordance with Section 1.4 of the SIP and the TSD. The following paragraphs describe the general methodology used for calculating Effluent Limitations.

c. *Calculations for Dilution Ratios*

For human health criteria/objectives the dilution ratio, D_H equals zero as summarize in section IV.C.2.c of this Fact Sheet.

- d. *Calculations for Effluent Limitations*—In calculating maximum effluent limitations, the effluent concentration allowances were set equal to the criteria/standards/objectives.

$$ECA_{acute} = CMC \quad ECA_{chronic} = CCC \quad ECA_{HH} = HH + D_{HH} (HH - B_{HH})$$

- where:
- ECA_{acute} = effluent concentration allowance for acute (one-hour average) toxicity criterion
 - $ECA_{chronic}$ = effluent concentration allowance for chronic (four-day average) toxicity criterion
 - ECA_{HH} = effluent concentration allowance for human health, agriculture, or other long-term criterion/objective
 - CMC = criteria maximum concentration (one-hour average)
 - CCC = criteria continuous concentration (four-day average, unless otherwise noted)
 - D_{HH} = dilution ratio for human health, agriculture, or other long-term criterion/objective
 - HH = human health, agriculture, or other long-term criterion/objective
 - B_{HH} = background concentration for human health. (for carcinogens: arithmetic mean of R-001 concentrations, for non-carcinogens: observed maximum R-001 concentration; or lowest detection level if all results are non-detect)

Acute and chronic toxicity ECAs were then converted to equivalent long-term averages (LTA) using statistical multipliers and the lowest is used. Additional statistical

multipliers were then used to calculate the maximum daily effluent limitation (MDEL) and the average monthly effluent limitation (AMEL). The statistical multipliers were calculated using data shown in Attachment H. Attachment H provides a summary of effluent limitation calculations used for this Order.

Human health ECAs are set equal to the AMEL and a statistical multiplier is used to calculate the MDEL.

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

- where:
- $mult_{AMEL}$ = statistical multiplier converting minimum LTA to AMEL
 - $mult_{MDEL}$ = statistical multiplier converting minimum LTA to MDEL
 - M_A = statistical multiplier converting CMC to LTA
 - M_C = statistical multiplier converting CCC to LTA

**Summary of Water Quality-Based Effluent Limitations
 Discharge Point 001**

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Acute Toxicity ¹	% Survival	--	--	--	--
pH	standard unit	--	--	6.5	8.5
Aluminum, Total Recoverable	µg/L	71	143	--	--
Manganese, Total Recoverable	µg/L	50	--	--	--
Nickel, Total Recoverable	µg/L	18.4	58.8	--	--
Organochlorine Pesticides	µg/L	--	--	--	ND
Total Residual Chlorine ²	mg/L	0.01	0.02	--	--
Total Dissolved Solids	mg/L	367	--	--	--

¹ Median survival in effluent for any three consecutive 96-hour static or continuous flow bioassay tests shall be at least 90%, with no single test producing less than 70% survival.

² Total Residual Chlorine effluent limitations are expressed as 1-hour average and 4-day average.

5. Whole Effluent Toxicity (WET)

For compliance with the Basin Plan’s narrative toxicity objective, this Order requires the Discharger to conduct whole effluent toxicity testing for acute and chronic toxicity, as specified in the MRP (Attachment E, Section V.). This Order also contains effluent limitations for acute toxicity and requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity.

- a. **Acute Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, “*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*” (Basin Plan at III-8.00) The Basin Plan also states that, “*...effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate;*”. USEPA Region 9 provided guidance for the development of acute toxicity effluent limitations in the absence of numeric water quality objectives for toxicity in its document titled "Guidance for NPDES Permit Issuance", dated February 1994. Section B.2. "Toxicity Requirements" (pgs. 14-15) states, "*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, the following effluent limitations for acute toxicity have been included in this Order:

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

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

- b. **Chronic Toxicity.** Adequate WET data is not available to determine if the discharge has reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan’s narrative toxicity objective. Attachment E of this Order requires quarterly chronic WET monitoring for demonstration of compliance with the narrative toxicity objective.

In addition to WET monitoring, Special Provisions VI.C.2.a. requires the Discharger to submit to the Regional Water Board an Initial Investigative TRE Work Plan for approval by the Executive Officer, to ensure the Discharger has a plan to immediately move forward with the initial tiers of a TRE, in the event effluent toxicity is encountered in the future. The provision also includes a numeric toxicity monitoring trigger and requirements for accelerated monitoring, as well as, requirements for TRE initiation if a pattern of toxicity is demonstrated.

