CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

CENTRAL VALLEY REGION

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ORDER NO. R5-2007-XXXX
NPDES NO. CA0078581

WASTE DISCHARGE REQUIREMENTS FOR THE CALIFORNIA DEPARTMENT OF GENERAL SERVICES, CENTRAL PLANT OPERATIONS HEATING AND COOLING FACILITY SACRAMENTO COUNTY

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

Table 1. Discharger Information

Discharger	California Department of General Services
Name of Facility	Central Plant Operations, Heating and Cooling Facility
Facility Address	625 Q Street
	Sacramento, CA 95814
	Sacramento County
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Quality Control Board have classified this discharge as a **minor** discharge.	

The discharge by the California Department of General Services, Central Plant Operations from the discharge points identified below is subject to waste discharge requirements as set forth in this Order

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Non-contact cooling water	38º, 34', 26" N	121º, 30', 36" W	Sacramento River

Table 3. Administrative Information

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

IT IS HEREBY ORDERED, that Order Nos. R5-2002-0016 and R2-2002-0017, as amended by Resolution No. R5-2006-007, are rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act (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 **<Adoption Date>**.

PAMELA C. CREEDON, Executive Office

T E N T A T I V E 18 APRIL 2007

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I. FACILITY INFORMATION

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

Table 4. Facility Information

Discharger	California Department of General Services
Name of Facility	Central Plant Operations, Heating and Cooling Facility
Facility Address	625 Q Street
	Sacramento, CA 95814
	Sacramento County
Facility Contact, Title, and Phone	Scott Hixon, Building Manager, 916-653-0009
Mailing Address	SAME
Type of Facility	Heating and Cooling Facility
Facility Design Flow	N/A

II. FINDINGS

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

A. Background. The California Department of General Services (hereinafter Discharger) is currently discharging pursuant to Order No. R5-2002-0016 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0078581. The Discharger submitted a Report of Waste Discharge, dated 30 August 2005**,** and applied for a NPDES permit renewal to discharge up to 9 million gallons per day (mgd) of wastewater from their Central Plant Operations**,** Heating and Cooling Facility, 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 Facility provides heating and cooling to downtown State office buildings and, as a result, discharges non-contact cooling water from a spray header into the Sacramento River. The sources of cooling water to the Facility are obtained from a Ranney Collector beneath the Sacramento River, Front Street Well, P Street Well, and, on an emergency basis, from the City of Sacramento municipal water distribution system. No chemicals are added to the supply water, which is used in a once-through system to re-condense refrigerant and carry away unwanted heat.

There is no treatment of the cooling water at the Facility prior to discharge. Wastewater is discharged from Discharge Point No. 001 to the Sacramento River, a water of the United States, within the Lower Sacramento 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) 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. A detailed discussion of the technology-based effluent limitations development is included in the Fact Sheet (Attachment F).

G. Water Quality-based Effluent Limitations. Section 301(b) of the CWA and section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards.

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

H. Water Quality Control Plans. The Regional Water Board adopted a *Water Quality Control Plan, Fourth Edition (Revised August 2006), 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. 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. Beneficial uses applicable to the Sacramento River, which is a part of the Sacramento-San Joaquin Delta at the point of the discharge, are as follows:

Table 5. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Sacramento River	Existing: Municipal and domestic supply (MUN); agricultural irrigation, agricultural stock watering (AGR); industrial process supply (PROC), industrial service supply (IND); recreation contact (REC-1) and other noncontact (REC-2); freshwater habitat warm (WARM) and freshwater habitat cold (COLD); warm and cold migration habitat (MIGR); warm spawning habitat (SPWN), wildlife habitat (WILD); navigation (NAV).

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 Sacramento River at the point of the discharge is part of the Sacramento-San Joaquin River Delta (Delta Waterways - northern portion) and is listed as a WQLS for chlorpyrifos, diazinon, DDT, exotic species, group A pesticides, mercury, PCBs (polychlorinated biphenyls), and unknown toxicity in the 2006 303(d) approved list of impaired water bodies. No applicable total maximum daily loads (TMDLs) have been completed for the Delta Waterways (northern portion). Efforts have been initiated to develop TMDLs for chlorpyrifos, diazinon, and mercury for the northern portion of the Sacramento-San Joaquin River Delta.

The State Water Board adopted a *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California* (Thermal Plan) on May 18, 1972, and amended this plan on September 18, 1975. This plan contains temperature objectives for surface waters. As described further in the Fact Sheet, the Facility has requested an exception to the Thermal Plan. The approved exceptions to the Thermal Plan are implemented in this Order.

Requirements of this Order specifically implement the applicable Water Quality Control Plans.

I. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on 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) and/or discharge specifications is included in the Fact Sheet.

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

M. Stringency of Requirements for Individual Pollutants. This Order contains technology-based requirements and water quality-based effluent limitations for individual pollutants. The technology-based requirements include development and implementation of a best management practices plan, based on best professional judgment, in lieu of numeric technology-based limitations. These technology-based requirements are no more stringent than federal requirements. The water quality-based effluent limitations consist of restrictions on aluminum, arsenic, chlorine residual, copper, dichlorobromomethane, dibromochloromethane, electrical conductivity, iron, manganese, pH, and temperature.

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

technology-based requirements of the CWA and the applicable water quality standards for purposes of the CWA.

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

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

P. **Monitoring and Reporting.** Section 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorizes the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program establishes monitoring and reporting requirements to implement federal and State requirements. This Monitoring and Reporting Program is provided in Attachment 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. (Not Applicable)**

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 non- contact cooling water 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 is prohibited from combining any other wastewater or pollutant-free waters to the non-contact cooling water prior to discharge. Pollutant-free wastewater means rainfall, groundwater, contact 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 – Discharge Point No. 001

The Discharger shall maintain compliance with the following effluent limitations at Discharge Point No. 001, with compliance measured at Monitoring Location EFF-001 as described in the attached MRP (Attachment E):

a. The Discharger shall maintain compliance with the effluent limitations specified in Table 6:

Table 6. Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
pH	Standard Units	--	--	--	6.5	8.5
Total Residual Chlorine	mg/L	--	--	0.02	--	--
Dichlorobromomethane	µg/L	--	--	11	--	--
Dibromochloromethane	µg/L	--	--	6.2	--	--
Arsenic, Total Recoverable	µg/L	--	--	40	--	--
Copper, Total Recoverable	µg/L	2.31	--	4.6	--	--
Aluminum, Total Recoverable	µg/L	71	--	143	--	--

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Electrical Conductivity	µmhos/cm	--	--	719	--	--
Manganese, Total Recoverable	µg/L	--	--	2954	--	--

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. **Temperature.** The maximum temperature of the discharge shall not exceed 89°F, nor exceed the natural receiving water temperature by more than 20°F from May through October, and by more than 39°F from November through April.

d. **Total Residual Chlorine.** Effluent total residual chlorine shall not exceed 0.01 mg/L, as a 4-day average.

e. **Flow.** The 30-day average discharge flow shall not exceed 9.0 mgd.

f. **Total Recoverable Iron.** Effluent total recoverable iron concentrations shall not exceed 300 µg/L, as an annual average.

2. Interim Effluent Limitations

a. During the period beginning <Permit Effective Date or Interim Limitations Begin Date> and ending on May 17, 2010, the Discharger shall maintain compliance with the following limitations at 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 7. Interim Effluent Limitations for Copper

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Copper, Total Recoverable	µg/L	--	--	68.4	--	--

b. During the period beginning <Permit Effective Date> and ending on May 31, 2012, the Discharger shall maintain compliance with the following limitations at 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 Aluminum

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Aluminum, Total Recoverable	µg/L	--	--	255	--	--

B. Land Discharge Specifications – Not applicable

C. Reclamation Specifications - Not applicable

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

Receiving water limitations are based on water quality objectives contained in the Basin Plan and are a required part of this Order. The discharge shall not cause the following in the Sacramento 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**: 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. A one-month averaging period may be applied when calculating the pH change of 0.5.

9. **Pesticides**:

   a. Pesticides to be present, individually or in combination, in concentrations that adversely affect beneficial uses;
   b. Pesticides to be present in bottom sediments or aquatic life in concentrations that adversely affect beneficial uses;
   c. Total identifiable persistent chlorinated hydrocarbon pesticides to be present in the water column at concentrations detectable within the accuracy of analytical methods approved by USEPA or the Executive Officer**/**prescribed in *Standard Methods for the Examination of Water and Wastewater, 18th Edition*, or other equivalent methods approved by the Executive Officer.
   d. Pesticide concentrations to exceed those allowable by applicable antidegradation policies (see State Water Board Resolution No. 68-16 and 40 CFR §131.12.).
   e. Pesticide concentrations to exceed the lowest levels technically and economically achievable.
   f. Pesticides to be present in concentration in excess of the maximum contaminant levels set forth in California Code of Regulations, Title 22, Division 4, Chapter 15**/**specified in Table 64444-A (Organic Chemicals) of Section 64444 of Title 22 of the California Code of Regulations.
   g. Thiobencarb to be present in excess of 1.0 µg/L.

10. **Radioactivity**:

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

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

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

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

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

beneficial uses/or to domestic or municipal water supplies.

15. **Temperature**. The Thermal Plan is applicable to this discharge. The exception to the Thermal Plan approved for this Facility requires that the discharge shall not cause the following in the Sacramento River:

    i. The creation of a zone, defined by water temperatures of more than 1°F above natural receiving water temperature, which exceeds 25 percent of the cross-sectional area of the river channel at any point.

    ii. A surface water temperature to rise greater than 14°F above the natural temperature of the receiving water at any time or place

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

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

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

B. Groundwater Limitations – Not applicable

VI. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all Standard Provisions included in Attachment D of this Order.

2. The Discharger shall comply with the following provisions:

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

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

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

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

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

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

The causes for modification include:

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

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

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

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

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

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

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

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

ii. controls any pollutant limited in the Order.

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

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

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

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

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

i. A copy of this Order shall be maintained at the discharge facility and be available at all times to operating personnel. Key operating personnel shall be familiar with its content.

j. Safeguard to electric power failure:

    i. The Discharger shall provide safeguards to assure that, should there be reduction, loss, or failure of electric power, the discharge shall comply with the terms and conditions of this Order.

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

    iii. Should the treatment works not include safeguards against reduction, loss, or failure of electric power, or should the Regional Water Board not approve the existing safeguards, the Discharger shall, within ninety days of having been advised in writing by the Regional Water Board that the existing safeguards are inadequate, provide to the Regional Water Board and USEPA a schedule of compliance for providing safeguards such that in the event of reduction, loss, or failure of electric power, the Discharger shall comply with the terms and conditions of this Order. The schedule of compliance shall, upon approval of the Regional Water Board, become a condition of this Order.

k. The Discharger, upon written request of the Regional Water Board, shall file with the Board a technical report on its preventive (failsafe) and contingency (cleanup) plans for controlling accidental discharges, and for minimizing the effect of such

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

The technical report shall:

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

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

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

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

l. A publicly owned treatment works (POTW) whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment and disposal facilities. The projections shall be made in January, based on the last three years' average dry weather flows, peak wet weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in four years, the Discharger shall notify the Regional Water Board by 31 January. A copy of the notification shall be sent to appropriate local elected officials, local permitting agencies and the press. Within 120 days of the notification, the Discharger shall submit a technical report showing how it will prevent flow volumes from exceeding capacity or how it will increase capacity to handle the larger flows. The Regional Water Board may extend the time for submitting the report.

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

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

o. The Discharger shall conduct analysis on any sample provided by USEPA as part of the Discharge Monitoring Quality Assurance (DMQA) program. The results of any such analysis shall be submitted to USEPA's DMQA manager.

p. Effluent samples shall be taken downstream of the last addition of wastes to the treatment or discharge works where a representative sample may be obtained prior to mixing with the receiving waters. Samples shall be collected at such a point and in such a manner to ensure a representative sample of the discharge.

q. All monitoring and analysis instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary, at least yearly, to ensure their continued accuracy.

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

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

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

u. For POTWs, prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater that results in a decrease of flow in any portion of a watercourse, the Discharger must file a petition with the State Water Board, Division of Water Rights, and receive approval for such a change. (CWC section 1211)

v. In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, maximum daily effluent limitation, 1-hour average effluent limitation, or receiving water limitation contained in this Order, the Discharger shall notify the Regional Water Board by telephone (916) 464-3291 within 24 hours of having knowledge of such noncompliance, and shall confirm this notification in writing within five days, unless the Regional Water Board waives confirmation. The written notification shall include the information required by Attachment D, Section V.E.1 [40 CFR section 122.41(l)(6)(i)].

