CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

CENTRAL VALLEY REGION

11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114
Phone (916) 464-3291 • FAX (916) 464-4645
http://www.waterboards.ca.gov/centralvalley

T E N T A T I V E

4 A u g 2 0 0 8

ORDER NO. R5-2008-XXXX
NPDES NO. CA0081787

WASTE DISCHARGE REQUIREMENTS FOR THE SPX CORPORATION SPX MARLEY COOLING TECHNOLOGIES SAN JOAQUIN COUNTY

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

Table 1. Discharger Information

Discharger	SPX Corporation
Name of Facility	SPX Marley Cooling Technologies
Facility Address	200 North Wagner Avenue
	Stockton, CA 95215
	San Joaquin 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 SPX Corporation/SPX Marley Cooling Technologies from the discharge points identified below is subject to waste discharge requirements as set forth in this Order:

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Treated groundwater	37º 58' 19" N	121º 13' 34" W	Stockton Diverting Canal

Table 3. Administrative Information

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

IT IS HEREBY ORDERED, that Order No. R5-2003-0030 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act (CWA) and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

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

_____

PAMELA C. CREEDON, Executive Officer

T

E

N

T

A

T

I

V

E

4

A

u

g

2

0

0

8

Table of Contents

I. Facility Information 1
II. Findings 1
III. Discharge Prohibitions 8
IV. Effluent Limitations and Discharge Specifications 9
A. Effluent Limitations – Discharge Point No. 001 9
1. Final Effluent Limitations – Discharge Point No. 001 9
2. Interim Effluent Limitations – NOT APPLICABLE 9
B. Land Discharge Specifications – NOT APPLICABLE 9
C. Reclamation Specifications – NOT APPLICABLE 9
V. Receiving Water Limitations 10
A. Surface Water Limitations 10
B. Groundwater Limitations 12
VI. Provisions 12
A. Standard Provisions 12
B. Monitoring and Reporting Program (MRP) Requirements 16
C. Special Provisions 16
1. Reopener Provisions 16
2. Special Studies, Technical Reports and Additional Monitoring Requirements 17
3. Best Management Practices and Pollution Prevention 19
4. Construction, Operation and Maintenance Specifications – NOT APPLICABLE 19
5. Special Provisions for Municipal Facilities (POTWs Only) – NOT APPLICABLE 19
6. Other Special Provisions 19
7. Compliance Schedules – NOT APPLICABLE 20
VII. Compliance Determination – NOT APPLICABLE 21

List of Tables

Table 1. Discharger Information ..... Cover
Table 2. Discharge Location ..... Cover
Table 3. Administrative Information ..... Cover
Table 4. Facility Information 1
Table 5. Basin Plan Beneficial Uses 3

List of Attachments

Attachment A – Definitions A-1
Attachment B – Map B-1
Attachment C – Flow Schematic C-1
Attachment D – Standard Provisions D-1
Attachment E – Monitoring and Reporting Program (MRP) E-1
Attachment F – Fact Sheet F-1
Attachment G – Summary of Reasonable Potential Analysis G-1

TENTATIVE 4 Aug 2008

I. FACILITY INFORMATION

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

Table 4. Facility Information

Discharger	SPX Corporation
Name of Facility	SPX Marley Cooling Technologies
Facility Address	200 North Wagner Avenue
	Stockton, CA 95215
	San Joaquin County
Facility Contact, Title, and Phone	Jim Lingo, Plant Operator, (209) 465-3451 x239
Mailing Address	SAME
Type of Facility	Industrial groundwater treatment facility
Facility Design Flow	0.94 million gallons per day (mgd)

II. FINDINGS

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

A. Background. SPX Marley Cooling Technologies (formerly Marley Cooling Tower Company) and SPX Corporation (hereinafter Discharger) is currently discharging pursuant to Order No. R5-2003-0030 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0081787. The Discharger submitted a Report of Waste Discharge, dated 30 August 2007**,** and applied for a NPDES permit renewal to discharge up to 0.94 mgd of treated wastewater from SPX Marley Cooling Technologies, hereinafter Facility. The application was deemed complete on 30 June 2008.

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

B. Facility Description. The Discharger owns and operates a groundwater extraction and treatment system. This system is used to remediate groundwater that was contaminated as a result of wood preserving activities previously performed at the site. The treatment system consists of an electrochemical reduction and precipitation unit operating in parallel to an ion exchange treatment system. Wastewater is discharged from Discharge Point No. 001 (see table on cover page) to the Stockton Diverting Canal, a water of the United States, and a tributary to the Calaveras River. Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the Facility.

TENTATIVE 4 Aug 2008

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 Title 40 of the Code of Federal Regulations (CFR)[1], Part 122.44 (40 CFR 122.44) require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Best Professional Judgment (BPJ) in accordance with 40 CFR 125.3. A detailed discussion of the technology-based effluent limitations development is included in the Fact Sheet (Attachment F).

G. Water Quality-based Effluent Limitations. Section 301(b) of the CWA and 40 CFR 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards.

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

TENTATIVE 4 Aug 2008

[1] All further statutory references are to title 40 of the Code of Federal Regulations unless otherwise indicated.

information, as provided in 40 CFR 122.44(d)(1)(vi).

H. Water Quality Control Plans. The Regional Water Board adopted a *Water Quality Control Plan, Fourth Edition (Revised February 2007), for the Sacramento and San Joaquin River Basins* (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. The Basin Plan at page II-2.00 states that the "…*beneficial uses of any specifically identified water body generally apply to its tributary streams*." The Basin Plan does not specifically identify beneficial uses for the Stockton Diverting Canal, but does identify present and potential uses for the Calaveras River, to which the Stockton Diverting Canal is tributary. These existing beneficial uses are as follows: municipal and domestic supply; agricultural supply, including stock watering; water contact recreation, including canoeing and rafting; non-contact water recreation, including aesthetic enjoyment; commercial and sport fishing; warm freshwater habitat; cold freshwater habitat; warm migration of aquatic organisms; cold migration of aquatic organisms; warm spawning, reproduction, and/or early development; cold spawning, reproduction, and /or early development; and wildlife habitat. Industrial process supply and industrial service supply are identified as potential beneficial uses.

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

Table 5. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Stockton Diverting Canal	Existing: Municipal and domestic supply (MUN); agricultural supply (AGR) including irrigation and stock watering; water contact recreation (REC-1); other non-contact water recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); migration of aquatic organisms (MIGR); spawning, reproduction, and/or early Development (SPWN); and wildlife habitat (WILD). Potential: industrial process supply (PRO) and industrial service supply (IND)

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*

TENTATIVE 4 Aug 2008

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 Stockton Diverting Canal is not listed as a water quality limited segment.

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

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

K. **Compliance Schedules and Interim Requirements.** In general, an NPDES permit must include final effluent limitations that are consistent with 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 Water 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 25 September 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

TENTATIVE 4 Aug 2008

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 18 May 2010) to establish and comply with CTR criterion-based effluent limitations. Where a compliance schedule for a final effluent limitation exceeds 1 year, the Order must include interim numeric limitations for that constituent or parameter. Where allowed by the Basin Plan, compliance schedules and interim effluent limitations or discharge specifications may also be granted to allow time to implement a new or revised water quality objective. This Order does not include compliance schedules and interim effluent limitations.

L. Alaska Rule. On 30 March 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards (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 30 May 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by 30 May 2000 may be used for CWA purposes, whether or not approved by USEPA.

M. Stringency of Requirements for Individual Pollutants. This Order contains both technology-based and water quality-based effluent limitations for individual pollutants. The technology-based effluent limitations consist of restrictions on flow. The water quality-based effluent limitations consist of restrictions on arsenic, chromium, copper, and total dissolved solids. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements.

Water quality-based effluent limitations have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant water quality-based effluent limitations were derived from the CTR, the CTR is the applicable standard pursuant to 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 1 May 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 30 May 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to 30 May 2000, but not approved by USEPA

TENTATIVE 4 Aug 2008

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. The provisions/requirements in subsections V.B, VI.A.2.u. and VI.C.6.b. of this Order are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these

TENTATIVE 4 Aug 2008

provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.

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

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

TENTATIVE 4 Aug 2008

III. DISCHARGE PROHIBITIONS

A. Discharge of wastewater at a location or in a manner different from that described in the Findings is prohibited.

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

C. Neither the discharge nor its treatment shall create a nuisance as defined in Section 13050 of the California Water Code.

D. The Discharger shall not allow pollutant-free wastewater to be discharged into the collection, treatment, and disposal system in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.

TENTATIVE 4 Aug 2008

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	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Flow	mgd	0.72	0.94	--	--
Conventional Pollutants					
pH	standard units	--	--	6.5	8.5
Priority Pollutants					
Arsenic, Total Recoverable	µg/L	10	--	--	--
Chromium, Total Recoverable	µg/L	50	--	--	--
Chromium (VI)	µg/L	5.7	16.3	--	--
Copper, Total Recoverable	µg/L	5.8	16.6	--	--
Non-Conventional Pollutants					
Total Dissolved Solids	mg/L	500	--	--	--

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.

2. Interim Effluent Limitations – NOT APPLICABLE

B. Land Discharge Specifications – NOT APPLICABLE

C. Reclamation Specifications – NOT APPLICABLE

TENTATIVE 4 Aug 2008

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 Stockton Diverting Canal:

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

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

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

4. **Color**. Discoloration that causes nuisance or adversely affects beneficial uses.

5. **Dissolved Oxygen**:

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

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

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

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

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

8. **pH**. The pH to be depressed below 6.5, raised above 8.5, nor changed by more than 0.5 units.

9. **Pesticides**:

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

TENTATIVE 4 Aug 2008

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. **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.

TENTATIVE 4 Aug 2008

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

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

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

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

B. Groundwater Limitations

1. The discharge of treated water to the soil flushing area shall not degrade groundwater quality outside of the recapture zone, as described in Special Provisions Section VI.C.6.b. of this Order.

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:

TENTATIVE 4 Aug 2008

- *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

TENTATIVE 4 Aug 2008

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 5 years on effluent quality and on the capability of the Discharger to comply with the terms and conditions of the Order. The adequacy of the safeguards is subject to the approval of the Regional Water Board.

   iii. Should the treatment works not include safeguards against reduction, loss, or failure of electric power, or should the Regional Water Board not approve the existing safeguards, the Discharger shall, within 90 days of having been advised in writing by the Regional Water Board that the existing safeguards are inadequate, provide to the Regional Water Board and USEPA a schedule of compliance for providing safeguards such that in the event of reduction, loss, or failure of electric power, the Discharger shall comply with the terms and conditions of this Order. The schedule of compliance shall, upon approval of the Regional Water Board, become a condition of this Order.

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:

TENTATIVE 4 Aug 2008

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 3 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 4 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.

TENTATIVE 4 Aug 2008

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. 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 5 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

TENTATIVE 4 Aug 2008

on internal waste stream(s), and monitoring for surrogate parameters. Additional requirements may be included in this Order as a result of the special condition monitoring data.

b. Conditions that necessitate a major modification of a permit are described in 40 CFR section 122.62, including:

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

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

c. **Whole Effluent Toxicity.** As a result of a Toxicity Reduction Evaluation (TRE), this Order may be reopened to include a chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if the State Water Board revises the SIP's toxicity control provisions that would require the establishment of numeric chronic toxicity effluent limitations, this Order may be reopened to include a numeric chronic toxicity effluent limitation based on the new provisions.

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

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

TENTATIVE 4 Aug 2008

Provision includes requirements for the Discharger to develop and submit a TRE Work Plan and includes procedures for accelerated chronic toxicity monitoring and TRE initiation.

i. **Initial Investigative Toxicity Reduction Evaluation (TRE) Work Plan.** Within 90 days of the effective date of this Order, the Discharger shall submit to the Regional Water Board an Initial Investigative TRE Work Plan for approval by the Executive Officer. This should be a one to two page document including, at minimum:

   a) A description of the investigation and evaluation techniques that will be used to identify potential causes and sources of effluent toxicity, effluent variability, and treatment system efficiency;

   b) A description of the facility's methods of maximizing in-house treatment efficiency and good housekeeping practices, and a list of all chemicals used in operation of the facility; and

   c) A discussion of who will conduct the Toxicity Identification Evaluation, if necessary (i.e., an in-house expert or outside contractor).

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

iii. **Numeric Monitoring Trigger.** The numeric toxicity monitoring trigger is > 1 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 2 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.

TENTATIVE 4 Aug 2008

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 any salinity increases in the extracted groundwater resulting from treatment at the Facility. The plan shall be completed and submitted to the Regional Water Board **within 9 months of the adoption date of this Order** for the approval by the Executive Officer.

4. Construction, Operation and Maintenance Specifications – NOT APPLICABLE

5. Special Provisions for Municipal Facilities (POTWs Only) – NOT APPLICABLE

6. Other Special Provisions

a. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a

[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.

TENTATIVE 4 Aug 2008

copy of which shall be immediately forwarded to the Regional Water Board.

