

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD**

**CENTRAL VALLEY REGION**

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**ORDER NO. R5-2007-0016**  
**NPDES NO. CA0004758**

**WASTE DISCHARGE REQUIREMENTS FOR THE  
SACRAMENTO MUNICIPAL UTILITY DISTRICT  
RANCHO SECO NUCLEAR GENERATING STATION, UNIT 1  
AND RANCHO SECO PARK  
SACRAMENTO COUNTY**

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

**Table 1. Discharger Information**

<b>Discharger</b>	Sacramento Municipal Utility District
<b>Name of Facility</b>	Rancho Seco Nuclear Generating Station, Unit 1 and Rancho Seco Park
<b>Facility Address</b>	14440 Twin Cities Road
	Herald, California 95638
	Sacramento County
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Quality Control Board have classified this discharge as a major discharge.	

The discharge by the Sacramento Municipal Utility District from the discharge points identified below is subject to waste discharge requirements as set forth in this Order:

**Table 2. Discharge Location**

<b>Discharge Point</b>	<b>Effluent Description</b>	<b>Discharge Point Latitude</b>	<b>Discharge Point Longitude</b>	<b>Receiving Water</b>
001	Stormwater, irrigation runoff, treated liquid radioactive wastewater, and secondary treated domestic wastewater	38°, 20', 35" N	121°, 07', 34" W	Unnamed tributary to Clay Creek, a tributary to Hadselville Creek, Laguna Creek, and the Cosumnes River

**Table 3. Administrative Information**

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

IT IS HEREBY ORDERED, that Order No. 5-01-182 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code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.

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PAMELA C. CREEDON, Executive Officer

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**I. FACILITY INFORMATION**

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

**Table 4. Facility Information**

<b>Discharger</b>	Sacramento Municipal Utility District
<b>Name of Facility</b>	Rancho Seco Nuclear Generating Station, Unit 1 and Rancho Seco Park
<b>Facility Address</b>	14440 Twin Cities Road
	Herald, California 95638
	Sacramento County
<b>Facility Contact, Title, and Phone</b>	Brad Gacke, Chemistry Specialist, (916)732-4812
<b>Mailing Address</b>	SAME
<b>Type of Facility</b>	Industrial; SIC Code 9999 (Non-classifiable)
<b>Facility Design Flow</b>	0.06 million gallons per day (mgd) (Domestic Wastewater Treatment)

**II. FINDINGS**

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

**A. Background.** The Sacramento Municipal Utility District (hereinafter Discharger) is currently discharging pursuant to Order No. 5-01-182 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0004758. The Discharger submitted a Report of Waste Discharge, dated November 30, 2005, and applied for a NPDES permit renewal to discharge stormwater, irrigation runoff, treated liquid radioactive wastewater, and treated municipal wastewater from the Rancho Seco Nuclear Generating Station, Unit 1, 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 wastewater collection, treatment, and disposal system, and provides wastewater service for the decommissioning Rancho Seco nuclear power plant. Discharges from two wastewater treatment systems to surface waters are regulated at this Facility and consist of a liquid radioactive waste treatment system and a domestic wastewater treatment system. In addition, discharges of stormwater, irrigation water, and fire protection water are combined with the discharge from the two wastewater treatment systems prior to discharge to the receiving water.

1. The liquid radioactive waste treatment system consists of two phases. In phase one radioactive wastewater goes through one or more of the following treatment unit

processes: reverse osmosis (RO), distillation, filtration, ion exchange, sedimentation cyclone separation, and dilution and/or blending. The unit processes that are used in phase one to treat the radioactive wastewater depends on the level of contamination. In phase two the radioactive wastewater continues to be processed through two retention basins, and may receive acid or caustic for pH control. It should be noted that sodium hypochlorite may also be added to the retention basins for algae control. The treated radioactive wastewater is then discharged from the retention basins where it combines with treated domestic wastewater, stormwater, irrigation water, fire protection water, and dilution water from the Folsom South Canal before being discharged through Discharge Point No. 001. The Facility has reduced the volume of radioactive liquid waste, which has led to the consolidation and removal of liquid waste tanks and a decrease in the number of batch releases of treated radioactive water.

2. The domestic wastewater treatment system consists of a raw sewage pump station, a package wastewater treatment plant, an aerated pond, overland flow, and disinfection. A raw sewage pump station brings waste to the package wastewater treatment plant. The package plant consists of screening, an aeration basin and a sedimentation basin with return activated sludge. Wastewater from the package plant is then pumped to the overland terraces aeration pond, where it is aerated and then directed to any one of three overland terraces. Effluent from the terraces is disinfected (using sodium hypochlorite) before being combined with dilution water from the Folsom South Canal, treated radioactive wastewater, stormwater, irrigation water, fire protection water, and discharged through Discharge Point No. 001. The design treatment capacity of the domestic wastewater treatment system is 0.06 mgd. Sludge is occasionally removed from the domestic wastewater treatment system by pumping and is disposed off-site at a nearby wastewater treatment plant. The sewage treatment plant continues to operate in a manner that usually produces no discernible discharge during the warmer months (e.g., May through October). Based on monitoring reports provided by the Facility for the period July 2001 through December 2005, the average flow from the domestic wastewater treatment system was 920 gallons per day (gpd). During this period, the Discharger reported no discharge for 23 of the 54 months. The highest monthly average flow from the domestic wastewater treatment system was reported as 13,600 gpd in December 2005. The facility plans to decrease the domestic wastewater effluent volume as the decommissioning process of the nuclear plant continues.
3. A fire protection water system also draws water from the Folsom South Canal. The diesel fire pump operates for 30 minutes per week and when activated by the fire protection system sensors. The electric fire pump operates when activated by the fire protection system sensors. Each fire pump discharges 2,000 gallons per minute (gpm) when operating. The fire pump wastewater is combined with dilution water from Folsom South Canal, treated radioactive wastewater, treated domestic wastewater, stormwater, irrigation water, and is discharged through Discharge Point No. 001.

4. The Facility also reported discharges of stormwater and irrigation runoff. Approximately 18,700 gpd of stormwater and irrigation runoff from areas around the facility is combined with treated domestic wastewater, treated radioactive waste effluent, and fire protection water prior to discharge through Discharge Point No. 001. Approximately 95,000 gpd of stormwater runoff from other areas around the facility is also discharged through another discharge point to the unnamed tributary to Clay Creek. According to documentation provided by the Discharger, the State Water Board decided that stormwater discharges from the Facility were not subject to the state-wide General Permit for Discharges of Storm Water Associated with Industrial Activities (CAS000001). Runoff from irrigation water used at the facility is also discharged through Discharge Point No. 001. The irrigation runoff is combined with treated domestic wastewater, treated radioactive waste effluent, stormwater, and fire protection water prior to discharge through Discharge Point No. 001.
5. The Discharger is also responsible for operating and maintaining a 1-acre wastewater treatment pond located at Rancho Seco Park. The unlined, aerated pond is located in the southeast corner of the park and receives only domestic waste from the park. There is no surface water discharge from the Rancho Seco Park wastewater treatment pond; wastewater in the pond either evaporates and/or percolates into the ground. Based on flow data measured from January 2004 through December 2006, the average monthly flow ranged between 296 gpd in December 2004 to 6,090 gpd in July 2004. Accurate flow measurements to the pond are unavailable for several months due to water backing up into the flow meter at elevated pond levels. Therefore, the average annual flow is not available. However, the flow to the pond can be estimated based on the number of visitors to the park. Using estimated and actual flow data, the annual average flow is approximately 2,000 gpd.

Wastewater is discharged from Discharge Point No. 001 (see table on cover page) to an unnamed tributary to Clay Creek, a water of the United States, and a tributary to Hadselville Creek, Laguna Creek, and the Cosumnes River within the Cosumnes River Watershed. Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the Facility.

- C. Legal Authorities.** This Order is issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and chapter 5.5, division 7 of the California Water Code (commencing with section 13370). It shall serve as a NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the Water Code (commencing with section 13260).
- D. Background and Rationale for Requirements.** The Regional Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for Order

requirements, is hereby incorporated into this Order and constitutes part of the Findings for this Order. Attachments A through E and G are also incorporated into this Order.

- E. California Environmental Quality Act (CEQA).** Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA, Public Resources Code sections 21100-21177.
- F. Technology-based Effluent Limitations.** Section 301(b) of the CWA and implementing USEPA permit regulations at section 122.44, title 40 of the Code of Federal Regulations (CFR)<sup>1</sup> require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Best Professional Judgment (BPJ) in accordance with Part 125, section 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 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) USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in 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 the unnamed tributary to Clay Creek, but does identify present and potential uses for Cosumnes River, to which the unnamed tributary, via Clay Creek to Hadselville Creek, to Laguna Creek, is tributary. These beneficial uses are as follows: municipal and domestic supply, agricultural irrigation, agricultural stock watering, water contact recreation, other non-contact water recreation, warm freshwater aquatic habitat, cold freshwater aquatic habitat, warm fish migration habitat, cold fish migration habitat, warm spawning habitat, and wildlife habitat.

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<sup>1</sup> All further statutory references are to title 40 of the Code of Federal Regulations unless otherwise indicated.

In addition, the Basin Plan implements State Water Resources Control Board (State Water Board) Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. Thus, as discussed in detail in the Fact Sheet, beneficial uses applicable to the Cosumnes River, to which the unnamed tributary to Clay Creek is a tributary to, are as follows:

**Table 5. Basin Plan Beneficial Uses**

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Unnamed tributary to Clay Creek, a tributary to Hadselville Creek, Laguna Creek, and the Cosumnes River.	<p><u>Existing:</u>            Municipal and domestic supply (MUN), agricultural irrigation and agricultural stock watering (ARG), water contact recreation (REC-1), other non-contact water recreation (REC-2), warm freshwater aquatic habitat (WARM), cold freshwater aquatic habitat (COLD), warm fish migration habitat and cold fish migration habitat (MIGR), warm spawning habitat (SPWN), and wildlife habitat (WILD).</p> <p><u>Intermittent:</u>            None.</p> <p><u>Potential:</u>            None.</p>

The Basin Plan includes a list of Water Quality Limited Segments (WQLSs), which are defined as “...those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources (40 CFR 130, et seq.)” The Basin Plan also states, “Additional treatment beyond minimum federal standards will be imposed on dischargers to WQLSs. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment.” The unnamed tributary to Clay Creek, Clay Creek, Hadselville Creek, Laguna Creek, and the Cosumnes River are not listed as a WQLS and are not listed in the 303(d) list of impaired water bodies.

Requirements of this Order implement the Basin Plan.

- I. National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on December 22, 1992, and later amended it on May 4, 1995 and November 9, 1999. About forty criteria in the NTR applied in California. On May 18, 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on February 13, 2001. These rules contain water quality criteria for priority pollutants.
- J. State Implementation Policy.** On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed*



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

**K. Compliance Schedules and Interim Requirements.** In general, an NPDES permit must include final effluent limitations that are consistent with Clean Water Act section 301 and with 40 CFR 122.44(d). There are exceptions to this general rule. The State Water Board has concluded that where the Regional Water Board's Basin Plan allows for schedules of compliance and the Regional Water Board is newly interpreting a narrative standard, it may include schedules of compliance in the permit to meet effluent limits that implement a narrative standard. See *In the Matter of Waste Discharge Requirements for Avon Refinery* (State Board Order WQ 2001-06 at pp. 53-55). See also *Communities for a Better Environment 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 includes compliance schedules and interim effluent limitations. A detailed discussion of the basis for the compliance schedule(s) and interim effluent limitation(s) is included in the Fact Sheet.

- L. Alaska Rule.** On March 30, 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards (WQS) become effective for CWA purposes. (40 CFR §131.21; 65 Fed. Reg. 24641 (April 27, 2000).) Under the revised regulation (also known as the Alaska rule), new and revised standards submitted to USEPA after May 30, 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by May 30, 2000 may be used for CWA purposes, whether or not approved by USEPA.
- M. Stringency of Requirements for Individual Pollutants.** This Order contains both technology-based restrictions and water quality-based effluent limitations for individual pollutants. The technology-based effluent limitations consist of restrictions on biochemical oxygen demand (BOD), total suspended solids (TSS), and settleable solids. 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 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 18, 2000. 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 CWA" pursuant to section 131.21(c)(1).

- 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 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The 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. All effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order.
- P. Monitoring and Reporting.** Section 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 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 is provided in Attachment E.
- Q. Standard and Special Provisions.** Standard Provisions, which apply to all NPDES permits in accordance with section 122.41, and additional conditions applicable to specified categories of permits in accordance with section 122.42, are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under section 122.42. The Regional Water Board has also included in this Order special provisions applicable to the Discharger. A rationale for the special provisions contained in this Order is provided in the attached Fact Sheet.
- R. Provisions and Requirements Implementing State Law.** The provisions/requirements in subsections IV.B. and VI.C.4. of this Order are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.
- S. Notification of Interested Parties.** The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe Waste Discharge Requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of notification are provided in the Fact Sheet of this Order.
- T. Consideration of Public Comment.** The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet of this Order.

### III. DISCHARGE PROHIBITIONS

- A. Discharge of 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 Provisions I.G. and I.H. (Attachment D).
- C. Neither the discharge nor its treatment shall create a nuisance as defined in Section 13050 of the California Water Code.
- D. The Discharger shall not allow pollutant-free wastewater to be discharged into the collection, treatment, and disposal system in amounts that significantly diminish the system’s capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.

### IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

#### A. Effluent Limitations – Discharge Point No. 001

##### 1. Final Effluent Limitations for Combined Discharge

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 specified in Table 6:

**Table 6. Final Effluent Limitations for Combined Discharge**

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Total Suspended Solids	mg/L	30	45	60	--	--
pH	Std. Units	--	--	--	6.5	8.5
Copper, Total	µg/L	1.4	--	4.1	--	--
Total Residual Chlorine	mg/L	0.01	--	0.02	--	--
Gross Beta Particle Activity	pCi/L	50	--	--	--	--

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

- i. 70%, minimum for any one bioassay; and
  - ii. 90%, median for any three consecutive bioassays.
- c. **Tritium** shall not exceed 20,000 pCi/L based on annual average. The annual average shall be based on the average of at least four consecutive quarterly samples when discharging nuclear waste.

## 2. Final Effluent Limitations for Domestic Effluent

The Discharger shall maintain compliance with the following effluent limitations prior to dilution, with compliance measured at Monitoring Location EFF-001A, as described in the attached MRP (Attachment E).

- a. The Discharger shall maintain compliance with the effluent limitations specified in Table 7:

**Table 7. Effluent Limitations for Domestic Effluent**

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	30	45	60	--	--
	lbs/day <sup>1</sup>	15	22	30	--	--
Total Suspended Solids	mg/L	30	45	60	--	--
	lbs/day <sup>1</sup>	15	22	30	--	--
Settleable Solids	ml/L			0.1	--	--

<sup>1</sup> Based on a design daily discharge flow of 0.06 mgd

- b. **Percent Removal:** The average monthly percent removal of BOD 5-day 20°C and total suspended solids shall not be less than 85 percent.
- c. **Total Coliform Organisms.** Effluent total coliform organisms shall not exceed:
  - i. 23 most probable number (MPN) per 100 mL, as a 7-day median; and
  - ii. 240 MPN/100 mL, more than once in any 30-day period.
- d. **Daily Discharge Flow.** The daily average domestic discharge flow shall not exceed the facility design flow of 60,000 gallons/day.

## 3. Interim Effluent Limitations for Discharge Point No. 001

- a. During the period beginning March 15, 2007 and ending on May 18, 2010, the Discharger shall maintain compliance with the following limitations at Discharge Point No. 001, with compliance measured at Monitoring Location EFF-001 as

described in the attached MRP. These interim effluent limitations shall apply in lieu of the corresponding final effluent limitations specified for the same parameters during the time period indicated in this provision.

**Table 8. Interim Effluent Limitations for Copper**

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Copper, Total Recoverable	µg/L			18.5		

**B. Land Discharge Specifications**

1. The monthly average influent flow shall not exceed the design capacity of the system, which would result in violation of this Order and a discharge to surface waters.
2. The discharge of waste classified as “hazardous” as defined in section 2521(a) of Title 23, California Code of Regulations (CCR), or “designated”, as defined in section 13173 of the CWC, to the treatment pond is prohibited.

**C. Reclamation Specifications - Not Applicable**

**V. RECEIVING WATER LIMITATIONS**

**A. Surface Water Limitations**

Receiving water limitations are based on water quality objectives contained in the Basin Plan and are a required part of this Order. The discharge shall not cause the following in the unnamed tributary to Clay Creek, a water of the United States, and a tributary to Hadselville Creek, Laguna Creek, and the Cosumnes River:

1. **Bacteria.** The fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, to exceed a geometric mean of 200 MPN/100 mL, nor more than ten percent of the total number of fecal coliform samples taken during any 30-day period to exceed 400 MPN/100 mL.
2. **Biostimulatory Substances.** Water to contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.
3. **Chemical Constituents.** Chemical constituents to be present in concentrations that adversely affect beneficial uses.
4. **Color.** Discoloration that causes nuisance or adversely affects beneficial uses.

**5. Dissolved Oxygen.**

- a. The monthly median of the mean daily dissolved oxygen concentration to fall below 85 percent of saturation in the main water mass;
- b. The 95 percentile dissolved oxygen concentration to fall below 75 percent of saturation; nor
- c. The dissolved oxygen concentration to be reduced below 7.0 mg/L at any time.

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

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

**8. pH.** The pH to be depressed below 6.5, raised above 8.5, nor changed by more than 0.5 units. A one-month averaging period may be applied when calculating the pH change of 0.5 units.

**9. Radioactivity.**

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

**10. Suspended Sediments.** The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to caused nuisance or adversely affect beneficial uses.

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

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

15. **Toxicity.** 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.** The turbidity to increase as follows:

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

## **B. Groundwater Limitations – 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 discharge of any radiological, chemical or biological warfare agent or high-level, radiological waste is prohibited.

- h. A copy of this Order shall be maintained at the discharge facility and be available at all times to operating personnel. Key operating personnel shall be familiar with its content.
- i. Safeguard to electric power failure:
  - i. The Discharger shall provide safeguards to assure that, should there be reduction, loss, or failure of electric power, the discharge shall comply with the terms and conditions of this Order.
  - ii. Upon written request by the 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 90 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.
- j. 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.k.

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.