B. Monitoring and Reporting Program (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 section 122.62, including:

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

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

c. **Pollution Prevention.** This Order requires the Discharger prepare pollution prevention plans following CWC section 13263.3(d)(3) for aluminum and 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. 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. **Mixing Zone Study for Copper:** There is the potential that the Sacramento River provides assimilative capacity and that a mixing zone and dilution credits

could be considered for compliance with aquatic life criteria for copper. Dilution credits and mixing zones shall only be considered by the Regional Water Board after the Discharger has completed site-specific mixing zone study and demonstrated to the satisfaction of the Regional Water Board that a dilution credit is appropriate. If the Discharger chooses to conduct a mixing zone study, it shall be conducted in accordance with the procedures outlined in Appendix 5 of the SIP. If after completion of the mixing zone study, it is determined that dilution credits are appropriate, then this Order may be reopened if necessary to modify effluent limitations for copper.

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

iv. **Accelerated Monitoring Specifications.** If the monitoring trigger is exceeded during regular chronic toxicity testing, within 14-days of notification by the laboratory of the test results, the Discharger shall initiate accelerated monitoring. Accelerated monitoring shall consist of four (4) chronic toxicity tests in a 6-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 USEPA guidance.[1]

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 and shall provide annual reports demonstrating reasonable progress in the reduction of salinity in its discharge to the Sacramento River. 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.

b. **Best Management Practice Plan (BMPP).** The Discharger shall develop and implement a BMPP that includes site-specific plans and procedures implemented and/or to be implemented to prevent the generation and potential release of additional pollutants from the Facility to waters of the State. The BMPP shall be consistent with the general guidance contained in the USEPA *Guidance Manual for Developing Best Management Practice*s (BMPs) (EPA 833-B-93-004). In particular, a risk assessment of each area identified by the Discharger shall be performed that will ensure proper operation and maintenance of heating and cooling equipment, prevent the additional chemicals or other substances from being introduced into the discharge, and prevent the addition of pollutants from the other non-permitted process waters, spills, or other sources of pollutants at the Facility.

The BMPP shall be implemented as soon as possible, but no later than 90 days from the effective date of this Order. The Discharger shall also submit a copy of the BMPP to the Executive Officer within 90 days from the effective date of this Order.

The Discharger shall maintain a copy of the BMPP at the Facility and shall make the plan available upon request. The Discharger shall amend the BMPP whenever there is a change in the Facility or in the operation of the Facility. All changes to the BMPP shall be reported to the Regional Water Board.

4. Construction, Operation and Maintenance Specifications – Not Applicable

5. Other Special Provisions

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

To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The

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

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.

6. Compliance Schedules

i. **By May 18, 2010,** the Discharger shall comply with the final effluent limitations for copper and **by May 31, 2012** the Discharger shall comply with the final effluent limitations for aluminum. On April 13, 2007, the Discharger submitted a compliance schedule justification for aluminum and 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 one year, the Discharger shall submit semi-annual progress reports in accordance with the Monitoring and Reporting Program (Attachment E, Section X.D.1.)

ii. **Corrective Action Plan/Implementation Schedule.** The Discharger shall submit to the Regional Water Board a corrective action plan and implementation schedule to assure compliance with the final effluent limitations for aluminum and copper **within 6 months from the effective date of this Order.**

iii. **Pollution Prevention Plan.** The Discharger shall prepare and implement a pollution prevention plan for aluminum and 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, Section VII.B.3. A work plan and time schedule for preparation of the pollution prevention plans 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.). The Pollution Prevention Plan required herein is not incorporated by reference into this Order.

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

ATTACHMENT A – DEFINITIONS

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

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

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

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

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

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

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

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

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

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

For composite sampling, if 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 include~~d~~, 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.

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

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

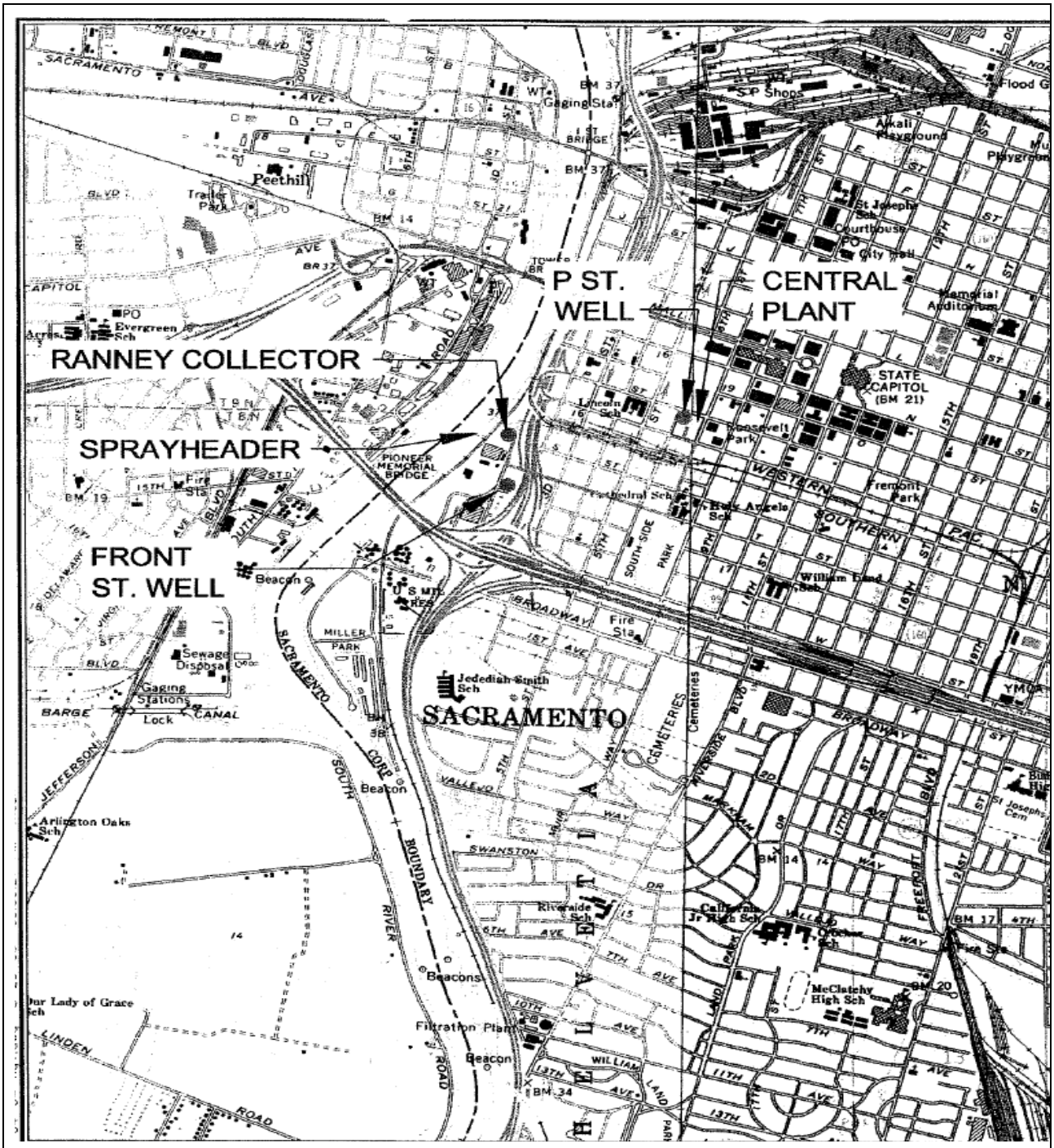
$$\sigma = (\sum[(x - \mu)^2]/(n - 1))^{0.5}$$

where:

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

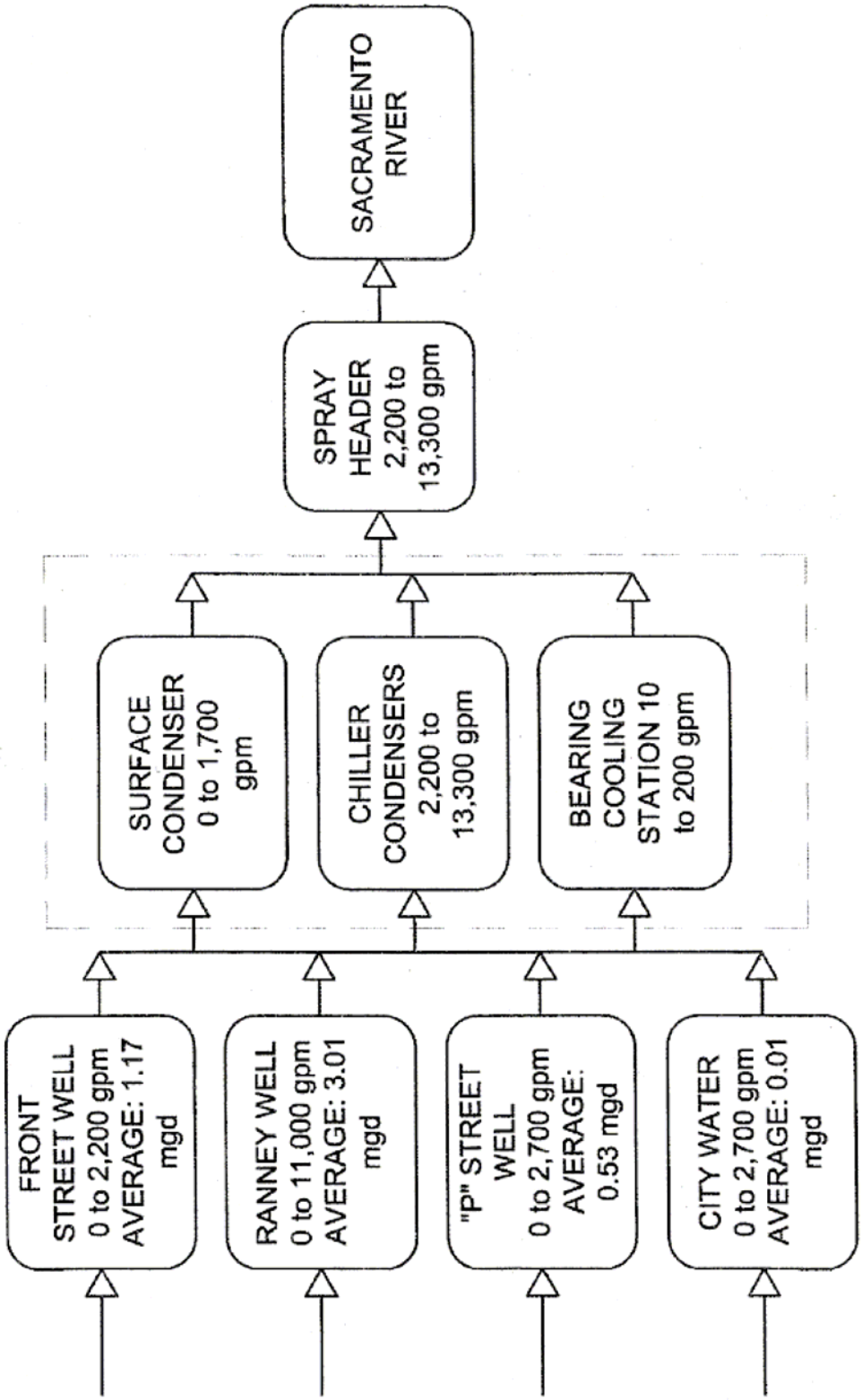
Toxicity Reduction Evaluation (TRE) is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps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

ATTACHMENT B – MAP



Drawing Reference: **SACRAMENTO WEST QUAD** U.S.G.S TOPOGRAPHIC MAP 7.5 MINUTE QUADRANGLE	SITE LOCATION MAP CALIFORNIA DEPARTMENT OF GENERAL SERVICES CENTRAL PLANT OPERATONS SACRAMENTO COUNTY	N W E S

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 CFR §122.41(k).)

2. All permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of USEPA). (40 CFR §122.22(a)(3).).

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

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

   b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 CFR §122.22(b)(2)); and

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

4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard

Provisions – Reporting V.B.3 above must be submitted to the Regional Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 CFR §122.22(c).)

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

   "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." (40 CFR §122.22(d).) C.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 CFR §122.22(l)(4).)

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

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 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 CFR §122.41(l)(4)(ii).)

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

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date. (40 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 not subject to effluent limitations in this Order. (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 (µg/L) (40 C.F.R. § 122.42(a)(1)(i));

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

   b. 1 milligram per liter (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.

B. 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.

C. 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.

D. 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)
001	EFF-001	A location where a representative sample of the effluent from the Facility can be collected prior to being discharged into Sacramento River. [Latitude: 38° 34' 26" N; Longitude: 121° 30' 36" W]
--	RSW-001	100 feet upstream of Discharge Point 001.
--	RSW-002	300 feet downstream of Discharge Point 001.

III. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

1. The Discharger shall monitor effluent at 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-2. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and (Minimum Level, units), respectively
pH	Standard Units	Grab	1/week	[1]
Temperature[2]	°F	Grab	1/day	[1]
Arsenic, Total Recoverable	µg/L	Grab	1/month	[1]
Copper, Total Recoverable	µg/L	Grab	1/month	[1]
Dibromochloromethane	µg/L	Grab	1/month	[1]
Dichlorobromomethane	µg/L	Grab	1/month	[1]
Aluminum, Total Recoverable	µg/L	Grab	1/month	[1]
Chlorodifluoromethane	µg/L	Grab	1/quarter	[1]
Chlorine, Total Residual[6]	mg/L	Grab	2/day	
Dichlorodifluoromethane	µg/L	Grab	1/quarter	[1]
1,1-Difluoroethane	µg/L	Grab	1/quarter	[1]
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/week	[1]
Flow	mgd	Meter	1/day	[1]
Iron, Total Recoverable	mg/L	Grab	1/month	[1]
Manganese, Total	µg/L	Grab	1/month	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and (Minimum Level, units), respectively
Recoverable				
Polynuclear Aromatic Hydrocarbons	µg/L	Grab	1/quarter	[1]
Total Petroleum Hydrocarbons	µg/L	Grab	1/quarter	[1]
Priority Pollutants[3,4]	µg/L	Grab	[5]	[1]

[1] As required by 40 CFR Part 136.
[2] Effluent Temperature monitoring shall be at the Outfall location.
[3] For priority pollutant constituents with effluent limitations, detection limits shall be below the effluent limitations. If the lowest minimum level (ML) published in Appendix 4 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Plan or SIP) is not below the effluent limitation, the detection limit shall be the lowest ML. For priority pollutant constituents without effluent limitations, the detection limits shall be equal to or less than the lowest ML published in Appendix 4 of the SIP.
[4] Concurrent with receiving surface water sampling.
[5] Priority pollutants shall be sampled quarterly during the third year following the date of permit adoption and shall be conducted concurrently with up stream receiving water monitoring for hardness (as $CaCO_3$) and pH. The Discharger is not required to conduct effluent monitoring for priority pollutants that have already been sampled in a given quarter, as required in Table E-2.
[6] Total residual chorine monitoring is only required when municipal water supply is used to augment cooling water.

IV. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

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

1. *Monitoring Frequency* – The Discharger shall perform annual acute toxicity testing.

2. *Sample Types* – For static non-renewal and static renewal testing, the samples shall be grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent monitoring location EFF-001.

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

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

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

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

1. *Monitoring Frequency* – The Discharger shall perform quarterly three species chronic toxicity testing.

2. *Sample Types* – Effluent samples shall be grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent monitoring location specified in the Monitoring and Reporting Program. The receiving water control shall be a grab sample obtained from the RSW-001 sampling location, as identified in the Monitoring and Reporting Program.

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

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

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

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

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

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

8. *Test Failure* –The Discharger must re-sample and re-test as soon as possible, but no later than fourteen (14) days after receiving notification of a test failure. A test failure is defined as follows:

   a. The reference toxicant test or the effluent test does not meet all test acceptability criteria as specified in the *Short-term Methods for Estimating the Chronic Toxicity*

of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition, EPA/821-R-02-013, October 2002 (Method Manual), and its subsequent amendments or revisions; or

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

Table E-3. Chronic Toxicity Testing Dilution Series

Sample	Dilutions (%)					Controls	
	100	50	25	12.5	6.25	Receiving Water	Laboratory Water
% Effluent	100	50	25	12.5	6.25	0	0
% Receiving Water	0	50	75	87.5	93.75	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 $100/LC_{50}$, $100/EC_{25}$, $100/IC_{25}$, and $100/IC_{50}$, as appropriate.

   b. The statistical methods used to calculate endpoints;

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

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

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

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

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.

V. LAND DISCHARGE MONITORING REQUIREMENTS

[Not applicable]

VI. RECLAMATION MONITORING REQUIREMENTS

[Not applicable]

VII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER AND GROUNDWATER

A. Monitoring Locations RSW-001

1. The Discharger shall monitor the Sacramento River at RSW-001 as follows:

Table E-4. Receiving Water Monitoring – RSW-001

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/week	[1]
pH	SU	Grab	1/week	[1]
Temperature	°F	Grab	1/week	[1]
Dissolved Oxygen	mg/L	Grab	1/week	[1]
Turbidity	NTU	Grab	1/week	[1]
Priority Pollutants[3]	µg/L	Grab	[2]	[1]
Hardness	mg/L	Grab	[3]	[1]

[1] As required by 40 CFR Part 136.
[2] Priority pollutants shall be sampled quarterly during the third year following the date of permit adoption and shall be conducted concurrently with up stream receiving water monitoring for hardness (as CaCO3) and pH.
[3] Hardness shall be sampled concurrent with sampling for priority pollutants.

B. Monitoring Location RSW-002

1. The Discharger shall monitor the Sacramento River at RSW-002 as follows:

Table E-5. Receiving Water Monitoring – RSW-002

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/week	[1]
pH	SU	Grab	1/week	[1]
Temperature	°F	Grab	1/week	[1]
Dissolved Oxygen	mg/L	Grab	1/week	[1]
Turbidity	NTU	Grab	1/week	[1]

[1] As required by 40 CFR Part 136.

VIII. OTHER MONITORING REQUIREMENTS

A. Biosolids

[Not applicable]

B. Municipal Water Supply

[Not applicable]

IX. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

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

2. Upon written request of the Regional Water Board, the Discharger shall submit a summary monitoring report. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year(s).

3. **Compliance Time Schedules.** For compliance time schedules included in the Order, the Discharger shall submit to the Regional Water Board, on or before each compliance due date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Water Board by letter when it returns to compliance with the compliance time schedule.

4. 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.

5. **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 (± 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.

6. **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-6. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
Continuous	**<Permit effective date>**	**All**	**Submit with monthly SMR**
Hourly	**<Permit effective date>**	**Hourly**	**Submit with monthly SMR**
1/day	**<Permit effective date>**	**(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.**	**Submit with monthly SMR**
1/week	**<Sunday following permit effective date or on permit effective date if on a Sunday>**	**Sunday through Saturday**	**Submit with monthlySMR**
1/month	**<First day of calendar month following permit effective date or on permit effective date if that date is first day of the month>**	**1st day of calendar month through last day of calendar month**	**<##> days from the end of the monitoring period**

1/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**	**<##> days from the end of the monitoring period**
1/year	**<January 1 following (or on) permit effective date>**	**January 1 through December 31**	**<##> days from the end of the monitoring period**

C. Discharge Monitoring Reports (DMRs)

1. 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.

2. DMRs must be signed and certified as required by the standard provisions (Attachment D). The Discharger shall submit the original DMR and one copy of the DMR to the address listed below:

State Water Resources Control Board
Discharge Monitoring Report Processing Center
Post Office Box 671
Sacramento, CA 95812

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, 15th 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.Forms that are self-generated or modified cannot be accepted.

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-7. Reporting Requirements for Special Provisions Progress Reports

Special Provision	Reporting Requirements
Pollution Prevention Plan for aluminum and copper (Special Provision VI.C.6.iii)	**June 1**, annually, after approval of work plan
Compliance Schedules for Final Effluent Limitations for aluminum and copper, compliance with final effluent limitations. (Special Provision VI.C.6.i)	**June 1**, 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 **January 30** 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.

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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

WDID	
Discharger	California Department of General Services
Name of Facility	Central Plant Operations, Heating and Cooling Facility
Facility Address	625 Q Street
	Sacramento, CA 95814
	Sacramento County
Facility Contact, Title and Phone	Scott Hixon, Building Manager, 916-653-0009
Authorized Person to Sign and Submit Reports	Scott Hixon, Building Manager, 916-653-0009
Mailing Address	SAME
Billing Address	SAME
Type of Facility	Industrial (Heating and Cooling Facility)
Major or Minor Facility	Minor
Threat to Water Quality	3
Complexity	C
Pretreatment Program	N
Reclamation Requirements	N/A
Facility Permitted Flow	Monthly average of 9.0 million gallons per day (mgd)
Facility Design Flow	N/A
Watershed	Lower Sacramento
Receiving Water	Sacramento River
Receiving Water Type	Sacramento-San Joaquin Delta

A. The California Department of General Services, (hereinafter Discharger) is the owner and operator of the Central Plant Operations, Heating and Cooling Facility (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. The Facility discharges wastewater to the Sacramento River, a water of the United States, and is currently regulated by Order No. R5-2002-0016 which was adopted on 1 March 2002 and expired on 1 March 2007 (based on Resolution No.R5-2006-0007).

C. The Discharger filed a report of waste discharge and submitted an application for renewal of its Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit on 30 August 2005.

II. FACILITY DESCRIPTION

The Facility provides heating and cooling to downtown State office buildings and, as a result, discharges closed-system non-contact cooling water from a spray header into the Sacramento River. The sources of cooling water to the Facility are obtained from Ranney Collectors beneath the Sacramento River, and two deep wells (Front Street Well, P Street Well). The Facility also periodically uses City of Sacramento municipal water distribution system as a source. No chemicals are added to the supply water, which is used in a once-through system to re-condense refrigerant and carry away unwanted heat.

A. Description of Wastewater and Biosolids Treatment or Controls

The Facility discharges non-contact cooling water from a shore-side diffuser into the Sacramento River. There is no treatment of the cooling water at the Facility prior to discharge.

The original capacity of the Ranney Well was 11,200 gallons per minute (gpm). Due to the degradation of the Raney Well and the resulting limited well water availability, the Ranney Well can now only safely provide 4,400 gpm. Combining the Ranney Well pump capacity with the P Street Well (3,000 gpm) and the Front Street Well (2,400 gpm), the total current pump capacity of the Central Plant heating and cooling system is 9,800 gpm (14.1 mgd). Rated pump capacities are greater than actual metered discharge flows. At peak loads, which typically last for less than a week, the metered discharge flows are approximately 70 percent of the rated pump capacity, or 9.9 mgd. Due to the infrequent occurrence and limited duration of the peak loads, the monthly average flow limitation of 9 mgd is still achievable.

B. Discharge Points and Receiving Waters

1. Non-contact cooling water is discharged at Discharge Point No. 001 to the Sacramento River, a water of the United States at a point Latitude 38°, 34', 26" N and longitude 121°, 30', 36" W.

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

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

Table F-2. Historic Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitation			Monitoring Data (From 10/01/2002 – To 12/31/2006)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Flow	mgd	9.0	--	--	10	--	--
pH	Standard Units	6.5-8.5			6.1-8.0		
Temperature	°F			[1]	--	--	89.4
Acute Toxicity	%survival	[2]			Minimum of any one bioassay was 95 percent survival. Median for any three or more consecutive bioassays was 100 percent survival		

[1] The maximum temperature of the discharge shall not exceed 86°F, nor exceed the natural receiving water temperature by more than 20°F

[2] Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:
Minimum for any one bioassay 70%
Median for any three or more consecutive bioassays 90%

D. Compliance Summary

1. The Discharger violated pH limitations of 6.5-8.5 standard units (SU) in December 2002 (6.1 SU) and in January 2003 (6.3 SU).
2. The Discharger exceeded the 30-day average effluent flow limit of 9.0 mgd in July 2003 (10 mgd).
3. The Discharger exceeded the maximum temperature of the discharge of 86°F on 7 October 2002 (87°F); 5 April 2005, 6 April 2005, and 7 March 2005 (88°F); and 11 April 2005 (89.4°F). Approximately 32 percent of the temperature readings exceeded the 20°F maximum temperature differential limitation; the maximum recorded differential was 31°F.

E. Planned Changes

The Facility plans to cease the river discharge within the term of this Order. An objective of this project is the conversion of Central Plant Operations, Heating and Cooling Facility from the use of once-through cooling water to closed loop mechanical cooling towers with a thermal storage tank. Installation of these cooling towers would result in the elimination of the need to discharge condenser effluent directly to the Sacramento River. Based on information provided by the Discharger, elimination of the discharge to the Sacramento River is planned for 2010, but unforeseen circumstances could potentially delay project completion until 2012.

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 August 2006), 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 Sacramento River (Sacramento-San Joaquin Delta) downstream of the discharge are municipal and domestic supply, agricultural irrigation, agricultural stock watering, industrial process water supply, industrial service supply, 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, wildlife habitat, and navigation.

   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 sections 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 section 131.10 requires that uses be obtained by implementing effluent limitations, requires that all downstream uses be protected and states that in no case shall a state adopt waste transport or waste assimilation as a beneficial use for any waters of the United States.