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

b. To minimize dewatering of the local aquifer and to aid in flushing of contaminants, approximately 5 percent of the treated water may be reinjected into shallow soils in the area of a closed retort pit. The injected water is then recaptured by the groundwater extraction system. Full capture of reinjected soil flushing water shall be maintained at all times.

c. Collected screenings, residual sludge, biosolids, and other solids removed from liquid wastes shall be disposed of in a manner approved by the Executive Officer, and consistent with *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste*, as set forth in Title 27, CCR, Division 2, Subdivision 1, section 20005, et seq. Removal for further treatment, disposal, or reuse at sites (i.e., landfill, composting sites, soil amendment sites) that are operated in accordance with valid waste discharge requirements issued by a Regional Water Board will satisfy these specifications.

d. **Release Prevention/Contingency Measures Plans**. The Discharger shall, within **three (3) months** of adoption of this Order, update and continue implementation of release prevention and contingency measures plans for minimizing and controlling potential accidental discharges and for minimizing the effects of such events. These Plans shall include proposed modifications to the treatment system and describe implementation of additional monitoring and inspections in the event of an accidental discharge or spill.

7. Compliance Schedules – NOT APPLICABLE

TENTATIVE 4 Aug 2008

VII. COMPLIANCE DETERMINATION – NOT APPLICABLE

TENTATIVE

4 Aug 2008

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.

TENTATIVE 4 Aug 2008

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 USEPA 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).

TENTATIVE 4 Aug 2008

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 3 July 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

TENTATIVE 4 Aug 2008

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

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

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

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

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

Standard Deviation (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)

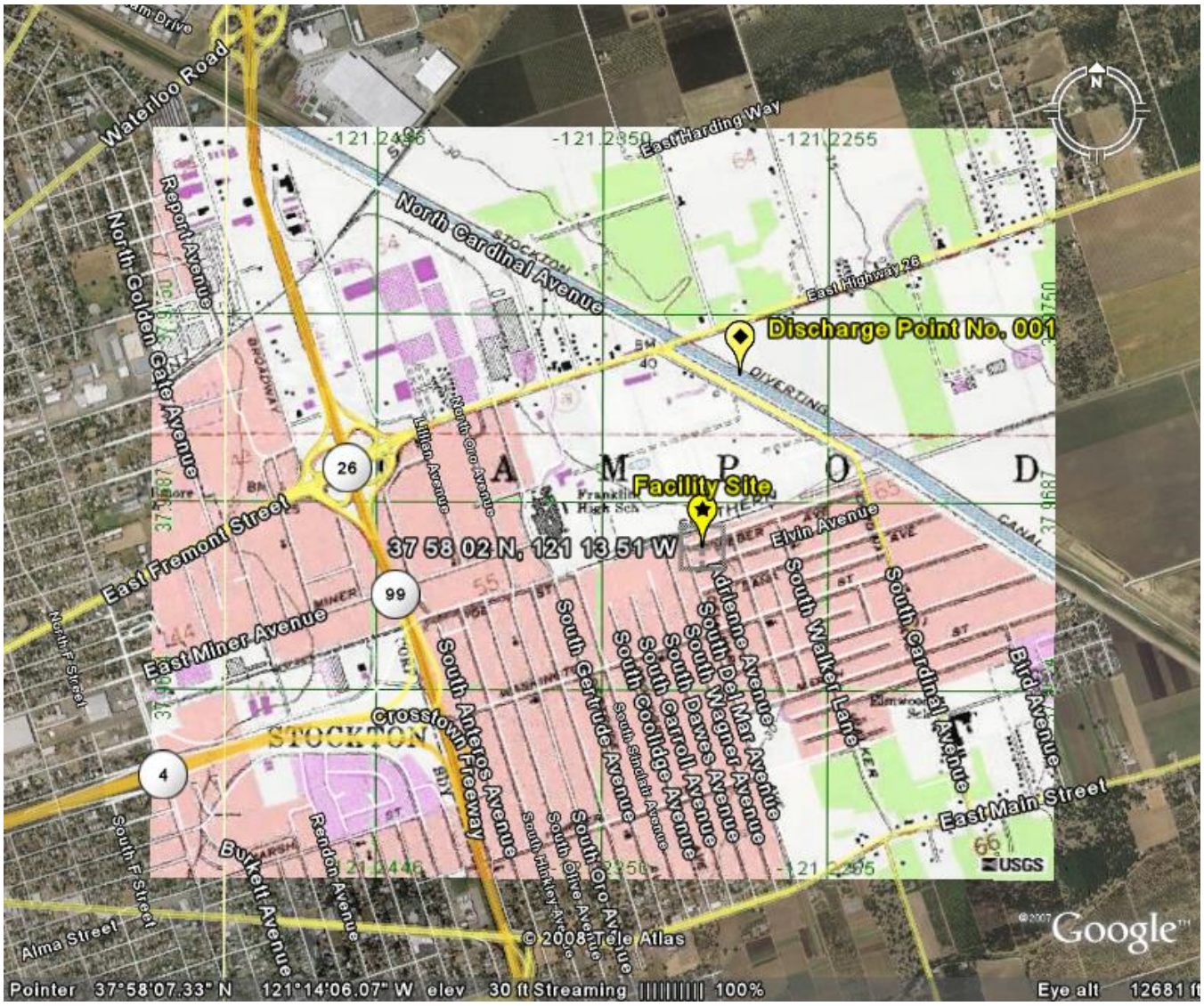
TENTATIVE 4 Aug 2008

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

TENTATIVE

4 Aug 2008

ATTACHMENT B – MAP

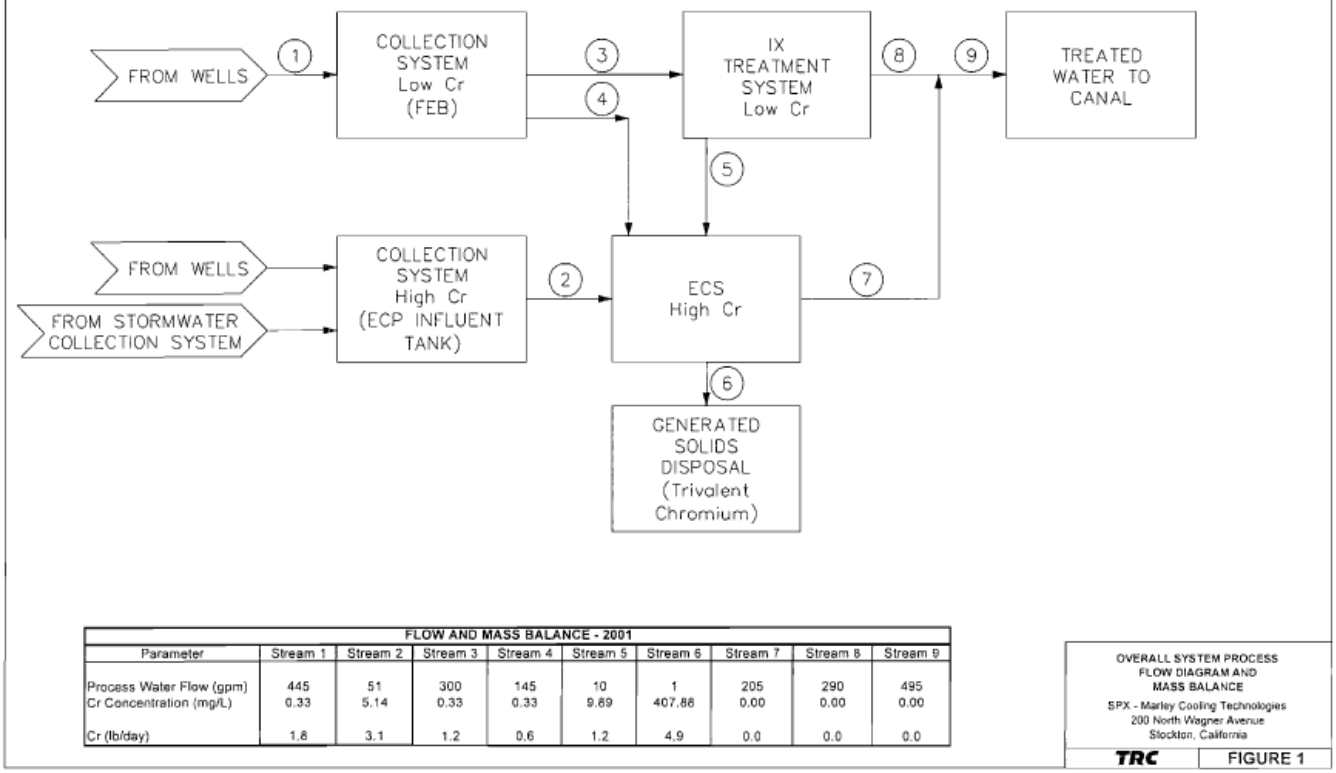


TENTATIVE

4 Aug 2008

ATTACHMENT C – FLOW SCHEMATIC

Figure C-1. Overall System Process Flow Diagram



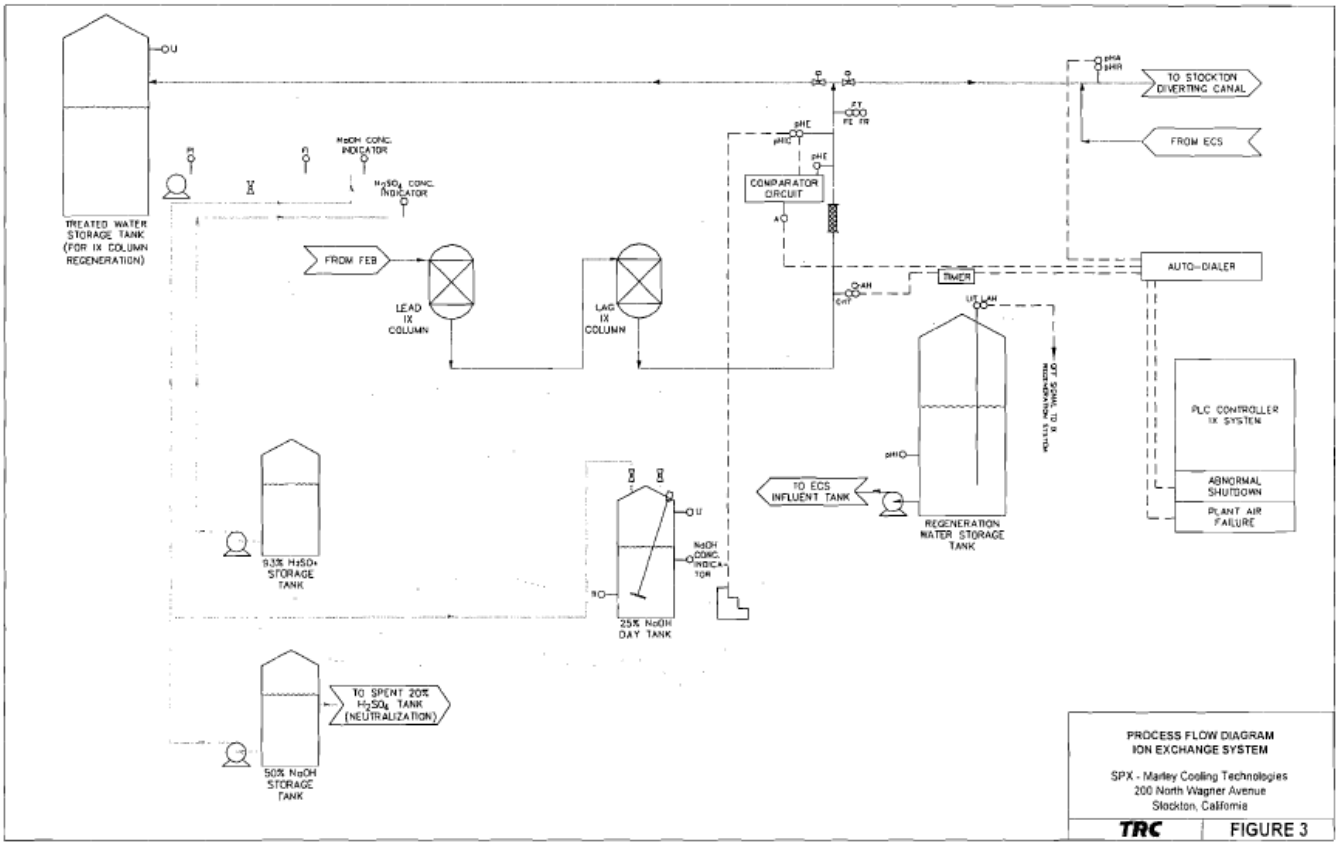
FLOW AND MASS BALANCE - 2001

Parameter	Stream 1	Stream 2	Stream 3	Stream 4	Stream 5	Stream 6	Stream 7	Stream 8	Stream 9
Process Water Flow (gpm)	445	51	300	145	10	1	205	290	495
Cr Concentration (mg/L)	0.33	5.14	0.33	0.33	9.89	407.86	0.00	0.00	0.00
Cr (lb/day)	1.8	3.1	1.2	0.6	1.2	4.9	0.0	0.0	0.0