- k. The Discharger shall submit technical reports as directed by the Executive Officer. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code, sections 6735, 7835, and 7835.1. To demonstrate compliance with Title 16, CCR, sections 415 and 3065, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.
- l. Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Regional Water Board and USEPA.
- m. 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.
- n. 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.
- o. 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.
- p. 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.
- q. 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.

- r. 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.
- s. In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, maximum daily effluent limitation, 1-hour average effluent limitation, or receiving water limitation contained in this Order, the Discharger shall notify the Regional Water Board by telephone (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 (MRP) 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 §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. Pollution Prevention.** This Order (Provisions VI.C.3 and VI.C.7) requires the Discharger to prepare pollution prevention plans following CWC section 13263.3(d)(3) for copper. Based on a review of the pollution prevention plans, this Order may be reopened for addition and/or modification of effluent limitations and requirements for these constituents.

- d. **Whole Effluent Toxicity.** As a result of a Toxicity Reduction Evaluation (TRE), this Order may be reopened to include a chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if the State Water Board revises the SIP's toxicity control provisions that would require the establishment of numeric chronic toxicity effluent limitations, this Order may be reopened to include a numeric chronic toxicity effluent limitation based on the new provisions.
- e. **Water Effects Ratios (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating CTR criteria for applicable priority pollutant inorganic constituents. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable when developing effluent limitations for copper. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.
- f. **Freeport Regional Water Authority Project (FRWAP).** The FRWAP is expected to be constructed, which will move Sacramento River Water through the Folsom South Canal during dry years (approximately three out of every ten). The addition of Sacramento River water into the Folsom South Canal could significantly change the characteristics of the Facility's discharge. Should the FRWAP be constructed and causes a change in wastewater characteristics of the discharge, this Order may be reopened for the addition and/or modification of effluent limitations.
- g. **Completion of Decommissioning Operations.** As described in Finding A.1., radioactive wastes are combined with dilution water from Folsom South Canal and are discharged through Discharge Point No. 001. Because the diluting flow from Folsom South Canal is discharged to provide dilution in lieu of additional treatment of the radioactive wastes, during quarters when radioactive waste discharges are occurring, the flow from Folsom South Canal is considered to be part of the waste stream for purposes of this Permit. The Discharger is therefore responsible for any water quality impacts in the discharge at Point No. 001, including any water quality issues associated with water pumped from the Folsom South Canal. When the Nuclear Regulatory Commission (NRC) no longer permits the release of NRC-licensed radioactive liquid waste, the flows from Folsom South Canal will no longer be needed for dilution of radioactive waste discharges and will no longer be considered to be part of the wastewater discharge at Point No. 001. At such time, this Permit may be reopened for reconsideration of the compliance points and effluent limitations.
- h. **Modification or Cessation of Domestic Wastewater Discharges.** The Discharger has indicated that its domestic waste treatment system may be modified in a manner that would eliminate discharge to surface waters. If both radioactive wastes described in this Permit and domestic wastewater discharges to surface waters are eliminated, the Regional Board may consider rescission of

this Permit. Any discharges of domestic wastewater to land would still be subject to non-NPDES waste discharge requirements.

## 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, 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 guidance<sup>2</sup>.

### 3. Best Management Practices and Pollution Prevention

- a. **Salinity Evaluation and Minimization Plan.** The Discharger shall prepare a salinity evaluation and minimization plan to address sources of salinity from the liquid radioactive waste treatment system and domestic wastewater treatment system. The plan shall be completed and submitted to the Regional Water Board **within 9 months of the effective date of this Order** for approval by the Executive Officer.

### 4. Construction, Operation and Maintenance Specifications

#### a. Treatment Pond Operating Requirements.

- i. The treatment facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
- ii. Objectionable odors originating at this facility shall not be perceivable beyond the limits of the wastewater treatment and disposal areas.
- iii. As a means of discerning compliance with Provision No. 4.a.ii above, the dissolved oxygen content in the upper zone (1 foot) of wastewater in ponds shall not be less than 1.0 mg/L.
- iv. Ponds shall not have a pH less than 6.5 or greater than 8.5.
- v. Public contact with wastewater shall be precluded through such means as fences, signs, and other acceptable alternatives.
- vi. Ponds 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.
- vii. Ponds shall have sufficient capacity to accommodate allowable wastewater flow and design seasonal precipitation and ancillary inflow and infiltration during the non-irrigation season. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years,

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<sup>2</sup> 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.



distributed monthly in accordance with historical rainfall patterns. Freeboard shall never be less than 2 feet (measured vertically to the lowest point of overflow).

- viii. Prior to the onset of the rainy season of each year (on or about October 1 of each year), available pond storage capacity shall at least equal the volume necessary to comply with Specification vii. above.

**b. Sludge/Biosolids Discharge Specifications**

- i. Collected screenings, residual sludge, biosolids, and other solids removed from liquid wastes shall be disposed of in a manner approved by the Executive Officer, and consistent with *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste*, as set forth in Title 27, CCR, Division 2, Subdivision 1, section 20005, et seq. Removal for further treatment, disposal, or reuse at sites (i.e., landfill, composting sites, soil amendment sites) that are operated in accordance with valid waste discharge requirements issued by a Regional Water Board will satisfy these specifications.
- ii. Sludge and solid waste shall be removed from screens, sumps, ponds, clarifiers, etc. as needed to ensure optimal plant performance.
- iii. The treatment of sludge generated at the Facility shall be confined to the Facility property and conducted in a manner that precludes infiltration of waste constituents into soils in a mass or concentration that will degrade groundwater quality. In addition, the storage of residual sludge, solid waste, and biosolids on Facility property shall be temporary and controlled, and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will degrade groundwater quality.
- iv. The use and disposal of biosolids shall comply with existing Federal and State laws and regulations, including permitting requirements and technical standards included in 40 CFR Part 503. If the State Water Board and the Regional Water Board are given the authority to implement regulations contained in 40 CFR Part 503, this Order may be reopened to incorporate appropriate time schedules and technical standards. The Discharger must comply with the standards and time schedules contained in 40 CFR Part 503 whether or not they have been incorporated into this Order.

**c. Biosolids Disposal Requirements**

- i. The Discharger shall comply with the Monitoring and Reporting Program for biosolids disposal contained in Attachment E.

- ii. Any proposed change in biosolids use or disposal practice from a previously approved practice shall be reported to the Executive Officer and USEPA Regional Administrator at least **90 days** in advance of the change.
- iii. The Discharger is encouraged to comply with the “Manual of Good Practice for Agricultural Land Application of Biosolids” developed by the California Water Environment Association.

**d. Biosolids Storage Requirements**

- i. Facilities for the storage of Class B biosolids shall be located, designed and maintained to restrict public access to biosolids.
- ii. Biosolids storage facilities shall be designed and maintained to prevent washout or inundation from a storm or flood with a return frequency of 100 years.
- iii. Biosolids storage facilities, which contain biosolids, shall be designed and maintained to contain all storm water falling on the biosolids storage area during a rainfall year with a return frequency of 100 years.
- iv. Biosolids storage facilities shall be designed, maintained and operated to minimize the generation of leachate.

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

**6. Other Special Provisions**

- a. Prior to making any change in the discharge point, place of use, or purpose of use of the wastewater, the Discharger shall obtain approval of or clearance from the State Water Board (Division of Water Rights).
- b. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Regional Water Board.

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

## 7. Compliance Schedules

### a. Compliance Schedule for Final Effluent Limitations for Copper

- i. **By May 18, 2010**, the Discharger shall comply with the final effluent limitations for copper. On February 16, 2007, the Discharger submitted a compliance schedule justification for copper. The compliance schedule justification included all items specified in Paragraph 3, items (a) through (d), of section 2.1 of the SIP. As this compliance schedule is greater than 1 year, the Discharger shall submit progress reports in accordance with the Monitoring and Reporting Program (Attachment E, Section X.D.1.)
- ii. **Pollution Prevention Plan.** The Discharger shall prepare and implement a pollution prevention plan for copper, in accordance with CWC section 13263.3(d)(3). The minimum requirements for the pollution prevention plan are outlined in the Fact Sheet, Attachment F, VII.B.3.a. A work plan and time schedule for preparation of the pollution prevention plan shall be completed and submitted to the Regional Water Board **within 6 months of the effective date of this Order** for approval by the Executive Officer. The Pollution Prevention Plan shall be completed and submitted to the Regional Water Board **within two (2) years following work plan approval by the Executive Officer**, and progress reports shall be submitted in accordance with the Monitoring and Reporting Program (Attachment E, Section X.D.1.).
- iii. **Treatment Feasibility Study.** The Discharger is required to perform an engineering treatment feasibility study examining the feasibility, costs and benefits of different treatment options that may be required to remove copper from the discharge. A work plan and time schedule for preparation of the treatment feasibility study shall be completed and submitted to the Regional Water Board **within 6 months of the effective date of this Order** for approval by the Executive Officer. The treatment feasibility study shall be completed and submitted to the Regional Water Board **within two (2) years following work plan approval by the Executive Officer**, and progress reports shall be submitted in accordance with the Monitoring and Reporting Program (Attachment E, Section X.D.1.).

## VII. COMPLIANCE DETERMINATION

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

- A. **BOD and TSS Effluent Limitations (Section IV.A.1a, Section IV.A.2.a. and Section IV.A.2.b.).** Compliance with the final effluent limitations for BOD and TSS required in section IV.A.2.a. and the final effluent limitations for TSS required in section IV.A.1.a shall be ascertained by 24-hour composite samples. Compliance with effluent limitations in Section IV.A.2.b. for percent removal shall be calculated using the

arithmetic mean of 20°C BOD (5-day) and total suspended solids in effluent samples collected over a monthly period as a percentage of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period.

- B. Total Coliform Organisms Effluent Limitations (Section IV.A.2.c.).** For each day that an effluent sample is collected and analyzed for total coliform organisms, the 7-day median shall be determined by calculating the median concentration of total coliform bacteria in the effluent utilizing the bacteriological results of the last seven days for which analyses have been completed. If the 7-day median of total coliform organisms exceeds a most probable number (MPN) of 23 per 100 milliliters, the Discharger will be considered out of compliance for that parameter for that 1 day only within the reporting period.
- C. Gross Beta Activity Effluent Limitations (Section IV.A.1.a.).** The Discharger shall be deemed to be in compliance with the effluent limitations for gross beta activity if the average concentration of beta particle activity and photon radioactivity from man-made radionuclides does not produce an annual dose equivalent to the total body or any internal organs greater than 4 millirems per year.

## ATTACHMENT A – DEFINITIONS

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

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

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

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

**Best Practicable Treatment or Control (BPTC):** BPTC is a requirement of 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.”*

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

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

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

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

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

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

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

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

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

**Enclosed Bays** means indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays include, but are not limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drake's Estero, San Francisco Bay, Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay. Enclosed bays do not include inland surface waters or ocean waters.

**Estimated Chemical Concentration** is the estimated chemical concentration that results from the confirmed detection of the substance by the analytical method below the ML value.

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

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

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

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

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

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

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

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

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

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

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

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

**Pollutant Minimization Program (PMP)** means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce all potential sources of a priority pollutant(s) through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being

impacted. The Regional Water Board may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to Water Code section 13263.3(d), shall be considered to fulfill the PMP requirements.

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

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

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

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

**Standard Deviation ( $\sigma$ )** 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;

$\mu$  is the arithmetic mean of the observed values; and

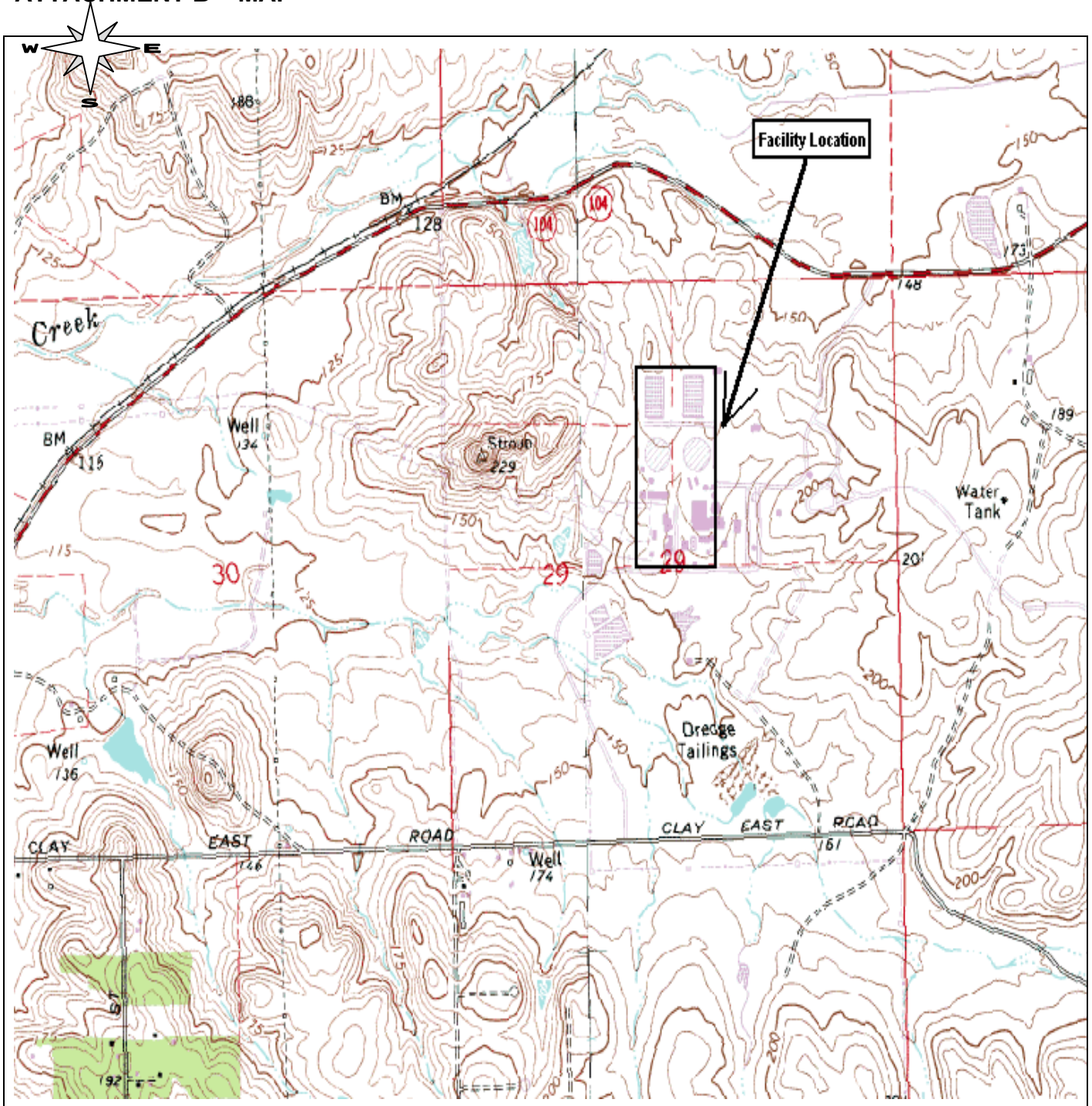
n is the number of samples.

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



responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.)

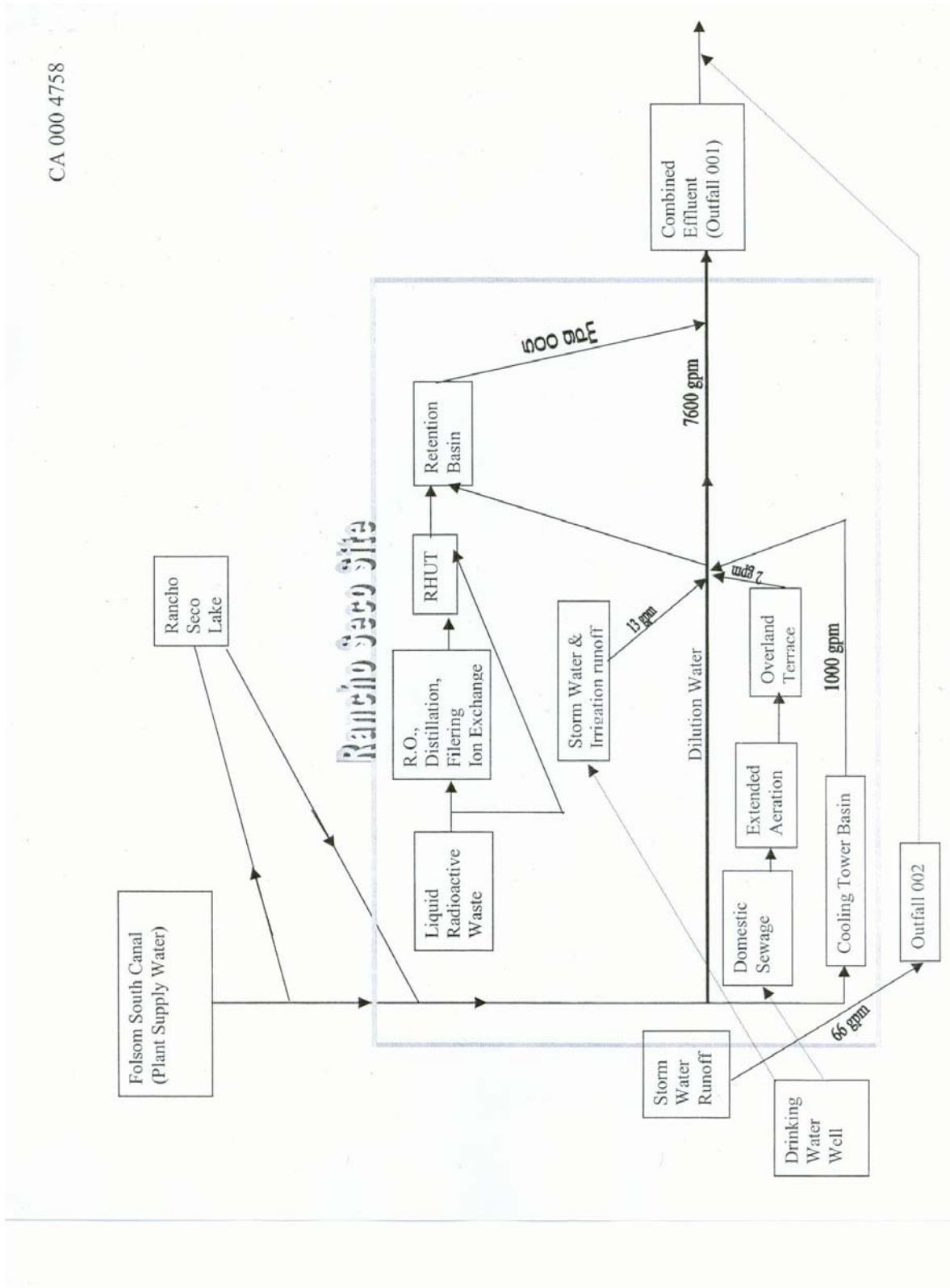
**ATTACHMENT B – MAP**



Drawing Reference:  
**GOOSE CREEK (CA)**  
U.S.G.S TOPOGRAPHIC MAP  
7.5 MINUTE QUADRANGLE  
*Photo revised 1990*  
*Not to scale*

**SITE LOCATION MAP**  
  
SACRAMENTO MUNICIPAL UTILITY  
DISTRICT, RANCHO SECO NUCLEAR  
GENERATING STATION  
SACRAMENTO COUNTY

**ATTACHMENT C – FLOW SCHEMATIC**



## **ATTACHMENT D –STANDARD PROVISIONS**

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

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

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (40 C.F.R. § 122.41(a).)
2. The Discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants and with standards for sewage sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 C.F.R. § 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 C.F.R. § 122.41(c).)