2. **Thermal Plan.** The State Water Board adopted a *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California* (Thermal Plan) on May 18, 1972, and amended this plan on September 18, 1975. This plan contains temperature objectives for surface waters. The previous Order required that a comprehensive study be performed by the Discharger to evaluate the effect of the thermal discharge to migrating fish in the vicinity of the discharge. Based on the results of the study, as well as the continued violation of the effluent and receiving water temperature limitations, on October 30, 2006, the Discharger requested an exception to the Thermal Plan. The Regional Water Board proposes to grant the requested exceptions to the thermal plan (see further discussion in Attachment F, Sections IV.C.3 and IV.D.3).

3. **Bay-Delta Plan.** The *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* (Bay-Delta Plan) was adopted in May 1995 by the State Water Board superseding the 1991 Bay-Delta Plan. The Bay-Delta Plan identifies the beneficial uses of the estuary and includes objectives for flow, salinity, and endangered species protection.

   The Bay-Delta Plan attempts to create a management plan that is acceptable to the stakeholders while at the same time is protective of beneficial uses of the San Joaquin River. The State Water Board adopted Decision 1641 (D-1641) on December 29, 1999. D-1641 implements flow objectives for the Bay-Delta Estuary, approves a petition to change points of diversion of the Central Valley Project and the State Water Project in the Southern Delta, and approves a petition to change places of use and purposes of use of the Central Valley Project. The water quality objectives of the Bay-Delta Plan are implemented as part of this Order.

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

5. **Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at title 40, Code of Federal Regulations section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the

previous permit, with some exceptions in which limitations may be relaxed. Compliance with the Anti-Backsliding requirements is discussed in Section IV.D.3.

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

7. **Stormwater Requirements – Not Applicable.**

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

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

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 October 25, 2006 USEPA gave final approval to California's 2006 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 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 listing for the Delta Waterways (northern portion) includes: chlorpyrifos, DDT, diazinon, exotic species, group A pesticides, mercury, PCBs (polychlorinated biphenyls), and unknown toxicity.

2. **Total Maximum Daily Loads.** The USEPA requires the Regional Water Board to develop total maximum daily loads (TMDLs) for each 303(d) listed pollutant and water body combination. No applicable TMDLs have been completed for the Delta Waterways (northern portion). Development of TMDLs have been initiated for the Sacramento – San Joaquin River Delta for mercury, diazinon and chlorpyrifos. The Order may be reopened upon the completion of the TMDLs for the establishment of applicable effluent limitations.

E. Other Plans, Polices and Regulations

1. 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 Section 122.44(d)(1)(i), NPDES permits must contain limits that control all pollutants that "*are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality*." Federal Regulations, 40 CFR, §122.44(d)(1)(vi), further provide that "[w]*here a state has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits.*"

The CWA requires point source discharges to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations: 40 CFR §122.44(a) requires that permits include applicable technology-based limitations and standards, and 40 CFR §122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water where numeric water quality objectives have not been established. The Regional Water Board's Basin Plan, page IV-21, contains an implementation policy ("Application of Water Quality Objectives") that specifies that the Regional Water Board "*will, on a case-by-case basis, adopt numerical limitations in orders which will implement the narrative objectives*." This Policy complies with 40 CFR §122.44(d)(1). With respect to narrative objectives, the Regional Water Board must establish effluent limitations using one or more of three specified sources, including (1) EPA's published water quality criteria, (2) a proposed state criterion (*i.e*., water quality objective) or an explicit state policy interpreting its narrative water quality criteria (*i.e*., the Regional Water Board's "Policy for Application of Water Quality Objectives")(40 CFR 122.44(d)(1) (vi) (A), (B) or (C)), or (3) an indicator parameter. The Basin Plan contains a narrative objective requiring that: "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*" (narrative toxicity objective). The Basin Plan requires the application of the most stringent objective necessary to ensure that surface water and groundwater do not contain chemical constituents, discoloration, toxic substances, radionuclides, or taste and odor producing substances that adversely affect beneficial uses. The Basin Plan states that

material and relevant information, including numeric criteria, and recommendations from other agencies and scientific literature will be utilized in evaluating compliance with the narrative toxicity objective. The Basin Plan also limits chemical constituents in concentrations that adversely affect surface water beneficial uses. For waters designated as municipal, the Basin Plan specifies that, at a minimum, waters shall not contain concentrations of constituents that exceed Maximum Contaminant Levels (MCL) of CCR Title 22. The Basin Plan further states that, to protect all beneficial uses, the Regional Water Board may apply limits more stringent than MCLs.

A. Discharge Prohibitions

1. *As stated in section I.G of Attachment 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 section 125.3 of the Code of Federal Regulations 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 section 125.3.

2. Applicable Technology-Based Effluent Limitations

ELGs have not been developed for the discharges from the Facility. The Discharger is required to develop and implement a Best Management Practices Plan (BMPP) that entails site-specific plans and procedures implemented and/or to be implemented to prevent additional pollutants from being discharged to waters of the State. Pursuant to 40 CFR §122.44(k), the Regional Water Board will require the Discharger to develop and implement a BMPP. The purpose of the best management practices (BMPs) will be to establish site-specific procedures that will ensure proper operation and maintenance of heating and cooling equipment, prevent the addition of chemicals or other substances from being introduced into the non-contact cooling water, and prevent the addition of pollutants from other non-permitted process waters, spills, or other sources of pollutants) at the Facility.

The BMP plan, based on BPJ, will serve as the equivalent of technology-based effluent limitations, in order to carry out the purposes and intent of the CWA.

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

As specified in section 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 beneficial uses of the Sacramento 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* <u>*shall*</u> *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 reasonable worst-case condition in order to protect beneficial uses for all discharge conditions. For purposes of establishing WQBELs, a reported hardness value of 31 mg/L as $CaCO_3$ (sample was taken upstream of the discharge on 9 October 2002) was used.

c. **Assimilative Capacity/Mixing Zone.** 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. Any available dilution may be used to calculate protective effluent limitations by applying water quality criteria at the edge of the defined mixing zone. These calculations include receiving water pollutant concentration that are typically based on reasonable worst-case conditions for flow and concentration. For completely mixed discharges, the SIP allows the dilution for acute aquatic life criteria and objectives to be calculated using a ratio of the lowest 1-day average flow that occurs (on average) once every 10 years (1Q10) to the maximum daily effluent flow. In addition, the SIP allows dilution for chronic aquatic life criteria and objectives to be calculated using the ratio of the lowest 7-day average flow that occurs (on average) once every 10 years (7Q10) to the maximum effluent 4-day daily average flow; and for human health criteria and objectives to be calculated using the ratio of harmonic mean flow to the long term arithmetic mean effluent flow. For incompletely mixed discharges, the SIP requires the dilution credits and mixing zones only be allowed after the Discharger has completed an independent mixing zone study and demonstrated to the satisfaction of the Regional Water Board that a dilution credit is appropriate.

There are two USGS flow monitoring stations in the vicinity of the Discharge. The upstream USGS station No.11447500 at Sacramento has flow data available for the period from 1 October 1948 to 30 September 1979; the downstream USGS station No.11447650 at Freeport has flow data available for the period from 1

October 1948 to 30 September 2005. In the Discharger's 30 August 2005 Report of Waste Discharge, the Facility provided a dilution analysis based on flow data from the USGS downstream station at Freeport since the upstream station at Sacramento does not typically provide data during the critical summer low flow period. Flow data at the Freeport station were used for estimation of 1Q10, 7Q10 and harmonic mean flows. Based on a comparison between flow data at the Freeport station and available data from the upstream station at Sacramento, the Discharger determined that a factor of 90 percent of the flows at the downstream Freeport station would be used as a conservative estimation of the upstream receiving water flows. Based on the analysis provided by the Discharger, the Regional Water Board considers that this is an appropriate approach for estimation of 1Q10, 7Q10 and harmonic mean flows.

The Discharger's daily flow data from 1 January 2000 through 1 August 2005 were used to calculate the maximum daily flow of 14.6 mgd, the 4-day average of daily maximum flows (13.1 mgd), and the long-term arithmetic mean flow of 5.6 mgd

Calculated dilution ratios are presented as follows:

Table F-3. Receiving Water Flows, Discharge Flows, and Associated Dilution Ratios

Water Quality Criteria	Receiving Water Flow Rate, mgd	Discharge Flow Rate, mgd	Calculated Dilution Ratio
Acute aquatic life toxicity criteria	2,335 (1Q10)	14.6[1]	160:1
Chronic aquatic life toxicity criteria	2,408 (7Q10)	13.1[2]	184:1
Human health-based criteria	9,174 (Harmonic Mean)	5.6[3]	1,640:1

[1] Maximum daily flow.
[2] 4-day average of daily maximum flows.
[3] Long term arithmetic mean flow.

The decision to allow dilution credits depends upon whether a discharge is completely or incompletely mixed. For constituents where water quality criteria are based on human health objectives, critical environmental impacts are expected to occur far downstream from the source such that complete mixing is a valid assumption. Therefore, for purposes of establishing WQBELs in this Order, dilution credits have been granted for constituents with human health-based criteria using Table F-3. However, for constituents with aquatic life toxicity-based criteria, where impacts can occur over a small spatial scale near the effluent discharge point, complete mixing is not a valid assumption such that dilution credit has not been granted for these constituents. This Order includes a provision that allows the permit to be reopened to allow dilution credits if the Discharger completes a mixing zone and dilution study that demonstrates to the satisfaction of the Regional Water Board that a dilution credit is appropriate.

3. Determining the Need for WQBELs

a. CWA section 301 (b)(1) requires NPDES permits to include effluent limitations that achieve technology-based standards and any more stringent limitations necessary to meet water quality standards. Water quality standards include Regional Water Board Basin Plan beneficial uses and narrative and numeric water quality objectives, State Water Board-adopted standards, and federal standards, including the CTR and NTR. The Basin Plan includes numeric site-specific water quality objectives and narrative objectives for toxicity, chemical constituents, and tastes and odors. The narrative toxicity objective states: "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at III-8.00.) With regards to the narrative chemical constituents objective, the Basin Plan states that waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At minimum, "…*water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs)*" in Title 22 of CCR. The narrative tastes and odors objective states: "*Water shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.*"

b. Federal regulations require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause, or contribute to an in-stream excursion above a narrative or numerical water quality standard. Based on information submitted as part of the application, in studies, and as directed by monitoring and reporting programs, the Regional Water Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for aluminum, arsenic, chlorine residual, copper, dibromochloromethane, dichlorobromomethane, iron, manganese, and electrical conductivity. 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. The SIP states in the introduction "*The goal of this Policy is to establish a standardized approach for permitting discharges of toxic pollutants to non-ocean surface waters in a manner that promotes statewide consistency."* Therefore, in this Order the RPA procedures from the SIP were used to evaluate reasonable potential for both CTR and non-CTR constituents.

d. WQBELs were calculated in accordance with section 1.4 of the SIP, as described in Attachment F, Section IV.C.4.

e. **Aluminum.** USEPA developed National Recommended Ambient Water Quality Criteria for protection of freshwater aquatic life for aluminum. The recommended

4-day average (chronic) and 1-hour average (acute) criteria for aluminum are 87 µg/L and 750 µg/L, respectively, for waters with a pH of 6.5 to 9.0. USEPA recommends that the ambient criteria are protective of the aquatic beneficial uses of receiving waters in lieu of site-specific criteria. The receiving stream has been measured to have a low hardness—typically between 31 mg/L and 71 mg/L as $CaCO_3$. This condition is supportive of the applicability of the ambient water quality criteria for aluminum, according to USEPA's development document.

The MEC for aluminum was 82 µg/L, based on five samples collected between March 2002 and August 2005, while the maximum observed upstream receiving water aluminum concentration was 140 µg/L. Therefore, aluminum in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a level necessary to protect aquatic life resulting in a violation of the Basin Plan's narrative toxicity objective. Since the receiving water exceeds the acute criteria, no assimilative capacity for aluminum is available and a dilution credit cannot be allowed. This Order contains a final Average Monthly Effluent Limitation (AMEL) and Maximum Daily Effluent Limitation (MDEL) for aluminum of 71 µg/L and 143 µg/L, respectively, based on USEPA's National Ambient Water Quality Criteria for the protection of freshwater aquatic life (see Attachment F, Table F-6 for WQBEL calculations).

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

Based on the sample results in the effluent, it appears that the Discharger may be in immediate non-compliance upon issuance of the permit. New or modified control measures may be necessary in order to comply with the effluent limitations, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. The Basin Plan for the Sacramento and San Joaquin River Basins includes a provision that authorizes the use of compliance schedules in NPDES permits for water quality objectives adopted after 25 September 1995 (see Basin Plan at page IV-16). The WQBELs for aluminum are based on a new interpretation of the narrative standard for protection of receiving water beneficial uses. Therefore, a compliance schedule for compliance with the aluminum effluent limitations is established in the Order.