TENTATIVE

4 Aug 2008

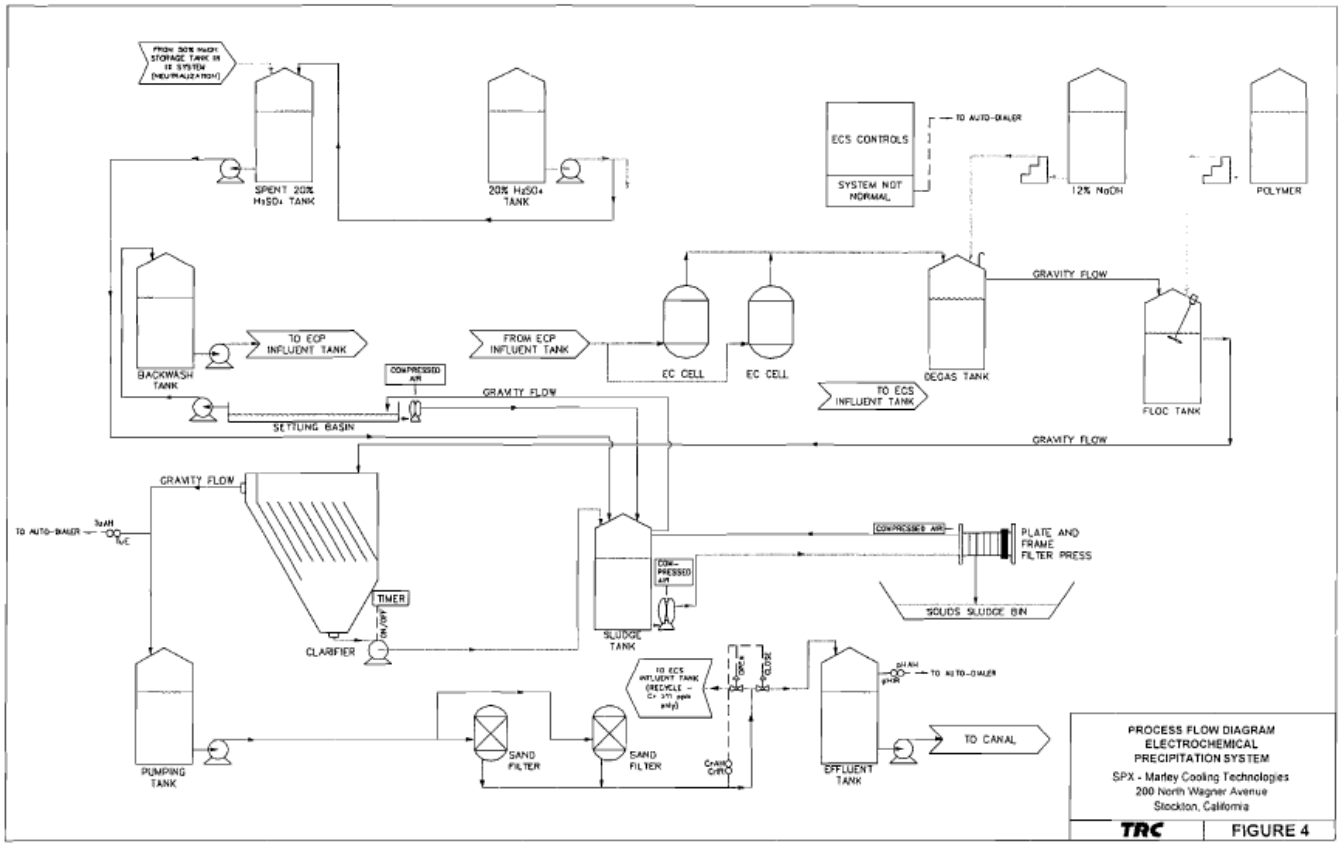
Figure C-2. Ion Exchange System Flow Diagram



TENTATIVE

4 Aug 2008

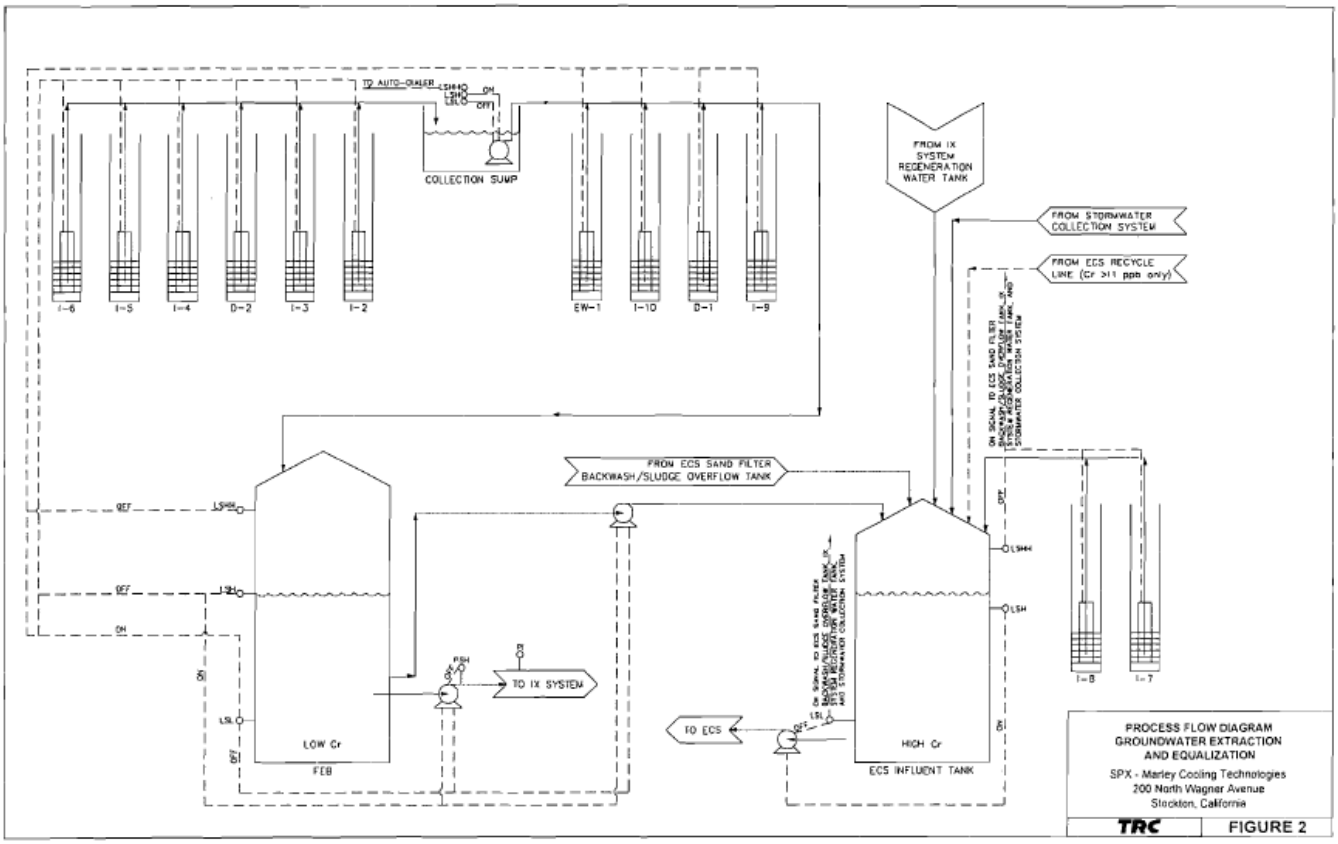
Figure C-3. Electrochemical Precipitation System Flow Diagram



TENTATIVE

4 Aug 2008

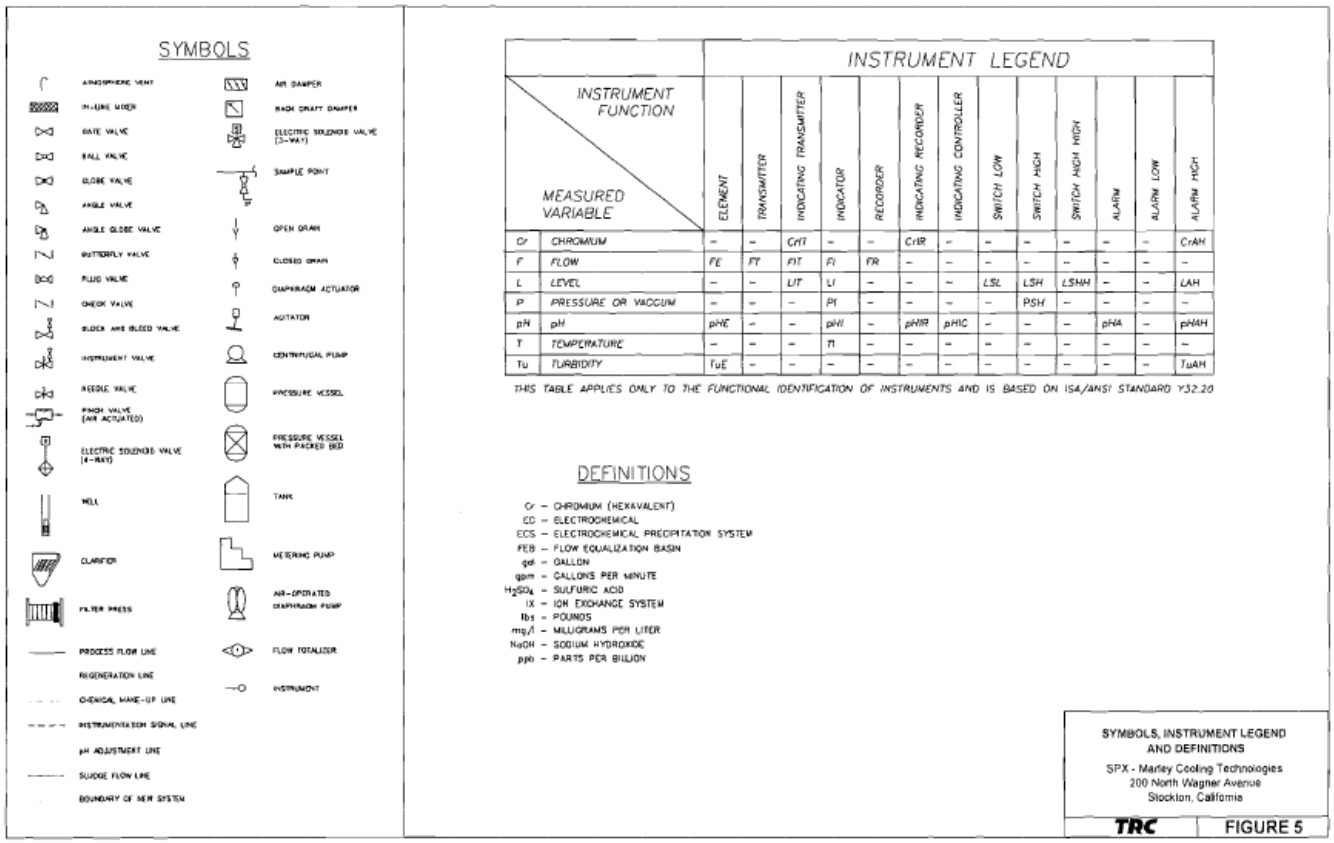
Figure C-4. Groundwater Extraction and Equalization Flow Diagram



TENTATIVE

4 Aug 2008

Figure C-5. Symbols, Instrument Legend, and Definitions



TENTATIVE

4 Aug 2008

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 CFR §122.41(a).)

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

B. Need to Halt or Reduce Activity Not a Defense

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

C. Duty to Mitigate

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

D. Proper Operation and Maintenance

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

E. Property Rights

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

TENTATIVE 4 Aug 2008

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

F. Inspection and Entry

The Discharger shall allow the Regional Water Board, State Water Board, United States Environmental Protection Agency (USEPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (40 CFR §122.41(i); 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 CFR §122.41(i)(1));

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (40 CFR §122.41(i)(2));

3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (40 CFR §122.41(i)(3)); and

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

G. Bypass

1. Definitions

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

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

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

TENTATIVE 4 Aug 2008

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

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

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

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

4. The Regional Water Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 CFR §122.41(m)(4)(ii).)

5. Notice

   a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass. (40 CFR §122.41(m)(3)(i).)

   b. Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). (40 CFR §122.41(m)(3)(ii).)

H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. (40 CFR §122.41(n)(1).)

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was

TENTATIVE 4 Aug 2008

caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 CFR §122.41(n)(2).).

2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 CFR §122.41(n)(3)):

   a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 CFR §122.41(n)(3)(i));

   b. The permitted facility was, at the time, being properly operated (40 CFR §122.41(n)(3)(ii));

   c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) (40 CFR §122.41(n)(3)(iii)); and

   d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 CFR §122.41(n)(3)(iv).)

3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 CFR §122.41(n)(4).)

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

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

B. Duty to Reapply

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

C. Transfers

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

TENTATIVE 4 Aug 2008

III. STANDARD PROVISIONS – MONITORING

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

B. Monitoring results must be conducted according to test procedures under 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 CFR §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 5 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 CFR §122.41(j)(2).)

B. Records of monitoring information shall include:

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

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

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

TENTATIVE 4 Aug 2008

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Regional Water Board, State Water Board, or USEPA within a reasonable time, any information which the Regional Water Board, State Water Board, or USEPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Regional Water Board, State Water Board, or USEPA copies of records required to be kept by this Order. (40 CFR §122.41(h); 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 a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. (40 CFR §122.22(a)(1).)

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

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

   b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative

TENTATIVE 4 Aug 2008

may thus be either a named individual or any individual occupying a named position.) (40 CFR §122.22(b)(2)); and

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

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

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

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

C. Monitoring Reports

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

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

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 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).)

TENTATIVE 4 Aug 2008

D. Compliance Schedules

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

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. (40 CFR §122.41(l)(6)(i).)