D. Final Effluent Limitations

1. Satisfaction of Anti-Backsliding Requirements

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

This Order removes previously required effluent limitations for arsenic, cadmium, chromium, copper, lead, mercury, and zinc. In developing the previous Order, No. 5-01-065, there was inadequate information available to determine if the discharge caused, had the reasonable potential to cause, or contribute to an exceedance of the water quality objectives for these parameters. The previous Order required monitoring of these Priority Pollutant metals with detection limits sufficient to evaluate if reasonable potential exists. Based on monitoring data submitted by the Discharger from February 2002 through August 2005, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion above the water quality criteria for arsenic, cadmium, chromium, copper, lead, mercury, and zinc. Therefore, this Order removes the effluent limitations for these constituents based on new information consistent with anti-backsliding requirements of 40 CFR 122.44(l)(2)(i)(B)(I). The Regional Water Board finds removing these effluent limitations is

consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution 68-16. Any impact on existing water quality will be insignificant.

This Order, as the previous Order, No. 5-01-065, includes an effluent limitation for acute toxicity, which states:

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

Minimum for any one bioassays ----- 70%
Median for any three or more consecutive bioassays ----- 90%”

The previous Order required monthly acute toxicity testing. 45 of the 49 monthly acute toxicity tests results, from December 9, 2002, through November 13, 2006, had greater than or equal to 90% survival. During that time period the discharge did not violate the minimum survival requirement for one bioassay and had only one violation of the median survival requirement. Due to the nature of operations at the Facility its effluent is very consistent and the toxicity data indicates that the effluent is consistently not toxic. Therefore, reduced acute toxicity testing is warranted. This Order reduces the acute toxicity testing requirements to quarterly based on the new information, which is consistent with the anti-backsliding requirements of 40 CFR 122.44(l)(2)(i)(B)(I). The Regional Water Board finds reducing the testing frequency is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution 68-16. Any impact on existing water quality will be insignificant.

2. Satisfaction of Antidegradation Policy

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

**Summary of Final Effluent Limitations
 Discharge Point 001**

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Flow	mgd	2.17	--	--	--	-
Acute Toxicity ³	% Survival	--	--	--	--	--
pH	standard units	--	--	--	6.5	8.5
Aluminum, Total Recoverable	µg/L	71	--	143	--	--
Manganese, Total Recoverable	µg/L	50	--	--	--	--

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Nickel, Total Recoverable	µg/L	18	--	59	--	--
Volatile Organic Compounds ¹	µg/L		--	0.5	--	--
Organochlorine Pesticides ²	µg/L	--	--	--	--	ND
Total Residual Chlorine ⁴	mg/L	0.01	--	0.02	--	--
Total Dissolved Solids	mg/L	367	--	--	--	--

¹ All volatile organic compounds listed in EPA Method 502.2.

² Organochlorine pesticides include aldrin, alpha-BHC, beta-BHC, delta-BHC gamma-BHC, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, chlordane, dieldrin, endrin, endrin aldehyde, alpha-endosulfan, beta-endosulfan, endosulfan sulfate, heptachlor, heptachlor epoxide, and toxaphene.

³ Median survival in effluent for any three consecutive 96-hour static or continuous flow bioassay tests shall be at least 90%, with no single test producing less than 70% survival.

⁴ Total Residual Chlorine effluent limitations are expressed as 1-hour average and 4-day average.

E. Interim Effluent Limitations – Not Applicable

F. Land Discharge Specifications

1. Discharge from the groundwater treatment system to the sedimentation basin shall be conducted only during well and groundwater treatment system maintenance events and in case of emergency. This requirement is necessary to protect receiving waters from discharges of untreated or partially treated groundwater from such maintenance events or emergencies.
2. In order to protect receiving waters from overflow of untreated or partially treated groundwater, this specification requires that sedimentation basin be designed, constructed, operated, and maintained to prevent inundation or washout from 100-year, 24-hour storm event.
3. A land discharge specification that requires 2 feet of freeboard be maintained in sedimentation basin containing wastewater is established to prevent unauthorized discharges to waters of the United States or waters of the State.
4. Sedimentation basin shall be managed to prevent breeding of mosquitoes to protect human health and prevent a nuisance condition. Dead algae, vegetation, and debris create a large amount of organic material. Bacteria and fungi use oxygen to break down this organic material and cause the biochemical oxygen demand within the system to increase thus, lowers the availability of dissolved oxygen in the water. Dead algae, vegetation, and debris

shall not accumulate on the water surface to minimize objectionable odor and maintain dissolved oxygen levels.

5. Order No. 5-01-065 established a total chlorine residual limitation of 4.0 mg/L for discharges to the sedimentation basin. The chlorine residual limit for the sedimentation basin was based on USEPA’s proposed Stage 1 Disinfectant and Disinfection Byproduct Rule. The proposed 4.0 mg/L limit is intended to control the potential formation of disinfection byproducts such as trihalomethanes. The limit is also intended to allow the discharger time to adjust the dechlorination process to meet the demand of chlorine levels entering the treatment system. The operators will be adjusting the addition of dechlorination chemicals in order to reduce the chlorine residual to an acceptable level for eventual discharge to Deer Creek. This Order continues the total chlorine residual limitation established by Order No. 5-01-065.