An interim performance-based maximum daily effluent limitation of 255 µg/L has been established in this Order. The interim limitation was determined as described in Attachment F, Section IV.E.1, and is in effect through May 31, 2012. As part of the compliance schedule, this Order requires the Discharger to submit a corrective action plan and implementation schedule to assure compliance with the final aluminum effluent limitations. In addition, the Discharger shall submit an

engineering treatment feasibility study and prepare and implement a pollution prevention plan that is in compliance with CWC section 13263.3(d)(3)

f. **Arsenic.** The USEPA Primary Maximum Contaminant Level (MCL) is 10 µg/L for arsenic. Pursuant to the Safe Drinking Water Act, DHS must revise the arsenic MCL in Title 22 CCR to be as low or lower than the USEPA MCL. Applying the Basin Plan's "Policy for Application of Water Quality Objectives", to protect future municipal and domestic water use, it is reasonable to apply the USEPA MCL for arsenic to the receiving stream.

   The MEC for arsenic was 13 µg/L, based on five samples collected between March 2002 and August 2005, while the maximum observed upstream receiving water arsenic concentration was 2.2 µg/L. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the USEPA Primary MCL.

   The receiving water has an arsenic concentration that is less than the applicable water quality objective, therefore assimilative capacity for arsenic is available. The effluent limitation calculation procedures in Section 1.4 of the SIP allow for the granting of a human health dilution credit based on the estimated harmonic mean flow of the Sacramento River and the arithmetic mean flow, which would lead to a dilution credit of 1640:1 (see Section IV.C.2.c) and an AMEL of 12,792 µg/L, which is protective of the Basin Plan's narrative chemical constituents objective. However, the Regional Water Board finds that granting of this dilution credit could allocate an unnecessarily large portion of the receiving water's assimilative capacity for human health water quality criteria and could violate the Antidegradation Policy. For this reason, a performance-based effluent limitation is included in this order that is calculated in the same way that interim limits are calculated (see Section IV.E.1 below). A maximum daily effluent limitation for arsenic of 40.4 µg/L is included in this Order.

g. **Chlorine Residual.** The 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 are 0.011 mg/L (4-day average, CCC) and 0.019 mg/L (1-hour average, CMC). The MEC based on effluent data submitted by the Discharger from March 2002 through August 2005 is 0.08 mg/L. Therefore, chlorine residual in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a level necessary to protect aquatic life resulting in a violation of the Basin Plan's narrative toxicity objective.

   The Discharger's primary source of cooling water is from its groundwater supply. In the past the Discharger has used municipal water on an intermittent basis (varying between 4 and 24 days per year maximum) to provide additional cooling water. The use of municipal water resulted in the intermittent presence of chlorine in the discharge. However, the Discharger has changed its practices and no longer uses municipal water, except for on an emergency basis. Municipal water has not been used to augment cooling water at the Facility since September 14, 2005.

The USEPA *Technical Support Document for Water Quality-Based Toxics Control* [EPA/505/2-90-001] contains statistical methods for converting chronic (4-day) and acute (1-hour) aquatic life criteria to average monthly and maximum daily effluent limitations based on the variability of the existing data and the expected frequency of monitoring. However, for POTWs that use chlorine to disinfect its wastewater, the Regional Water Board has found that because chlorine is an acutely toxic constituent, an average 1-hour limitation is considered more appropriate than a maximum daily limitation. Continuous chlorine residual monitoring is required to determine compliance with the 1-hour limitation, which is appropriate for POTWs that use large quantities of chlorine for disinfection purposes. However, in the case of the DGS Heating and Cooling Facility, the Discharger may only use municipal supply water on an emergency basis, so although there is the potential for chlorine to be in the discharge, it is not expected to be in the discharge under most conditions. Therefore, it is not appropriate to require continuous monitoring of chlorine residual. Thus, this Order requires grab samples for measuring chlorine residual and WQBELs are included as an MDEL of 0.02 mg/L and a 4-day average of 0.01 mg/L.

The Discharger may be in immediate non-compliance upon issuance of the permit during times when municipal water is used to augment cooling water. Facilities to de-chlorinate the effluent when municipal water is being used must be implemented to comply with the effluent limitations. A period of six months from the effective date of this Order is provided for the Discharger to develop and implement facilities to de-chlorinate the effluent.

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 factor for copper in freshwater is 0.96 for both the acute and the chronic criteria. Using the worst-case measured hardness from the receiving water (31 mg/L as $CaCO_3$) and the USEPA recommended dissolved-to-total translator, the applicable chronic criterion (maximum 4-day average concentration) is 3.43 µg/L and the applicable acute criterion (maximum 1-hour average concentration) is 4.64 µg/L, as total recoverable.

The MEC for total copper was 22 µg/L, based on five samples collected between March 2002 and August 2005, while the maximum observed upstream receiving water total copper concentration was 3 µg/L. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for copper. Since the Discharger has not provided a mixing zone and dilution study for the determination of dilution credits for acute and chronic aquatic life criteria, no dilution is allowed. An AMEL and MDEL for total copper of 2.31 µg/L and 4.64 µg/L, respectively, are included in this Order based on CTR criteria for the protection of freshwater aquatic life (see Attachment F, Table F-8 for WQBEL calculations).

The Discharger is 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 maximum daily limitation of 68.4 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 new WQBELs 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 a pollution prevention program in compliance with CWC section 13263.3(d)(3) and submit an engineering treatment feasibility study.

i. **Dibromochloromethane***.* The CTR includes a dibromochloromethane criterion of 0.41 µg/L for the protection of human health and is based on a one-in-a-million cancer risk for waters from which both water and organisms are consumed. The MEC for dibromochloromethane was 2 µg/L, based on five samples collected between March 2002 and August 2005, while the maximum observed upstream receiving water dibromochloromethane concentration was 0.05 µg/L. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for dibromochloromethane.

The ambient monitoring demonstrates the receiving water has assimilative capacity for dibromochloromethane. The effluent limitation calculation procedures in Section 1.4 of the SIP allow for the granting of a human health dilution credit based on the estimated harmonic mean flow of the Sacramento River and the arithmetic mean flow, which would lead to a dilution credit of 1640:1 (see Section IV.C.2.c) and an AMEL and MDEL of 591 µg/L 1,188 µg/L, respectively. However, the Regional Water Board finds that granting of this dilution credit could allocate an unnecessarily large portion of the receiving water's assimilative capacity for human health water quality objectives and could violate the Antidegradation Policy. For this reason, a performance-based effluent limitation is included in this order that is calculated in the same way that interim

limits are calculated (see Section IV.E.1 below). A MDEL for dibromochloromethane of 6.22 µg/L is included in this order.

j. **Dichlorobromomethane.** The CTR includes a dichlorobromomethane criterion of 0.56 µg/L for the protection of human health and is based on a one-in-a-million cancer risk for waters from which both water and organisms are consumed. The MEC for dichlorobromomethane was 3.4 µg/L, based on five samples collected between March 2002 and August 2005, while the maximum observed upstream receiving water dichlorobromomethane concentration was 0.03 µg/L. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for dichlorobromomethane.

The ambient monitoring demonstrates the receiving water has assimilative capacity for dichlorobromomethane. The effluent limitation calculation procedures in Section 1.4 of the SIP allow for the granting of a human health dilution credit based on the estimated harmonic mean flow of the Sacramento River and the arithmetic mean flow, which would lead to a dilution credit of 1640:1 (see Section IV.C.2.c) and an AMEL and MDEL of 870 µg/L 1,748 µg/L, respectively. However, the Regional Water Board finds that granting of this dilution credit could allocate an unnecessarily large portion of the receiving water's assimilative capacity for human health water quality objectives and could violate the Antidegradation Policy. For this reason, a performance-based effluent limitation is included in this order that is calculated in the same way that interim limits are calculated (see Section IV.E.1 below). A maximum daily limitation for dichlorobromomethane of 10.57 is included in this order.

k. **Electrical Conductivity. (see Subsection for Salinity)**

l. **Iron.** The Secondary MCL - Consumer Acceptance Limit for iron is 300 µg/L. The MEC for iron was 3,800 µg/L, based on 50 samples collected between March 2002 and August 2005, while the maximum observed upstream receiving water iron concentration was 340 µg/L. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Secondary MCL for iron. No dilution is allowed due to the fact that the upstream receiving water concentration is higher than the water quality objective for iron. An average annual effluent limitation of 300 µg/L for iron is included in this Order based on protection of the Basin Plan's narrative chemical constituents objective.

Based on the sample results for the effluent, the limitations appear to put the Discharger in immediate non-compliance. New or modified control measures may be necessary in order to comply with the effluent limitations, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. Furthermore, the effluent limitations for iron are a new regulatory requirement within this permit, which becomes applicable to the waste discharge with the adoption of this Order, which was adopted after July 1, 2000. Therefore, a compliance time schedule for compliance with the iron effluent limitations is established in TSO No. R5-2007-XXXX in accordance with CWC section 13300, that requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3.

m. **Manganese.** The Secondary MCL - Consumer Acceptance Limit for manganese is 50 µg/L. The MEC for manganese was 950 µg/L, based on five samples collected between March 2002 and August 2005, while the maximum observed upstream receiving water manganese concentration was 28 µg/L. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Secondary MCL for manganese. The ambient monitoring demonstrates the receiving water has assimilative capacity for manganese. The effluent limitation calculation procedures in Section 1.4 of the SIP allow for the granting of a human health dilution credit based on the estimated harmonic mean flow of the Sacramento River and the arithmetic mean flow, which would lead to a dilution credit of 1640:1 (see Section IV.C.2.c) and an average annual effluent limitation of 36,130 µg/L. However, the Regional Water Board finds that granting of this dilution credit could allocate an unnecessarily large portion of the receiving water's assimilative capacity for human health water quality objectives and could violate the Antidegradation Policy. For this reason, a performance-based effluent limitation is included in this order that is calculated in the same way that interim limits are calculated (see Section IV.E.1 below). A maximum daily limitation for manganese of 2954 µg/L is included in this order.

n. **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.*" As was required in the previous Order, effluent limitations for pH are included in this Order based on the Basin Plan objectives for pH.

o. **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 and contains a narrative objective.

Based on monitoring data, TDS, chloride and sulfate do not have reasonable potential to cause or contribute to an in-stream excursion above their water quality objectives.

Table F-4. Salinity Water Quality Criteria/Objectives

Parameter	Agricultural WQ Goal[1]	Secondary MCL[3]	Effluent	
			Avg	Max
EC (µmhos/cm)	700[2]	900, 1600, 2200	388	664
TDS (mg/L)	450[2]	500, 1000, 1500	255	426
Sulfate (mg/L)	N/A	250, 500, 600	3.96	5.5
Chloride (mg/L)	106[2]	250, 500, 600	32.8	79

[1] 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)

[2] 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.

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

i. **Chloride**. The secondary MCL for chloride is 250 mg/L, as recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum. The recommended agricultural water quality goal for chloride, that would apply the narrative chemical constituent objective, is 106 mg/L as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). The 106 mg/L water quality goal is intended to protect against adverse effects on sensitive crops when irrigated via sprinklers.

   Chloride concentrations in the effluent ranged from 7.4 mg/L to 79 mg/L, with an average of 32.8 mg/L, for four samples collected by the Discharger in 2002. The background concentration measured in the Sacramento River was 5.9 mg/L. Both the receiving water and the effluent chloride concentration were less than agricultural water quality goal of 106 mg/L. Therfore, the discharge does not have a reasonable potential to cause or contribute to an in-stream excursion above the chloride water quality objectives.

ii. **Electrical Conductivity (EC)**. The secondary MCL for EC is 900 µmhos/cm as a recommended level, 1600 µmhos/cm as an upper level, and 2200 µmhos/cm as a short-term maximum. The 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.

   A review of the Discharger's monitoring reports from October, 2002 through December, 2006 shows an average effluent EC of 387 µmhos/cm, with a range from 145 µmhos/cm to 664 µmhos/cm based on 220 samples. The maximum background receiving water EC is 190 µmhos/cm. These data show that the discharge does not have a reasonable potential to cause or contribute to an in-stream excursion above the EC water quality objectives.