2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 CFR §122.41(l)(6)(ii)):

   a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 CFR §122.41(l)(6)(ii)(A).)

   b. Any upset that exceeds any effluent limitation in this Order. (40 CFR §122.41(l)(6)(ii)(B).)

3. The Regional Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 CFR §122.41(l)(6)(iii).)

F. Planned Changes

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

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in section 122.29(b) (40 CFR §122.41(l)(1)(i)); or

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

3. The alteration or addition 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

TENTATIVE 4 Aug 2008

permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 CFR §122.41(l)(1)(iii).)

G. Anticipated Noncompliance

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

H. Other Noncompliance

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

I. Other Information

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

VI. STANDARD PROVISIONS – ENFORCEMENT

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 CFR §122.42(a)):

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

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

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

TENTATIVE 4 Aug 2008

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

d. The level established by the Regional Water Board in accordance with section 122.44(f). (40 CFR §122.42(a)(1)(iv).)

2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following “notification levels" (40 CFR §122.42(a)(2)):

   a. 500 micrograms per liter (µg/L) (40 CFR §122.42(a)(2)(i));

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

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

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

TENTATIVE

4 Aug 2008

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

Table of Contents

Attachment E – Monitoring and Reporting Program (MRP) 2
I. General Monitoring Provisions 2
II. Monitoring Locations 3
III. Influent Monitoring Requirements 3
A. Monitoring Locations INF-001 and INF-002 3
IV. Effluent Monitoring Requirements 4
A. Monitoring Location EFF-001 4
V. Whole Effluent Toxicity Testing Requirements 5
VI. Land Discharge Monitoring Requirements – NOT APPLICABLE 7
VII. Reclamation Monitoring Requirements – NOT APPLICABLE 7
VIII. Receiving Water Monitoring Requirements – Surface Water and Groundwater 8
A. Monitoring Location RSW-001 and RSW-002 8
IX. Other Monitoring Requirements – NOT APPLICABLE 8
X. Reporting Requirements 9
A. General Monitoring and Reporting Requirements 9
B. Self Monitoring Reports (SMRs) 10
C. Discharge Monitoring Reports (DMRs)- NOT APPLICABLE 11
D. Other Reports 12

List of Tables

Table E-1. Monitoring Station Locations 3
Table E-2. Influent Monitoring 3
Table E-3. Effluent Monitoring 4
Table E-4. Chronic Toxicity Testing Dilution Series 6
Table E-5. Receiving Water Monitoring Requirements 8
Table E-6. Monitoring Periods and Reporting Schedule 11

TENTATIVE 4 Aug 2008

ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

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

I. GENERAL MONITORING PROVISIONS

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

B. Chemical, bacteriological, and bioassay analyses shall be conducted at a laboratory certified for such analyses by the State Department of Health Services. In the event a certified laboratory is not available to the Discharger, analyses performed by a noncertified laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program must be kept in the laboratory and shall be available for inspection by Regional Water Board staff. The Quality Assurance-Quality Control Program must conform to USEPA guidelines or to procedures approved by the Regional Water Board.

C. All analyses shall be performed in a laboratory certified to perform such analyses by the California Department of Health Services. Laboratories that perform sample analyses shall be identified in all monitoring reports.

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

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

TENTATIVE 4 Aug 2008

II. MONITORING LOCATIONS

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

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description (include Latitude and Longitude when available)
--	INF-001	A location where a representative sample of the influent io the ion-exchange system can be collected prior to any treatment processes
--	INF-002	A location where a representative sample of the influent to the electrochemical and precipitation system can be collected prior to any treatment processes
001	EFF-001	A location representative of the final effluent from the treated groundwater
--	RSW-001	Approximately 7500 feet upstream from the point of discharge at the Main Street Bridge station
--	RSW-002	Approximately 1450 feet downstream from the point of discharge at the Fremont Street Bridge station

III. INFLUENT MONITORING REQUIREMENTS

A. Monitoring Locations INF-001 and INF-002

1. The Discharger shall monitor influent to the ion-exchange and electrochemical and precipitation systems at Monitoring Locations INF-001 and INF-002 as follows:

Table E-2. Influent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Total Dissolved Solids (TDS)	mg/L	Grab	1/Quarter	[1]
Chromium, Total Recoverable	µg/L	Grab	1/Quarter	[1]
Copper, Total Recoverable	µg/L	Grab	1/Quarter	[1]
Arsenic, Total Recoverable	µg/L	Grab	1/Quarter	[1]

[1] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.

2. Influent samples shall be representative of the influent to each system for the period sampled. Where applicable, the influent shall be collected at approximately the same time as the effluent samples.

TENTATIVE 4 Aug 2008

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

1. The Discharger shall monitor treated groundwater at EFF-001 representing effluent discharged through Discharge Point No. 001 as follows. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding minimum level:

Table E-3. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	mgd	Meter	Continuous	[1]
Conventional Pollutants				
pH[5]	standard units	Grab	1/Month	[1]
Total Suspended Solids	mg/L	Grab	1/Month	[1]
Priority Pollutants				
Arsenic, Total Recoverable	µg/L	Grab	1/Month	[1, 2]
Copper, Total Recoverable	µg/L	Grab	1/Month	[1, 2]
Chromium (VI)	µg/L	Grab	1/Month	[1, 2]
TCDD-equivalents[3, 4]	µg/L	Grab	[4]	[1, 2]
Remaining Priority Pollutants [6]	µg/L	Grab	[7]	[1, 2]
Non-Conventional Pollutants				
Chromium, Total Recoverable	µg/L	Grab	1/Month	[1]
Dissolved Oxygen[5]	mg/L	Grab	1/Month	[1]
Electrical Conductivity @ 25°C[5]	µmhos/cm	Grab	1/Month	[1]
Temperature[5]	°F	Grab	1/Month	[1]
Total Dissolved Solids	mg/L	Grab	1/Month	[1]
Hardness (as $CaCO_3$)	mg/L	Grab	1/Month	[1]
Turbidity	NTU	Grab	1/Month	[1]
Iron, Total Recoverable	µg/L	Grab	1/Quarter	[1]

[1] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.

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

[3] TCDD-Dioxin Congener Equivalents shall include all 17 of the 2,3,7,8 TCDD-dioxin congeners.

[4]. TCDD-equivalents shall be sampled twice during the third year following the date of permit adoption – once during dry weather and once during wet weather.

[5] Field measurements.

[6] Clean technique shall be used for phthalates and mercury sampling.

[7] Priority pollutants shall be sampled once during the third year following the date of permit adoption and shall be conducted concurrently with effluent monitoring for hardness (as $CaCO_3$) and pH

TENTATIVE 4 Aug 2008

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

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

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

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

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 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, ammonia, total residual chlorine, and pH shall be recorded at the time of sample collection. No pH adjustment may be made unless approved by the Executive Officer.

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

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

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

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

TENTATIVE 4 Aug 2008

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-4, below. The receiving water control shall be used as the diluent unless the receiving water is toxic or is dry upstream of the discharge.

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

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

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

Table E-4. 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-hrs after the receipt of test results exceeding the monitoring

TENTATIVE 4 Aug 2008

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 (if applicable):

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

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

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

VI. LAND DISCHARGE MONITORING REQUIREMENTS – NOT APPLICABLE

VII. RECLAMATION MONITORING REQUIREMENTS – NOT APPLICABLE

TENTATIVE 4 Aug 2008

VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER AND GROUNDWATER

A. Monitoring Location RSW-001 and RSW-002

1. The Discharger shall monitor the Stockton Diverting Canal at RSW-001 and RSW-002 as follows:

Table E-5. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow[3, 6]	cfs	Grab	1/Month	[5]
pH[4]	standard units	Grab	1/Month	[5]
Electrical Conductivity @25°C[4]	µmhos/cm	Grab	1/Month	[5]
Dissolved Oxygen[4]	mg/L	Grab	1/Month	[5]
Temperature[4]	°F	Grab	1/Month	[5]
Chromium (Total Recoverable)	µg/L	Grab	1/Quarter	[1, 5]
Chromium (VI)[1]	µg/L	Grab	1/Quarter	[1, 5]
Copper (Total Recoverable)[1]	µg/L	Grab	1/Quarter	[1, 5]
Arsenic (Total Recoverable)[1]	µg/L	Grab	1/Quarter	[1, 5]
TCDD-equivalents[6]	µg/L	Grab	[8]	[1, 5]
Remaining Priority Pollutants[6]	µg/L	Grab	[7]	[1, 5]
Total Dissolved Solids	mg/L	Grab	1/Quarter	[5]
Hardness (as $CaCO_3$)[2]	mg/L	Grab	1/Quarter	[5]
Total Suspended Solids	mg/L	Grab	1/Quarter	[5]
Total Organic Carbon	mg/L	Grab	1/Quarter	[5]
Turbidity	NTU	Grab	1/Quarter	[5]

[1] At a minimum the Discharger shall comply with the Monitoring Requirements for these 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 (SIP), adopted 2 March 2000 by the State Water Resources Control Board. For each priority pollutant use an analytical method from the SIP, Appendix 4 with a Minimum Level (ML) below all applicable pollutant criteria. In accordance with Section 2.4.2 of the SIP, the Discharger is to instruct the laboratory analyzing samples for priority pollutants to establish calibration standards so that the ML 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. Report all peaks identified by the EPA test methods.

[2] Concurrent with priority pollutant metals analyses.

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

[4] Field measurements.

[5] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.

[6] Monitoring is a requirement for upstream receiving water (RSW-001) only. Clean techniques shall be used for phthalate and mercury sampling

[7] Priority pollutants shall be sampled once during the third year following the date of permit adoption and shall be conducted concurrently with effluent monitoring for hardness (as $CaCO_3$) and pH.

[8] TCDD-equivalents shall be sampled twice during the third year following the date of permit adoption – once during dry weather and once during wet weather.

IX. OTHER MONITORING REQUIREMENTS – NOT APPLICABLE

TENTATIVE 4 Aug 2008

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

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

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

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

4. 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.

TENTATIVE 4 Aug 2008

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

TENTATIVE 4 Aug 2008

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	First day of second calendar month following month of sampling
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	First day of calendar month through last day of calendar month	First day of second calendar month following month of sampling
1/Quarter	Closest of 1 January, 1 April, 1 July, or 1 October following (or on) permit effective date	1 January through 31 March 1 April through 30 June 1 July through 30 September 1 October through 31 December	1 May 1 August 1 November 1 February

C. Discharge Monitoring Reports (DMRs)- NOT APPLICABLE

TENTATIVE 4 Aug 2008

D. Other Reports

1. 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.

2. **Annual Operations Report**. By **1 February** 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.

3. The Discharger shall submit, in addition to the groundwater monitoring report for the last sampling event of the year, an annual evaluation report of the groundwater quality beneath the site and surroundings, hydraulic capture analysis, cleanup progress, discussion of any data gaps and potential deficiencies in the monitoring system, treatment system performance, and any recommendations to potentially accelerate site cleanup progress or any modifications to enhance cleanup.

TENTATIVE 4 Aug 2008

ATTACHMENT F – FACT SHEET

Table of Contents

Attachment F – Fact Sheet 3
I. Permit Information 3
II. Facility Description 4
A. Description of Wastewater and Biosolids Treatment or Controls 5
B. Discharge Points and Receiving Waters 6
C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data 6
D. Compliance Summary 7
E. Planned Changes – NOT APPLICABLE 8
III. Applicable Plans, Policies, and Regulations 8
A. Legal Authority 8
B. California Environmental Quality Act (CEQA) 8
C. State and Federal Regulations, Policies, and Plans 8
D. Impaired Water Bodies on CWA 303(d) List 11
E. Other Plans, Polices and Regulations – NOT APPLICABLE 12
IV. Rationale For Effluent Limitations and Discharge Specifications 12
A. Discharge Prohibitions 13
B. Technology-Based Effluent Limitations 13
1. Scope and Authority 13
2. Applicable Technology-Based Effluent Limitations 14
C. Water Quality-Based Effluent Limitations (WQBELs) 15
1. Scope and Authority 15
2. Applicable Beneficial Uses and Water Quality Criteria and Objectives 15
3. Determining the Need for WQBELs 18
4. WQBEL Calculations 24
5. Whole Effluent Toxicity (WET) 26
D. Final Effluent Limitations 28
1. Mass-based Effluent Limitations 28
2. Averaging Periods for Effluent Limitations 28
3. Satisfaction of Anti-Backsliding Requirements 29
4. Satisfaction of Antidegradation Policy 29
E. Interim Effluent Limitations– NOT APPLICABLE 29
F. Land Discharge Specifications – NOT APPLICABLE 30
G. Reclamation Specifications – NOT APPLICABLE 30
V. Rationale for Receiving Water Limitations 30
A. Surface Water 30
B. Groundwater 30
VI. Rationale for Monitoring and Reporting Requirements 31
A. Influent Monitoring 31
B. Effluent Monitoring 31
C. Whole Effluent Toxicity Testing Requirements 32
D. Receiving Water Monitoring 32
1. Surface Water 32
2. Groundwater – NOT APPLICABLE 33
E. Other Monitoring Requirements – NOT APPLICABLE 33

TENTATIVE 4 Aug 2008

VII. Rationale for Provisions 33
A. Standard Provisions 33
B. Special Provisions 33
1. Reopener Provisions 33
2. Special Studies and Additional Monitoring Requirements 33
3. Best Management Practices and Pollution Prevention 37
4. Construction, Operation, and Maintenance Specifications – NOT APPLICABLE 37
5. Special Provisions for Municipal Facilities (POTWs Only) – NOT APPLICABLE 37
6. Other Special Provisions 37
7. Compliance Schedules – NOT APPLICABLE 37
VIII. Public Participation 37
A. Notification of Interested Parties 38
B. Written Comments 38
C. Public Hearing 38
D. Waste Discharge Requirements Petitions 38
E. Information and Copying 39
F. Register of Interested Persons 39
G. Additional Information 39

List of Tables

Table F-1. Facility Information 3
Table F-2. Historic Effluent Limitations and Monitoring Data 7
Table F-3. Summary of Technology-based Effluent Limitations 15
Table F-4. Salinity Water Quality Criteria/Objectives 21
Table F-5. WQBEL Calculations for Chromium VI 25
Table F-6. WQBEL Calculations for Copper 25
Table F-7. Summary of Water Quality-based Effluent Limitations 26
Table F-8. Summary of Final Effluent Limitations 29

TENTATIVE 4 Aug 2008

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.