#### **C. Duty to Mitigate**

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

#### **E. Property Rights**

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 C.F.R. § 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 C.F.R. § 122.5(c).)

## **F. Inspection and Entry**

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

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (40 C.F.R. § 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 C.F.R. § 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 C.F.R. § 122.41(i)(3)); and
4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (40 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 122.41(m)(4)(i)):
  - a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 C.F.R. § 122.41(m)(4)(i)(A));
  - b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 C.F.R. § 122.41(m)(4)(i)(B)); and
  - c. The Discharger submitted notice to the Regional Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 C.F.R. § 122.41(m)(4)(i)(C).)
4. The Regional Water Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 C.F.R. § 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 C.F.R. § 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 C.F.R. § 122.41(m)(3)(ii).)

## H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. (40 C.F.R. § 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 C.F.R. § 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 C.F.R. § 122.41(n)(3)):
  - a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 C.F.R. § 122.41(n)(3)(i));
  - b. The permitted facility was, at the time, being properly operated (40 C.F.R. § 122.41(n)(3)(ii));
  - c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) (40 C.F.R. § 122.41(n)(3)(iii)); and
  - d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 122.41(b).)

### **C. Transfers**

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

### **III. STANDARD PROVISIONS – MONITORING**

- A.** Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 C.F.R. § 122.41(j)(1).)
- B.** Monitoring results must be conducted according to test procedures under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503 unless other test procedures have been specified in this Order. (40 C.F.R. § 122.41(j)(4); § 122.44(i)(1)(iv).)

### **IV. STANDARD PROVISIONS – RECORDS**

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

#### **B. Records of monitoring information shall include:**

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

#### **C. Claims of confidentiality for the following information will be denied (40 C.F.R. § 122.7(b)):**

1. The name and address of any permit applicant or Discharger (40 C.F.R. § 122.7(b)(1)); and
2. Permit applications and attachments, permits and effluent data. (40 C.F.R. § 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 C.F.R. § 122.41(h); Wat. Code, § 13267.)

### **B. Signatory and Certification Requirements**

1. All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or USEPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below. (40 C.F.R. § 122.41(k).)
2. All permit applications shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. (40 C.F.R. § 122.22(a)(1).)
3. All reports required by this Order and other information requested by the Regional Water Board, State Water Board, or USEPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:
  - a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 C.F.R. § 122.22(b)(1));
  - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of

- equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 C.F.R. § 122.22(b)(2)); and
- c. The written authorization is submitted to the Regional Water Board and State Water Board. (40 C.F.R. § 122.22(b)(3).)
  4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 above must be submitted to the Regional Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 C.F.R. § 122.22(c).)
  5. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:

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

### **C. Monitoring Reports**

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 C.F.R. § 122.22(l)(4).)
2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 C.F.R. § 122.41(l)(4)(i).)
3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Water Board. (40 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 122.41(l)(6)(i).)
2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 C.F.R. § 122.41(l)(6)(ii)):
  - a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(A).)
  - b. Any upset that exceeds any effluent limitation in this Order. (40 C.F.R. § 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 C.F.R. § 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 C.F.R. § 122.41(l)(1)):

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in section 122.29(b) (40 C.F.R. § 122.41(l)(1)(i)); or
2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are subject neither to effluent limitations in this Order nor to notification requirements

under section 122.42(a)(1) (see Additional Provisions—Notification Levels VII.A.1). (40 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 122.41(l)(8).)

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

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

### **VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS**

#### **A. Non-Municipal Facilities**

Existing manufacturing, commercial, mining, and silvicultural Dischargers shall notify the Regional Water Board as soon as they know or have reason to believe (40 C.F.R. § 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 C.F.R. § 122.42(a)(1)):

- a. 100 micrograms per liter ( $\mu\text{g/L}$ ) (40 C.F.R. § 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 ( $\text{mg/L}$ ) for antimony (40 C.F.R. § 122.42(a)(1)(ii));
  - c. Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 C.F.R. § 122.42(a)(1)(iii)); or
  - d. The level established by the Regional Water Board in accordance with section 122.44(f). (40 C.F.R. § 122.42(a)(1)(iv).)
2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 C.F.R. § 122.42(a)(2)):
- a. 500 micrograms per liter ( $\mu\text{g/L}$ ) (40 C.F.R. § 122.42(a)(2)(i));
  - b. 1 milligram per liter ( $\text{mg/L}$ ) for antimony (40 C.F.R. § 122.42(a)(2)(ii));
  - c. Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 C.F.R. § 122.42(a)(2)(iii)); or
  - d. The level established by the Regional Water Board in accordance with section 122.44(f). (40 C.F.R. § 122.42(a)(2)(iv).)

## ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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## **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:

**Table E-1. Monitoring Station Locations**

Discharge Point Name	Monitoring Location Name	Monitoring Location Description (include Latitude and Longitude when available)
--	INF-001	Representative sample location for domestic waste influent, prior to the initiation of treatment.
001	EFF-001	Representative sample location of the combined wastewater, downstream from the last connection through which wastes can be admitted into the Outfall 001. (Latitude 38° 20' 35"N; Longitude 121° 07' 34"W)
--	EFF-001A	Representative sample location of the treated domestic wastewater, following disinfection and prior to combining with any additional waste streams.
--	LND-001	Representative sample location for influent to the Rancho Seco Park Pond.
--	RSW-001	50 feet upstream from the point of discharge into the unnamed tributary to Clay Creek.
--	RSW-002	1,000 feet downstream from the point of discharge into the unnamed tributary to Clay Creek.
--	BIO-001	Representative sample location for biosolids prior to disposal.
--	DWS-001	Representative sample location for diverted Folsom South Canal water just prior to mixing with discharges from the domestic wastewater treatment plant, treated radioactive wastewater, stormwater and irrigation runoff, and fire test water.
	POND-001	Representative sample location within the Rancho Seco Park Pond

## III. INFLUENT MONITORING REQUIREMENTS

### A. Monitoring Location INF-001

1. The Discharger shall monitor domestic waste influent at INF-001 as follows:

**Table E-2. Influent Monitoring**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
BOD 5-day 20°C	mg/L	24-hr Composite <sup>1</sup>	1/week	
Total Suspended Solids	mg/L	24-hr Composite <sup>1</sup>	1/week	
Flow	gpd	Meter	Continuous	

<sup>1</sup> 24-hour flow proportional composite



#### IV. EFFLUENT MONITORING REQUIREMENTS

##### A. Monitoring Location EFF-001

1. The Discharger shall monitor the combined wastewater effluent at Monitoring Location EFF-001 as follows. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding Minimum Level:

**Table E-3. Effluent Monitoring (Combined Discharge)**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and Minimum Level (units), Respectively
Flow	mgd	Meter	Continuous	
Total Suspended Solids	mg/L	24-hr Composite <sup>1</sup>	1/week	
pH	SU	Grab	1/week	
Copper, Total	µg/L	24-hr Composite <sup>1</sup>	1/month	
Ammonia, Total (as N) <sup>3</sup>	mg/L	24-hr Composite <sup>1</sup>	2/month	
Total Dissolved Solids (TDS)	mg/L	Grab	1/month	
Tritium <sup>8</sup>	pCi/L	24-hr Composite <sup>1</sup>	1/quarter	
Gross Beta Particle Activity <sup>4,8</sup>	pCi/L	24-hr Composite <sup>1</sup>	1/month	
Gross Alpha Particle Activity <sup>4,8</sup>	pCi/L	24-hr Composite <sup>1</sup>	1/month	
Total Residual Chlorine	mg/L	Grab	2/week	
Temperature	°F	Grab	2/week	
Total Coliform	MPN/100 mL	Grab	1/week	
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/week	
Priority Pollutants <sup>2,5,6,7</sup>	µg/L	24-hr Composite <sup>1</sup>	1/year	

<sup>1</sup> 24-hour flow proportioned composite

<sup>2</sup> All metals shall be reported as total.

<sup>3</sup> Samples shall be taken concurrent with quarterly samples for whole effluent toxicity as described in Section V below.

<sup>4</sup> Gross alpha and gross beta sampling may be substituted with sampling for NRC compliance, provided the sampling is more stringent than the required Title 22 sampling and is sufficient to determine compliance.

<sup>5</sup> Samples shall be taken concurrent with receiving surface water sampling.

<sup>6</sup> For priority pollutant constituents with effluent limitations, analytical 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.

<sup>7</sup> The sample type for volatile organic constituents shall be a grab sample.

<sup>8</sup> Samples for Tritium, Gross Alpha and Gross Beta Particle Activity shall be collected only when discharging nuclear waste.

**B. Monitoring Location EFF-001A**

1. The Discharger shall monitor treated domestic wastewater at Monitoring Location EFF-001A as follows:

**Table E-4. Effluent Monitoring (Domestic Effluent)**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and (Minimum Level, Units), Respectively
Flow	mgd	Meter <sup>1</sup>	Continuous	
BOD 5-day 20°C	mg/L	24-hr Composite	1/week	
	lbs/day <sup>1</sup>		1/week	
	% Removal <sup>2</sup>		1/month	
Total Suspended Solids	mg/L	24-hr Composite	1/week	
	lbs/day <sup>1</sup>		1/week	
	% Removal <sup>2</sup>		1/month	
Settleable Solids	ml/L	Grab	1/week	
Total Dissolved Solids	mg/L	Grab	1/month	
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/month	
pH	SU	Grab	1/week	
Total Coliform	MPN/100 ml	Grab	1/week	
Temperature	°F	Grab	2/week	
Ammonia (as N)	mg/L	Grab	2/month	
Nitrate (as N)	mg/L	Grab	1/month	

<sup>1</sup> The mass loading shall be calculated as follows: lbs/day = average daily flow (mgd) x 8.34 x concentration (mg/L)

<sup>2</sup> See Limitations and Discharge Requirements Section VII.A. for methodology for calculating percent removal.

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 constituents listed above, 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 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, concurrent with effluent ammonia sampling.
  2. Sample Types – For static non-renewal and static renewal testing, the samples shall be 24-hour flow proportional composites 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 flow proportional 24-hour composites 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:
  - The cladoceran, water flea, *Ceriodaphnia dubia* (survival and reproduction test);
  - The fathead minnow, *Pimephales promelas* (larval survival and growth test); and
  - The green alga, *Selenastrum capricornutum* (growth test).
5. Methods – The presence of chronic toxicity shall be estimated as specified in *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition, EPA/821-R-02-013, October 2002.*
6. Reference Toxicant – As required by the SIP, all chronic toxicity tests shall be conducted with concurrent testing with a reference toxicant and shall be reported with the chronic toxicity test results.

7. **Dilutions** – The chronic toxicity testing shall be performed using the dilution series identified in Table E-5, below. The receiving water control shall be used as the diluent (unless the receiving water is toxic).

If the receiving water is toxic and/or not available, laboratory control water may be used as the diluent, in which case, the receiving water, if available, should still be sampled and tested to provide evidence of its toxicity.

8. **Test Failure** –The Discharger must re-sample and re-test as soon as possible, but no later than fourteen (14) days after receiving notification of a test failure. A test failure is defined as follows:
  - a. The reference toxicant test or the effluent test does not meet all test acceptability criteria as specified in the *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*, EPA/821-R-02-013, October 2002 (Method Manual), and its subsequent amendments or revisions; or
  - b. The percent minimum significant difference (PMSD) measured for the test exceeds the upper PMSD bound variability criterion in Table 6 on page 52 of the Method Manual. (A retest is only required in this case if the test results do not exceed the monitoring trigger specified in Special Provisions VI. 2.a.iii.)

**Table E-5. Chronic Toxicity Testing Dilution Series**

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

- C. **WET Testing Notification Requirements.** The Discharger shall notify the Regional Water Board within 24-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/LC<sub>50</sub>, 100/EC<sub>25</sub>, 100/IC<sub>25</sub>, and 100/IC<sub>50</sub>, as appropriate.
- b. The statistical methods used to calculate endpoints;
- c. The statistical output page, which includes the calculation of the percent minimum significant difference (PMSD);
- d. The dates of sample collection and initiation of each toxicity test; and
- e. The results compared to the numeric toxicity monitoring trigger.

Additionally, the monthly discharger self-monitoring reports shall contain an updated chronology of chronic toxicity test results expressed in TUC, and organized by test species, type of test (survival, growth or reproduction), and monitoring frequency, i.e., either quarterly, monthly, accelerated, or TRE.

- 2. **Acute WET Reporting.** Acute toxicity test results shall be submitted with the monthly discharger self-monitoring reports and reported as percent survival.
- 3. **TRE Reporting.** Reports for Toxicity Reduction Evaluations shall be submitted in accordance with the schedule contained in the Discharger’s approved TRE Work Plan.
- 4. **Quality Assurance (QA).** The Discharger must provide the following information for QA purposes:
  - 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. Monitoring Location LND-001**

- 1. The Discharger shall monitor the flow to the Rancho Seco Park Pond at Monitoring Location LND-001 or PND-001 as follows:

**Table E-6. Land Discharge Monitoring Requirements**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Influent Flow <sup>1</sup>	gpd	Meter	1/week	
Dissolved Oxygen <sup>2</sup>	mg/L	Grab	1/week	
PH <sup>2</sup>	Standard Units	Grab	1/week	

Odors <sup>2</sup>	--	Observation	1/week	
Freeboard <sup>2</sup>	feet	Measured	1/week	

<sup>1</sup> To be monitored at Monitoring Location LND-001.

<sup>2</sup> To be monitored at Monitoring Location PND-001.

**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 the unnamed tributary to Clay Creek at Monitoring Locations RSW-001 and RSW-002 as follows:

**Table E-7. Receiving Water Monitoring Requirements**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Dissolved Oxygen	mg/L	Grab	2/month	
pH	Standard Units	Grab	1/week	
Turbidity	NTU	Grab	1/week	
Temperature	°F	Grab	1/week	
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/week	
Fecal Coliform	MPN/100 ml	Grab	1/month	
Ammonia <sup>1</sup>	mg/L	Grab	1/month	
Chlorine Residual	mg/L	Grab	1/month	
Radionuclides <sup>2</sup>	pCi/L	Grab	1/quarter	
Priority Pollutants <sup>3,4</sup>	µg/L	Grab	1/year	

<sup>1</sup> Temperature and pH shall be determined at the time of sample collection for ammonia.

<sup>2</sup> Radionuclides shall include tritium, gross alpha particle activity, and gross beta particle activity and shall be monitored when discharging treated nuclear wastes.

<sup>3</sup> Samples shall be taken concurrent with effluent sampling.

<sup>4</sup> For priority pollutant constituents with effluent limitations, analytical 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.

**B. Groundwater – Not Applicable**

## IX. OTHER MONITORING REQUIREMENTS

### A. Biosolids

#### 1. Monitoring Location BIO-001

- a. A composite sample of sludge shall be collected prior to disposal at Monitoring Location BIO-001 in accordance with EPA's POTW Sludge Sampling and Analysis Guidance Document, August 1989, and tested for priority pollutants listed in 40 CFR section 122 Appendix D, Tables II and III (excluding total phenols).
- b. A composite sample of sludge shall be collected when sludge is removed from the ponds for disposal in accordance with USEPA's POTW Sludge Sampling and Analysis Guidance Document, August 1989, and tested for the metals listed in Title 22.
- c. Sampling records shall be retained for a minimum of **5 years**. A log shall be kept of sludge quantities generated and of handling and disposal activities. The frequency of entries is discretionary; however, the log should be complete enough to serve as a basis for part of the annual report.
- d. Upon removal of sludge, the Discharger shall submit characterization of sludge quality, including sludge percent solids and quantitative results of chemical analysis for the priority pollutants listed in 40 CFR 122 Appendix D, Tables II and III (excluding total phenols). Suggested methods for analysis of sludge are provided in USEPA publications titled *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods* and *Test Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater*. Recommended analytical holding times for sludge samples should reflect those specified in 40 CFR 136.6.3(e). Other guidance is available in USEPA's *POTW Sludge Sampling and Analysis Guidance Document*, August 1989.

### B. Dilution Water Supply

#### 1. Monitoring Location DWS-001

The Discharger shall monitor the Dilution Water Supply at DWS-001 as follows. A sampling station shall be established where a representative sample of the dilution water supply (Folsom South Canal) can be obtained prior to mixing with other waste streams. Dilution water supply samples shall be collected at approximately the same time as effluent samples.

**Table E-8. Dilution Water Supply Monitoring Requirements**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Total Dissolved Solids	mg/L	Grab	1/month	
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/month	
pH	Standard Units	Grab	1/month	
Temperature	°F	Grab	1/month	
Copper (Total)	µg/L	Grab	1/quarter	
Aluminum (Total)	µg/L	Grab	1/quarter	

**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.
1. 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).
2. **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.
3. The Discharger shall report to the Regional Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act of 1986.
4. **Reporting Protocols.** The Discharger shall report with each sample result the applicable Reporting Level (RL) and the current Method Detection Limit (MDL), as determined by the procedure in Part 136.

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

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



estimated chemical concentration of the sample shall also be reported.

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

- c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.
  - d. Dischargers are to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from *extrapolation* beyond the lowest point of the calibration curve.
5. **Multiple Sample Data.** When determining compliance with an AMEL, AWEL, or MDEL for priority pollutants and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:
- a. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.
  - b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

## **B. Self Monitoring Reports (SMRs)**

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

results shall be submitted by the **first day of the second month following each calendar quarter, semi-annual period, and year**, respectively.