   Two effluent data points for EC have been found to be suspect and have not

been considered in the evaluation. On December 26, 2002 the EC was measured as 60 µmhos/cm and on August 13, 2004 the EC was 990 µmhos/cm. The EC data is tightly grouped with these two data points as outliers. The TDS of the effluent was measured at the same time as the EC in most cases, so a ratio of EC/TDS can be established for the discharge. Typically, the ratio of EC/TDS is about 1.5 – 2. The EC/TDS ratio for the discharge was 1.55 on average. However, for the August 13, 2004 sampling, the EC/TDS ratio was 4.95 with the TDS in the normal range for the discharge. Therefore, the EC sample is likely invalid. There is no TDS data to compare the December 26, 2002 sample against, but the data point lies well outside the other data points.

iii. **Sulfate**. The secondary MCL for sulfate is 250 mg/L as recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum. Sulfate concentrations in the effluent ranged from 1.7 mg/L to 5.5 mg/L, with an average of 3.96 mg/L, for five samples collected by the Discharger between March 2002 through August 2005. The background concentration measured in the Sacramento River was 7.4 mg/L. Both the receiving water and the effluent sulfate concentrations were less than the secondary MCL recommended level of 250 mg/L. Therefore, the discharge does not have a reasonable potential to cause or contribute to an in-stream excursion above the sulfate water quality objectives.

iv. **Total Dissolved Solids (TDS).** The secondary MCL for TDS is 500 mg/L as a recommended level, 1000 mg/L as an upper level, and 1500 mg/L as a short-term maximum. The 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 effluent concentration was 255 mg/L and ranged from 94 mg/L to 426 mg/L based on 220 samples collected by the Discharger from October 2002 through December 2006. The background receiving water TDS concentration was 120 mg/L. These data show that the discharge does not have a reasonable potential to cause or contribute to an in-stream excursion above the TDS water quality objectives.

One effluent data point for TDS has been found to be suspect and has not been considered in the evaluation. On November 8, 2005 the TDS was measured as 82.2 mg/L. The EC of the effluent was measured at the same time and the EC/TDS ratio for the discharge was 5.24. This is well above the average EC/TDS ratio of 1.55 and the EC was in the normal range for the discharge. Therefore, the TDS sample is likely invalid.

v. **Salinity Effluent Limitations.** Based on the relatively low reported salinity in the effluent, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion of water quality objectives for salinity. However, since the discharge is to the Sacramento-San Joaquin Delta, of additional concern is the salt contribution to Delta waters. Allowing the Discharger to increase its current salt loading may be contrary to the Region wide effort to address salinity in the Central Valley and Resolution 68-16, which requires that existing high quality waters be maintained until it has been demonstrated that any change will be consistent with the maximum benefit to the people of the State. Therefore, in accordance with Resolution 68-16, this Order includes a performance-based maximum daily effluent limitation of 719 µmhos/cm for EC to limit the discharge to current levels. It also requires the Discharger to prepare a salinity evaluation and minimization plan.

p. **Temperature.** Since the discharge is a thermal waste, Waste Discharge Requirements, Order No. R5-2002-0016, contained effluent limitations for temperature based on the Thermal Plan, which state that, “the maximum temperature of the discharge shall not exceed 86°F, nor exceed the natural receiving water temperature by more than 20°F”.

The previous Order raised concerns regarding the possible effect of elevated temperatures on aquatic life in the Sacramento River. As a result of these concerns, the previous Order required that a comprehensive study be performed by the Discharger to evaluate the effect of the thermal discharge to salmon and other migrating fish in the vicinity of the discharge. Based on the results of the study, as well as the continued violation of the effluent and receiving water temperature limitations, on 30 October 2006, the Discharger requested an exception to the Thermal Plan. The Discharger submitted a Thermal Effects Study to the Regional Water Board in January 2006.

The Study findings as they relate to the effluent limitations are summarized below:

1. The Thermal Effects Study indicates that discharge temperatures up to 91°F (under worst-case conditions) would not cause adverse effects on aquatic life due to size, shape, limited distribution within the river, and buoyant nature of the thermal plume throughout the year.

2. The Facility typically complies with the limitation of the maximum temperature differential of 20°F during the summer months between May and October. The Study indicates that the maximum temperature differential of 39°F would

not cause adverse effects on aquatic life due to the size, shape, limited distribution within the river, and buoyant nature of the thermal plume throughout the year. The maximum effluent temperature of 89°F assures that conditions that will occur until the discharge is terminated in 2012 will not create conditions worse than those evaluated in the Thermal Effects Study. The incremental increase in fully mixed receiving water (under worst-case conditions) is less than or equal to 0.11°F; therefore, no cumulative thermal effect of concern is present in the receiving water.

As a result of these findings, the Regional Water Board proposes to grant the requested exceptions to the thermal plan. The resulting effluent limitations for temperature will require that the maximum temperature of the discharge shall not exceed 89°F, nor exceed the natural receiving water temperature by more than 20°F from May to October and by more than 39°F from November to April.

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

4. WQBEL Calculations

a. As discussed in Section IV.C.3 above, effluent limitations based on primary and secondary MCLs were applied as MDELs for arsenic and manganese, and as an annual average for iron. Effluent limitations for chlorine residual, pH, and temperature were based on Basin Plan objectives and applied directly as effluent limitations.

b. Effluent limitations for aluminum, copper, dibromochloromethane, and dichlorobromomethane were calculated in accordance with section 1.4 of the SIP. The following paragraphs describe the methodology used for calculating effluent limitations.

c. **Effluent Limitation Calculations.** For each water quality criterion/objective, the effluent concentration allowance (ECA) were calculated using the following steady- state mass balance equation:

$ECA = C + D(C - B)$ *where C>B, and*
$ECA = C$ *where C<=B,*

where:

ECA = effluent concentration allowance

D = dilution credit

C = the priority pollutant criterion/ objective

B = the ambient background concentration. The ambient background concentration shall be the observed maximum with the exception that an ECA calculated from a priority pollutant criterion/objective that is intended to protect human health from carcinogenic effects shall use the ambient background concentration as an arithmetic mean.

Acute and chronic toxicity ECAs were then converted to equivalent long-term averages (LTA) using statistical multipliers and the lowest is used. Additional statistical multipliers were then used to calculate the maximum daily effluent limitation (MDEL) and the average monthly effluent limitation (AMEL).

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

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

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

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

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

WQBELs were calculated for aluminum, arsenic, copper, dibromochloromethane, dichlorobromomethane, iron, and manganese as described in the Tables below.

Table F-5. WQBEL Calculations for Aluminium

	Acute	Chronic
Criteria (µg/L) [1]	750	87
Dilution Credit	No Dilution	No Dilution
ECA	750	87
ECA Multiplier	0.32	0.53
LTA	240.8	45.9
AMEL Multiplier (95th%)	[2]	1.55
AMEL (µg/L)	[2]	**71**
MDEL Multiplier (99th%)	[2]	3.11
MDEL (µg/L)	[2]	**143**

[1] USEPA Ambient Water Quality Criteria
[2] Limitations based on chronic LTA (Chronic LTA < Acute LTA)

Table F-6. WQBEL Calculations for Copper

	Acute	Chronic
Criteria, total (µg/L) [1]	4.64	3.43
Dilution Credit	No Dilution	No Dilution
ECA, total recoverable [2]	4.64	3.43
ECA Multiplier [3]	0.32	0.53
LTA	1.49	1.81
AMEL Multiplier (95th%) [4][5]	1.55	[7]
AMEL (µg/L)	**2.31**	[7]
MDEL Multiplier (99th%) [6]	3.11	[7]
MDEL (µg/L)	**4.64**	[7]

[1] CTR aquatic life criteria, based on a hardness of 31 mg/L as $CaCO_3$.
[2] ECA calculated per section 1.4.B, Step 2 of SIP. This allows for the consideration of dilution.
[3] 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.
[4] Assumes sampling frequency n=>4.
[5] 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.
[6] 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.
[7] Limitations based on acute LTA

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

Table F-7. Summary of Water Quality-based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
pH	Standard Units	--	--	--	6.5	8.5
Dichlorobromomethane	µg/L	--	--	11	--	--
Dibromochloromethane	µg/L	--	--	6.2	--	--
Arsenic, Total Recoverable	µg/L	--	--	40	--	--
Copper, Total Recoverable	µg/L	2.3	--	4.6	--	--
Aluminum, Total Recoverable	µg/L	71	--	143	--	--
Chlorine, Total Residual	mg/L	--	0.01 [1]	0.02	--	--
Electrical Conductivity	µmhos/cm		--	719	--	--
Iron, Total Recoverable	µg/L	300	--	--	--	--
Manganese, Total Recoverable	µg/L	--	--	2954	--	--
Temperature	°F	--	--	--	--	[2]

[1] Applied as a 4-day average effluent limitation
[2] The maximum temperature of the discharge shall not exceed 89°F , nor exceed the natural receiving water temperature by more than 20°F from May to October and by more than 39°F from November to April.

5. Whole Effluent Toxicity (WET)

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

a. **Acute Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at III-8.00) The Basin Plan also states that, "…*effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate*…". USEPA Region 9 provided guidance for the development of acute toxicity effluent limitations in the absence of numeric water quality objectives for toxicity in its document titled "Guidance for NPDES Permit Issuance", dated February 1994. In section B.2. "Toxicity Requirements" (pgs. 14-15) it states that, "*In the absence of specific numeric water quality objectives for acute and chronic toxicity, the narrative criterion 'no toxics in toxic amounts' applies. Achievement of the narrative criterion, as applied herein, means that ambient waters shall not demonstrate for acute toxicity: 1) less than 90% survival, 50% of the time, based on the monthly median, or 2) less than 70% survival, 10% of the time, based on any monthly median. For chronic toxicity, ambient waters shall not demonstrate a test result of greater than 1 TUc."* Accordingly, effluent limitations for acute toxicity have been included in this Order as follows:

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

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

b. **Chronic Aquatic Toxicity.** The previous Order No. R5-2002-0016 required quarterly chronic whole effluent toxicity monitoring in order to demonstrate compliance with the Basin Plan's narrative toxicity objective. Chronic toxicity data showed that the numeric toxicity monitoring trigger of 1 TUc was exceeded for *Pimephales promelas* in September 2004 and for *Ceriodaphnia dubia* in September and December 2006.

   No dilution has been granted for the chronic condition. Therefore, chronic toxicity testing results exceeding 1 chronic toxicity unit (TUc) demonstrates the discharge has a reasonable potential to cause or contribute to an exceedance of the Basin Plan's narrative toxicity objective.

   Numeric chronic WET effluent limitations have not been included in this order. The SIP contains implementation gaps regarding the appropriate form and

implementation of chronic toxicity limits. This has resulted in the petitioning of a NPDES permit in the Los Angeles Region[1] that contained numeric chronic toxicity effluent limitations. To address the petition, the State Water Board adopted WQO 2003-012 directing its staff to revise the toxicity control provisions in the SIP. The State Water Board states the following in WQO 2003-012*, "In reviewing this petition and receiving comments from numerous interested persons on the propriety of including numeric effluent limitations for chronic toxicity in NPDES permits for publicly-owned treatment works that discharge to inland waters, we have determined that this issue should be considered in a regulatory setting, in order to allow for full public discussion and deliberation. We intend to modify the SIP to specifically address the issue. We anticipate that review will occur within the next year. We therefore decline to make a determination here regarding the propriety of the final numeric effluent limitations for chronic toxicity contained in these permits."* The process to revise the SIP is currently underway. Proposed changes include clarifying the appropriate form of effluent toxicity limits in NPDES permits and general expansion and standardization of toxicity control implementation related to the NPDES permitting process. Since the toxicity control provisions in the SIP are under revision it is infeasible to develop numeric effluent limitations for chronic toxicity. Therefore, this Order requires that the Discharger meet best management practices for compliance with the Basin Plan's narrative toxicity objective, as allowed under 40 CFR 122.44(k).

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

D. Final Effluent Limitations

1. Mass-based Effluent Limitations

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

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

122.45(f)(1), some effluent limitations are not expressed in terms of mass, such as pH and temperature, and when the applicable standards are expressed in terms of concentration (e.g., CTR criteria and MCLs) and mass limitations are not necessary to protect the beneficial uses of the receiving water. Because all of the effluent limitations are based on concentration-based water quality objectives, no mass-based effluent limitations are included in this Order.

2. Averaging Periods for Effluent Limitations

The rationale for using shorter averaging periods for total residual chlorine is discussed in Attachment F, Section IV.C.3., above.

3. Satisfaction of Anti-Backsliding Requirements

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

The State Water Board adopted a *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California* (Thermal Plan) on May 18, 1972, and amended this plan on September 18, 1975. This plan contains temperature objectives for surface waters. Since the discharge is a thermal waste discharge, Waste Discharge Requirements, Order No. R5-2002-0016, contained effluent limitations, which stated that, "the maximum temperature of the discharge shall not exceed 86°F, nor exceed the natural receiving water temperature by more than 20°F". Order No. R5-2002-0016 also contains Receiving Water Limitation D.10, which states," the discharge shall not cause surface water temperatures to rise more than 4°F above the natural temperature of the receiving waters at any time or place" and D.11, which states that "the discharger shall not cause a zone, defined by water temperatures of more than 1°F above natural receiving water temperature, which exceeds 25 percent of the cross-sectional area of the Sacramento River at any point."