6. Prior to discharging to the sedimentation basin, the Discharger shall demonstrate that discharges to the sedimentation basin, at the limitations prescribed in the permit, will not degrade groundwater quality. Order No. 5-01-065 established total dissolved solids limitations of 1000 mg/L daily maximum and 450 mg/L annual average for discharges to the sedimentation basin following extraction well and tower maintenance events. The daily maximum limit has been set in order to minimize mineralization to protect groundwater while allowing for variability in operating the dechlorination system. The annual average limitation is protective of agricultural uses. However, due to the intermittent nature of discharges, the annual cleanout of the basin sediments, and dilution with stormwater discharges to the ponds, the TDS limitation are not expected to cause an increase in background concentrations in the groundwater. This Order continues the total dissolved solids limitation established by Order No. 5-01-065.

7. The following table summarizes the land discharge specifications established in this Order.

**Summary of Land Discharge Specifications
 Discharge Point 002**

Parameter	Units	Land Discharge Specifications		
		Average Monthly	Maximum Daily	Annual Average
Total Dissolved Solids	mg/L	--	1000	450
Total Residual Chlorine	mg/L	--	4.0	--

G. Reclamation Specifications – Not Applicable

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

A. Surface Water

1. The CWA, Section 303(a-c), required states to adopt numeric criteria where they are necessary to protect designated uses. The Regional Water Board adopted numeric criteria in the Basin Plan. The Basin Plan is a regulatory reference for meeting the state and federal

requirements for water quality control (40 CFR §131.20). State Water Board Resolution No. 68-16, the Antidegradation Policy, does not allow changes in water quality less than that prescribed in Water Quality Control Plans (Basin Plans). The Basin Plan states that “[t]he numerical and narrative water quality objectives define the least stringent standards that the Regional Water Board will apply to regional waters in order to protect the beneficial uses.” This Order contains Receiving Water Limitations based on the Basin Plan numerical and narrative water quality objectives for biostimulatory substances, chemical constituents, color, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, salinity, sediment, settleable material, suspended material, tastes and odors, temperature, toxicity and turbidity.

2. **Dissolved Oxygen**—The Deer Creek has been designated as having the beneficial use of cold freshwater aquatic habitat (COLD). For water bodies designated as having COLD as a beneficial use, the Basin Plan includes a water quality objective of maintaining a minimum of 7.0 mg/L of dissolved oxygen. Since the beneficial use of COLD does apply to the Deer Creek, a receiving water limitation of 7.0 mg/L for dissolved oxygen was included in this Order.

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

3. **pH**—The Basin Plan includes a water quality objective stating that “[F]or Deer Creek, source to Consumnes River, pH shall not be depressed below 6.5 nor raised above 8.5” This Order includes receiving water limitations for pH.
4. **Temperature**—The Basin Plan includes the objective that “[F]or Deer Creek, source to Consumnes River, temperature changes due to controllable factors shall not cause creek temperatures to exceed the objectives specified in Table III-4A.” This Order includes a receiving water limitation based on this objective.
5. **Turbidity**— The Basin Plan includes the following objective: “Increases in turbidity attributable to controllable water quality factors shall not exceed the following limits:
 - Where natural turbidity is between 0 and 5 Nephelometric Turbidity Units (NTUs), increases shall not exceed 1 NTU.
 - Where natural turbidity is between 5 and 10 NTUs, increases shall not exceed 20 percent.
 - Where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTU.
 - Where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent.”

The Basin Plan also includes the following site-specific objective: *“Increases in turbidity attributable to controllable water quality factors shall not exceed the following limits ... [f]or Deer Creek, source to Cosumnes River:*

- *When the dilution ratio for discharges is less than 20:1 and where natural turbidity is less than 1 Nephelometric Turbidity Unit (NTU), discharges shall not cause the receiving water daily average turbidity to exceed 2 NTUs or daily maximum turbidity to exceed 5 NTUs. Where natural turbidity is between 1 and 5 NTUs, dischargers shall not cause receiving water daily average turbidity to increase more than 1 NTU or daily maximum turbidity to exceed 5 NTUs.*
- *Where discharge dilution ratio is 20:1 or greater, or where natural turbidity is greater than 5 NTUs, the general turbidity objectives shall apply.*

B. Groundwater – Not Applicable

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

Section 122.48 of 40 CFR requires all NPDES permits to specify recording and reporting of monitoring results. Sections 13267 and 13383 of the California Water Code authorize the 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 this facility.

A. Influent Monitoring – Not Applicable

B. Effluent Monitoring

1. The SIP states that if *“...all reported detection limits of the pollutant in the effluent are greater than or equal to the C [water quality criterion or objective] value, the RWQCB [Regional Water Board] shall establish interim requirements...that require additional monitoring for the pollutant...”* Monitoring for these constituents has been included in this Order in accordance with the SIP.
2. Monitoring requirements support for effluent monitoring that requires additional study. Effluent monitoring is also included for constituents for which insufficient information is available to determine the need for effluent limitations.
3. 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.