3. In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner to illustrate clearly whether the discharge complies with waste discharge requirements. The highest daily maximum for the month, monthly and weekly averages, and medians, and removal efficiencies (%) for BOD and Total Suspended Solids, shall be determined and recorded as needed to demonstrate compliance.
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:

Regional Water Quality Control Board  
Central Valley Region  
11020 Sun Center Dr., Suite #200  
Rancho Cordova, CA 95670-6114
8. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

**Table E-9. Monitoring Periods and Reporting Schedule**

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period	SMR Due Date
Continuous	Permit effective date	All	First day of second calendar month following month of sampling
X / day	Permit effective date	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.	First day of second calendar month following month of sampling
X / week	Sunday following permit effective date or on permit effective date if on a Sunday	Sunday through Saturday	First day of second calendar month following month of sampling
X / month	First day of calendar month following permit effective date or on permit effective date if that date is first day of the month	1 <sup>st</sup> day of calendar month through last day of calendar month	First day of second calendar month following month of sampling
X / quarter	Closest of January 1, April 1, July 1, or October 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	May 1 August 1 November 1 February 1
X / year	January 1 following (or on) permit effective date	January 1 through December 31	February 1

**C. Discharge Monitoring Reports (DMRs)**

- As described in Section X.B.1 above, at any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit SMRs that will satisfy federal requirements for submittal of Discharge Monitoring Reports (DMRs). Until such notification is given, the Discharger shall submit DMRs in accordance with the requirements described below.
- DMRs must be signed and certified as required by the standard provisions (Attachment D). The Discharge shall submit the original DMR and one copy of the DMR to the address listed below:

Standard Mail	FedEx/UPS/ Other Private Carriers
State Water Resources Control Board Division of Water Quality c/o DMR Processing Center PO Box 100 Sacramento, CA 95812-1000	State Water Resources Control Board Division of Water Quality c/o DMR Processing Center 1001 I Street, 15 <sup>th</sup> Floor Sacramento, CA 95814

3. All discharge monitoring results must be reported on the official USEPA pre-printed DMR forms (EPA Form 3320-1). Forms that are self-generated cannot be accepted unless they follow the exact same format as EPA form 3320-1.

**D. Other Reports**

1. **Progress Reports.** As specified in the compliance time schedules required in Special Provisions VI, progress reports shall be submitted in accordance with the following reporting requirements. At a minimum, the progress reports shall include a discussion of the status of final compliance, whether the Discharger is on schedule to meet the final compliance date, and the remaining tasks to meet the final compliance date.

**Table E-10. Reporting Requirements for Special Provisions Progress Reports**

Special Provision	Reporting Requirements
Compliance Schedules for Final Effluent Limitations for copper, compliance with final effluent limitations. (Special Provisions VI.C.7.a.i and VI.C.7.b.i)	<b>1 June</b> , annually, until final compliance
Compliance Schedules for Final Effluent Limitations for copper, Pollution Prevention Plan (Special Provisions VI.C.7.a.ii and VI.C.7.b.ii)	<b>1 June</b> , annually, until final compliance
Compliance Schedules for Final Effluent Limitations for copper, Treatment Feasibility Study (Special Provisions VI.C.7.a.iii and VI.C.7.b.iii)	<b>1 June</b> , annually, until final compliance

2. Within **60 days** of permit adoption, the Discharger shall submit a report outlining minimum levels, method detection limits, and analytical methods for approval, with a goal to achieve detection levels below applicable water quality criteria. At a minimum, the Discharger shall comply with the monitoring requirements for CTR constituents as outlined in Section 2.3 and 2.4 of the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California*, adopted 2 March 2000 by the State Water Resources Control Board. All peaks identified by analytical methods shall be reported.
3. **Annual Operations Report.** By **30 January** of each year, the Discharger shall submit a written report to the Executive Officer containing the following:
  - a. The names, certificate grades, and general responsibilities of all persons employed at the Facility.
  - b. The names and telephone numbers of persons to contact regarding the plant for emergency and routine situations.

- c. A statement certifying when the flow meter(s) and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration.
- d. A statement certifying whether the current operation and maintenance manual, and contingency plan, reflect the wastewater treatment plant as currently constructed and operated, and the dates when these documents were last revised and last reviewed for adequacy.
- e. The Discharger may also be requested to submit an annual report to the Regional Water Board with both tabular and graphical summaries of the monitoring data obtained during the previous year. Any such request shall be made in writing. The report shall discuss the compliance record. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with the waste discharge requirements.

## ATTACHMENT F – FACT SHEET

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## ATTACHMENT F – FACT SHEET

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

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

### I. PERMIT INFORMATION

The following table summarizes administrative information related to the facility.

**Table F-1. Facility Information**

<b>WDID</b>	
<b>Discharger</b>	Sacramento Municipal Utility District
<b>Name of Facility</b>	Rancho Seco Nuclear Generating Station, Unit 1 and Rancho Seco Park
<b>Facility Address</b>	14440 Twin Cities Road
	Herald, California 95638
	Sacramento County
<b>Facility Contact, Title and Phone</b>	Brad Gacke, Chemistry Specialist, (916)732-4812
<b>Authorized Person to Sign and Submit Reports</b>	Steven Redeker, Manager, Plant Closure & Decommission, (916) 732-4827
<b>Mailing Address</b>	SAME
<b>Billing Address</b>	SAME
<b>Type of Facility</b>	Industrial; SIC Code 9999 (Non-classifiable)
<b>Major or Minor Facility</b>	Major
<b>Threat to Water Quality</b>	1
<b>Complexity</b>	A
<b>Pretreatment Program</b>	N
<b>Reclamation Requirements</b>	User
<b>Facility Permitted Flow</b>	14 million gallons per day (mgd) (Combined Effluent Discharge)
<b>Facility Design Flow</b>	0.06 mgd (Domestic Discharge)
<b>Watershed</b>	Cosumnes River
<b>Receiving Water</b>	Unnamed Tributary to Clay Creek
<b>Receiving Water Type</b>	Inland Surface Water

**A.** The Sacramento Municipal Utility District (hereinafter Discharger) is the owner and operator of the Rancho Seco Nuclear Generating Station, Unit No. 1, Wastewater



Treatment Plant (hereinafter Facility). The Facility is a decommissioning nuclear facility nearing completion of the dismantlement phase of decommissioning.

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

- B.** The Facility discharges wastewater to an unnamed tributary to Clay Creek, a tributary to Hadselville Creek, Laguna Creek, and the Cosumnes River, waters of the United States, and is currently regulated by Order No. 5-01-182 which was adopted on June 14, 2001 and expired on June 1, 2006. The terms and conditions of the current Order have been automatically continued and remain in effect until new Waste Discharge Requirements and NPDES permit are adopted pursuant to this Order.
- C.** The Discharger filed a report of waste discharge and submitted an application for renewal of its Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit on November 30, 2005.

## **II. FACILITY DESCRIPTION**

The Discharger owns and operates a wastewater collection, treatment, and disposal system, and provides wastewater service for the decommissioning Rancho Seco nuclear power plant. The treatment system is located in Section 29, Township 6 North, Range 8 East of the Mt. Diablo Base Line and Meridian. Wastewater consisting of stormwater, fire pump testing water, irrigation runoff, treated liquid radioactive wastewater, and treated municipal wastewater is combined and diluted with water from the Folsom South Canal and discharged to an unnamed tributary of Clay Creek. The treatment and processing of radioactive water is regulated by and reported to the U.S. Nuclear Regulatory Commission.

The Facility halted nuclear power operations in June 1989. Since 1997, the Facility has been in the process of decommissioning the nuclear plant. The Discharger expects to complete decommissioning of radioactive components in 2008; decommissioning of non-radioactive components and structures will continue past 2008.

### **A. Description of Wastewater and Biosolids Treatment or Controls**

Discharges from two wastewater treatment systems to surface waters are regulated at this Facility and consist of a liquid radioactive waste treatment system and a domestic wastewater treatment system. In addition, discharges of stormwater, irrigation water, and fire protection water are combined with the discharge from the two wastewater treatment systems prior to discharge to the receiving water.

1. The liquid radioactive waste treatment system consists of two phases. In phase one radioactive wastewater goes through one or more of the following treatment unit processes: reverse osmosis (RO), distillation, filtration, ion exchange, sedimentation, cyclone separation, dilution and/or blending. The unit processes that are used in phase one to treat the radioactive wastewater depends on the level of

contamination. In phase two the radioactive wastewater continues to be processed through two retention basins, and may receive acid or caustic for pH control. It should be noted that sodium hypochlorite may also be added to the retention basins for algae control. The treated radioactive wastewater is then discharged from the retention basins where it combines with treated domestic wastewater, stormwater, irrigation water, fire protection water, and dilution water from the Folsom South Canal before being discharged through Discharge Point No. 001. The Facility has reduced the volume of radioactive liquid waste, which has led to the consolidation and removal of liquid waste tanks and a decrease in the number of batch releases of treated radioactive water.

2. The domestic wastewater treatment system consists of a raw sewage pump station, a package wastewater treatment plant, an aerated pond, overland flow, and disinfection. A raw sewage pump station brings waste to the package wastewater treatment plant. The package plant consists of screening, an aeration basin and a sedimentation basin with return activated sludge. Wastewater from the package plant is then pumped to the overland terraces aeration pond, where it is aerated and then directed to any one of three overland terraces. Effluent from the terraces is disinfected (using sodium hypochlorite) before being combined with dilution water from the Folsom South Canal, treated radioactive wastewater, stormwater, irrigation water, fire protection water, and discharged through Discharge Point No. 001. The design treatment capacity of the domestic wastewater treatment system is 0.06 million gallons per day (mgd). Sludge is occasionally removed from the domestic wastewater treatment system by pumping and is disposed off-site at a nearby wastewater treatment plant. The sewage treatment plant continues to operate in a manner that usually produces no discernible discharge during the warmer months (e.g., May through October). Based on monitoring reports provided by the Facility for the period July 2001 through December 2005, the average flow from the domestic wastewater treatment system was 920 gallons per day (gpd). During this period, the Discharger reported no discharge for 23 of the 54 months. The highest monthly average flow from the domestic wastewater treatment system was reported as 13,600 gpd in December 2005. The facility plans to decrease the domestic wastewater effluent volume as the decommissioning process continues.
3. A fire protection water system also draws water from the Folsom South Canal. The diesel fire pump operates for 30 minutes per week and when activated by the fire protection system sensors. The electric fire pump operates when activated by the fire protection system sensors. Each fire pump discharges 2,000 gallons per minute (gpm) when operating. The fire pump waste water is combined with dilution water from the Folsom South Canal, treated radioactive wastewater, treated domestic wastewater, stormwater, irrigation water, and is discharged through Discharge Point No. 001.
4. The Facility also reported discharges of stormwater and irrigation runoff. Approximately 18,700 gpd of stormwater and irrigation runoff from areas around the facility is combined with treated domestic wastewater, treated radioactive waste effluent, and fire protection water prior to discharge through Discharge Point No.

001. Approximately 95,000 gpd of stormwater runoff from other areas around the facility is also discharged through another discharge point to the unnamed tributary to Clay Creek. According to documentation provided by the Discharger, the State Water Board decided that stormwater discharges from the Facility were not subject to the state-wide General Permit for Discharges of Storm Water Associated with Industrial Activities (CAS000001). Runoff from irrigation water used at the facility is also discharged through Discharge Point No. 001. The irrigation runoff is combined with treated domestic wastewater, treated radioactive waste effluent, stormwater, and fire protection water prior to discharge through Discharge Point No. 001.

5. The Discharger is also responsible for operating and maintaining a 1-acre wastewater treatment pond located at Rancho Seco Park. The unlined, aerated pond is located in the southeast corner of the park and receives only domestic waste from the park. There is no surface water discharge from the Rancho Seco Park wastewater treatment pond; wastewater in the pond either evaporates and/or percolates into the ground. Based on flow data measured from January 2004 through December 2006, the average monthly flow ranged between 296 gpd in December 2004 to 6,090 gpd in July 2004. Accurate flow measurements to the pond are unavailable for several months due to water backing up into the flow meter at elevated pond levels. Therefore, the average annual flow is not available. However, the flow to the pond can be estimated based on the number of visitors to the park. Using estimated and actual flow data, the annual average flow is approximately 2,000 gpd.

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

1. The Facility is located in Section 29, T6N, R8E, MDB&M, as shown in Attachment B (Figure B-1), a part of this Order.
2. Stormwater, irrigation runoff, treated liquid radioactive wastewater, and treated municipal wastewater is discharged from Discharge Point No. 001 to an unnamed tributary to Clay Creek, a water of the United States *and a tributary to* Hadselville Creek, Laguna Creek, and the Cosumnes River at a point Latitude 38°, 20', 35" N and Longitude 121°, 07', 34" W.
3. Rancho Seco Lake is a small reservoir constructed on an unnamed tributary to Clay Creek. The source water for Rancho Seco Lake initiates from a small drainage area, but principally water diversions from the Folsom South Canal serve as source water for the lake. The unnamed tributary joins Clay Creek on Rancho Seco property. Rancho Seco Lake also provides a source of back-up dilution water when diversions from the Folsom South Canal are inadequate to provide the required dilution for the treated radioactive waste.

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

Effluent limitations contained in the existing Order for discharges from the domestic wastewater treatment plant and the combined effluent and representative monitoring data from the term of the previous Order are provided in the following tables:

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

Parameter	Units	Effluent Limitations					Monitoring Data (From July 2001 – To December 2005)		
		Average Monthly	Average Weekly	Monthly Median	Annual Average	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Biochemical Oxygen Demand (BOD)	mg/L	30	45	--	--	60	10	15	15
	lbs/day	15	22	--	--	30	NR	NR	NR
Total Suspended Solids (TSS)	mg/L	30	45	--	--	60	17	35.6	35.6
	lbs/day	15	22	--	--	30	NR	NR	NR
Total Coliform	MPN/100ml	--	--	23	--	240	--	--	>1,600
Settleable Solids	ml/L	--	--	--	--	0.1	--	--	0.1
Total Dissolved Solids (TDS)	mg/L	1,000	--	--	500	1,500	714	--	714
Toxicity <sup>1</sup>	% Survival	--	--	--	--	1	--	--	--

<sup>1</sup> Average survival in effluent for any three consecutive 96-hour static or continuous flow bioassay tests shall be at least 90%, with not a single test producing less than 70% survival.

NR – Not Reported

**Table F-3. Historic Effluent Limitations and Monitoring Data (Combined Discharge Effluent)**

Parameter	Units	Effluent Limitations					Monitoring Data (From July 2001 To December 2005)		
		Average Monthly	Average Weekly	Monthly Median	Annual Average	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
TSS	mg/L	30	45	--	--	60	9.4	44	44
Total Chlorine	mg/L	0.01	--	--	--	0.02	0.0033	--	0.018
TDS	mg/L	1,000	--	--	500	1,500	78	--	78
Boron	mg/L	--	--	--	0.6	--	--	--	0.41
Tritium	pCi/L	--	--	--	20,000	--	--	--	--
Manmade Radionuclides <sup>1</sup>	millirems	--	--	--	--	--	--	--	0.241
pH	SU.	6.5 - 8.5 <sup>2</sup>					6.71 - 8.80		
Toxicity <sup>3</sup>	% Survival	--	--	--	--	<sup>3</sup>	--	--	51.6

<sup>1</sup> The Discharger shall be deemed to be in compliance with the limit for gross beta activity if the average concentration of beta particle activity and photon radioactivity from man-made radionuclides does not produce an annual dose equivalent to the total body or any internal organs greater than 4 millirems per year.

<sup>2</sup> The Discharger shall not have a pH less than 6.5 nor greater than 8.5.

<sup>3</sup> Average survival in effluent for any three consecutive 96-hour static or continuous flow bioassay tests shall be at least 90%, with not single test producing less than 70% survival.

## D. Compliance Summary

### 1. Domestic Effluent Limitations

The Discharger is required to maintain compliance with effluent limitations for discharges from the domestic wastewater treatment system. Data submitted to the Regional Water Board indicate that the Discharger has exceeded existing permit limitations as outlined in the table below.

**Table F-4. Summary of Compliance with Domestic Effluent Limitations**

Date	Violation Type	Pollutant	Reported Value	Permit Limitation	Units
2002	Annual Average	Total Dissolved Solids	527	500	mg/L
3/15/2005	Daily Maximum	Total Coliform Organisms	>1600	240	MPN

Although mass-based effluent limitations were included in the existing Order for BOD and TSS, the Discharger did not submit mass-based effluent data. Using the reported monthly average effluent flow from the domestic treatment wastewater treatment system, to calculate the mass discharge for BOD and TSS indicates compliance with the mass-based effluent limitations. The highest calculated mass discharge for BOD was 1.10 pounds per day (lbs/day); the highest calculated value for TSS was 1.07 lbs/day.

In a letter dated March 23, 2005, the facility indicated that the cause for the March 15, 2005 total coliform exceedance was caused by a failure of the flow transmitter that provides an input signal to the chlorine injection pump.

### 2. Combined Discharge Effluent Limitations

Data submitted to the Regional Water Board indicate that the Discharger has exceeded existing permit limitations for the combined discharge effluent as outlined in the table below.

**Table F-5. Summary of Compliance with Combined Discharge Effluent Limitations**

Date	Violation Type	Pollutant	Reported Value	Permit Limitation	Units
7/23/2003	Maximum	pH	8.80	8.5	SU
7/16/2003	Maximum	pH	8.57	8.5	SU
8/22/2001	Maximum	pH	8.51	8.5	SU
8/14/2001	Maximum	pH	8.61	8.5	SU
7/31/2001	Maximum	pH	8.54	8.5	SU

In order to address the non-compliance with the pH effluent limitation for the combined discharge effluent, the Facility installed a CO<sub>2</sub> injection system for pH control. The Facility notified the Regional Water Board of the installation of the treatment system in a letter dated October 7, 2004. Since the installation and

operation of the new pH control system, there have been no further violations of the pH effluent limitation.

### 3. Discharge Specifications (Rancho Seco Park Land Disposal)

Data submitted to the Regional Water Board indicate that the Discharger has exceeded discharge specifications for the Rancho Seco Park wastewater treatment pond as outlined in the table below.