T E N T A T I V E 4 A u g 2 0 0 8

I. PERMIT INFORMATION

The following table summarizes administrative information related to the facility.

Table F-1. Facility Information

Discharger	SPX Corporation
Name of Facility	SPX Marley Cooling Technologies
Facility Address	200 North Wagner Avenue
	Stockton, California 95215
	San Joaquin County
Facility Contact, Title and Phone	Jim Lingo, Plant Operator, (209) 465-3451 x239
Authorized Person to Sign and Submit Reports	Jim Lingo, Plant Operator, (209) 465-3451 x239
Mailing Address	SAME
Billing Address	SAME
Type of Facility	Groundwater remediation (SIC Code 4959)
Major or Minor Facility	Minor
Threat to Water Quality	1
Complexity	A
Pretreatment Program	N
Reclamation Requirements	N/A
Facility Permitted Flow	0.94 million gallons per day (mgd)
Facility Design Flow	0.94 mgd
Watershed	Calaveras River Watershed
Receiving Water	Stockton Diverting Canal
Receiving Water Type	Inland Surface Water

A. SPX Marley Cooling Technologies (formerly Marley Cooling Tower Company) is the operator of an industrial groundwater extraction and treatment facility (hereinafter referred to as the Facility). SPX Corporation (hereinafter referred to as the Discharger) owns the property at 200 North Wagner Avenue, Stockton, California 95215 on which the Facility is located.

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 Stockton Diverting Canal, a water of the United States and a tributary to the Calaveras River, and is currently regulated by Order R5-2003-0030, which was adopted on 13 March 2003 and expired on 1 March 2008. The terms and conditions of the current Order have been automatically continued and remain in effect until new Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit are adopted pursuant to this Order.

C. The Discharger filed a report of waste discharge and submitted an application for renewal of its WDRs and NPDES permit on 30 August 2007. Supplemental information was requested on 15 April 2008 and received on 30 June 2008. A site visit was conducted on 24 April 2008 to observe operations and collect additional data to develop permit limitations and conditions.

TENTATIVE 4 Aug 2008

II. FACILITY DESCRIPTION

The Discharger owns and operates a groundwater extraction and treatment system in the East Stockton Area of San Joaquin County. The Discharger previously operated a cooling tower fabrication plant at the site that included a wood preservation process using solutions containing copper, chromium and arsenic. Wood preserving was discontinued at this site in January 1991; however, past operational practices have resulted in contamination of soils and groundwater underlying the site. Soils have been contaminated with copper, chromium, and arsenic; groundwater has been contaminated with chromium and copper.

On 28 November 1984 the Regional Water Board ratified a Settlement Agreement among the Department of Health Services (now Department of Toxic Substances Control (DTSC)), the Discharger, and the Regional Water Board. This Settlement Agreement required the Discharger to conduct a Remedial Investigation/Feasibility Study (RI/FS) to define the extent of contamination, to develop a Remedial Action Plan (RAP), and to implement all measures necessary to remediate existing site contamination. Following discussions with Regional Water Board staff, DTSC formally adopted the RAP on 29 August 1990. The RAP included the conceptual design of the groundwater remediation project, and the recommended groundwater remedial action for the extraction, treatment, and discharge of contaminated groundwater.

A groundwater pilot study, including calcium polysulphate and ethanol injection, was initiated in June 2003 at the site to evaluate the effectiveness of in-situ reduction as a

means to address mobile, chromium (VI) in the subsurface. The pilot study was conducted under Order No. R5-2003-0100. The DTSC is the lead agency for the site clean up. In June 2007, DTSC issued a final RAP amendment that concluded that the pilot study successfully demonstrated the efficacy of in-situ Cr VI reduction, and authorized the full-scale implementation of the in-situ treatment at the site. The use of this treatment method is expected to clean up the groundwater in about 3 years rather than the currently estimated 17-year clean up time for the existing pump and treat system. The WDRs for the protection of groundwater are being implemented under a separate Order No. R5-2007-0126.

TENTATIVE 4 Aug 2008

A. Description of Wastewater and Biosolids Treatment or Controls

The treatment system at the Facility consists of an electrochemical reduction and precipitation unit operating in parallel to an ion exchange treatment system. The ion exchange system consists of two anion exchange vessels and a cation exchange vessel. In the anion exchange vessels, chromium (VI) in the water is adsorbed onto the ion exchange resins. In the cation exchange vessel, trivalent chromium and copper are adsorbed. The exchange process continues until the resin's exchange sites are filled and exchange capacity is exhausted. The adsorbed wood treating chemicals are stripped from the ion exchange resins and the resins are conditioned for additional water treatment in a process called regeneration. During regeneration, which occurs approximately every 2.5 days, 15,000 gallons of solution containing the stripped chemicals is removed from the ion exchange system and processed through the electrochemical unit. A process flow diagram for the ion exchange system is shown in Attachment C (Figure C-2).

The electrochemical unit consists of an electrochemical reduction (Andco) and precipitation process that uses iron as the reducing agent for the chromium (VI) followed by iron co-precipitation using pH adjustments. The addition of polymers and further pH adjustments are used to optimize settling. The effluent is then filtered prior to discharge. The solids from the clarifier are pumped and accumulated in a filter press. The filter press filtrate and mixed media filter backwash are returned to the treatment plant for further treatment. Filter press cake has been characterized as a California hazardous waste, and is collected in roll off bins for off-site disposal. A process flow diagram for the electrochemical precipitation system is shown in Attachment C (Figure C-3).

The site is divided into two areas, the North Yard and the South Yard. All past wood treatment activities were conducted on the North Yard. Rain falling on the North Yard becomes contaminated after contact with treated cooling tower components. This contaminated rainwater is collected in a storm drain system and is passed through the treatment plant in the northeast portion of the site. Due to the past practice of storing treated wood products on the South Yard, some wood treating chemicals had been detected in the storm water runoff there. The South Yard surface has been cleaned and residual contamination in pipes and ditches removed as part of the remedial actions undertaken by the Discharger.

Additionally, when sufficient storm water is accumulated on the North Yard to justify treatment, the operator will manually initiate storm water treatment through the Andco system. Groundwater from selected wells will simultaneously be delivered to the ion exchange treatment system.

The groundwater treatment facility is designed to treat a maximum flow up to 0.94 mgd. Groundwater is extracted from approximately 13 operative extraction wells on and off-site. The groundwater extraction system can operate in a cyclical fashion with each of the two cycles lasting 56 hours or on a continuous basis with all extraction wells pumping at rates varying from 10 to 90 gallons per minute depending on effective capture of the groundwater contamination plume. When cycling, primary groundwater extraction is alternated between the north zone and the area south of the site. Water extracted from the north zone has higher contaminant concentrations. During south zone pumping, the capacity of the treatment plant is not fully utilized unless supplemental waste sources are added. Flushing water may be added to supplement the groundwater contaminant concentrations. A process flow diagram for the groundwater extraction and equalization is shown in Attachment C (Figure C-4). Additionally, symbols, an instrument legend, and definitions for all of the systems flow diagrams are shown in Attachment C (Figure C-5).

TENTATIVE 4 Aug 2008

B. Discharge Points and Receiving Waters

1. The Facility is located in Section 32, T2N, R7E, MDB&M, as shown in Attachment B, a part of this Order.

2. Treated ground wastewater is discharged at Discharge Point No. 001 to the Stockton Diverting Canal, a water of the United States and a tributary to the Calaveras River at a point Latitude 37°, 58’, 19” N and longitude 121°, 13’, 34” W.

3. The Upper Mormon Slough drainage course originates from the Calaveras River near Bellota then flows west-southwest from Bellota, south of the Calaveras River. The Stockton Diverting Canal is an engineered drainage which re-connects Upper Mormon Slough to the Calaveras River on the east side of Stockton. From approximately October to April each year, the East Stockton Water District dams the Calaveras River at its fork with Upper Mormon Slough, diverting flows through Upper Mormon Slough and the Stockton Diverting Canal.

4. From approximately April to October each year, flows are split between the Calaveras River and Upper Mormon Slough. A series of check dams are installed along the Calaveras River, Upper Mormon Slough, and the Stockton Diverting Canal to provide irrigation water for adjacent farmers. During this time, there are periods of limited or no flow in the Stockton Diverting Canal.

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

Effluent limitations contained in the existing Order for discharges from Outfall 001 (Monitoring Location 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 June 2003 – To September 2007)	
		Average Monthly	Maximum Daily	Highest Average Monthly Discharge	Highest Daily Discharge
Flow	mgd	0.72	0.94	0.75[9]	0.75[9]
pH	pH units	Range of 6.5 to 8.5[7]		Range 6.6 to 7.86	
Acute Toxicity	% Survival	[8]		Minimum of 98%	
Copper, Total	µg/L	3.3[3]	--	3.65	7.3
	lbs/day	0.02[2,3]	--	[5]	[5]
Chromium, Total	µg/L	50	--	17	17
	lbs/day	0.3[2]	--	[5]	[5]
Chromium (VI)	µg/L	8.0	16	3.4	3.4
	lbs/day	0.05[2]	0.13[1]	[5]	[5]
Arsenic, Total	µg/L	10	--	8	8
	lbs/day	0.06[2]	--	[5]	[5]
Total Dissolved Solids	mg/L	500[4]	1000	910	910
	lbs/day	3002[2,4]	7840[1]	[5]	[5]
Chlorine, Total Residual	mg/L	0.01	0.02	[6]	[6]
	lbs/day	0.12[2]	0.08[1]	[5]	[5]

1 Based upon maximum daily design treatment capacity of 0.94 mgd.
2 Based upon monthly average flow limitation of 0.72 mgd.
3 At 44 mg/L hardness as $CaCO_3$ upstream in the Stockton Diverting Canal (SDC). At other hardness values, use Attachment D or adjust copper criterion from CTR in accordance with 40 CFR 131.38(b)(2). If there is no flow in the SDC, use effluent hardness values. Use adjusted criterion as Effluent Concentration Allowance (ECA) and calculate the average monthly and daily maximum effluent limitations in accordance with the SIP Section 1.4.
4 This effluent limitation shall become effective 1 February 2012 pursuant to TSO No. R5-2008-0011.
5 Not reported.
6 Not detected. MDL = 0.02.
7 Instantaneous minimum to instantaneous maximum.
8 Minimum for any one bioassay is 70% and median for any three or more consecutive bioassays is 90%.
9 Flow calculated by dividing reported monthly flow by highest number of days any one system operated in the month.

D. Compliance Summary

The following compliance summary applies to the Facility during the term of Order No. R5-2003-0030.

1. Based on monitoring data collected during the term of Order No. R5-2003-0030, the average monthly effluent limitation (AMEL) and maximum daily effluent limitation (MDEL) for copper were exceeded in May 2004 and October 2007, however, all other reported results have been below the established limitations. In addition, the Discharger periodically exceeded the established limitation for TDS. Monitoring data

TENTATIVE 4 Aug 2008

for chromium, chromium (VI), arsenic, and total residual chlorine indicate the Discharger was in compliance with the established limitations.

E. Planned Changes – NOT APPLICABLE

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 February 2007), 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 Calaveras River from New Hogan Reservoir to the Delta, which the Stockton Diverting Canal is a tributary, are municipal and domestic supply (MUN), agricultural supply (AGR), water contact recreation, canoeing, and rafting (REC-1), other non-contact water recreation (REC-2), warm freshwater habitat (WARM), cold freshwater habitat (COLD), warm and cold migration of aquatic organisms (MIGR), warm and cold spawning, reproduction, and/or early development (SPWN), and wildlife habitat (WILD). Industrial process supply (PRO) and industrial service supply (IND) are identified as a potential beneficial uses.

   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*

TENTATIVE 4 Aug 2008

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 28 November 1975, whether or not they are included in the water quality standards. Federal Regulation, 40 CFR section 131.10 requires that uses be obtained by implementing effluent limitations, requires that all downstream uses be protected and states that in no case shall a state adopt waste transport or waste assimilation as a beneficial use for any waters of the United States.