The previous Order raised concerns regarding the possible effect of elevated temperatures on aquatic life in the Sacramento River. As a result of these concerns, the previous Order required that a comprehensive study be performed by the Discharger to evaluate the effect of the thermal discharge to salmon and other migrating fish in the vicinity of the discharge. Based on the results of the study, as well as the continued violation of the effluent and receiving water temperature limitations, on October 30, 2006, the Discharger requested an exception to the Thermal Plan. The Discharger provided a Thermal Effects Study to the Regional Water Board in January 2006. The Study findings are summarized below:

1. The Thermal Effects Study indicates that discharge temperature up to 91°F (under worst-case conditions) would not cause adverse effects on aquatic life due to size, shape, limited distribution within the river, and buoyant nature of the thermal plume throughout the year.

2. The Facility typically complies with the limitation of the maximum temperature differential of 20°F during the summer months between May and October. The Study indicates that the maximum temperature differential of 39°F would not cause adverse effects on aquatic life due to the size, shape, limited distribution within the river, and buoyant nature of the thermal plume throughout the year.

   The maximum effluent temperature of 89°F assures that conditions that will occur until the discharge is terminated in 2010 will not create conditions worse than those evaluated in the Thermal Effects Study.

   The incremental increase in fully mixed receiving water (under worst-case conditions) is less than or equal to 0.11°F; therefore, no cumulative thermal effect of concern is present in the receiving water.

3. The Thermal Effect Study indicates that, under worst- case conditions (that would occur less than 1 percent of the time), a maximum temperature differential of 14°F could occur at the surface within a 40 foot by 50 foot area. Under these conditions, the maximum temperature differential 1 foot below the surface would be 8°F. Under typical conditions, the surface temperature differential would be limited to about 4°F, with the differential 1 foot below the surface being 2°F.

The Thermal Effect Study indicates that these surface conditions would not cause adverse effects to Sacramento River aquatic life.

The National Oceanic and Atmospheric Administration's, National Marine Fisheries Service (NMFS) reviewed the Discharger's study, including their modeling approach and fisheries assessment, and found that "this report adequately addresses … concerns regarding the thermal effects of GSHCP (General Services' Central Heating and Cooling Plant) discharges on migrating fishes in the Sacramento River." As a result of these findings, the Regional Water Board proposes to grant the requested exceptions to the thermal plan, and apply the less stringent effluent and receiving water limitations to the discharge from the Facility.

4. Satisfaction of Antidegradation Policy

The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.

a. **Surface Water.** 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. The impact on existing water quality will be insignificant.

b. **Groundwater- Not Applicable.**

Summary of Final Effluent Limitations
Discharge Point No. 001

Table F-8. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations					Basis[1]
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
pH	Unit	--	--	--	6.5	8.5	BP, PO
Dichlorobromo-methane	µg/L	--	--	11	--	--	CTR/AP
Dibromochloro-methane	µg/L		--	6.2	--	--	CTR/AP
Arsenic, Total Recoverable	µg/L	--	--	40	--	--	EPA MCL/AP
Copper, Total Recoverable	µg/L	2.3	--	4.6	--	--	CTR
Aluminum, Total Recoverable	µg/L	71	--	143	--	--	NAWQC
Chlorine, Total Residual	mg/L	--	0.01[2]	0.02	--	--	NAWQC
Flow	mgd	9.0	--	--	--	--	PO
Electrical Conductivity	µmhos/cm	--	--	719	--	--	CCO/AP
Iron, Total Recoverable[5]	µg/L	--	--	--	--	--	CCO
Manganese, Total Recoverable	µg/L	--	--	2954	--	--	CA MCL/AP
Temperature	°F	--	--	--	--	[3]	[3]
Acute Toxicity	% survival	--	--	--	[4]	--	BP, PO

[1] BP – Based on water quality objectives contained in the Basin Plan.
CTR – Based on water quality criteria contained in the California Toxics Rule, and applied as specified in the SIP.
NAWQC – Based on USEPA's National Ambient Water Quality Criteria for the protection of freshwater aquatic life.
PO – Based on the previous order (Order No. 5-2002-0016).
CA MCL – Based on the California Secondary MCLs.
AGR- Based on water quality for Agriculture
EPA MCL- Based on the USEPA Primary MCL.
CCO – Basin Plan narrative chemical constituents objective
AP – Resolution 68-16 (Antidegradation Policy)

[2] Applied as a 4-day average.

[3] Based on Central Valley Regional Water Board Resolution Granting an Exception for the Control of Temperature," The maximum temperature of the discharge shall not exceed 89°F nor exceed the natural receiving water temperature by more than 20°F from May to October and by more than 39°F from November to April."

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

- minimum of 70% for any one bioassay
- median of 90% for any three or more consecutive bioassays.

[5] Effluent total recoverable iron shall not exceed 300 µg/L as an annual average.

E. Interim Effluent Limitations

1. **Aluminum and 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 aluminum and 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 normally distributed data where 99.9 percent of the data points will lie within 3.3 standard deviations of the mean (*Basic Statistical Methods for Engineers and Scientists, Kennedy and Neville, Harper and Row*). 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 10 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 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-9 summarizes the calculations of the interim effluent limitations for aluminum and copper:

Table F-9 Interim Effluent Limitation Calculation Summary

Parameter	MEC	Mean	Std. Dev.	# of Samples	Interim Limitation
Aluminum	82	--	--	5	255
Copper	22	--	--	4	68

F. Land Discharge Specifications – Not Applicable

G. Reclamation Specifications – Not Applicable

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

Basin Plan water quality objectives to protect the beneficial uses of surface water and groundwater include numeric objectives and narrative objectives, including objectives for chemical constituents, toxicity, and tastes and odors. The toxicity objective requires that surface water and groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituent objective requires that surface water and groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use or that exceed the MCLs in Title 22, CCR. The tastes and odors objective states that surface water and groundwater shall not contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. 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 Water 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 biostimulatory substances, chemical constituents, color, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, sediment, settleable material, suspended material, tastes and odors, temperature, toxicity, turbidity, and electrical conductivity.

   Numeric Basin Plan objectives for bacteria, dissolved oxygen, pH, temperature, and turbidity are applicable to this discharge and have been incorporated as Receiving Surface Water Limitations. Rationale for these numeric receiving surface 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. **Color**. The Basin Plan includes a water quality objective that "*[W]ater shall be free of discoloration that causes nuisance or adversely affects beneficial uses."* Receiving Water Limitations for color are included in this Order and are based on the Basin Plan objective.

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

e. **Dissolved Oxygen.** The Sacramento River 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 Sacramento River, a receiving water limitation of 7.0 mg/L for dissolved oxygen was included 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 range, 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. **Pesticides**. The Basin Plan includes a water quality objective for pesticides beginning on page III-6.00. Receiving Water Limitations for pesticides are included in this Order and are based on the Basin Plan objective.

j. **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.

k. **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.

l. **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.

m. **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.

n. **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.

p. **Temperature.** The Thermal Plan is applicable to this discharge. The Thermal Plan requires that the discharge shall not cause the following in the Sacramento River:

   i. A surface water temperature rise greater than 4°F above the natural temperature of the receiving water at any time or place.

ii. The creation of a zone, defined by water temperatures of more than 1°F above natural receiving water temperature, which exceeds 25 percent of the cross-sectional area of the river channel at any point.

The previous Order raised concerns regarding the possible effect of elevated temperatures on fish in the Sacramento River. As a result of these concerns, the previous Order required that a comprehensive study be performed by the Discharger to evaluate the effect of the thermal discharge to migrating fish in the vicinity of the discharge. Based on the results of the study, as well as the continued violation of the effluent and receiving water temperature limitations, on October 30, 2006, the Discharger requested an exception to the Thermal Plan. The Discharger provided a Thermal Effects Study to the Regional Water Board in January 2006.

The Thermal Effect Study indicates that, under worst- case conditions (that would occur less than 1 percent of the time), a maximum temperature differential of 14°F could occur at the surface within a 40 foot by 50 foot area. Under these conditions, the maximum temperature differential 1 foot below the surface would be 8°F. Under typical conditions, the surface temperature differential would be limited to about 4°F, with the differential 1 foot below the surface being 2°F. The Thermal Effect Study indicates that these surface conditions would not cause adverse effects to Sacramento River aquatic life.

As a result of these findings, the Regional Water Board proposes to grant the requested exceptions to the thermal plan which state that that the discharge shall not cause a surface water temperature to rise greater than 14°F above the natural temperature of the receiving waters at any time or place.

r. **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.

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

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

- *Where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent*."

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

B. Groundwater – Not Applicable

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

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 (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

The Monitoring and Reporting Program No. R5-2002-0016 contained influent monitoring requirements for iron and electrical conductivity (EC) to collect additional data for purposes of determining whether an effluent limitation was needed. Based on monitoring data submitted by the Discharger, iron and EC have reasonable potential to cause or contribute to an in-stream excursion above their water quality objectives. As a result, effluent limitations for iron and EC have been established in this Order. Therefore, influent monitoring requirements for iron and EC have been removed from this Monitoring and Reporting Program.

B. Effluent Monitoring

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. Effluent monitoring requirements for flow, pH, and temperature have been carried over from Monitoring and Reporting Program No. R5-2002-0016 to determine compliance with effluent limitations for these parameters.

Monitoring data submitted by the Discharger during the previous permit term indicated that there is a reasonable potential for electrical conductivity to exceed water quality criteria. Weekly effluent monitoring for electrical conductivity has been carried over from Monitoring and Reporting Program No. R5-2002-0016 to determine compliance with the effluent limitations established in this Order.

Monitoring data submitted by the Discharger during the previous permit term indicated no reasonable potential to exceed water quality criteria for dichlorodifluoromethane,

chlorodifluoromethane, and 1,1-difluoroethane. Since the facility utilizes six packaged chiller units (which use dichlorodifluromethane, chlorodifluoromethane and 1,1-difluoroethane) the Facility will be required to continue to monitor these pollutants quarterly.

Monitoring data submitted by the Discharger during the previous permit term indicated that there is no reasonable potential for total petroleum hydrocarbons and polynuclear aromatic hydrocarbons. Since the facility is currently pumping water from groundwater supply sources (the Ranney Collector and the Front Street Well) that are located adjacent to known groundwater contaminated sites, this Order will continue to require quarterly monitoring of these pollutants.

Monitoring data submitted by the Discharger during the previous permit term indicates that the discharge has reasonable potential to exceed water quality criteria for aluminum, arsenic, copper, dibromochloromethane, dichlorobromomethane, iron, manganese and chlorine residual. Monthly monitoring has been established to determine compliance with the applicable effluent limitations for these parameters, except for chlorine residual, for which daily monitoring is required when municipal water is being used.

Priority pollutant data for the effluent has been provided by the Discharger over the term of the previous Order, and was used to conduct a meaningful reasonable potential analysis. However, in accordance with Section 1.3 of the SIP, periodic monitoring is required for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established. Periodic priority pollutant monitoring is also necessary to provide data that would account for changes in facility operations. Thus, the monitoring frequency for priority pollutants has been established quarterly during the third year of the permit term.

C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Quarterly 96-hour bioassay testing was required in the previous Order. Monitoring data submitted by the Discharger during the term of the previous Order indicates the Discharger has complied with the acute toxicity effluent limitation during the previous permit term. Reported percent survival was between 95 and100 percent. Due to continuous compliance with the acute toxicity effluent limitation during the previous permit term, the quarterly monitoring for acute toxicity has been reduced to annual 96-hour bioassay testing to demonstrate compliance with the effluent limitation for acute toxicity.

2. **Chronic Toxicity.** Quarterly chronic whole effluent toxicity testing was required in the previous permit in order to demonstrate compliance with the Basin Plan's narrative toxicity objective. In accordance with the permit, three species chronic toxicity monitoring had been reduced from quarterly to annual monitoring due to the absence of toxicity in the initial four analyses. Since chronic toxicity data showed that the numeric toxicity monitoring trigger of 1 TUc was exceeded for *Pimephales promelas* in September 2004 and for *Ceriodaphnia dubia* in September and December 2006, the quarterly monitoring requirement will be carried over to the new

Order to provide the Regional Water Board with toxicity data necessary to determine if future effluent limitations would be necessary.

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. Monitoring for electrical conductivity, pH, temperature, dissolved oxygen, and turbidity have been carried over from the Monitoring and Reporting Program No. R5-2002-0016.