**Table F-6. Summary of Compliance with Rancho Seco Park Wastewater Treatment Pond Discharge Specifications**

Date	Violation Type	Pollutant	Reported Value	Permit Limitation	Units
7/1/2003	Minimum	Dissolved Oxygen	0.88	1.0	mg/L
6/11/2003	Minimum	Dissolved Oxygen	0.52	1.0	mg/L
6/10/2003	Minimum	Dissolved Oxygen	0.60	1.0	mg/L
6/5/2003	Minimum	Dissolved Oxygen	0.82	1.0	mg/L
6/4/2003	Minimum	Dissolved Oxygen	0.78	1.0	mg/L
9/1/2001	Minimum	Dissolved Oxygen	0.98	1.0	mg/L

The Discharger is also required to maintain the Rancho Seco Park wastewater treatment pond at a pH between 6.5 SU and 8.5 SU. From July 2001 through April 2004 the Discharger reported 82 exceedances of the pH limitation. The exceedances range in value from 8.60 SU to 11.09 SU. In Order No. 5-01-182 the Discharger was given a time schedule to assure compliance with discharge specifications for pH. The Discharger was required to comply with the discharge specifications for pH by June 1, 2004. Since May 2004, the Discharger has been in compliance with the discharge specifications for pH.

### 4. Receiving Water Limitations

Data submitted to the Regional Water Board indicate that the receiving water limitations were exceeded as described below.

The receiving water limitations prohibit an increase in the ambient temperature of the receiving water by 5°F. From July 2001 through December 2005, this receiving water limitation was exceeded once. Particularly on November 27, 2001 the Discharger reported an increase of 8°F; the temperature at the upstream monitoring location (R1) was 47°F, and the temperature at the downstream monitoring location (R2) was 55°F.

The receiving water limitations prohibit a change in ambient pH by more than 0.5 SU. According to the data reported for the period July 2001 through December 2005, a change in pH by greater than 0.5 SU occurred on 50 occasions. Although the majority of the excursions occurred from the year 2001 to 2003, the most recent excursion above the receiving water limitation occurred on 28 June, 2005; the pH at

the upstream monitoring location (R1) was 6.65 SU, and the pH measured at the downstream monitoring location (R2) was 7.84 SU.

The receiving water limitations also require that the discharge not cause the fecal coliform concentration in any 30-day period to exceed a geometric mean of 200 MPN/100ml or cause more than 10 percent of total samples to exceed 400 MPN/100ml. From May 2002 through July 2005 the Discharger reported nine exceedances of the 30-day geometric mean at the R2 (downstream) monitoring location. In a letter dated July 28, 2005 the Discharger reported that six of the exceedances occurred when the R1 fecal coliform level also exceeded 200 MPN/100 ml. There were three instances in which there was no flow at R1. In seven instances the combined effluent total coliform results were less than 200 MPN/100 ml. In eight of the nine exceedances the Facility discharge did not cause the elevated fecal coliform level in the downstream receiving water. In the one remaining instance the fecal coliform was likely present in the Folsom South Canal and was passed through to the receiving water, as the Discharger reported to the Regional Water Board.

## **E. Planned Changes**

The following planned changes were described in the permit renewal application.

1. The Reactor Cavity is filled with approximately 450,000 gallons of water in support of the Reactor Internals cutting project. The water contains residual boron (1,400 ug/L). The water will be processed through the radioactive water processing system once the Reactor Internals cutting project is completed. The Discharger completed this project in 2006. No other wastewater containing boron is expected after this project.
2. The Reactor Vessel cutting project will commence after the Reactor Internals cutting is complete. The current plan for cutting the Reactor Vessel is to use a high-pressure water jet with abrasive media. The water will be processed through radioactive water processing systems. The Reactor Vessel cutting project is expected to be complete by March 2007.
3. The Discharger intends to cease discharges of radioactive water prior to 2008. Following the completion of the Reactor Vessel cutting the Discharger expects to cease generating large quantities of radioactive water. This will allow the Discharger to decommission the radioactive water processing systems, including the retention basins, sumps, and associated piping. The current plan is to install temporary tanks to replace the retention basins. The temporary tanks will be removed from service when discharge of radioactive water ceases.
4. The planned reduction in personnel following radioactive decommissioning in 2008 will impact the operation of the domestic sewage treatment system. The Discharger may cease operating the current sewage treatment system, and install a system that will not require discharges to surface waters.

### III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in this Order are based on the applicable plans, policies, and regulations identified in section II of the Limitations and Discharge Requirements (Findings). This section provides supplemental information, where appropriate, for the plans, policies, and regulations relevant to the discharge.

#### A. Legal Authority

See Limitations and Discharge Requirements - [Findings](#), Section II.C.

#### B. California Environmental Quality Act (CEQA)

See Limitations and Discharge Requirements - Findings, Section II.E.

#### C. State and Federal Regulations, Policies, and Plans

- 1. Water Quality Control Plans.** The Regional Water Board adopted a *Water Quality Control Plan, Fourth Edition (Revised September 2004)*, for the Sacramento and San Joaquin River Basins (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. In addition, State Water Board Resolution No. 88-63 requires that, with certain exceptions, the Regional Water Board assign the municipal and domestic supply use to water bodies that do not have beneficial uses listed in the Basin Plan. The beneficial uses of the Cosumnes River downstream of the discharge are municipal and domestic supply, agricultural irrigation, agricultural stock watering, water contact recreation, other non-contact water recreation, warm freshwater aquatic habitat, cold freshwater aquatic habitat, warm fish migration habitat, cold fish migration habitat, warm spawning habitat, and wildlife habitat.

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 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 November 28, 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.

- 2. Antidegradation Policy.** 40 CFR §131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. The permitted discharge must be consistent with the antidegradation provision of 40 CFR §131.12 and State Water Board Resolution No. 68-16. Section IV.D.4 of this Fact Sheet provides more details regarding how this Order complies with the State antidegradation policy.
- 3. Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at 40, CFR §122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed. Section IV.D.3 of this Fact Sheet provides more details regarding how this Order complies with anti-backsliding requirements.
- 4. Stormwater Requirements.** USEPA promulgated federal regulations for stormwater on 16 November 1990 in 40 CFR Parts 122, 123, and 124. The NPDES Industrial Storm Water Program regulates stormwater discharges from certain categories of industrial facilities. As described previously in Section II.A.4 of this Fact Sheet, the State Water Board had decided that the stormwater discharges from the Facility are not subject to the Federal Regulations.
- 5. Endangered Species Act.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

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

1. Under Section 303(d) of the 1972 Clean Water Act, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On 25 July, 2003 USEPA gave final approval to California's 2002 Section 303(d) List of

Water Quality Limited Segments. The Basin Plan references this list of Water Quality Limited Segments (WQLSs), which are defined as “...*those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources (40 CFR Part 130, et seq.)*.” The Basin Plan also states, “*Additional treatment beyond minimum federal standards will be imposed on dischargers to [WQLSs]. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment.*” The unnamed tributary to Clay Creek, Clay Creek, Hadselville Creek, Laguna Creek, and the Cosumnes River are not listed as a WQLS and are not listed in the 303(d) list of impaired water bodies.

#### **E. Other Plans, Policies and Regulations**

1. The discharge authorized herein and the treatment and storage facilities associated with the discharge of treated municipal wastewater, except for discharges of residual sludge and solid waste, are exempt from the requirements of Title 27, California Code of Regulations (CCR), section 20005 *et seq.* (hereafter Title 27). The exemption, pursuant to Title 27 CCR section 20090(a), is based on the following:
  - a. The waste consists primarily of domestic sewage and treated effluent;
  - b. The waste discharge requirements are consistent with water quality objectives; and
  - c. The treatment and storage facilities described herein are associated with a municipal wastewater treatment plant.
2. The State Water Board adopted the *Water Quality Control Policy for the Enclosed Bays and Estuaries of California*. The requirements within this Order are consistent with the Policy.

#### **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 §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 (MCLs) of CCR Title 22. The Basin Plan further states that, to protect all beneficial uses, the Regional Water Board may apply limits more stringent than MCLs.

## **A. Discharge Prohibitions**

1. As stated in section I.G of Attachment D, Standard Provisions, this Order prohibits bypass from any portion of the treatment facility. Federal regulations, 40 CFR

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

## **B. Technology-Based Effluent Limitations**

### **1. Scope and Authority**

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

- Best practicable treatment control technology (BPT) represents the average of the best performance by plants within an industrial category or subcategory. BPT standards apply to toxic, conventional, and non-conventional pollutants.
- Best available technology economically achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. BAT standards apply to toxic and non-conventional pollutants.
- Best conventional pollutant control technology (BCT) represents the control from existing industrial point sources of conventional pollutants including BOD, TSS, fecal coliform, pH, and oil and grease. The BCT standard is established after considering the “cost reasonableness” of the relationship between the cost of attaining a reduction in effluent discharge and the benefits that would result, and also the cost effectiveness of additional industrial treatment beyond BPT.
- New source performance standards (NSPS) represent the best available demonstrated control technology standards. The intent of NSPS guidelines is to set limitations that represent state-of-the-art treatment technology for new sources.

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

## 2. Applicable Technology-Based Effluent Limitations

The CWA requires that municipal wastewater be treated to “secondary” quality, and federal regulations at 40 CFR Part 133 establish the technology-based level of effluent quality achievable through secondary treatment. The secondary treatment standards are provided in the table below.

**Table F-7. Summary of Technology-Based Effluent Limitations for Secondary Treatment Facilities Established by USEPA at 40 CFR §133.102**

Constituent	Monthly Average	Weekly Average	Percent Removal (%)
BOD <sub>5</sub>	30 mg/L	45 mg/L	85
TSS	30 mg/L	45 mg/L	85
pH	6.0 to 9.0 standard units		

The secondary treatment standards are applicable to publicly owned treatment works (POTWs). The domestic wastewater treatment plant is not considered a POTW because the Facility is privately owned. However, since the domestic wastewater treatment plant is operated like a POTW and with the same purpose as a POTW, based on BPJ, secondary treatment standards are applied to the domestic wastewater treatment system operated by the Discharger. These secondary treatment standards serve as the technology-based effluent limitations to ensure that domestic wastewater is properly treated. Except for the pH effluent limitations, Order No. 5-01-182 contained these technology-based effluent limitations for the discharge from the domestic wastewater treatment plant. These technology-based effluent limitations were based on BPJ in accordance with 40 CFR §125.3. Because the treated domestic wastewater is combined with other wastewaters before it is discharged to the receiving water, the pH technology-based effluent limitation will not be applied to the domestic wastewater. As described in Section IV.C.3.m. of this fact sheet, pH will be limited at the combined effluent based on requirements contained in the Basin Plan.

In addition, Order No. 5-01-182 included a daily maximum effluent limitation of 60 mg/L for BOD and TSS, and a daily maximum effluent limitation of 0.1 ml/L for settleable solids. Section 402(o) of the CWA and 40 CFR §122.44(l) require that effluent limitations or conditions in reissued Orders be at least as stringent as those in the existing Orders. Therefore the daily maximum effluent limitations for BOD, TSS, and settleable solids will also be carried over to the new permit. Order No. 5-01-182 also included mass-based effluent limitations for BOD and TSS based on the design treatment capacity of the domestic wastewater treatment system (0.06 mgd). These same mass-based effluent limitations will be carried forward to the new permit.

The technology-based effluent limitations established for the discharge from the domestic wastewater treatment system are summarized in the table below.

**Table F-8. Summary of Technology-based Effluent Limitations (Domestic Wastewater Treatment System)**

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	30	45	60		
	lbs/day	15	22	30		
Total Suspended Solids (TSS)	mg/L	30	45	60		
	lbs/day	15	22	30		
Settleable Solids	ml/L			0.1		

For the combined effluent discharge, Order No. 5-01-182 included technology-based effluent limitations based on BPJ in accordance with 40 CFR §125.3 for TSS. In particular, the technology-based effluent limitations for the combined discharge effluent for TSS were 30 mg/L (monthly average), 45 mg/L (weekly average) and 60 mg/L (daily maximum). Section 402(o) of the CWA and 40 CFR §122.44(l) require that effluent limitations or conditions in reissued Orders be at least as stringent as those in the existing Orders. Therefore the technology-based effluent limitations for TSS will be carried over to the new permit.

The technology-based effluent limitations established for the combined discharge effluent are summarized in the table below.

**Table F-9. Summary of Technology-based Effluent Limitations (Combined Discharge Effluent)**

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
TSS	mg/L	30	45	60		

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

**1. Scope and Authority**

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

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

- a. **Receiving Water**—The receiving stream is an unnamed tributary to Clay Creek, which is a tributary to Clay Creek, Hadselville Creek, Laguna Creek and the Cosumnes River. The beneficial uses of the Cosumnes River are described above in Section III.C.1 of this Fact Sheet.
- 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.*”  
[emphasis added]

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

Effluent limitations for the discharge must be set to protect the beneficial uses of the receiving water for all discharge conditions. In the absence of the option of including condition-dependent, “floating” effluent limitations that are reflective of actual conditions at the time of discharge, effluent limitations must be set using a worst-case condition in order to protect beneficial uses for all discharge conditions. For purposes of establishing water quality-based effluent limitations, a reported hardness value of 27 mg/L as CaCO<sub>3</sub> was used.

- c. **Assimilative Capacity/Mixing Zone**—Based on the findings in the existing Order, available information and the Discharger’s permit renewal application, the unnamed tributary to Clay Creek, absent the discharge, is an ephemeral stream. The ephemeral nature of the unnamed tributary to Clay 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 Clay Creek help support the cold-water aquatic life. Both conditions may exist within a short time span, where the tributary 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.

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 applied end-of-pipe with no allowance for dilution within the receiving water.

### 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 ammonia, copper, iron, manganese, radionuclides, total residual chlorine, total dissolved solids, and tritium. 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.<sup>1</sup> The SIP states in the introduction “*The goal of this Policy is to establish a standardized approach for permitting discharges of toxic pollutants to non-ocean surface waters in a manner that promotes statewide consistency.*” Therefore, in this Order the RPA procedures from the SIP were used to evaluate reasonable potential for both CTR and non-CTR constituents.

- d. Effluent limitations for water quality-based effluent limitations were calculated in accordance with section 1.4 of the SIP and the TSD. Attachment F, Section IV.C.4 describes the methodology used for calculating effluent limitations.
- e. **Ammonia.** Untreated domestic wastewater contains ammonia. Nitrification is a biological process that converts ammonia to nitrite and nitrite to nitrate. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. The Discharger does not currently use nitrification to remove ammonia from the waste stream. Inadequate or incomplete nitrification may result in the discharge of ammonia to the receiving stream. Ammonia is known to cause toxicity to aquatic organisms in surface waters. Discharges of ammonia would violate the Basin Plan narrative toxicity objective. Applying 40 CFR §122.44(d)(1)(vi)(B), it is appropriate to use USEPA’s Ambient National Water Quality Criteria for the Protection of Freshwater Aquatic Life for ammonia, which was developed to be protective of aquatic organisms.

USEPA’s *Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life*, for total ammonia, recommends acute (1-hour average; criteria maximum concentration or CMC) standards based on pH and chronic (30-day average, criteria continuous concentration or CCC) standards based on pH and temperature. It also recommends a maximum 4-day average concentration of 2.5 times the criteria continuous concentration. USEPA found that as pH increased, both the acute and chronic toxicity of ammonia increased. Salmonids were more sensitive to acute toxicity effects than other species. However, while the acute toxicity of ammonia was not influenced by temperature, it was found that invertebrates and young fish experienced increasing chronic toxicity effects with increasing temperature. Because the unnamed tributary to Clay Creek has a beneficial use of cold freshwater habitat, the recommended criteria for waters where salmonids and early life stages are present were used. USEPA’s recommended criteria are show below.

$$CCC_{30\text{-day}} = \left( \frac{0.0577}{1 + 10^{7.688 - pH}} + \frac{2.487}{1 + 10^{pH - 7.688}} \right) \times \text{MIN} \left( 2.85, 1.45 \cdot 10^{0.028(25 - T)} \right), \text{ and}$$

$$CMC = \left( \frac{0.275}{1 + 10^{7.204 - pH}} + \frac{39.0}{1 + 10^{pH - 7.204}} \right),$$

where *T* is temperature in degrees Celsius.

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

The maximum permitted effluent pH is 8.5 standard units (SU). The Basin Plan objective for pH in the receiving stream is the range of 6.5 to 8.5 SU. The maximum observed 30-day average effluent temperature was 81.9 °F (27.7 °C), for the 30-day periods ending August 31, 2005. The maximum observed 30-day R-1 temperature was 79.7 °F (26.5 °C), for the 30-day periods ending July 31, 2005. Using a pH value of 8.5 and the worst-case temperature of 81.9 °F (27.7 °C) on a 30-day basis, the resulting criteria are 2.14 mg/L (as N) for the CMC and 0.466 mg/L (as N) for the CCC.

Based on 77 samples from January 2003 through December 2005, the MEC for ammonia was 1.4 mg/L from an effluent sample collected July 15, 2003, which exceeds the water quality criteria. However, this was the only detection for the three-year period and the domestic wastewater system, which is the only likely source of ammonia, was not discharging to surface water at the time. Based on this information the validity of this sample is questionable and has not been considered in the reasonable potential analysis. Since all effluent sample results were below the method detection limit of 0.5 mg/L ammonia as N, the discharge does not have a reasonable potential to cause or contribute to an in-stream excursion above the water quality standard for ammonia. Effluent limitations for ammonia are not included in this Order, however, this Order continues the requirement of twice monthly ammonia sampling to assure the treatment process adequately nitrifies the waste stream to protect the aquatic habitat beneficial uses.

- f. **Boron.** Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985), recommends that the boron concentration in waters used for agricultural irrigation not exceed 700 µg/L. The California Department of Health Services has established a State Action Level for boron at 1,000 µg/L, and USEPA established a drinking water Suggested No Adverse Response Level (SNARL) of 600 µg/L.

Order No. 5-01-182 contains an annual average effluent limitation for boron based on the USEPA drinking water SNARL of 600 µg/L. Inclusion of a permit limitation for boron was based on the fact that boric acid was added to the nuclear spent fuel storage pool to adsorb free neutrons. According to the latest report of waste discharge and permit renewal application, the Facility has requested that the permit limitation for boron be removed because boric acid is no longer used at the facility and the Discharger has processed the remaining water with residual boron in 2006. Since the Discharger no longer uses boric acid at the facility and effluent monitoring indicates that boron in the discharge does not exceed water quality objectives, there is no reasonable potential to cause or contribute to an in-stream excursion above the applicable water quality criteria for boron. Therefore, effluent limitations are not necessary in this Order.