The Basin Plan at page II-2.00 states that: "*Existing and potential beneficial uses that currently apply to surface waters of the basins are presented in Figure II-1 and Table II-1. The beneficial uses of any specifically identified water body generally apply to its tributary streams.*" The Basin Plan does not specifically identify beneficial uses for the Stockton Diverting Canal, but the Basin Plan does identify present and potential uses for the Calaveras River, to which the Stockton Diverting Canal is tributary. In reviewing whether the existing and/or potential beneficial uses of the Calaveras River apply to the Stockton Diverting Canal, the Board has considered the following facts:

a. *Domestic Supply and Agricultural Supply*

The Regional Water Board is required to apply the beneficial uses of municipal and domestic supply to the Stockton Diverting Canal based on State Board Resolution No. 88-63 which was incorporated into the Basin Plan pursuant to Regional Water Board Resolution 89-056. In addition, the State Water Board has issued water rights to existing water users along Stockton Diverting Canal and the Calaveras River downstream of the discharge for domestic and irrigation uses. As noted above, municipal and domestic supply are identified as an existing beneficial use of the Calaveras River, with which the Stockton Diverting Canal exchanges water.

b. *Water Contact and Non-Contact Recreation and Esthetic Enjoyment*

The Board finds that the discharge flows through residential areas, and there is ready public access to the Stockton Diverting Canal and the Calaveras River. Exclusion of the public is unrealistic and contact recreational activities currently exist along the Stockton Diverting Canal, the Calaveras River, and downstream waters and these uses are likely to increase as the population in the area grows.

c. *Groundwater Recharge*

In areas or at times when groundwater elevations are below the Stockton Diverting Canal and/or Calaveras River bottom, water from the river will percolate to groundwater. Since flow in the Stockton Diverting Canal and/or Calaveras River is

TENTATIVE 4 Aug 2008

at times minimal, it is reasonable to assume that the stream water originating from the Stockton Diverting Canal is lost by evaporation, flows downstream and percolates to groundwater providing a source of municipal and irrigation water supply.

d. *Freshwater Replenishment*

There are periods of hydraulic continuity between the Stockton Diverting Canal and the Calaveras River. During periods of hydraulic continuity, the Stockton Diverting Canal contributes some or all of the water quantity and may impact the quality of water flowing downstream in the Calaveras River.

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

The Basin Plan (Table II-1) designates the Calaveras River as being a cold freshwater habitat. The Stockton Diverting Canal exchanges water with the Calaveras River, diverting water from Mormon Slough, which originates from the Calaveras River, back into the Calaveras River. There is aquatic habitat in the Stockton Diverting Canal and hydraulic continuity between the Canal and Calaveras River from the point of discharge from Outfall 001 to where the Canal discharges into the Calaveras River. Pursuant to the Basin Plan (Table II-1, Footnote (2)), and the presence of cold water aquatic habitat in the Stockton Diverting Canal, the cold designation is applicable to the Stockton Diverting Canal. The cold water habitat designation necessitates that the in-stream dissolved oxygen concentration be maintained at, or above, 7.0 mg/L (ppm). This approach recognizes that, if the naturally occurring in-stream dissolved oxygen concentration is below 7.0 mg/L (ppm), the Discharger is not required to improve the naturally occurring level.

Upon review of the flow conditions, habitat values, existing and potential beneficial uses of the Calaveras River, and the facts described above, the Regional Water Board finds that the beneficial uses identified in the Basin Plan for the Calaveras River are applicable to the Stockton Diverting Canal.

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

3. **Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at title 40, Code of Federal Regulations section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require

TENTATIVE 4 Aug 2008

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.

4. **Storm Water Requirements.** USEPA promulgated Federal Regulations for storm water on 16 November 1990 in 40 CFR Parts 122, 123, and 124. The NPDES Industrial Storm Water Program regulates storm water discharges associated with industrial activity. Hazardous waste treatment, storage or disposal facilities are applicable industries under the storm water program and are obligated to comply with the Federal Regulations.

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

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

1. Under Section 303(d) of the 1972 Clean Water Act, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On 30 November 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 Stockton Diverting Canal is not listed as a water quality limited segment; however, the Stockton Diverting Canal flows directly into the southern portion of the Delta Waterways, which is listed in the 303(d) list as impaired for: chlorpyrifos, DDT, diazinon, electrical conductivity, exotic species, group A pesticides, mercury, and unknown toxicity.

2. **Total Maximum Daily Loads.** An applicable Total Maximum Daily Load (TMDL) for diazinon and chlorpyrifos has been adopted by the Regional Water Board and approved by USEPA for the Sacramento-San Joaquin Delta Waterways and tributaries. However, there are no wasteload allocations applicable to the Facility's discharge.

TENTATIVE 4 Aug 2008

E. Other Plans, Polices and Regulations – NOT APPLICABLE

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

TENTATIVE 4 Aug 2008

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

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

The CWA requires point source discharges to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations: 40 CFR §122.44(a) requires that permits include applicable technology-based limitations and standards, and 40 CFR §122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water where numeric water quality objectives have not been established. The Regional Water Board's Basin Plan, page IV-17.00, contains an implementation policy ("Policy for Application of Water Quality Objectives") that specifies that the Regional Water Board "*will, on a case-by-case basis, adopt numerical limitations in orders which will implement the narrative objectives*." This Policy complies with 40 CFR §122.44(d)(1). With respect to narrative objectives, the Regional Water Board must establish effluent limitations using one or more of three specified sources, including (1) USEPA's published water quality criteria, (2) a proposed state criterion (*i.e*., water quality objective) or an explicit state policy interpreting its narrative water quality criteria (*i.e*., the 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.

TENTATIVE 4 Aug 2008

A. Discharge Prohibitions

1. Discharge of wastewater at a location or in a manner different from that described in the Findings is prohibited

2. 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.

3. Neither the discharge nor its treatment shall create a nuisance as defined in Section 13050 of the California Water Code.

4. The Discharger shall not allow pollutant-free wastewater to be discharged into the collection, treatment, and disposal system in amounts that significantly diminish the system’s capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.

B. Technology-Based Effluent Limitations

1. Scope and Authority

The CWA requires that technology-based effluent limitations are 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

a. **Flow.** The groundwater treatment facility is designed to treat a maximum flow up to 0.94 mgd. As stated above, technology-based effluent limitations are established on a case-by-case basis using BPJ. Therefore, a technology-based effluent limitation for flow is established in this Order to monitor the performance of the groundwater treatment system from the standpoint of volumes being treated. Order No. R5-2003-0030 established a maximum daily discharge flow at 0.94 mgd (treatment plant capacity), and a monthly average discharge flow at 0.72 mgd. This Order retains the maximum daily and the average monthly flow rates.

b. **Arsenic, Total Chromium and Hexavalent Chromium**. The groundwater being treated contains concentrations of arsenic, total chromium and hexavalent chromium that, if left untreated, would exceed water quality based effluent limitations calculated for this discharge. Because treatment has been consistently effective, effluent concentrations do not demonstrate that reasonable potential exists to exceed the WQBEL. However, since these constituents exist in the treatment facility influent, effluent limitations set at the calculated WQBELs are included in the permit in accordance with Section 1.3, Step 7 of the SIP.

TENTATIVE 4 Aug 2008

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

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

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Arsenic, Total Recoverable	µg/L	10	--	--	--
Chromium, Total Recoverable	µg/L	50	--	--	--
Chromium (VI)	µg/L	5.7	16.3	--	--
Flow	mgd	0.72	0.94	--	--

TENTATIVE 4 Aug 2008

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 Upper Mormon Slough drainage course originates from the Calaveras River near Bellota. The Upper Mormon Slough drainage course then flows west-southwest from Bellota, south of the Calaveras River. The Stockton Diverting Canal is an engineered drainage which re-connects Upper Mormon Slough to the Calaveras River on the east side of Stockton. From approximately October to April each year, the East Stockton Water District dams the Calaveras River at its fork with Upper Mormon Slough, diverting flows through Upper Mormon Slough and the Stockton Diverting Canal. The beneficial uses of the receiving water 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 CTR and the NTR contain water quality criteria for seven metals that vary as a function of hardness, the lower the hardness the lower the water quality criteria. The hardness-dependent metal criteria include cadmium, copper, chromium III, lead, nickel, silver, and zinc. The

equation describing the total recoverable regulatory criterion, as established in the CTR, is as follows:

CTR Criterion = $^{em[ln(H)]+b}$ (Equation 1)

Where:

H = Hardness
b = metal- and criterion-specific constant
m = metal- and criterion-specific constant

The constants "m" and "b" are specific to both the metal under consideration, and the type of total recoverable criterion (i.e. acute or chronic). The metal-specific values for these constants are provided in the CTR at paragraph (b)(2), Table 1.

The relationship between hardness and the resulting criterion in Equation 1 can exhibit either a downward-facing (i.e., concave downward) or an upward-facing (i.e., concave upward) curve depending on the values of the criterion-specific constants. The curve shapes for acute and chronic criteria for the metals are as follows:

Concave Downward: cadmium (chronic), chromium (III), copper, nickel, and zinc

Concave Upward: cadmium (acute), lead, and silver (acute)

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 hardness 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. Recent studies indicate that using the lowest recorded receiving water hardness for establishing water quality criteria is not protective of the receiving water under various mixing conditions. The Regional Water Board has evaluated these studies and concurs that for some parameters the beneficial uses of the receiving water are best protected using the lowest hardness value of the effluent. For some parameters, the use of the lowest hardness value of the effluent and either lowest or highest hardness value of the receiving water is the most protective.

For those contaminants where the regulatory criteria exhibit a concave downward relationship as a function of hardness, use of the lowest recorded effluent hardness for establishment of water quality objectives is fully protective of all beneficial uses regardless of whether the effluent or receiving water hardness is higher. Use of the lowest recorded effluent hardness is also protective under all possible mixing conditions between the effluent and the receiving water (i.e., from high dilution to no dilution). The lowest effluent hardness value of 85 mg/L as $CaCO_3$ was reported; however, out of 53 effluent data samples taken between June 2003 and December 2007 only one sample was less than 100 mg/L and

TENTATIVE 4 Aug 2008

only two were less than 200 mg/L; the average of the samples was 265 mg/L. Therefore, it was concluded that the 85 mg/L is not representative of the effluent, particularly since the hardness of the groundwater is not expected to change over time. The next lowest hardness value of 120 mg/L as $CaCO_3$ was used for purposes of establishing criteria for copper, chromium III, nickel, zinc and cadmium (chronic).

For those metals where the regulatory criteria exhibit a concave upward relationship as a function of hardness, a water quality objective based on either the effluent hardness or the receiving water hardness would not be protective under all mixing scenarios. Instead, a water quality objective that accounts for both the hardness of the receiving water and the effluent is required. The following equations provide fully protective water quality criteria for those metals that exhibit a concave upward relationship.

$$\text{CTR Criterion} = \left[\frac{m}{H_{rw}} \cdot \left(H_{eff} - H_{rw}\right) + 1\right] \cdot e^{m \cdot \ln(H_{rw}) + b} \qquad \text{(Equation 2)}$$

Where:

H_{eff} = lowest recorded effluent hardness
H_{rw} = highest recorded receiving water hardness
b = metal- and criterion-specific constant
m = metal- and criterion-specific constant

Because the lowest receiving water hardness is less than the lowest effluent hardness, using the lowest recorded receiving water hardness increases the difference between the hardness of the two waters and leads to the development of more restrictive water quality criteria. Therefore, for cadmium (acute), lead, and silver (acute) water quality criteria were calculated using Equation 2 with an effluent hardness of 120 mg/L as $CaCO_3$ (as described above for Equation 1) and a lowest reported receiving water hardness of 40.5 mg/L as $CaCO_3$, based on 18 samples taken between July 2003 and November 2007.

c. **Assimilative Capacity/Mixing Zone.** At times, the Stockton Diverting Canal may provide little or no assimilative capacity, due to its seasonal and/or ephemeral nature. Therefore, final water quality-based effluent limitations have been developed using a steady state model with no credit provided for dilution.

Preliminary data provided by the Discharger indicate the Stockton Diverting Canal may provide some dilution and limited assimilative capacity for TDS; however, the receiving water characteristics have not been fully evaluated with respect to TDS.

To the extent seasonal assimilative capacity is available in the receiving water to accommodate constituents in the effluent that exceed reasonable potential criteria, this permit contains a re-opener to consider final effluent limitations

TENTATIVE 4 Aug 2008

based upon demonstrated assimilative capacity. However, effluent limitations contained in this Order do not account for the receiving water having assimilative capacity.

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 at Discharge Point No. 001 has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for arsenic, chromium, copper and electrical conductivity (EC). As discussed in Section IV.C.3.l. of this Fact Sheet, no effluent limitations are being established for EC. Effluent limitations for copper 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 *"[t]he 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

TENTATIVE 4 Aug 2008

procedures from the SIP were used to evaluate reasonable potential for both CTR and non-CTR constituents.

d. Order No. R5-2003-0030 established monitoring requirements for metals reported as total recoverable concentration. However, the Discharger reported monitoring data results over the term of Order No. R5-2003-0030 in dissolved fractions for arsenic, chromium, chromium (VI), copper, and iron. The Basin Plan includes numerical water quality objectives for chemical constituents that are expressed as dissolved fractions. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. The RPA was conducted on the dissolved metals data, and if reasonable potential was identified, then WQBELs were developed and expressed as total recoverable using the USEPA recommended conversion factors to translate dissolved concentrations to total concentrations. If the USEPA had not developed a conversion factor and no site-specific translator was available, a conversion factor of 1 was assumed.