C. Whole Effluent Toxicity Testing Requirements

The Basin Plan states that “[a]ll waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. This objective applies regardless of whether the toxicity is caused by a single substance or the interactive effect of multiple substances.” The Basin Plan requires that “[a]s a minimum, compliance with this objective...shall be evaluated with a 96-hour bioassay.”

This Order requires both acute and chronic toxicity monitoring to evaluate compliance with this water quality objective.

D. Receiving Water Monitoring

1. Surface Water

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

2. Groundwater – Not Applicable

E. Other Monitoring Requirements

1. Section 1.3 of the SIP requires the Regional Water Board to require periodic monitoring for pollutants, at least once prior to the reissuance of a permit, for which criteria or objectives apply and for which no effluent limitations have been established. To comply with the SIP, this Order requires the Discharger to sample effluent and upstream receiving water for priority pollutants at least once during this permit term and the samples shall be collected no more than 365 days and no less than 180 days prior to expiration of this Order

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which in accordance with 40 CFR §§122.41 and 122.42, apply to all NPDES discharges and must be included in every NPDES permit, are provided in Attachment D to the Order.

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

B. Special Provisions

1. Reopener Provisions

- a. This provision allows the Regional Water Board to re-open this Order to include any newly adopted receiving water standards.
- b. Conditions that necessitate a major modification of a permit are described in 40 CFR section 122.62, which include the following:
 - i. When standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision. Therefore, if more or less stringent applicable water quality standards are promulgated or approved pursuant to section 303 of the Federal Water Pollution Control Act or amendments thereto, the Regional Water Board will revise and modify this Order in accordance with such more or less stringent standards.
 - ii. When new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance.
- c. This Order requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity through a 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. This provision allows the Regional Water Board to reopen this Order if review of any effluent monitoring show that the discharge has reasonable potential to cause or contribute to an exceedance of a water quality objective.

2. Special Studies and Additional Monitoring Requirements

- a. **Chronic Whole Effluent Toxicity Requirements (Special Provisions VI.C.2.a.).** The Basin Plan contains a narrative toxicity objective that states, “*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*” (Basin Plan at III-8.00.) Adequate WET data is not available to determine if the discharge has reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan’s narrative toxicity objective. Attachment E of this Order requires Quarterly chronic WET monitoring for demonstration of compliance with the narrative toxicity objective.

In addition to WET monitoring, Special Provisions VI.C.2.a. requires the Discharger to submit to the Regional Water Board an Initial Investigative TRE Work Plan for approval by the Executive Officer, to ensure the Discharger has a plan to immediately move

forward with the initial tiers of a TRE, in the event effluent toxicity is encountered in the future. The provision also includes a numeric toxicity monitoring trigger and requirements for accelerated monitoring, as well as, requirements for TRE initiation if a pattern of toxicity is demonstrated.

Accelerated Monitoring. The provision requires accelerated WET testing when a regular WET test result exceeds the monitoring trigger. The purpose of accelerated monitoring is to determine, in an expedient manner, whether there is a pattern of toxicity before requiring the implementation of a TRE. Due to possible seasonality of the toxicity, the accelerated monitoring should be performed in a timely manner, preferably taking no more than 2 to 3 months to complete.