- g. **Chlorine Residual.** The Discharger uses chlorine (sodium hypochlorite) for disinfection of the effluent from the domestic wastewater treatment plant, as well

as for algae control in the retention basins. Chlorine is known to be extremely toxic to aquatic organisms. Due to the existing chlorine use and the potential for chlorine to be discharged, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative toxicity objective.

Effluent limitations for residual chlorine were included in the existing permit for the combined discharge. The existing permit contained a MDEL of 0.02 mg/L and a AMEL of 0.01 mg/L, which were based on USEPA developed National Recommended Ambient Water Quality Criteria for protection of freshwater aquatic life for chlorine. The recommended water quality criteria for total residual chlorine is 11 µg/L (4-day average, CCC) and 19 µg/L (1-hour average, CMC). This Order maintains the existing effluent limitations for total residual chlorine.

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.

- h. **Copper.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for copper. The criteria for copper are presented in dissolved concentrations. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. The USEPA default conversion factors for copper in freshwater are 0.96 for both the acute and the chronic criteria. Using the worst-case measured hardness from the effluent and receiving water (27 mg/L as CaCO<sub>3</sub>) and the USEPA recommended dissolved-to-total translator, the applicable chronic criterion (maximum 4-day average concentration) is 3.05 µg/L and the applicable acute criterion (maximum 1-hour average concentration) is 4.08 µg/L, as total recoverable.

The MEC for total copper was 10 µg/L, based on 15 samples collected between June 5, 2002 and June 1, 2005. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for copper. No dilution is allowed due to periods of no flow in the receiving water. An AMEL and MDEL for total copper of 1.4 µg/L and 4.1 µg/L, respectively, are included in this Order based on CTR criteria for the protection of freshwater aquatic life (see Table F-11 of this Fact Sheet for the WQBEL calculations for copper).

Surface water discharges from the domestic wastewater plant at the Rancho Seco facility only occur during the winter and spring when the overland flow units are saturated due to precipitation. The MEC for copper occurred in June, so no surface water discharges were occurring during the sampling. Therefore, any copper in the discharge likely originated in the intake water drawn from the Folsom South Canal. The Discharger has requested water intake credits to account for the pollutant in the Folsom South Canal. According to Section 1.4.4 of the SIP, the Regional Water Board can allow for Intake Water Credits on a pollutant-by-pollutant and discharge-by-discharge basis when establishing water

quality-based effluent limitations. The SIP states the following conditions must be met:

- “(1) The observed maximum ambient background concentration, as determined in section 1.4.3.1, and the intake water concentration of the pollutant exceed the most stringent applicable criterion/objective for that pollutant;*
- (2) The intake water credits provided are consistent with any TMDL applicable to the discharge that has been approved by the RWQCB, SWRCB, and U.S. EPA;*
- (3) The intake water is from the same water body as the receiving water body.*
- (4) The facility does not alter the intake water pollutant chemically or physically in a manner that adversely affects water quality and beneficial uses; and*
- (5) The timing and location of the discharge does not cause adverse effects on water quality and beneficial uses that would not occur if the intake water pollutant had been left in the receiving water body.”*

The intake water is drawn from the Folsom South Canal and the surface water discharge is to another waterbody, which is not in accordance with requirement (3), above. Therefore, water intake credits cannot be allowed. Without water intake credits, the Discharger is responsible for the pollutants in the intake water.

Based on the sample results in the effluent, it appears as if the Discharger will be unable to comply with these limitations. Section 2.1 of the SIP allows for compliance schedules within the permit for existing discharges where it is demonstrated that it is infeasible for a Discharger to achieve immediate compliance with a CTR criterion. Using the statistical methods for calculating interim effluent limitations described in Attachment F, Section IV.E.1, an interim performance-based MDEL of 10.2 µg/L was calculated.

Section 2.1 of the SIP provides that: “Based on an existing discharger’s request and demonstration that it is infeasible for the discharger to achieve immediate compliance with a CTR criterion, or with an effluent limitation based on a CTR criterion, the RWQCB may establish a compliance schedule in an NPDES permit.” Section 2.1, further states that compliance schedules may be included in NPDES permits provided that the following justification has been submitted: ...“(a) documentation that diligent efforts have been made to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream; (b) documentation of source control measures and/or pollution minimization measures efforts currently underway or completed; (c) a proposal for additional or future source control measures, pollutant minimization actions, or waste treatment (i.e., facility upgrades); and (d) a demonstration that the proposed

*schedule is as short as practicable.*” The Discharger has not provided this information. This Order requires the Discharger to submit this information within 90 days of the effective date of this Order. As long as the Discharger submits an acceptable infeasibility analysis, the final water quality-based effluent limitations for copper become effective on May 18, 2010.

This Order requires the Discharger to submit a corrective action plan and implementation schedule to assure compliance with the final copper effluent limitations. The interim effluent limitations are in effect through May 17, 2010. As part of the compliance schedule for copper, the Discharger shall develop and implement a pollution prevention program in compliance with CWC section 13263.3(d)(3) and submit an engineering treatment feasibility study.

i. **Electrical Conductivity. (see Subsection IV.C.3.n. Salinity, below)**

- j. **Nitrite and Nitrate.** Untreated domestic wastewater contains ammonia. Nitrification is a biological process that converts ammonia to nitrite and nitrite to nitrate. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. Nitrate and nitrite are known to cause adverse health effects in humans. The California DHS has adopted Primary MCLs at Title 22 of the California Code of Regulations (CCR), Table 64431-A, for the protection of human health for nitrite and nitrate that are equal to 1 mg/L and 10 mg/L (measured as nitrogen), respectively. Title 22 CCR, Table 64431-A, also includes a primary MCL of 10,000 µg/L for the sum of nitrate and nitrite, measured as nitrogen.

USEPA has developed a primary MCL and an MCL goal of 1,000 µg/L for nitrite (as nitrogen). For nitrate, USEPA has developed Drinking Water Standards (10,000 µg/L as Primary MCL) and Ambient Water Quality Criteria for protection of human health (10,000 µg/L for non-cancer health effects). Recent toxicity studies have indicated a possibility that nitrate is toxic to aquatic organisms.

Order No.5-01-182 required the Discharger to conduct a study of total nitrogen (including ammonia, nitrate and nitrite) to determine if additional effluent limitations were necessary to protect water quality for ammonia and total nitrogen. In a letter dated January 22, 2003 the results of the study were provided to the Regional Water Board. For the period from June 5, 2002 through October 2, 2002, the Discharger reported all samples for nitrate and nitrite in the combined effluent as “Not Detected.” The results of the study indicate that nitrite and nitrate do not have reasonable potential to exceed water quality criteria. Thus no effluent limitations for either nitrite or nitrate were established in the Order.

- k. **Pathogens.** Municipal and domestic supply, agricultural irrigation, and body contact water recreation are beneficial uses of the unnamed tributary to Clay Creek. Coliform limits are imposed to protect the beneficial uses of the receiving water, including public health through contact recreation and drinking water

pathways. In a letter to the Regional Water Board dated 8 April 1999, the California Department of Health Services indicated that DHS would consider wastewater discharged to water bodies with identified beneficial uses of irrigation or contact recreation and where the wastewater receives dilution of more than 20:1 to be adequately disinfected if the effluent coliform concentration does not exceed 23 MPN/100 mL as a 7-day median and if the effluent total coliform concentration does not exceed 240 MPN/100 mL more than once in any 30-day period.

Order No.5-01-182 required that the discharge from the domestic waste treatment plant be provided a minimum dilution ratio of 20:1 prior to the off-site discharge to the unnamed tributary to Clay Creek. The source of the dilution water is the Folsom South Canal, which is also used, as required by the Nuclear Regulatory Commission, to dilute treated radioactive wastewater discharges from the Facility. Order No. 5-01-182 also included the 23 MPN/100 mL as a 30-day median and 240 MPN/100 mL more than once in any 30-day standards as effluent limitations. It is expected that as part of decommissioning efforts, and during the term of new permit, the Discharger will cease to discharge radioactive waste. According to the Facility, when this occurs, the Discharger is still responsible for extraction of water from the Folsom South Canal, although it would no longer be used to dilute the treated radioactive wastewater. The new permit will continue to require a minimum of 20:1 dilution of the treated domestic wastewater prior to discharge to the unnamed tributary to Clay Creek as well as include effluent limitations to ensure that total coliform concentrations do not exceed 23 MPN/100 mL as a 7-day median and 240 MPN/100 mL more than once in any 30-day period. A 7-day median is required pursuant to recommendations by DHS, in lieu of the 30-day median required in the previous Order.

- I. **pH.** The Basin Plan includes a water quality objective for surface waters (except for Goose Lake) that the “...*pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses.*” Effluent limitations for pH for the combined discharge effluent are included in this Order based on the Basin Plan objectives for pH.
- m. **Salinity.** The discharge contains total dissolved solids (TDS), chloride, sulfate, and electrical conductivity (EC). These are water quality parameters that are indicative of the salinity of the water. Their presence in water can be growth limiting to certain agricultural crops and can affect the taste of water for human consumption. There are no USEPA water quality criteria for the protection of aquatic organisms for these constituents. The Basin Plan contains a chemical constituent objective that incorporates State MCLs, contains a narrative objective, and contains numeric water quality objectives for EC, TDS, sulfate, and chloride. The table below summarizes the salinity characteristics of the combined discharge effluent.

**Table F-10. Salinity Water Quality Criteria/Objectives**

Parameter	Agricultural Water Quality Goal <sup>1</sup>	Secondary MCL <sup>3</sup>	Effluent Concentration	
			Average	Maximum
EC (µmhos/cm)	700 <sup>2</sup>	900, 1600, 2200	68	110
TDS (mg/L)	450 <sup>2</sup>	500, 1000, 1500	50	78
Sulfate (mg/L)	N/A	250, 500, 600	N/A	N/A
Chloride (mg/L)	106 <sup>2</sup>	250, 500, 600	N/A	N/A

<sup>1</sup> Agricultural water quality goals based on *Water Quality for Agriculture*, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985)

<sup>2</sup> Agricultural water quality goals listed provide no restrictions on crop type or irrigation methods for maximum crop yield. Higher concentrations may require special irrigation methods to maintain crop yields or may restrict types of crops grown.

<sup>3</sup> The secondary MCLs are stated as a recommended level, upper level, and a short-term maximum level.

N/A – Not Available

- i. **Electrical Conductivity (EC).** The secondary MCL for EC is 900 µmhos/cm as a recommended level, 1,600 µmhos/cm as an upper level, and 2,200 µmhos/cm as a short-term maximum. The agricultural water quality goal, that would apply the narrative chemical constituents objective, is 700 µmhos/cm as a long-term average based on *Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985)*. The 700 µmhos/cm agricultural water quality goal is intended to prevent reduction in crop yield (i.e., a restriction on use of water, for salt-sensitive crops, such as beans, carrots, turnips, and strawberries). These crops are either currently grown in the area or may be grown in the future. Most other crops can tolerate higher EC concentrations without harm, however, as the salinity of the irrigation water increases, more crops are potentially harmed by the EC, or extra measures must be taken by the farmer to minimize or eliminate any harmful impacts.

The average EC effluent concentration was 68 µmhos/cm and ranged from 48 µmhos/cm to 110 µmhos/cm for 162 samples collected by the Discharger from January 7, 2003 through December 6, 2005. These concentrations do not exceed the applicable water quality objectives. The background receiving water EC averaged 83 µmhos/cm in 61 sampling events collected by the Discharger from January 7, 2003 through December 6, 2005.

- ii. **Total Dissolved Solids (TDS).** The secondary MCL for TDS is 500 mg/L as a recommended level, 1,000 mg/L as an upper level, and 1,500 mg/L as a short-term maximum. The recommended agricultural water quality goal for TDS, that would apply the narrative chemical constituent objective, is 450 mg/L as a long-term average based on *Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985)*. *Water Quality for Agriculture* evaluates the impacts of salinity levels on crop tolerance and yield reduction, and establishes water quality goals that are

protective of the agricultural uses. The 450 mg/L water quality goal is intended to prevent reduction in crop yield, i.e., a restriction on use of water, for salt-sensitive crops. Only the most salt sensitive crops require irrigation water of 450 mg/L or less to prevent loss of yield. Most other crops can tolerate higher TDS concentrations without harm, however, as the salinity of the irrigation water increases, more crops are potentially harmed by the TDS, or extra measures must be taken by the farmer to minimize or eliminate any harmful impacts.

The average TDS combined discharge effluent concentration was 50 mg/L and ranged from 21 mg/L to 78 mg/L for 39 samples collected by the Discharger from January 7, 2003 through December 6, 2005. These concentrations do not exceed the applicable water quality objectives.

Order No. 5-01-182 also required monitoring of the domestic wastewater treatment plant effluent for TDS. The average TDS domestic effluent concentration was 466 mg/L and ranged from 305 mg/L to 658 mg/L for 24 samples collected by the Discharger from January 8, 2003 through December 19, 2005. Although these concentrations are high in relation to the water quality objectives, as discussed in subsection IV.C.3.I. above for pathogens, the domestic effluent receives a minimum of 20:1 dilution. In addition, reported TDS data for the Folsom South Canal indicates an average TDS concentration of 49 mg/L. With this level of dilution and the relatively low concentration of TDS in the dilution water, the reported concentrations in the domestic effluent do not indicate in and of themselves reasonable potential to exceed applicable water quality standards.

- iii. **Salinity Effluent Limitations.** Based on the relatively low reported salinity in the combined effluent, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion of water quality objectives for salinity. The salinity is sufficiently low so as not to present a water quality threat to downstream beneficial uses or an anti-degradation concern. The permit requires salinity monitoring of the discharge to verify that salinity is not increasing and requires the development and implementation of pollution prevention plan to reduce the salinity of the discharge. The effluent limitations for TDS required in the previous Order are therefore unnecessary and have been removed.
- n. **Toxicity.** See Section IV.C.5 of this Fact Sheet regarding whole effluent toxicity.
- o. **Radionuclides.** The unnamed tributary to Clay Creek and Cosumnes River is designated as having a municipal beneficial use. Until such time that radioactive water ceases to be released, the discharge of nuclear wastes presents a reasonable potential that if not properly treated, could degrade the beneficial use of the receiving stream. This Order carries over the effluent limitations from Order No. 5-01-182. The Discharger is licensed (License No. DPR-54) by the Nuclear Regulatory Commission (NRC) to discharge radioactive material in



accordance with federal regulations at 10 CFR Parts 20 and 50. Effluent limitations by the NRC for nuclear materials are based on 10 CFR Part 50, Appendix I. Title 22, Division 4 Environmental Health, Section 64443 of the CCR contains primary MCLs for man-made and natural radioactivity. The applicable NRC liquid effluent limitations are as stringent, or more stringent than the required Title 22 MCLs, but do not contain effluent limitations for tritium, gross alpha particle activity and gross beta particle activity. Because the NRC liquid effluent limitations do not contain specific constituent limitations for tritium, gross alpha particle activity and gross beta particle activity, CCR Title 22 criteria for radioactivity have been applied to this permit to protect the drinking water beneficial use. The Discharger will also be considered to be in compliance with the limit for gross beta activity if the average concentration of beta particle activity and photon radioactivity from man-made radionuclides does not produce an annual dose equivalent to the total body or any internal organs greater than 4 millirems per year. The Order also requires the Discharger to submit an annual report assessing compliance with the NRC liquid effluent limitations and allows the Regional Water Board to reopen the permit and add additional effluent limitations if necessary to protect the beneficial uses of the receiving stream.

#### 4. WQBEL Calculations

- a. Effluent limitations for water quality-based effluent limitations were calculated in accordance with section 1.4 of the SIP and the TSD. The following paragraphs describe the methodology used for calculating effluent limitations.
- b. **Effluent Limitation Calculations.** In calculating maximum effluent limitations, the effluent concentration allowances (ECAs) were set equal to the criteria/standards/objectives.

$$ECA_{acute} = CMC \qquad ECA_{chronic} = CCC$$

For the human health, agriculture, or other long-term criterion/objective, a dilution credit can be applied. The ECA is calculated as follows:

$$ECA_{HH} = HH + D(HH - B)$$

where:

$ECA_{acute}$  = effluent concentration allowance for acute (1-hour average) toxicity criterion

$ECA_{chronic}$  = effluent concentration allowance for chronic (4-day average) toxicity criterion

$ECA_{HH}$  = effluent concentration allowance for human health, agriculture, or other long-term criterion/objective

CMC = criteria maximum concentration (1-hour average)

- CCC = criteria continuous concentration (4-day average, unless otherwise noted)
- HH = human health, agriculture, or other long-term criterion/objective
- D = dilution credit
- B = maximum receiving water concentration

Acute and chronic toxicity ECAs were then converted to equivalent long-term averages (LTAs) 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).

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

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

- where:
- mult<sub>AMEL</sub> = statistical multiplier converting minimum LTA to AMEL
  - mult<sub>MDEL</sub> = statistical multiplier converting minimum LTA to MDEL
  - M<sub>A</sub> = statistical multiplier converting CMC to LTA
  - M<sub>C</sub> = statistical multiplier converting CCC to LTA

**Table F-11. WQBEL Calculations for Copper**

	Acute	Chronic
Criteria, dissolved (µg/L) <sup>(1)</sup>	3.9	2.9
Dilution Credit	No Dilution	No Dilution
Translator <sup>(2)</sup>	0.96	0.96
ECA, total recoverable <sup>(3)</sup>	4.1	3.0
ECA Multiplier <sup>(4)</sup>	0.14	0.25
LTA	0.55	0.75
AMEL Multiplier (95 <sup>th</sup> %) <sup>(5)(6)</sup>	2.5	<sup>(8)</sup>
<b>AMEL (µg/L)</b>	<b>1.4</b>	<b><sup>(8)</sup></b>
MDEL Multiplier (99 <sup>th</sup> %) <sup>(7)</sup>	7.4	<sup>(8)</sup>
<b>MDEL (µg/L)</b>	<b>4.1</b>	<b><sup>(8)</sup></b>

<sup>1</sup>CTR aquatic life criteria, based on a hardness of 27 mg/L as CaCO<sub>3</sub>.

<sup>2</sup>EPA Translator used as default.

<sup>3</sup>ECA calculated per section 1.4.B, Step 2 of SIP. This allows for the consideration of dilution.