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

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 dissolved arsenic was 8.0 µg/L based on 54 samples collected between June 2003 and December 2007, while the maximum observed upstream receiving water arsenic concentration (dissolved) was 2.0 µg/L based on 18 samples collected between July 2003 and December 2007. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. In the absence of a site-specific conversion factor, the USEPA has established a default dissolved-to-total conversion factor of 1 for arsenic. Assuming a conversion factor of 1 (i.e., the dissolved concentration equals the total concentration), the discharge does not have a reasonable potential to cause or contribute to an in-stream excursion above the USEPA Primary MCL. However, based on Step 7 in Section 1.3 of the SIP and since arsenic is a pollutant of concern at the Facility, the final average monthly effluent limitation of 10 µg/L established in Order No. R5-2003-0030 is retained in this Order in accordance with Section 1.3 Step 7 of the SIP.

g. **Chlorine Residual.** Order No. R5-2003-0030 established a MDEL and AMEL of 0.02 µg/L and 0.01 µg/L, respectively, for total residual chlorine based on monitoring results from January 2001 through May 2002. The source of chlorine was unknown. However, monitoring data from June 2003 through December 2007 indicate no detectable amounts of chlorine. The Discharger confirmed that no chlorine or chlorine-containing compounds are used in Facility processes and

TENTATIVE 4 Aug 2008

that no disinfection is done to the effluent prior to discharge. Therefore, the effluent limitation established in Order No. R5-2003-0030 for total residual chlorine is not retained in this Order.

h. **Chromium (Total).** The California Primary Maximum Contaminant Level (MCL) is 50 µg/L for total chromium. The MEC for total chromium (as dissolved) was 17 µg/L based on 52 samples collected between June 2003 and December 2007, while the maximum observed upstream receiving water total chromium concentration (as dissolved) was 5.0 µg/L based on 18 samples collected between July 2003 and December 2007. A conversion factor of 1 was assumed to convert the dissolved data to total concentration. Based on the data, the discharge does not have a reasonable potential to cause or contribute to an in-stream excursion above the USEPA Primary MCL. However, since chromium is a pollutant of concern at the Facility and one in which the groundwater treatment system is specifically designed to control, the final AMEL of 50 µg/L established in Order No. R5-2003-0030 is retained in this Order in accordance with Section 1.3 Step 7 of the SIP.

i. **Chromium VI (Hexavalent Chromium).** The CTR includes maximum 1-hour average and 4-day average chromium VI concentrations of 16 µg/L and 11 µg/L, respectively, for the protection of freshwater aquatic life. The MEC for chromium VI (as dissolved) was 3.4 µg/L based on 52 samples collected between June 2003 and December 2007, while the maximum observed upstream receiving water chromium VI concentration (as dissolved) was 0.2 µg/L based on 18 samples collected between July 2003 and December 2007. Therefore, the discharge does not have a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria. However, since chromium VI is a pollutant of concern at the Facility and one in which the groundwater treatment system is specifically designed to control, the final effluent limitation established in Order No. R5-2003-0030 is retained in this Order in accordance with Section 1.3 Step 7 of the SIP.

j. **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. Using the worst-case measured hardness from the effluent (120 mg/L, as $CaCO_3$, respectively), the applicable chronic criterion is 10.47 µg/L and the applicable acute criterion is 15.96 µg/L as dissolved copper.

The MEC for dissolved copper was 7.3 µg/L based on 55 samples collected between June 2003 and December 2007. The maximum observed upstream receiving water dissolved copper concentration was 7.0 µg/L based on 18 samples collected between July 2003 and December 2007. Although the MEC for copper is lower than the most stringent applicable criteria, and some assimilative capacity exists in the receiving water, as allowed under Section 1.3 Step 7 in the SIP, and based on new hardness data, new effluent limitations are being established in this Order. No dilution is allowed due to periods of no flow in the receiving water. An AMEL and MDEL for copper of 5.8 µg/L and 16.6 µg/L, respectively, are included in this Order based on CTR criteria for the protection of

TENTATIVE 4 Aug 2008

freshwater aquatic life (see Attachment F, Table F-6 for WQBEL calculations). Since the Discharger operates treatment processes specific to the removal of copper, and with proper operation of the existing treatment facilities, results of monitoring indicate the Discharger is capable of meeting the new effluent limitations.

k. **pH.** The Basin Plan includes a water quality objective for surface waters (except for Goose Lake) that the "…*pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses.*" Effluent Limitations for pH are included in this Order for Discharge Point No. 001 based on the Basin Plan objectives for pH.

l. **Salinity.** The discharge may contain total dissolved solids (TDS), chloride, sulfate, and electrical conductivity (EC). These are water quality parameters that are indicative of the salinity of the water. Their presence in water can be growth limiting to certain agricultural crops and can affect the taste of water for human consumption. There are no USEPA water quality criteria for the protection of aquatic organisms for these constituents. The Basin Plan contains a chemical constituent objective that incorporates State MCLs, contains a narrative objective, and contains numeric water quality objectives TDS, chloride, sulfate, and EC.

Table F-4. Salinity Water Quality Criteria/Objectives

Parameter	Agricultural WQ Goal[1]	Secondary MCL[2]	Effluent	
			Average	Maximum
EC (µmhos/cm)	Varies[3]	900, 1600, 2200	989	1460
TDS (mg/L)	Varies	500, 1000, 1500	613	910
Sulfate (mg/L)	Varies	250, 500, 600	NA	NA
Chloride (mg/L)	Varies	250, 500, 600	NA	NA

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

[3] The EC level in irrigation water that harms crop production depends on the crop type, soil type, irrigation methods, rainfall, and other factors. An EC level of 700 umhos/cm is generally considered to present no risk of salinity impacts to crops. However, many crops are grown successfully with higher salinities.

i. **Electrical Conductivity (EC).** The secondary MCL for EC is 900 µmhos/cm as a recommended level, 1,600 µmhos/cm as an upper level, and 2,200 µmhos/cm as a short-term maximum. The agricultural water quality goal, that would apply the narrative chemical constituents objective, is 700 µmhos/cm as a long-term average based on Water Quality for Agriculture, Food and

TENTATIVE 4 Aug 2008

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. In addition, the northwestern portion of the Sacramento – San Joaquin Delta has been listed as an impaired water body pursuant to Section 303(d) of the Clean Water Act because of electrical conductivity.

A review of the Discharger's monitoring reports from June 2003 through December 2007 shows an average effluent for EC of 989 µmhos/cm, with a range from 507 µmhos/cm to 1,460 µmhos/cm for 53 samples. These levels exceed the applicable objectives. The background receiving water EC concentration averaged 196 µmhos/cm in 45 sampling events collected by the Discharger from July 2003 through December 2007.

ii. **Total Dissolved Solids (TDS)**. The secondary MCL for TDS is 500 mg/L as a recommended level, 1,000 mg/L as an upper level, and 1,500 mg/L as a short-term maximum. The recommended agricultural water quality goal for TDS, that would apply the narrative chemical constituent objective, is 450 mg/L as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). Water Quality for Agriculture evaluates the impacts of salinity levels on crop tolerance and yield reduction, and establishes water quality goals that are protective of the agricultural uses. The 450 mg/L water quality goal is intended to prevent reduction in crop yield, i.e. a restriction on use of water, for salt-sensitive crops. Only the most salt sensitive crops require irrigation water of 450 mg/L or less to prevent loss of yield. Most other crops can tolerate higher TDS concentrations without harm, however, as the salinity of the irrigation water increases, more crops are potentially harmed by the TDS, or extra measures must be taken by the farmer to minimize or eliminate any harmful impacts.

The average TDS effluent concentration was 613 mg/L; concentrations ranged from 299 mg/L to 910 mg/L for 53 samples collected by the Discharger from June 2003 through December 2007. These concentrations exceed the applicable water quality objectives. The background receiving water TDS ranged from 65 mg/L to 170 mg/L, with an average of 107 mg/L in 18 sampling events performed by the Discharger from July 2003 through December 2007. These data indicate the receiving water periodically exceeds water quality objectives and may lack assimilative capacity for TDS.

iii. **Sulfate.** No reported monitoring data.

TENTATIVE 4 Aug 2008

iv. **Chloride.** No reported monitoring data.

v. **Salinity Effluent Limitations.** Effluent limitations based on the MCL or the Basin Plan would likely require construction and operation of a reverse osmosis treatment plant. The State Water Board, in Water Quality Order 2005-005 (for the City of Manteca), states, "…*the State Board takes official notice [pursuant to Title 23 of California Code of Regulations, Section 648.2] of the fact that operation of a large-scale reverse osmosis treatment plant would result in production of highly saline brine for which an acceptable method of disposal would have to be developed. Consequently, any decision that would require use of reverse osmosis to treat the City's municipal wastewater effluent on a large scale should involve thorough consideration of the expected environmental effects*." The State Water Board states in that Order, "*Although the ultimate solution to southern Delta salinity problems have not yet been determined, previous actions establish that the State Board intended for permit limitations to play a limited role with respect to achieving compliance with the EC water quality objectives in the southern Delta." The State Water Board goes on to say, "Construction and operation of reverse osmosis facilities to treat discharges…prior to implementation of other measures to reduce the salt load in the southern Delta, would not be a reasonable approach*."

The Regional Water Board, with cooperation of the State Water Board, has begun the process to develop a new policy for the regulation of salinity in the Central Valley. In a statement issued at the 16 March 2006, Regional Water Board meeting, Board Member Dr. Karl Longley recommended that the Regional Water Board continue to exercise its authority to regulate discharges of salt to minimize salinity increases within the Central Valley. Dr. Longley stated, "*The process of developing new salinity control policies does not, therefore, mean that we should stop regulating salt discharges until a salinity Policy is developed. In the meantime, the Board should consider all possible interim approaches to continue controlling and regulating salts in a reasonable manner, and encourage all stakeholder groups that may be affected by the Regional Board's policy to actively participate in policy development.*"

Time Schedule Order (TSO) No. R5-2008-0011 requires the Discharger to meet a final AMEL of 500 mg/L by 1 February 2012; an interim monthly average TDS effluent limit of 850 mg/L was also established. The Regional Water Board staff guidance on salinity states that prescribing either TDS or EC limits is generally sufficiently protective of water quality standards for salt constituents. Therefore, this Order will require compliance with TDS effluent limitations for control of salinity (i.e., no limitations for EC will be established in the Order).

This Order also requires the Discharger to implement salinity minimization measures to minimize any increases in effluent salinity due to treatment of the groundwater. Specifically, Special Provision VI.C.3.a. of this Order requires

TENTATIVE 4 Aug 2008

the Discharger to prepare and implement a salinity evaluation and minimization plan to address any salinity increases in the extracted groundwater resulting from treatment at the Facility.

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

4. WQBEL Calculations

a. As discussed in section IV.C.3 above, WQBELs for total chromium and TDS are based on the California MCLs, and WQBELs for arsenic are based on the USEPA Primary MCL, and they are applied directly as AMELs. WQBELs for pH are based on the Basin Plan objectives and applied directly as effluent limitations.

b. Effluent limitations for chromium (VI) and copper were calculated in accordance with section 1.4 of the SIP. The following paragraphs describe the methodology used for calculating effluent limitations for this parameter.

c. **Effluent Limitation Calculations.** In calculating maximum effluent limitations, the effluent concentration allowances were set equal to the criteria/standards/objectives.

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

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

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

where:

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

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

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

CMC = criteria maximum concentration (1-hour average)

CCC = criteria continuous concentration (4-day average, unless otherwise noted)

HH = human health, agriculture, or other long-term criterion/objective

D = dilution credit

B = maximum receiving water concentration

TENTATIVE 4 Aug 2008

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 chromium (VI) and copper as follows in Tables F-6 and F-7below.

Table F-5. WQBEL Calculations for Chromium VI

	Acute	Chronic
Criteria, dissolved (µg/L) (1)	16.0	11.0
Dilution Credit	No Dilution	No Dilution
Translator (2)	0.982	0.962
ECA, total recoverable (3)	16.3	11.4
ECA Multiplier (4)	0.15	0.28
LTA	2.47	3.19
AMEL Multiplier (95th%) (5)(6)	2.32	(8)
AMEL (µg/L)	**5.7**	(8)
MDEL Multiplier (99th%) (7)	6.59	(8)
MDEL (µg/L)	**16.3**	(8)

(1) CTR aquatic life criteria, based on a hardness of 120 mg/L as $CaCO_3$.
(2) USEPA Translator used as default.
(3) ECA calculated per section 1.4.B, Step 2 of SIP. This allows for the consideration of dilution.
(4) 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.
(5) Assumes sampling frequency n=>4.
(6) 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.
(7) 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.
(8) Limitations based on acute LTA (Acute LTA < Chronic LTA)

Table F-6. WQBEL Calculations for Copper

	Acute	Chronic

TENTATIVE 4 Aug 2008

Criteria, dissolved (µg/L) [1]	15.96	10.47
Dilution Credit	No Dilution	No Dilution
Translator [2]	0.96	0.96
ECA, total recoverable [3]	16.62	10.90
ECA Multiplier [4]	0.15	0.28
LTA	2.49	3.05
AMEL Multiplier (95th%) [5][6]	2.34	[8]
AMEL (µg/L)	**5.8**	[8]
MDEL Multiplier (99th%) [7]	6.67	[8]
MDEL (µg/L)	**16.6**	[8]

(1) CTR aquatic life criteria, based on a hardness of 120 mg/L as $CaCO_3$.
(2) USEPA Translator used as default.
(3) ECA calculated per section 1.4.B, Step 2 of SIP. This allows for the consideration of dilution.
(4) 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.
(5) Assumes sampling frequency n=>4.
(6) 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.
(7) 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.
(8) Limitations based on acute LTA (Acute LTA < Chronic 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	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Copper, Total Recoverable	µg/L	5.8	16.6	--	--
Total Dissolved Solids	mg/L	500	--	--	--
pH	standard units	--	--	6.5	8.5

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

TENTATIVE 4 Aug 2008

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, and consistent with the requirements of Order No. R5-2003-0030, 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 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 page <III-8.00). Chronic WET testing performed by the Discharger from September 2004 through March 2007 indicate that the discharge has reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective.