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

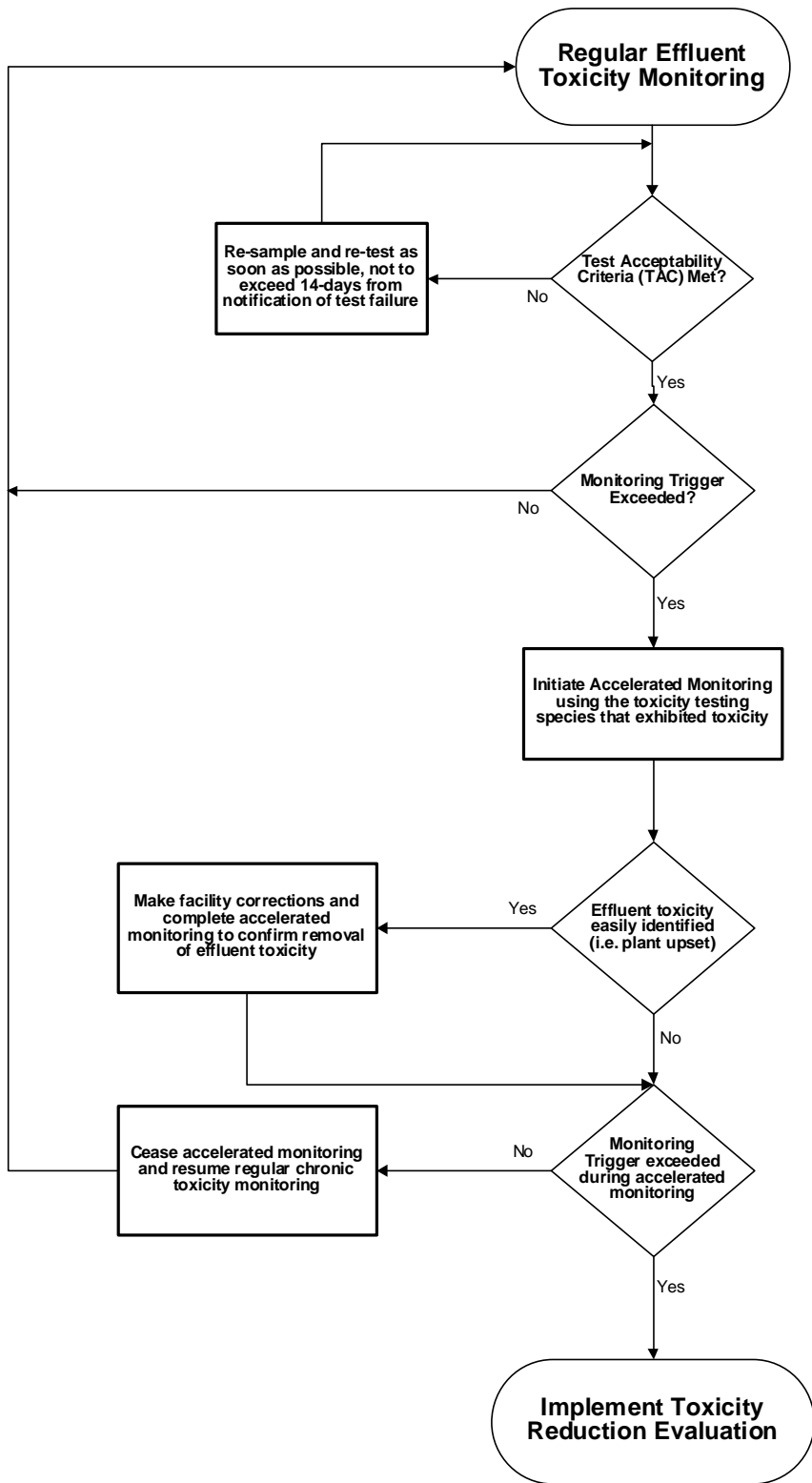
See the WET Accelerated Monitoring Flow Chart (Figure F-1), below, for further clarification of the accelerated monitoring requirements and for the decision points for determining the need for TRE initiation.

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

- *Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants*, (EPA/833B-99/002), August 1999.
- *Generalized Methodology for Conducting Industrial TREs*, (EPA/600/2-88/070), April 1989.
- *Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures*, Second Edition, EPA 600/6-91/005F, February 1991.
- *Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I*, EPA 600/6-91/005F, May 1992.

- *Methods for Aquatic Toxicity Identification Evaluations: Phase II Toxicity Identification Procedures for Samples Exhibiting acute and Chronic Toxicity*, Second Edition, EPA 600/R-92/080, September 1993.
- *Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity*, Second Edition, EPA 600/R-92/081, September 1993.
- *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, Fifth Edition, EPA-821-R-02-012, October 2002.
- *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, Fourth Edition, EPA-821-R-02-013, October 2002.
- *Technical Support Document for Water Quality-based Toxics Control*, EPA/505/2-90-001, March 1991

Figure F-1
WET Accelerated Monitoring Flow Chart



3. **Best Management Practices and Pollution Prevention**

- a. Stormwater discharges from the Facility are regulated under the General Permit for Discharges of Stormwater Associated with Industrial Activities (State Water Resources Control Board, Water Quality Order No. 97-03-DWQ, NPDES General Permit No. CAS000001). The Discharger's waste discharge identification (WDID) number for the stormwater permit is 5A340311002.

4. **Construction, Operation, and Maintenance Specifications**

- a. The Discharger has experienced fouling of extraction wells from iron bacteria in the groundwater causing a decline in the pumping capacity of the system. The Discharger must periodically treat the extraction wells for the iron bacteria and also conduct periodic well rehabilitation to maintain pumping efficiency. Additionally, mineral build up can reduce the efficiency of the air stripping towers to remove VOCs from the groundwater. Tower maintenance through periodic acid washes is conducted to remove mineral build up on the packing material in the stripper towers. The Discharger is currently operating under the *Operations & Maintenance Program and Standard Operating Procedures for the Kiefer Treatment Plant* (O&M Program). The O&M Program outlines the ways in which groundwater extraction well rehabilitation and maintenance, and tower maintenance are conducted at the Facility, including ways to minimize impacts of maintenance operations on surface water discharges and discharges to the on-site sedimentation basin. The Discharger must maintain an Executive Officer approved O&M Program in order to discharge treated groundwater to the on-site sedimentation basin. **Within 90 days of the effective date of this Order**, the Discharger shall submit to the Regional Water Board an updated O&M Program for approval by the Executive Officer. Any changes thereafter in the O&M Program are subject to Executive Officer approval.