<sup>4</sup>Acute and Chronic ECA Multiplier calculated at 99th percentile per section 1.4.B, Step 3 of SIP or per sections 5.4.1 and 5.5.4 of the TSD.

<sup>5</sup>Assumes sampling frequency n=>4.

<sup>6</sup>The probability basis for AMEL is 95th percentile per section 1.4.B, Step 5 of SIP or section 5.5.4 of the TSD.

<sup>7</sup>The probability basis for MDEL is 99th percentile per section 1.4.B, Step 5 of SIP or section 5.5.4 of the TSD.

<sup>8</sup>Limitations based on acute LTA (acute LTA < chronic LTA)

A summary of the water quality-based effluent limitations applicable to the combined discharge effluent from the facility (Discharge Point No. 001) is provided in the table below.

**Table F-12. Summary of Water Quality-Based Effluent Limitations (Combined Discharge Effluent; Discharge Point No. 001)**

Parameter	Units	Effluent Limitations				
		Average Monthly	Annual Average	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Chlorine, Total Residual	mg/L	0.01	--	0.02	--	--
Copper, Total Recoverable	µg/L	1.4	--	4.1	--	--
pH	SU	--	--	--	6.5	8.5
Tritium	pCi/L	--	20,000 <sup>1</sup>	--	--	--
Gross Beta Particle Activity <sup>2</sup>	pCi/L	50	--	--	--	--

<sup>1</sup> Based on Annual Average - The annual average shall be based on the average of at least four consecutive quarterly samples when discharging nuclear waste.

<sup>2</sup> The Discharger shall be deemed to be in compliance with the limit for gross beta activity if the average concentration of beta particle activity and photon radioactivity from man-made radionuclides does not produce an annual dose equivalent to the total body or any internal organs greater than 4 millirems per year.

A summary of the water quality-based effluent limitations applicable to the domestic effluent from the facility (Discharge Point No. 001A) is provided in the table below.

**Table F-13. Summary of Water Quality-Based Effluent Limitations (Domestic Effluent; Discharge Point No. 001A)**

Parameter	Units	Effluent Limitations				
		Average Monthly	Annual Average	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Total Coliform <sup>1</sup>	MPN/100 mL					

<sup>1</sup> The discharge shall not exceed 23 most probable number (MPN) per 100 mL, as a 7-day median; 240 MPN/100 mL more than once in any 30 day period.

### 5. Whole Effluent Toxicity (WET)

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

- a. **Acute Aquatic Toxicity.** The Basin Plan states that “...*effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate...*”. Effluent limitations for acute toxicity have been included in this Order.
- b. **Chronic 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). Based on quarterly whole effluent chronic toxicity testing performed by the Discharger from May 2002 through May 2005, there were several instances where survival and growth of test species were significantly reduced from laboratory controls. Therefore, the discharge has reasonable potential to cause or contribute to an to an in-stream excursion above of the Basin Plan’s narrative toxicity objective.

Numeric chronic WET effluent limitations have not been included in this order. The SIP contains implementation gaps regarding the appropriate form and implementation of chronic toxicity limits. This has resulted in the petitioning of a NPDES permit in the Los Angeles Region<sup>2</sup> that contained numeric chronic toxicity effluent limitations. To address the petition, the State Water Board adopted WQO 2003-012 directing its staff to revise the toxicity control provisions in the SIP. The State Water Board states the following in WQO 2003-012, “*In reviewing this petition and receiving comments from numerous interested persons on the propriety of including numeric effluent limitations for chronic toxicity in NPDES permits for publicly-owned treatment works that discharge to*

<sup>2</sup> In the Matter of the Review of Own Motion of Waste Discharge Requirements Order Nos. R4-2002-0121 [NPDES No. CA0054011] and R4-2002-0123 [NPDES NO. CA0055119] and Time Schedule Order Nos. R4-2002-0122 and R4-2002-0124 for Los Coyotes and Long Beach Wastewater Reclamation Plants Issued by the California Regional Water Quality Control Board, Los Angeles Region SWRCB/OCC FILES A-1496 AND 1496(a)

*inland waters, we have determined that this issue should be considered in a regulatory setting, in order to allow for full public discussion and deliberation. We intend to modify the SIP to specifically address the issue. We anticipate that review will occur within the next year. We therefore decline to make a determination here regarding the propriety of the final numeric effluent limitations for chronic toxicity contained in these permits.”* The process to revise the SIP is currently underway. Proposed changes include clarifying the appropriate form of effluent toxicity limits in NPDES permits and general expansion and standardization of toxicity control implementation related to the NPDES permitting process. Since the toxicity control provisions in the SIP are under revision it is infeasible to develop numeric effluent limitations for chronic toxicity. Therefore, this Order requires that the Discharger meet best management practices for compliance with the Basin Plan’s narrative toxicity objective, as allowed under 40 CFR §122.44(k).

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

## **D. Final Effluent Limitations**

This subsection summarizes the numeric effluent limitations established for Discharge Points No. 001 (Combined Discharge Effluent) and No. 001A (Domestic Effluent) and provides a rationale for the basis of each limitation. This section also describes any limitations carried over from the previous Order because of anti-backsliding requirements.

### **1. Mass-based Effluent Limitations**

40 CFR §122.45(f)(1) requires effluent limitations be expressed in terms of mass, with some exceptions, and 40 CFR §122.45(f)(2) allows pollutants that are limited in terms of mass to additionally be limited in terms of other units of measurement. This Order includes effluent limitations expressed in terms of mass and concentration. In addition, pursuant to the exceptions to mass limitations provided in 40 CFR §122.45(f)(1), some effluent limitations are not expressed in terms of mass, such as pH and temperature, and when the applicable standards are expressed in terms of

concentration and mass limitations are not necessary to protect the beneficial uses of the receiving water.

## **2. Averaging Periods for Effluent Limitations**

40 CFR §122.45(d) requires maximum daily and average monthly effluent limitations for all dischargers except POTWs, unless impracticable. Order No. 5-01-182 contained effluent limitations for beta particle activity. The bases of these effluent limitations were 3-month average, based on determining compliance with drinking water standards (i.e., MCLs). In an effort to be consistent with the requirements at 40 CFR §122.45(d), and because the effluent limitations are based on human health protection, these limitations will be applied as average monthly effluent limitations in this Order.

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

Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at 40 CFR §122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed. All effluent limitations except for boron and total dissolved solids (TDS) in this Order are as stringent as those in the previous Order. The Discharger no longer uses boric acid at the facility and effluent monitoring indicates that boron in the discharge does not exceed water quality objectives. The combined effluent discharge also does not exceed the water quality objectives for TDS. Therefore, there is no reasonable potential to cause or contribute to an in-stream excursion above the applicable water quality criteria for either boron or TDS and no effluent limitations are considered necessary in this Order. This change in effluent limitations is based on new information and is in compliance with Anti-Backsliding Exceptions requirements of CFR 122.44(l)(i)(A), Sections 402(o)(2) and 303(d)(4) of the CWA. The Regional Water Board finds removing the effluent limitations for boron and TDS 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.

## **4. Satisfaction of Antidegradation Policy**

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

The permitted surface water 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. Any impact on existing water quality will be insignificant.

**Table F-14. Summary of Final Effluent Limitations for Combined Discharge**

Parameter	Units	Effluent Limitations					Basis <sup>1</sup>
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
<b>Conventional Pollutants</b>							
Total Suspended Solids	mg/L	30	45	60	--	--	EP
pH	SU	--	--	--	6.5	8.5	EP, BP
<b>Priority Pollutants</b>							
Copper (Total)	µg/L	1.4	--	4.1	--	--	CTR
<b>Non-Conventional Pollutants</b>							
Acute Toxicity <sup>2</sup>	% Survival	--	--	--	--	--	EP
Chlorine, Total Residual	mg/L	0.01	--	0.02	--	--	EP
Tritium <sup>3</sup>	pCi/L	20,000	--	--	--	--	EP
Gross Beta Particle Activity <sup>4</sup>	pCi/L	50	--	--	--	--	EP

<sup>1</sup> EP - Existing Permit; BP – Basin Plan; CTR – California Toxics Rule; AD – Antidegradation Policy (Resolution 68-16)

<sup>2</sup> 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.

<sup>3</sup> Based on Annual Average - The annual average shall be based on the average of at least four consecutive quarterly samples when discharging nuclear waste.

<sup>4</sup> The Discharger shall be deemed to be in compliance with the limit for gross beta activity of the average concentration of beta particle activity and photon radioactivity from man-made radionuclides does not produce an annual dose equivalent to the total body or any internal organs greater than 4 millirems per year.

**Table F-15. Summary of Final Effluent Limitations for Domestic Effluent**

Parameter	Units	Effluent Limitations					Basis <sup>1</sup>
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
<b>Conventional Pollutants</b>							
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	30	45	60	--	--	EP
	lbs/day <sup>4</sup>	15	22	30	--	--	
Biochemical Oxygen Demand (5-day @ 20°C), Percent Removal	%	85	--	--	--	--	EP
Total Suspended Solids	mg/L	30	45	60	--	--	EP
	lbs/day <sup>4</sup>	15	22	30	--	--	
Total Suspended Solids, Percent Removal	%	85	--	--	--	--	EP
<b>Non-Conventional Pollutants</b>							
Settleable Solids	ml/L	--	--	0.1	--	--	EP
Total Coliform <sup>2</sup>	MPN/100 mL	--	--	--	--	--	BP
Flow <sup>3</sup>	gpd	--	--	60,000	--	--	EP

<sup>1</sup> EP - Existing Permit; BP – Basin Plan; CTR – California Toxics Rule.

<sup>2</sup> The discharge shall not exceed 23 MPN/100 mL as a 7-day median or 240 MPN/100 mL more than once in any 30 day period.

<sup>3</sup> The design discharge flow shall not exceed 60,000 gpd.

<sup>4</sup> Mass limitations are based on design discharge flow of 60,000 gpd

**E. Interim Effluent Limitations**

- Copper.** The SIP, section 2.2.1, requires that if a compliance schedule is granted for a CTR or NTR constituent, the Regional Water Board shall establish interim requirements and dates for their achievement in the NPDES permit. The interim limitations must be based on current treatment plant performance or existing permit limitations, whichever is more stringent. The State Water Board has held that the SIP may be used as guidance for non-CTR constituents. Therefore, the SIP requirement for interim effluent limitations has been applied to both CTR and non-CTR constituents in this Order.

The interim limitations for copper in this Order are based on the current treatment plant performance. In developing the interim limitation, where there are 10 sampling data points or more, sampling and laboratory variability is accounted for by establishing interim limits that are based on log-normally distributed data where 99.9% of the data points will lie within 3.3 standard deviations of the mean. Therefore, the interim limitations in this Order are established as the mean plus 3.3 standard deviations of the available data.

When there are less than 10 sampling data points available, the *Technical Support*



*Document for Water Quality- Based Toxics Control* ((EPA/505/2-90-001), TSD) recommends a coefficient of variation of 0.6 be utilized as representative of wastewater effluent sampling. The TSD recognizes that a minimum of 10 data points is necessary to conduct a valid statistical analysis. The multipliers contained in Table 5-2 of the TSD are used to determine a maximum daily limitation based on a long-term average objective. In this case, the long-term average objective is to maintain, at a minimum, the current plant performance level. Therefore, when there are less than ten sampling points for a constituent, interim limitations are based on 3.11 times the maximum observed effluent concentration to obtain the daily maximum interim limitation (TSD, Table 5-2).

The Regional Water Board finds that the Discharger can undertake source control and treatment plant measures to maintain compliance with the interim limitations included in this Order. Interim limitations are established when compliance with NTR- and CTR-based effluent limitations cannot be achieved by the existing discharge. Discharge of constituents in concentrations in excess of the final effluent limitations, but in compliance with the interim effluent limitations, can significantly degrade water quality and adversely affect the beneficial uses of the receiving stream on a long-term basis. The interim limitations, however, establish an enforceable ceiling concentration until compliance with the effluent limitation can be achieved.

Table F-16 summarizes the calculations of the interim effluent limitations for copper.

**Table F-16. Interim Effluent Limitation Calculation Summary**

Parameter	MEC (µg/L)	Mean of logs	Std. Dev. of logs	# of Samples	Interim Limitation (µg/L)
Copper	10	-0.537	1.048	30	18.5

**F. Land Discharge Specifications**

1. The land discharge specifications are necessary to protect the beneficial uses of the groundwater (as described in Section V.B of this Fact Sheet).
2. The discharge specifications contained in the existing permit for the Rancho Seco Park wastewater treatment pond were applied to ensure proper operation of the pond and treatment of domestic wastewater, and to protect groundwater quality. Pond disposal limitations have been included to assure the ponds do not cause a nuisance (odors, mosquitoes production) and that the wastewater is contained within the appropriate disposal area (minimum freeboard, flood protection).

**G. Reclamation Specifications (Not Applicable)**

**V. RATIONALE FOR RECEIVING WATER LIMITATIONS**

Basin Plan water quality objectives to protect the beneficial uses of surface water and groundwater include numeric objectives and narrative objectives, including objectives for

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

## A. Surface Water

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

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

- a. **Bacteria.** The Basin Plan includes a water quality objective that “[I]n water designated for contact recreation (REC-1), the fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed a geometric mean of 200/100 ml, nor shall more than ten percent of the total number of samples taken during any 30-day period exceed 400/100 ml.” Numeric Receiving Water Limitations for bacteria are included in this Order and are based on the Basin Plan objective.
- b. **Biostimulatory Substances.** The Basin Plan includes a water quality objective that “[W]ater shall not contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.” Receiving Water Limitations for biostimulatory substances are included in this Order and are based on the Basin Plan objective.

- c. **Chemical Constituents.** The Basin Plan includes a water quality objective that “[W]aters shall not contain chemical constituents in concentrations that adversely affect beneficial uses.” Receiving Water Limitations for chemical constituents are included in this Order and are based on the Basin Plan objective.
- d. **Color.** The Basin Plan includes a water quality objective that “[W]ater shall be free of discoloration that causes nuisance or adversely affects beneficial uses.” Receiving Water Limitations for color are included in this Order and are based on the Basin Plan objective.
- e. **Dissolved Oxygen.** The unnamed tributary to Clay 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 unnamed tributary to Clay 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.

- f. **Floating Material.** The Basin Plan includes a water quality objective that “[W]ater shall not contain floating material in amounts that cause nuisance or adversely affect beneficial uses.” Receiving Water Limitations for floating material are included in this Order and are based on the Basin Plan objective.
- g. **Oil and Grease.** The Basin Plan includes a water quality objective that “[W]aters shall not contain oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.” Receiving Water Limitations for oil and grease are included in this Order and are based on the Basin Plan objective.
- h. **pH.** The Basin Plan includes water quality objective that “[T]he pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses” This Order includes receiving water limitations for both pH range and pH change.

The Basin Plan allows an appropriate averaging period for pH change in the receiving stream. Since there is no technical information available that indicates that aquatic organisms are adversely affected by shifts in pH within the 6.5 to 8.5, an averaging period is considered appropriate and a monthly averaging period

for determining compliance with the 0.5 receiving water pH limitation is included in this Order.

- i. **Radioactivity.** The Basin Plan includes a water quality objective that *“[R]adionuclides shall not be present in concentrations that are harmful to human, plant, animal or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal or aquatic life.”* The Basin Plan states further that *“[A]t a minimum, waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of radionuclides in excess of the maximum contaminant levels (MCLs) specified in Table 4 (MCL Radioactivity) of Section 64443 of Title 22 of the California Code of Regulations...”* Receiving Water Limitations for radioactivity are included in this Order and are based on the Basin Plan objective.
- j. **Sediment.** The Basin Plan includes a water quality objective that *“[T]he suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses”* Receiving Water Limitations for suspended sediments are included in this Order and are based on the Basin Plan objective.
- k. **Settleable Material.** The Basin Plan includes a water quality objective that *“[W]aters shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.”* Receiving Water Limitations for settleable material are included in this Order and are based on the Basin Plan objective.
- l. **Suspended Material.** The Basin Plan includes a water quality objective that *“[W]aters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.”* Receiving Water Limitations for suspended material are included in this Order and are based on the Basin Plan objective.
- m. **Taste and Odors.** The Basin Plan includes a water quality objective that *“[W]ater 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.”* Receiving Water Limitations for taste- or odor-producing substances are included in this Order and are based on the Basin Plan objective.
- n. **Temperature.** The unnamed tributary to Clay Creek has the beneficial uses of both COLD and WARM. The Basin Plan includes the objective that *“[a]t no time or place shall the temperature of COLD or WARM intrastate waters be increased more than 5°F above natural receiving water temperature.”* This Order includes a receiving water limitation based on this objective.

- o. **Toxicity.** The Basin Plan includes a water quality objective that “[A]ll waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.” Receiving Water Limitations for toxicity are included in this Order and are based on the Basin Plan objective.
- p. **Turbidity.** The Basin Plan includes a water quality objective that “[I]ncreases in turbidity attributable to controllable water quality factors shall not exceed the following limits:
- *Where natural turbidity is between 0 and 5 Nephelometric Turbidity Units (NTUs), increases shall not exceed 1 NTU.*
  - *Where natural turbidity is between 5 and 50 NTUs, increases shall not exceed 20 percent.*
  - *Where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTUs.*
  - *Where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent.”*

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

## **B. Groundwater**

1. The beneficial uses of the underlying ground water in the vicinity of the Rancho Seco Park wastewater treatment pond are municipal and domestic supply, industrial service supply, industrial process supply, and agricultural supply.
2. This Order includes land discharge specifications (Limitations and Discharge Requirements Section IV.B.) that adequately protect the beneficial uses of the groundwater. Neither groundwater limitations nor groundwater monitoring has been required for the land discharges. The Discharger has recently performed groundwater monitoring in the area as part of its decommissioning process. In a report titled, *Rancho Seco Nuclear Generating Station Groundwater Monitoring Report, Third Quarter 2005 through Second Quarter 2006*, the Discharger concludes that the top aquifer is approximately 183 feet below ground surface and the soils in the upper zone are dominated by fine-grained deposits of clay and silt with inbedded thin sands and gravels. The land discharges from the Rancho Seco Park treatment pond and from the domestic wastewater facilities at the Rancho Seco facility are minimal. Due to the large separation to groundwater and the predominance of clay and silt in the soil column there is no reasonable potential for the discharges to contaminate groundwater.

## VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

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

### A. Influent Monitoring

1. Influent monitoring is required to collect data on the characteristics of the wastewater to the domestic wastewater treatment system and to assess compliance with effluent limitations (e.g., BOD and TSS percent reduction requirements).
2. Consistent with the requirements in Order 5-01-182, weekly monitoring using 24-hour composite samples will be required. Continuous monitoring of the influent flow will also be required.

### B. Effluent Monitoring

1. Pursuant to the requirements of 40 CFR §122.44(i)(2) effluent monitoring is required for all constituents with effluent limitations. Effluent monitoring is necessary to assess compliance with effluent limitations, assess the effectiveness of the treatment process, and to assess the impacts of the discharge on the receiving stream and groundwater.
  - a. For Discharge Point No. 001 (Combined Discharge Effluent), and consistent with the requirements in Order 5-01-182, weekly monitoring for TSS, pH, and total coliform organisms is required to determine compliance with effluent limitations. Monitoring for EC has been reduced from the weekly monitoring requirements in Order 5-01-182 to monthly monitoring, due to the relatively low concentrations reported over the previous permit term. Also to determine compliance with effluent limitations, monitoring twice weekly will be required for chlorine residual and temperature; monthly monitoring is required for total dissolved solids, gross alpha particle activity and gross beta particle activity; twice monthly monitoring is required for ammonia; and quarterly monitoring is required for tritium. Monitoring for NRC compliance can be used by the Discharger to satisfy the monitoring requirements for gross alpha and beta particle activity.

Monthly monitoring for copper is required to verify compliance with the new effluent limitations established in this Order. In accordance with Section 1.3 of the SIP, periodic (annual) monitoring for priority pollutants for which no effluent limitations have been established is also required.

- b. For Discharge Point No. 001A (Domestic Effluent), and consistent with the requirements in Order 5-01-182, weekly monitoring for BOD, TSS, settleable solids, pH, and total coliform organisms is required. In order to monitor treatment plant performance and compliance with the BOD and TSS percent removal requirements, 24-hour composite samples are required; grab samples are required for the remaining parameters. Monthly monitoring is required for EC, total dissolved solids and nitrate; monitoring for ammonia is required twice monthly and temperature monitoring is required twice weekly.

### **C. Whole Effluent Toxicity Testing Requirements**

1. **Acute Toxicity.** Consistent with the requirements in Order 5-01-182, quarterly 24-hour flow proportional composites samples for bioassay testing is required to demonstrate compliance with the effluent limitation for acute toxicity.
2. **Chronic Toxicity.** Consistent with the requirements in Order 5-01-182, quarterly 24-hour flow proportional composites samples for chronic whole effluent toxicity testing is required in order to demonstrate compliance with the Basin Plan's narrative toxicity objective. However, consistent with USEPA guidance, a series of five effluent dilutions and a control shall be tested.

### **D. Receiving Water Monitoring**

#### **1. Surface Water**

- a. Receiving water monitoring is necessary to assess compliance with receiving water limitations and to assess the impacts of the discharge on the receiving stream. Samples are required upstream and downstream from the point of discharge. In accordance with Section 1.3 of the SIP, periodic (annual) monitoring for priority pollutants for which no effluent limitations have been established is also required upstream of the discharge point. Monitoring for priority pollutants downstream of the discharge point is also necessary to assess the impacts of the discharge on the receiving stream.

#### **2. Groundwater**

- a. Neither groundwater limitations nor groundwater monitoring has been required for the land discharges. The Discharger has recently performed groundwater monitoring in the area as part of its decommissioning process. In a report titled, *Rancho Seco Nuclear Generating Station Groundwater Monitoring Report, Third Quarter 2005 through Second Quarter 2006*, the Discharger concludes that the top aquifer is approximately 183 feet below ground surface and the soils in the upper zone are dominated by fine-grained deposits of clay and silt with inbedded thin sands and gravels. The land discharges from the Rancho Seco Park treatment pond and from the domestic wastewater facilities at the Rancho Seco facility are minimal. Due to the large separation to groundwater and the

predominance of clay and silt in the soil column there is no reasonable potential for the discharges to contaminate groundwater.

## **E. Other Monitoring Requirements**

### **1. Biosolids Monitoring**

Biosolids monitoring is required to ensure compliance with the biosolids disposal requirements (Special Provisions VI.C.6.a.). Biosolids disposal requirements are imposed pursuant to 40 CFR Part 503 to protect public health and prevent groundwater degradation.

### **2. Water Supply Monitoring**

Consistent with the requirements in Order 5-01-182, monthly monitoring of the Folsom South Canal water supply that is used as dilution water is required to evaluate the quality of the water. In particular, monitoring using a grab sample is required for EC, total dissolved solids, pH, and temperature. In addition, monitoring for copper has been required in this Order due to exceedances of water quality objectives in the effluent.

### **3. Rancho Seco Park Pond Monitoring**

Consistent with the requirements in Order 5-01-182, weekly monitoring of the Rancho Seco Park wastewater treatment pond is required to ensure proper operation of the pond. In particular, monitoring using a grab sample is required for dissolved oxygen and pH; odors shall be observed, and influent flow shall be metered. In addition, pond freeboard shall be measured weekly.

## **VII. RATIONALE FOR PROVISIONS**

### **A. Standard Provisions**

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

40 CFR §123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 CFR §123.25, this Order omits federal conditions that address enforcement authority specified in 40 CFR §§122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).



## B. Special Provisions

### 1. Reopener Provisions

- a. **Pollution Prevention.** This Order requires the Discharger to prepare pollution prevention plans following CWC section 13263.3(d)(1) for copper. This reopener provision allows the Regional Water Board to reopen this Order for addition and/or modification of effluent limitations and requirements for copper based on a review of the pollution prevention plans.
- b. **Whole Effluent Toxicity.** This Order requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity through a Toxicity Reduction Evaluation (TRE). This Order may be reopened to include a numeric chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if a numeric chronic toxicity water quality objective is adopted by the State Water Board, this Order may be reopened to include a numeric chronic toxicity limitation based on that objective.
- c. **Water Effects Ratio (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating CTR criteria for applicable priority pollutant inorganic constituents. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable when developing effluent limitations for copper. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.
- d. **Freeport Regional Water Authority Project (FRWAP).** The FRWAP is expected to be constructed, which will move Sacramento River Water through the Folsom South Canal during dry years (approximately three out of every ten). The addition of Sacramento River water into the Folsom South Canal could significantly change the characteristics of the Facility's discharge. Should the FRWAP be constructed and cause a change in wastewater characteristics of the discharge, this Order may be reopened for the addition and/or modification of effluent limitations.

### 2. Special Studies and Additional Monitoring Requirements

- a. **Chronic Whole Effluent Toxicity Requirements.** The Basin Plan contains a narrative toxicity objective that states, "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." (Basin Plan at III-8.00.) Adequate WET data is not available to determine if the discharge has reasonable potential to cause or contribute to an in-stream excursion above 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, this provision requires the Discharger to submit to the Regional Water Board an Initial Investigative TRE Work Plan for approval by the Executive Officer, to ensure the Discharger has a plan to immediately move forward with the initial tiers of a TRE, in the event effluent toxicity is encountered in the future. The provision also includes a numeric toxicity monitoring trigger and requirements for accelerated monitoring, as well as, requirements for TRE initiation if a pattern of toxicity is demonstrated.

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

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

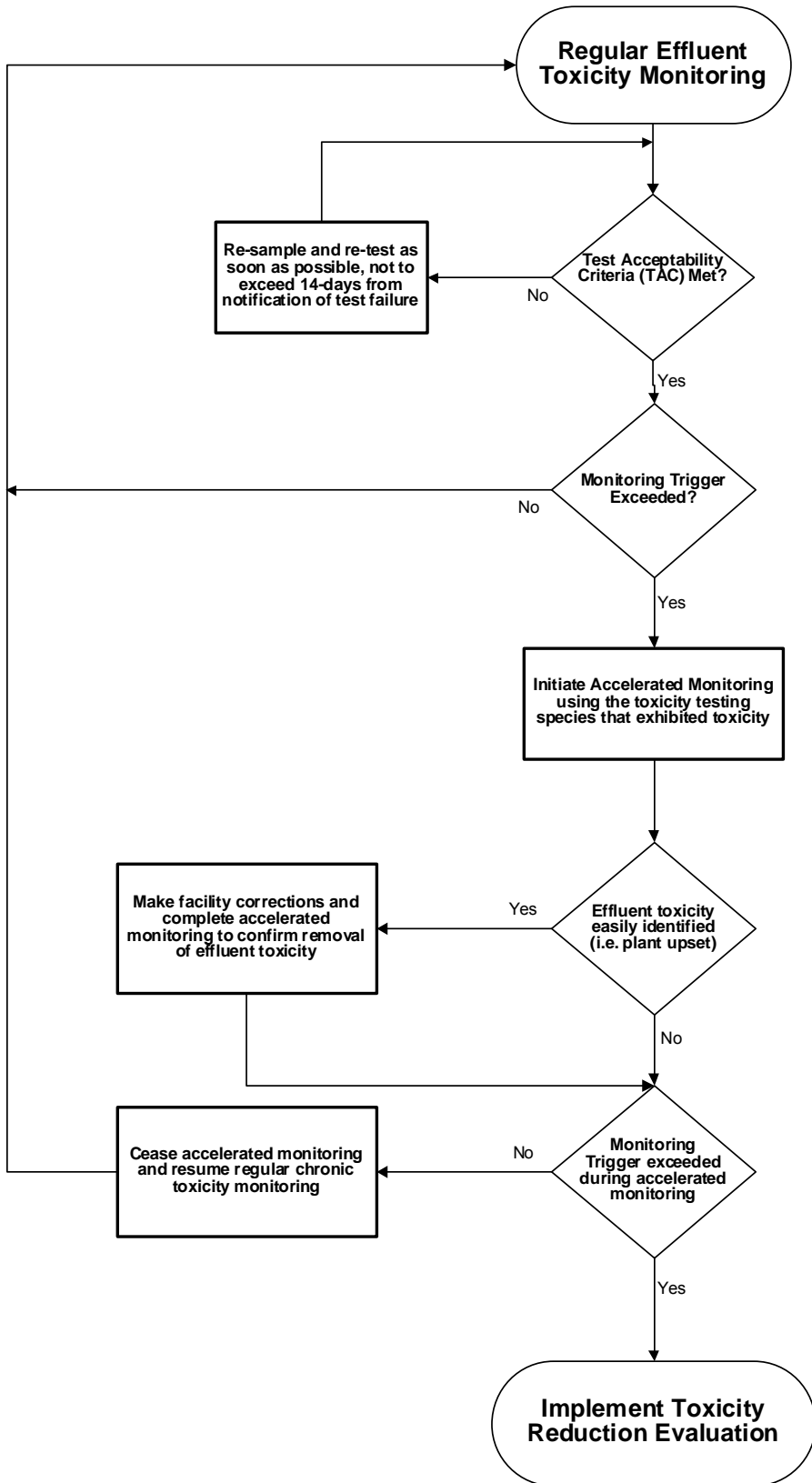
The provision requires accelerated monitoring consisting of four chronic toxicity tests every two weeks using the species that exhibited toxicity. Guidance regarding accelerated monitoring and TRE initiation is provided in the *Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001, 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. **CWC section 13263.3(d)(3) Pollution Prevention Plans.** The pollution prevention plans required in this Order shall, at minimum, meet the requirements outlined in CWC section 13263.3(d)(3). The minimum requirements for the pollution prevention plans include the following:
- i. An analysis of the pollutants that the facility discharges into water or introduces into POTWs, a description of the sources of the pollutants, and a comprehensive review of the processes used by the Discharger that result in the generation and discharge of the pollutants.
  - ii. An analysis of the potential for pollution prevention to reduce the generation of the pollutants, including the application of innovative and alternative technologies and any adverse environmental impacts resulting from the use of those methods.
  - iii. A detailed description of the tasks and time schedules required to investigate and implement various elements of pollution prevention techniques.
  - iv. A statement of the Discharger's pollution prevention goals and strategies, including priorities for short-term and long-term action.
  - v. A description of the Discharger's existing pollution prevention methods.
  - vi. A statement that the Discharger's existing and planned pollution prevention strategies do not constitute cross-media pollution transfers unless clear environmental benefits of such an approach are identified to the satisfaction of the State Water Board, the Regional Water Board, or the POTW, and information that supports that statement.
  - vii. Toxic chemical release data for those dischargers subject to Section 313 of the Emergency Planning and Community Right to Know Act of 1986 (42 U.S.C. Sec. 11023).
  - viii. Proof of compliance with the Hazardous Waste Source Reduction and Management Review Act of 1989 (Article 11.9 (commencing with Section 25244.12) of Chapter 6.5 of Division 20 of the Health and Safety Code) if the discharger is also subject to that act.
  - ix. An analysis, to the extent feasible, of the relative costs and benefits of the possible pollution prevention activities.
  - x. A specification of, and rationale for, the technically feasible and economically practicable pollution prevention measures selected by the Discharger for implementation.

- b. **Salinity Evaluation and Minimization Plan.** The Discharger shall prepare a salinity evaluation and minimization plan to address sources of salinity from the liquid radioactive waste treatment system and domestic wastewater treatment system.

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

- a. **Treatment Pond Operating Requirements (Special Provisions VI.C.4.a.).** Treatment pond operating requirements are included in the Order to prevent nuisance, to protect public health, and ensure proper operation of the treatment ponds.
- b. **Sludge/Biosolids Discharge Specifications, Disposal Requirements, and Storage Requirements (Special Provisions VI.C.4.b., VI.C.4.c., and VI.C.4.d.).** Sludge/Biosolids requirements are included in the Order to protect public health and the underlying groundwater.

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

#### **6. Other Special Provisions**

A special provision is included to address changes in ownership or operation.

#### **7. Compliance Schedules**

The use and location of compliance schedules in the permit depends on the Discharger's ability to comply and the source of the applied water quality criteria.

- a. The Discharger submitted a request, and justification (dated February 16, 2007), for a compliance schedule for copper. The compliance schedule justification included all items specified in Paragraph 3, items (a) through (d), of Section 2.1 of the SIP. This Order establishes compliance schedules for the new, final, water quality-based effluent limitations for copper and requires full compliance by May 18, 2010.

### **VIII. PUBLIC PARTICIPATION**

The California Regional Water Quality Control Board, Central Valley Region (Regional Water Board) is considering the issuance of waste discharge requirements (WDRs) that will serve as a National Pollutant Discharge Elimination System (NPDES) permit for the Sacramento Municipal Utility District, Rancho Seco Nuclear Generating Station. 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 must be submitted either in person or by mail to the Executive Office at the Regional Water Board at the address above on the cover page of this Order.

To be fully responded to by staff and considered by the Regional Water Board, written comments should be received at the Regional Water Board offices by 5:00 p.m. on February 16, 2006.

## **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 am  
Location: Regional Water Quality Control Board, Central Valley Region  
11020 Sun Center Dr., Suite #200  
Rancho Cordova, CA 95670

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

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

## **D. Waste Discharge Requirements Petitions**

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

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

### **E. Information and Copying**

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



**ATTACHMENT G – SUMMARY STATISTICS FOR REASONABLE POTENTIAL ANALYSIS <sup>(6)</sup>**

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Aluminum	ug/L	82	NA	87	750 <sup>(1)</sup>	87 <sup>(1)</sup>	--	--	--	200	No
Ammonia	ug/L	<500	NA	466	466 <sup>(1)(3)</sup>	2,140 <sup>(1)(4)</sup>	--	--	--	--	No
Arsenic	ug/L	1.9	NA	10	340	150	--	--	--	10	No
Boron	ug/L	410	NA	700	--	--	--	--	--	700 <sup>(5)</sup>	No
Chloride	ug/L	3,000	NA	106,000	860,000 <sup>(1)</sup>	230,000 <sup>(1)</sup>	--	--	--	106,000 <sup>(5)</sup>	No
Chromium (total)	ug/L	2.1	NA	50	--	--	--	--	--	50	No
Copper	ug/L	4.8	NA	3.05	3.05 <sup>(2)</sup>	4.08 <sup>(2)</sup>	1,300	--	--	1300	Yes
Dioxin (2,4,7,8-TCDD)	ug/L	1.42 x 10 <sup>-9</sup>	NA	1.3 x 10 <sup>-8</sup>	--	--	1.3 x 10 <sup>-8</sup>	--	--	0.00003	No
Iron	ug/L	150	NA	300	--	1,000 <sup>(1)</sup>	--	--	--	300	No
Manganese	ug/L	40	NA	50	--	--	--	--	--	50	No
Mercury	ug/L	0.002	NA	0.05	1.4	0.77	0.05	--	--	1.2 <sup>(7)</sup>	No
Methylmercury	ug/L	0.000104	NA	0.07	--	--	--	--	--	0.07 <sup>(8)</sup>	No
Phosphorus	ug/L	0.000032	NA	0.14	--	--	--	--	--	0.14 <sup>(8)</sup>	No
Specific Conductance (EC)	umhos/cm	110	NA	700	--	--	--	--	--	700 <sup>(5)</sup>	No
Sulfate	ug/L	3.3	NA	250	--	--	--	--	--	250	No
Sulfide	ug/L	670	NA	No Criteria Available	--	--	--	--	--	--	No
Zinc	ug/L	8	NA	39.51	39.51 <sup>(2)</sup>	39.51 <sup>(2)</sup>	--	--	--	5,000	No

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General Note: All inorganic concentrations are give as a total recoverable.

MEC = Maximum Effluent Concentration

B = Maximum Receiving Water Concentration or lowest detection level, if non-detect

C = Criterion used for Reasonable Potential Analysis

CMC = Criterion Maximum Concentration (CTR criterion unless otherwise noted)

CCC = Criterion Continuous Concentration (CTR criterion unless otherwise noted)

Basin Plan = Numeric Site-specific Basin Plan Water Quality Objective

MCL = Drinking Water Standards Maximum Contaminant Level

NA – Not available

Footnotes:

(1) USEPA National Recommended Ambient Water Quality Standard

(2) Calculated using a receiving water hardness of 27 mg/L as CaCO<sub>3</sub>

(3) Salmonids present and acute design pH of 8.5

(4) ELS present, chronic design pH of 8.5, and temperature of 81.9°F

(5) Agriculture water quality goal

(6) Based on data from 2003-2005 except for Ammonia, Aluminum, Chloride, Iron, Manganese, Phosphorus, Sulfate, and Sulfide (2002)

(7) CA Public Health Goal

(8) USEPA IRIS Reference Dose