2. Groundwater – Not Applicable

E. Other Monitoring Requirements

1. Biosolids Monitoring – Not Applicable

2. Water Supply Monitoring – Not Applicable

VII. RATIONALE FOR PROVISIONS

A. Standard 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.

Section 122.41(a)(1) and (b) through (n) establish conditions that apply to all State-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. Section 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with section 123.25, this Order omits federal conditions that address enforcement authority specified in sections 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 prepare pollution prevention plans following CWC section 13263.3(d)(3) for aluminum and copper. This reopener provision allows the Regional Water Board to reopen this Order

for addition and/or modification of effluent limitations and requirements for these constituents 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. 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. **Mixing Zone Study for Copper:** For constituents with aquatic life toxicity-based criteria, where impacts can occur over a small spatial scale near the effluent discharge point, complete mixing is not a valid assumption. For incompletely mixed discharges, the SIP requires the dilution credits and mixing zones only be allowed after the Discharger has completed an independent mixing zone study and demonstrated to the satisfaction of the Regional Water Board that a dilution credit is appropriate. The Discharger has requested dilution credits and mixing zones for compliance with aquatic life acute and chronic criteria, but has not provided the appropriate studies. If the Discharger chooses to conduct a mixing zone study, it shall be conducted in accordance with the procedures outlined in Appendix 5 of the SIP. If after completion of the mixing zone study, it is determined that dilution credits are appropriate, then this Order may be reopened if necessary to modify 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.) Quarterly chronic whole effluent toxicity testing was required in the previous Order in order to demonstrate compliance with the Basin Plan’s narrative toxicity objective. In accordance with the permit, three species chronic toxicity monitoring had been reduced from a quarterly to an annual monitoring due to the absence of toxicity in the initial four analyses. Because of several exceeds of the chronic toxicity trigger, quarterly monitoring will be carried over to the new Order to provide the Regional Water Board with toxicity data necessary to determine if future effluent limitations would be necessary.

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/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 percent effluent.

Accelerated Monitoring. This 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 (one every 2 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.

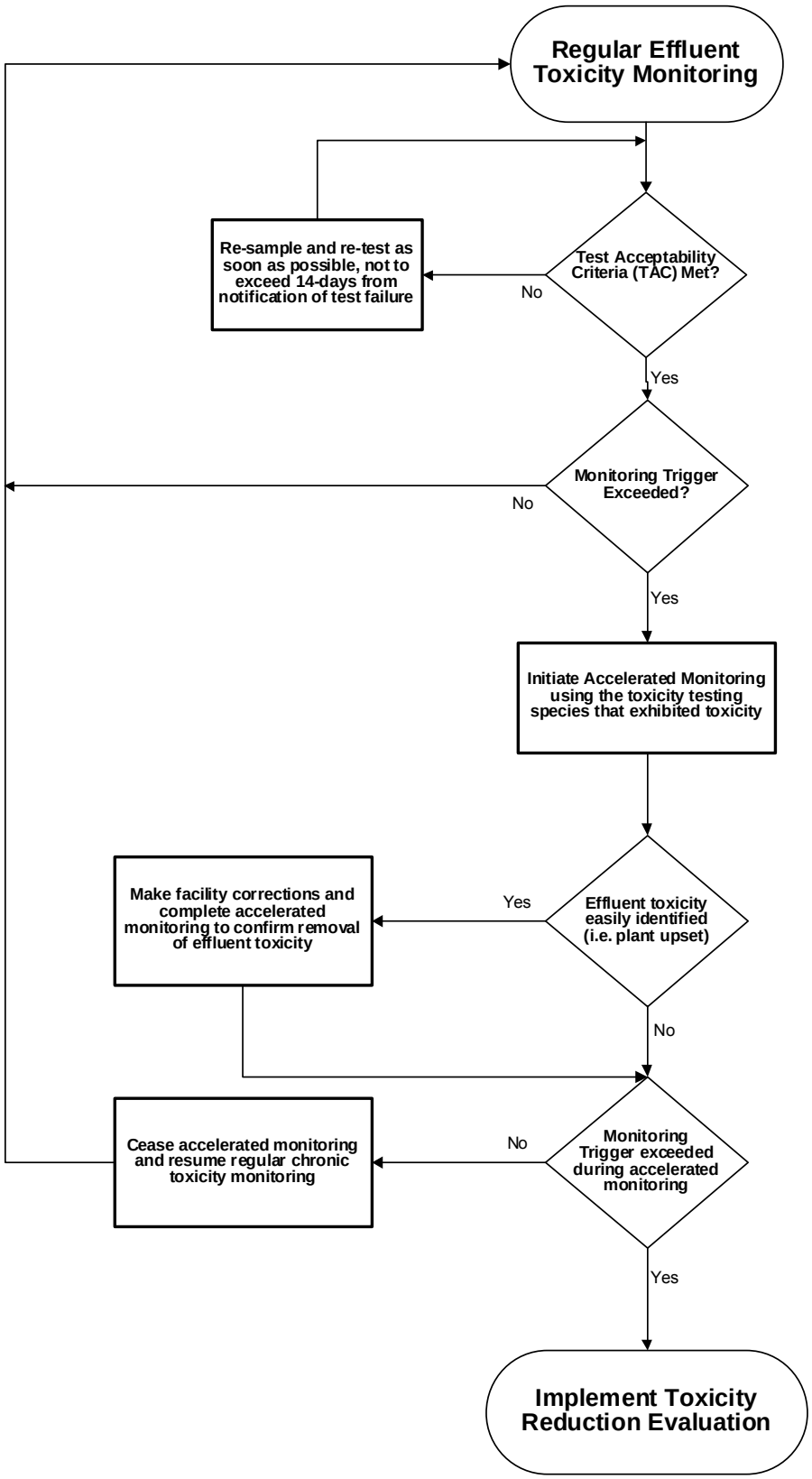
- *Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity*, Second Edition, EPA 600/R-92/081, September 1993.

- *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. **Best Management Practice Plan (BMPP).** This Order requires that entail site-specific plans and procedures implemented and/or to be implemented to prevent additional pollutants from being discharged to waters of the State. The updated BMPP shall be consistent with the general guidance contained in the USEPA Guidance Manual for Developing Best Management Practices (BMPs) (EPA 833-B-93-004). In particular, a risk assessment of each area identified by the Discharger shall be performed that will ensure proper operation and maintenance of heating and cooling equipment, prevent the additional chemicals or other substances from being introduced into the discharge, and prevent the addition of pollutants from the other non- permitted process waters, spills, or other sources of pollutant at the Facility.

   The Discharger shall implement BMPP within 10 days of the approval by the Executive Officer. Updated information shall be submitted within 30 days of revision.

b. **Pollution Prevention Plan (PPP) for aluminum and copper.** A PPP for aluminum and copper is required in this Order per CWC section 13263.3(d)(1)(D) as part of the interim effluent limitations for aluminum, chlorine residual and copper. The PPP shall be developed in conformance with CWC section 13263.3(d)(3) as outlined in subsection c., below.

c. **CWC section 13263.3(d)(3) Pollution Prevention Plans.** The pollution prevention plans required for aluminum and copper shall, at a 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 estimate of all of the sources of a pollutant contributing, or potentially contributing, to the loadings of a pollutant in the treatment plant influent.

   ii. An analysis of the methods that could be used to prevent the discharge of the pollutants into the Facility, including application of local limits to industrial or commercial dischargers regarding pollution prevention techniques, public education and outreach, or other innovative and alternative approaches to reduce discharges of the pollutant to the Facility. The analysis also shall identify sources, or potential sources, not within the ability or authority of the Discharger to control, such as pollutants in the potable water supply, airborne pollutants, pharmaceuticals, or pesticides, and estimate the magnitude of those sources, to the extent feasible.

   iii. An estimate of load reductions that may be attained through the methods identified in subparagraph ii.

   iv. A plan for monitoring the results of the pollution prevention program.

   v. A description of the tasks, cost, and time required to investigate and implement various elements in the pollution prevention plan.

vi. A statement of the Discharger's pollution prevention goals and strategies, including priorities for short-term and long-term action, and a description of the Discharger's intended pollution prevention activities for the immediate future.

vii. A description of the Discharger's existing pollution prevention programs.

viii. An analysis, to the extent feasible, of any adverse environmental impacts, including cross-media impacts or substitute chemicals that may result from the implementation of the pollution prevention program.

ix. An analysis, to the extent feasible, of the costs and benefits that may be incurred to implement the pollution prevention program

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

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

6. Other Special Provisions – Not Applicable

7. Compliance Schedules

The use and location of compliances 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 April 13, 2007), for a compliance schedule for aluminum and 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 a compliance schedule for the new, final WQBELs for aluminum and copper and requires full compliance by May 18, 2010 for copper and May 31, 2012 for aluminum.

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 California Department Of General Services, Central Plant Operations. 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 **May 22, 2007**

C. Public Hearing

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

Date: June 21-22, 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 (916) 464-3291.

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. James Marshall at (916) 464-4772.

ATTACHMENT G - SUMMARY OF REASONABLE POTENTIAL ANALYSIS

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	MCL	Reasonable Potential
Acenaphthene	µg/L	1.5	NA	20	--	520(1)	420(5)	--	20 (9)	No
Aluminum	µg/L	82	140	87	750(2)	87(1)	--	--	200	Yes
Ammonia	µg/L	200	0.5	620	2,140	620	--	--	--	No
Antimony	µg/L	5	0.4	6	--	610 (1)	14	--	6 (3)	No
Arsenic	µg/L	13	2.2	10	340	150	--	--	10 (3)	Yes
Barium	µg/L	200	34	1,000	--	--	2,000	--	1,000 (3)	No
Beryllium	µg/L	0.55	NA	1	--	5.3	1(8)	--	4	No
Cadmium	µg/L	0.21	NA	0.98	1.21	0.98	--	--	5	No
Chloride	mg/L	79	5.9	106	860 (2)	230 (1)	--	--	106(4)	No
Chlorine Residual	mg/L	0.08	ND	0.011	0.011(2)	0.019(1)	--	--	4	Yes
Chloroform	µg/L	20	NA	70	--	--	70(5)	--	100	No
Chromium, Total	µg/L	0.49	1.5	50	--	--	--	--	50(3)	No
Chromium VI	µg/L	2.2	NA	11	16	11	21	--	100	No
Copper, Total Recoverable	µg/L	22	3	3.43	4.64	3.43	1,300	--	1,000	Yes
Dibromochloromethane	µg/L	2	0.05	0.41	--	--	0.41	--	--	Yes
Dichlorobromomethane	µg/L	3.4	0.03	0.56	--	--	0.56	--	80	Yes
Fluoranthene	µg/L	0.1	NA	280	--	300	280(5)	--	--	No
Fluorene	µg/L	1.1	NA	1,300	--	--	1,300		--	No
Fluoride	µg/L	360	250	420	--	--	420(5)	--	2,000	No
Iron	µg/L	3,800	340	300	--	1,000 (1)	--	--	300(6)	Yes
Manganese	µg/L	950	28	50	--	--	500	--	50(6)	Yes
Mercury	µg/L	0.0062	0.0043	0.05	1.4(2)	0.77(1)	0.05	--	2	No
Methyl t-butyl ether	µg/L	1.5	0.87	5	--	--	13	--	5(6)	No
Naphthalene	µg/L	0.59	NA	21	--	620 (1)	170	--	21(7)	No
Nickel	µg/L	9.1	2	19	174.19	19.37	610	4,600	100	No
Nitrate	µg/L	200	260	10,000	--	--	10,000	--	10,000(3)	No
Pyrene	µg/L	0.11	NA	960	--	--	960	--	--	No
Selenium	µg/L	4.4	3.4	5	20	5	--	--	20	No
Specific Conductance (EC) @ 20 °C	umhos/cm	664	190	700	--	--	--	--	700(4)	No
Sulfate	mg/L	5.5	7.4	250	--	--	500	--	250(6)	No
Total Dissolved Solids (TDS)	mg/L	427	120	500	--	--	--	--	500(6)	No
Zinc	µg/L	13	13	44.42	44.42	44.4	--	--	5,000	No

General Note: All inorganic concentrations are given 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 or NTR)
CCC = Criterion Continuous Concentration (CTR or NTR)

Water& Org = Human Health Criterion for the Consumption of Water & Organisms (CTR or NTR)
Org. Only = Human Health Criterion for the Consumption of Organisms Only (CTR or NTR)
Basin Plan = Numeric Site-specific Basin Plan Water Quality Objective
MCL = Drinking Water Standards Maximum Contaminant Level
NA = Not Available
ND = Non-detect

Footnotes:
[1] USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 4-day average.
[2] USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 1-hour Average.
[3] California Primary MCL.
[4] Water Quality for Agriculture (Ayers & Westcot).
[5] USEPA IRIS Reference Dose.
[6] California Secondary MCL.
[7] Odor Threshold (Amoore and Hautala).
[8] California Public Health for drinking water.
[9] USEPA National Ambient W Q Criteria / taste & odor.