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

6. **Other Special Provisions**

Three special provisions are included to address 1) the use of best practicable treatment or control of the discharge, 2) to provide requirements for use of the effluent for dust control, and 3) changes in ownership or operation.

7. **Compliance Schedules – Not Applicable**

VIII. **PUBLIC PARTICIPATION**

The Regional Water Board is considering the issuance of waste discharge requirements (WDRs) that will serve as a NPDES permit for Kiefer Landfill Groundwater Extraction and Treatment Plant.

As a step in the WDR adoption process, the Regional Water Board staff has developed tentative WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations.

B. Written Comments

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

To be fully responded to by staff and considered by the Regional Water Board, written comments should be received at the Regional Water Board offices by 5:00 p.m. on **February 9, 2007**.

C. Public Hearing

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

Date: **March 15/16, 2007**
Time: **8:30 a.m.**
Location: Central Valley Regional Water Quality Control Board, Sacramento Office
11020 Sun Center Drive, #200
Rancho Cordova, CA 95670

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

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

D. Waste Discharge Requirements Petitions

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

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

E. Information and Copying

The Report of Waste Discharge (RWD), related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Regional Water Board by calling (916) 464-4772.

F. Register of Interested Persons

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

G. Additional Information

Requests for additional information or questions regarding this order should be directed to Jim Marshall at (916) 464-4772.

ATTACHMENT G – REASONABLE POTENTIAL ANALYSIS SUMMARY

Parameter (units)	n¹	CV²	MEC³	B⁴	WQO/WQC⁵	Source	RP⁶
Antimony, Total Recoverable (µg/L)	4	0.6	0.94	NA	6	California Primary Maximum Contaminant Level	N
Arsenic, Total Recoverable (µg/L)	9	0.6	4.2	0.166	10	USEPA Primary Maximum Contaminant Level	N
Cadmium, Total Recoverable (µg/L)	10	0.6	ND	ND	1.7 / 2.7	California Toxics Rule 4-day / 1-hour Average	N
Chromium (III) Total Recoverable (µg/L)	57	2.15	7.7	1.07	50	California Primary Maximum Contaminant Level	N
Chromium (VI) Total Recoverable (µg/L)	56	0.6	1	NA	11 / 16	California Toxics Rule 4-day / 1-hour Average	N
Copper, Total Recoverable (µg/L)	13	0.6	0.87	ND	6.4 / 9.2	California Toxics Rule 4-day / 1-hour Average	N
Lead, Total Recoverable (µg/L)	10	0.6	ND	ND	1.8 / 46	California Toxics Rule 4-day / 1-hour Average	N
Mercury, Total Recoverable (µg/L)	7	0.6	0.00137	ND	0.05	California Toxics Rule Sources of Drinking Water	N
Nickel, Total Recoverable (µg/L)	11	2.56	110	100	36 / 320	California Toxics Rule 4-day / 1-hour Average	Y
Selenium, Total Recoverable (µg/L)	4	0.6	5.5	NA	20	Water Quality for Agriculture	N
Zinc, Total Recoverable (µg/L)	13	0.6	4.1	65	82 / 82	California Toxics Rule 4-day / 1-hour Average	N
Chloroform (µg/L)	166	0.6	0.24	NA	1.1	Cal/EPA Cancer Potency Factor Drinking Water Level	N
Methylene Chloride (µg/L)	162	0.6	0.59	NA	4.7	California Toxics Rule Sources of Drinking Water	N
Tetrachloroethylene (µg/L)	166	0.6	0.32	NA	0.8	National Toxics Rule Sources of Drinking Water	N
Toluene (µg/L)	166	0.6	0.36	NA	42	Taste & Odor Threshold	N
Trichloroethylene (µg/L)	166	0.6	0.65	NA	2.7	California Toxics Rule Sources of Drinking Water	N
Vinyl Chloride (µg/L)	166	0.6	0.13	NA	0.5	California Primary Maximum Contaminant Level	N
alpha-BHC (µg/L)	5	0.6	0.0063	NA	ND	Basin Plan	Y
gamma-BHC (µg/L)	5	0.6	0.0084	NA	ND	Basin Plan	Y
4,4-DDD (µg/L)	5	0.6	0.0035	NA	ND	Basin Plan	Y
Endrin Aldehyde (µg/L)	5	0.6	0.082	NA	ND	Basin Plan	Y

Parameter (units)	n¹	CV²	MEC³	B⁴	WQO/ WQC⁵	Source	RP⁶
2,4-D (µg/L)	4	0.6	0.14	NA	70	California Primary Maximum Contaminant Level	N
2,4,5-TP (µg/L)	4	0.6	0.073	NA	50	California Primary Maximum Contaminant Level	N
cis-1,2-Dichloroethylene (µg/L)	172	1.01	0.55	NA	6	California Primary Maximum Contaminant Level	N
Dalapon (µg/L)	4	0.6	0.22	NA	110	USEPA National Ambient Water Quality Criteria	N
Dinoseb (µg/L)	4	0.6	0.34	NA	7	California Primary Maximum Contaminant Level	N
Aluminum (µg/L)	4	0.6	110	NA	87 / 750	USEPA Nat'l Ambient W Q Criteria 4-Day / 1-Hour Average	Y
Barium (µg/L)	4	0.6	130	NA	1000	California Primary Maximum Contaminant Level	N
Iron (µg/L)	4	0.6	17	NA	300	California Secondary Maximum Contaminant Level	N
Manganese (µg/L)	13	0.24	150	71	50	California Secondary Maximum Contaminant Level	Y
Ammonia (µg/L)	4	0.6	78	20	293 / 960	USEPA Nat'l Ambient W Q Criteria 30-Day / 1-Hour Average	N
Chloride (µg/L)	4	0.6	8700	63000	106000	Water Quality for Agriculture	N
Chlorine, Total Residual (µg/L)	160	0.6	ND	ND	11 / 19	USEPA Nat'l Ambient W Q Criteria 4-Day / 1-Hour Average	Y
Fluoride, Total (µg/L)	4	0.6	530	NA	1000	Water Quality for Agriculture	I
Nitrate Nitrogen, Total (as N) (µg/L)	4	0.6	1200	7500	10000	California Primary Maximum Contaminant Level	N
Phosphorus (µg/L)	4	0.6	180	NA	NA	NA	I
Sulfate (mg/L)	4	0.6	8.6	70	250	California Secondary Maximum Contaminant Level	N
Electrical Conductivity @ 20 °C (µmhos)/cm	173	0.063	492	609	700	Water Quality for Agriculture	N
Total Dissolved Solids (µg/L)	162	0.106	360000	400000	450000	Water Quality for Agriculture	N
¹ n: number of data points available. ² CV: coefficient of variation. ³ MEC: maximum effluent concentration. ⁴ B: Background receiving water concentration. ND = non-detect, NA = not available. ⁵ WQO: water quality objective; WQC: water quality criteria. ⁶ RP: Reasonable potential; I: Indeterminate; Y: Yes; N: No							

ATTACHMENT H – WATER QUALITY-BASED EFFLUENT LIMIT CALCULATIONS

PARAMETER	Nickel	Aluminum	Manganese	Chlorine
Units	µg/L	µg/L	µg/L	µg/L
Number of Samples	11	4	13	160
Maximum Effluent Concentration	110	110	150	ND
Water Quality Objectives				
Applicable Acute WQO	320	750	N/A	19
Applicable Chronic WQO	36	87	N/A	11
HH criteria	610	200	50	N/A
Statistical Calculations				
CV (Selected) - Final	2.56	0.60	0.24	0.60
AMEL mult95	3.11	1.55	1.21	1.55
MDEL mult99	9.94	3.11	1.69	3.11
Aquatic Life (Freshwater) Calculations				
ECA acute	320	750	--	19
ECA chronic	36	87	--	11
ECA acute mult99	0.100609256	0.321083214	--	0.321083214
ECA chronic mult99	0.164316328	0.527433444	--	0.527433444
LTA acute	32.19496204	240.8124103	--	6.100581062
LTA chronic	5.915387809	45.88670964	--	5.801767885
minimum of LTAs	5.915387809	45.88670964	--	5.801767885
AMEL (aquatic life)	18.40738656	71.23565748	--	9.006807268
MDEL (aquatic life)	58.79566178	142.9122036	--	18.06935908
Human Health Calculations				
ECA HH	610	200	50	
MDEL/AMEL Multiplier	3.19	2.01	--	2.01
AMEL (human health)	610	200	50	
MDEL (human health)	1948.421824	401.2378314	--	
Selected Limits				
Final limit - AMEL	18	71	50	0.01
Final limit - MDEL	59	143	--	0.02
Interim Limits (if applicable)				
Interim limit - MDEL	342	--	--	--
Interim limit - MDEL (lbs/day)	4.3	--	--	--

Notes:

- Number of data points were less than 10, multipliers based on default CV = 0.6.
- Mass based effluent limitations are based on the reasonable measure of actual flow = 0.30 mgd.
- WQO: Water Quality Objective.
- HH: Human Health.
- ECA: Effluent Concentration Allowance.
- LTA: Long-Term Average Concentration.
- AMEL: Average Monthly Effluent Limitation.
- MDEL: Maximum Daily Effluent Limitation.

ATTACHMENT I – VOLATILE ORGANIC COMPOUNDS – METHOD 502.2

Benzene	1,1,2,2-Tetrachloroethane
Bromobenzene	1,1,1,2-Tetrachloroethane
Bromochloromethane	Tetrachloroethene
Bromodichloromethane	Toluene
Bromoform	1,2,3-Trichlorobenzene
Bromomethane	1,2,4-Trichlorobenzene
n-Butylbenzene	1,1,1-Trichloroethane
sec-Butylbenzene	1,1,2-Trichloroethane
tert-Butylbenzene	Trichloroethene
Carbon Tetrachloride	Trichlorofluoromethane
Chlorobenzene	1,2,3-Trichloropropane
Chloroethane	1,2,4-Trimethylbenzene
Chloroform	1,3,5-Trimethylbenzene
Chloromethane	Vinyl Chloride
2-Chlorotoluene	o-Xylene
4-Chlorotoluene	m-Xylene
Dibromochloromethane	p-Xylene
1,2-Dibromo-3-Chloropropane	
1,2-Dibromoethane	
Dibromomethane	
1,2-Dichlorobenzene	
1,3-Dichlorobenzene	
1,4-Dichlorobenzene	
Dichlorodifluoromethane	
1,1-Dichloroethane	
1,2-Dichloroethane	
1,1-Dichloroethene	
cis-1,2-Dichloroethene	
trans-1,2-Dichloroethene	
1,2-Dichloropropane	
1,3-Dichloropropane	
2,2-Dichloropropane	
1,1-Dichloropropene	
cis-1,3-Dichloropropene	
trans-1,3-Dichloropropene	
Ethylbenzene	
Hexachlorobutadiene	
Isopropylbenzene	
4-Isopropylbenzene	
Methylene Chloride	
Naphthalene	
Propylbenzene	
Styrene	

ATTACHMENT J – ACRONYMS AND ABBREVIATIONS

AMEL	Average Monthly Effluent Limitation
AWEL	Average Weekly Effluent Limitation
B	Background Concentration
Basin Plan	<i>Water Quality Control Plan, Fourth Edition, for the Sacramento and San Joaquin River Basins</i>
BAT	Best Available Technology Economically Achievable
BCT	Best Conventional Pollutant Control Technology
BMP	Best Management Practices
BMPP	Best Management Practices Plan
BOD	Biochemical Oxygen Demand
BPJ	Best Professional Judgment
BPTC	Best Practicable Treatment or Control
C	Water Quality Criteria
CCC	Criteria Continuous Concentration
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CIWQS	California Integrated Water Quality System
CMC	Criteria Maximum Concentration
CTR	California Toxics Rule
CWA	Clean Water Act
CWC	California Water Code
CV	Coefficient of Variation
Discharger	County of Sacramento Public Works Agency
DMQA	Discharge Monitoring Quality Assurance
DMR	Discharge Monitoring Reports
DNQ	Detected but Not Quantified
ECA	Effluent Concentration Allowance
EIR	Environmental Impact Report
ELAP	California Department of Health Services Environmental Laboratory Accreditation Program
ELG	Effluent Limitations, Guidelines and Standards
Facility	Kiefer Landfill Groundwater Extraction Treatment Plant
gpd	gallons per day
LA	Load Allocations
LOEC	Lowest Observed Effect Concentration
LTA	Long-Term Average
MEC	Maximum Effluent Concentration
MCL	Maximum Contaminant Level
MDEL	Maximum Daily Effluent Limitation
MDL	Method Detection Limit
mgd	million gallons per day
ML	Minimum Level
MPN	Most Probable Number

MRP	Monitoring and Reporting Program
ND	Not Detected
NEPA	National Environmental Policy Act
NOEC	No Observable Effect Concentration
NPDES	National Pollutant Discharge Elimination System
NSPS	New Source Performance Standards
NTR	National Toxics Rule
NTU	Nephelometric Turbidity Units
PCB	Polychlorinated Biphenyls
PMP	Pollutant Minimization Plan
PMSD	Percent Minimum Significant Difference
POTW	Publicly Owned Treatment Works
PPMRP	Pollution Prevention and Monitoring and Reporting Program
QA/QC	Quality Assurance/Quality Control
Regional Water Board	Regional Water Quality Control Board, Central Valley Region
RPA	Reasonable Potential Analysis
SCP	Spill Contingency Plan
SIC	Standard Industrial Classification
SIP	State Implementation Policy (<i>Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California</i>)
SMR	Self Monitoring Reports
State Water Board	State Water Resources Control Board
SWPPP	Storm Water Pollution Prevention Plan
TAC	Test Acceptability Criteria
TBEL	Technology-Based Effluent Limitation
TDS	Total Dissolved Solids
Thermal Plan	Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California
TIE	Toxicity Identification Evaluation
TMDL	Total Maximum Daily Load
TOC	Total Organic Carbon
TRE	Toxicity Reduction Evaluation
TSD	<i>Technical Support Document for Water Quality- Based Toxics Control (EPA/505/2-90-001)</i>
TSO	Time Schedule Order
TSS	Total Suspended Solids
TU	Toxic Unit
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
WDR	Waste Discharge Requirements
WDID	Waste Discharge Identification Number
WET	Whole Effluent Toxicity
WLA	Waste Load Allocations
WQBEL	Water Quality-Based Effluent Limitation
WQLS	Water Quality Limited Segment
WWTP	Wastewater Treatment Plant