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*

[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).

TENTATIVE 4 Aug 2008

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 WET testing, as specified in the Monitoring and Reporting Program (Attachment E section V.). Furthermore, the Special Provision contained at VI.C.2.a. of this Order requires the Discharger to investigate the causes of, and identify and implement corrective actions to reduce or eliminate effluent toxicity. If the discharge demonstrates 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 workplan. The numeric toxicity monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to perform accelerated chronic toxicity monitoring, as well as, the threshold to initiate a TRE if a pattern of effluent toxicity has been demonstrated.

D. Final Effluent Limitations

1. Mass-based Effluent Limitations

Order No. R5-2003-0030 included mass-based effluent limitations for copper, total chromium, chromium (VI), arsenic, TDS, and total residual chlorine. Pursuant to the exceptions to mass limitations provided in 40 CFR 122.45(f)(1), mass limitations for these constituents are not carried over to this Order because the applicable standards (i.e., water quality objectives) are expressed in terms of concentration and mass limitations are not necessary to protect the beneficial uses of the receiving water.

2. Averaging Periods for Effluent Limitations

Title 40 CFR section 122.45 (d) requires maximum daily and average monthly discharge limitations for all continuous discharges other than publicly owned treatment works (POTWs) unless impracticable. Except for pH and acute toxicity, all effluent limitations are expressed as MDELs and AMELs. Effluent limitations for pH and acute toxicity are applied in accordance with the Basin Plan.

TENTATIVE 4 Aug 2008

3. Satisfaction of Anti-Backsliding Requirements

Some effluent limitations in this Order are less stringent that those in the previous Order. As discussed in Section IV.C.3 above, the removal of effluent limitations for total residual chlorine is consistent with the anti-backsliding requirements of the CWA and federal regulations. The change in effluent limitation basis for copper from floating to a fixed effluent limitation is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution 68-16. Any impact on existing water quality will be insignificant.

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.

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	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Flow	mgd	0.72	0.94	--	--	DC
Conventional Pollutants:						
pH	standard units	--	--	6.5	8.5	BP
Priority Pollutants:						
Arsenic, Total Recoverable	µg/L	10	--	--	--	MCL
Chromium, Total Recoverable	µg/L	50	--	--	--	MCL
Chromium (VI)	µg/L	5.7	16.3	--	--	CTR
Copper, Total Recoverable	µg/L	5.8	16.6	--	--	CTR
Non-Conventional Pollutants:						
Total Dissolved Solids	mg/L	500	--	--	--	MCL
Acute Toxicity[2]	% survival	Minimum for any one bioassay - - 70% Median for any three or more consecutive bioassays - - 90%				BP

[1] DC – Based on the design capacity of the Facility
BP – Based on water quality objectives contained in the Basin Plan
MCL – Based on the California Secondary Maximum Contaminant Level
CTR –California Toxics Rule

[2] Survival of aquatic organisms in 96-hour bioassays of undiluted waste.

E. Interim Effluent Limitations– NOT APPLICABLE

TENTATIVE 4 Aug 2008

F. Land Discharge Specifications – NOT APPLICABLE

G. Reclamation Specifications – NOT APPLICABLE

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

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

B. Groundwater

1. The discharge of treated water to the soil flushing area shall not degrade groundwater quality outside of the recapture zone, as specified in Special Provisions Section VI.C.6.b. of the Order.

TENTATIVE 4 Aug 2008

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 authorizes 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.

TENTATIVE 4 Aug 2008

A. Influent Monitoring

1. Influent monitoring is required to collect data on the characteristics of the contaminated groundwater and assess treatment plant performance. The monitoring frequency (quarterly) and sample type (grab) established in Order No. R5-2003-0030 for total dissolved solids, total chromium, total copper, and total arsenic are retained in this Order.

2. Influent samples shall be collected from each of the two treatment systems (ion-exchange and electrochemical reduction and precipitation) and should be representative of the influent to each system for the period sampled. Where applicable, the influent shall be collected at approximately the same time as effluent samples.

B. Effluent Monitoring

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

2. Monthly effluent monitoring requirements established in Order No. R5-2003-0030 for flow, pH, electrical conductivity, temperature, dissolved oxygen, hardness (as $CaCO_3$), total dissolved solids, total suspended solids, total chromium, chromium (VI), total copper, total arsenic, total iron, turbidity, and acute toxicity are retained in this Order. The monthly effluent monitoring requirement for total residual chlorine is not retained in this Order because the effluent limitation has not been retained as described in section IV.C.3.g. of this Fact Sheet.

3. Monitoring during the third year of the permit term for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established has been required in this Order in accordance with Section 1.3 of the SIP requiring industrial dischargers to conduct periodic monitoring for priority pollutants. Additional sampling may be required for priority pollutants found during the third-year sampling to provide sufficient data for renewal of the Permit. Wet and dry weather monitoring for TCDD-equivalents. and TCDD-equivalents in accordance with Section 3 of the SIP.

C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Quarterly acute toxicity testing has been retained from Order No. R5-2003-0030 in order to demonstrate compliance with the effluent limitations for acute toxicity.

2. **Chronic Toxicity.** Chronic whole effluent toxicity monitoring data for the period from September 2004 to March 2007 indicate periodic exceedances above chronic toxicity criteria. However, retest results demonstrate that Discharger's treated effluent does not contribute toxicity to the Stockton Diverting Canal. Quarterly chronic whole effluent toxicity testing has been retained from Order No. R5-2003-0030 in order to demonstrate compliance with the Basin Plan's narrative toxicity objective.

   The chronic toxicity testing dilution series established in the Monitoring and Reporting Program No. R5-2003-0030 is being retained for this Order.

D. Receiving Water Monitoring

1. Surface Water

Receiving water monitoring is necessary to assess compliance with receiving water limitations and to assess the impacts of the discharge on the receiving stream. During periods of flow in the Stockton Diverting Canal, monitoring of receiving water quality is to be included in the Monitoring and Reporting Program. All receiving water samples shall be grab samples.

a. Monthly monitoring requirements established in Order R5-2003-0030 upstream and downstream of the discharge for pH, electrical conductivity, dissolved oxygen, and temperature have been retained in this Order. Monthly monitoring for flow upstream of the discharge has also been retained in the Order.

b. Quarterly monitoring requirements established in Order R5-2003-0030 upstream and downstream of the discharge for total chromium, chromium (VI), total copper, total arsenic, TDS, TSS, TOC, turbidity, and hardness (as $CaCO_3$; and concurrent with priority pollutant metals analyses) have been retained in this Order.

c. Monitoring during the third year of the permit term for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established, has been required in this Order in accordance with Section 1.3 of the SIP requiring industrial dischargers to conduct periodic monitoring for priority pollutants. Additional sampling may be required for priority pollutants found during the third-year sampling to provide sufficient data for renewal of the Permit. Wet and dry weather monitoring for TCDD-equivalents and TCDD-equivalents in accordance with Section 3 of the SIP. This requirement only applies for the receiving water upstream of the discharge.

TENTATIVE 4 Aug 2008

2. Groundwater – NOT APPLICABLE

E. Other Monitoring Requirements – 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. **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.

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

2. Special Studies and Additional Monitoring Requirements

TENTATIVE 4 Aug 2008

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.) Data results reported between 2004 and 2005 indicate the Discharger had periodic exceedances greater than 1 TUc. However, based on retest data, and data reported since 2006, there were no exceedances greater than 1 TUc. Therefore, Regional Water Board has determined that the discharge does not have reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective. Attachment E of this Order requires quarterly chronic WET monitoring for demonstration of compliance with the narrative toxicity objective.

In addition to WET monitoring, 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% effluent.

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

The provision requires accelerated monitoring consisting of four chronic toxicity tests every 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

TENTATIVE 4 Aug 2008

20 percent of the time), the Executive Officer may require that the Discharger initiate a TRE.

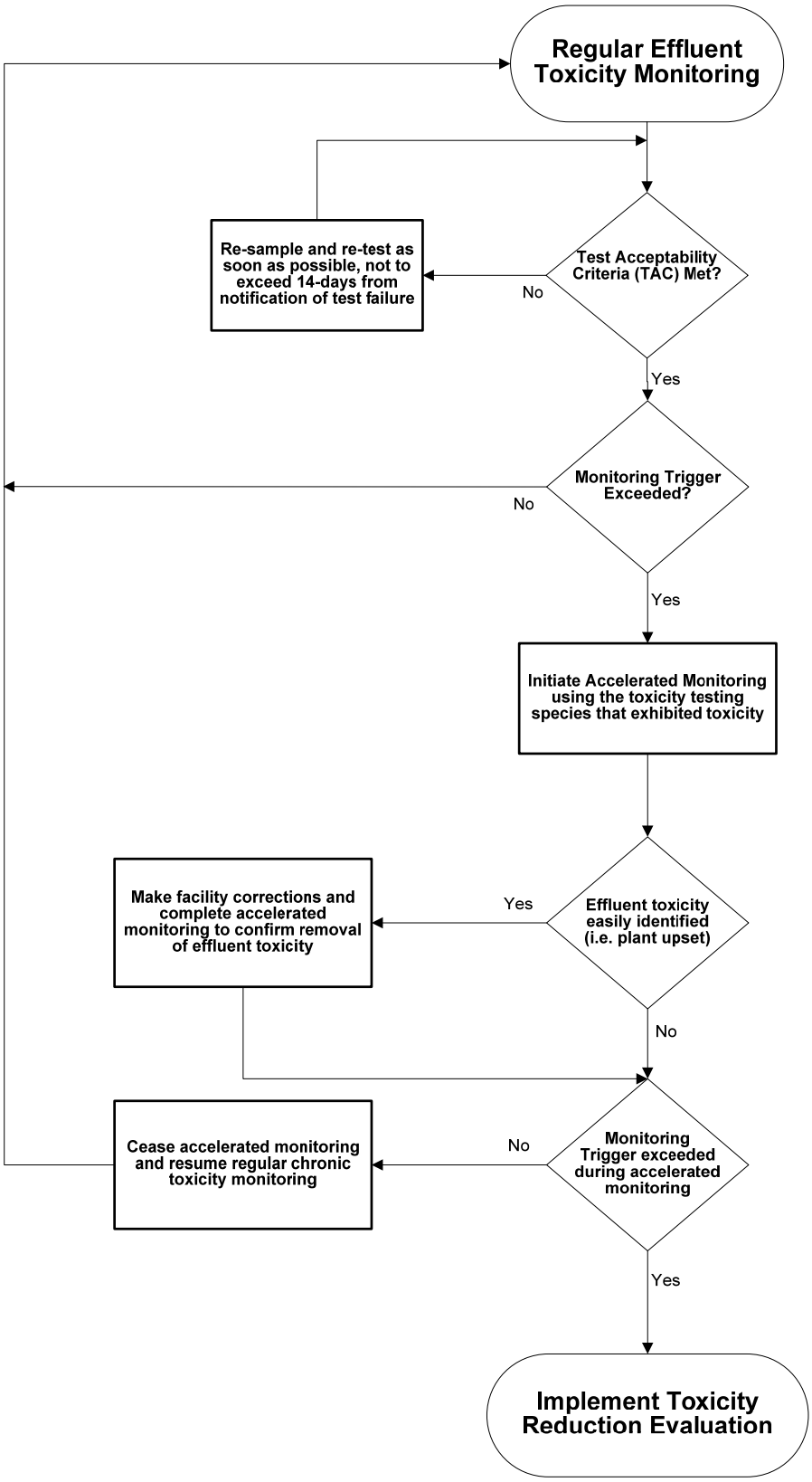
See the WET Accelerated Monitoring Flow Chart (Figure F-1), below, for further clarification of the accelerated monitoring requirements and for the decision points for determining the need for TRE initiation.

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.

TENTATIVE 4 Aug 2008

Figure F-1
WET Accelerated Monitoring Flow Chart



TENTATIVE

4 Aug 2008

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

   a. **Salinity Evaluation and Minimization Plan.** The Discharger shall prepare a salinity evaluation and minimization plan to address sources of salinity from the Facility. The plan shall be completed and submitted to the Regional Water Board **within 9 months of the adoption date of this Order** for the approval by the Executive Officer.

4. **Construction, Operation, and Maintenance Specifications – NOT APPLICABLE**

5. **Special Provisions for Municipal Facilities (POTWs Only) – NOT APPLICABLE**

6. **Other Special Provisions**

   a. To minimize dewatering of the local aquifer and to aid in flushing of contaminants, approximately 5 percent of the treated water may be reinjected into shallow soils in the area of a closed retort pit. The injected water is then recaptured by the groundwater extraction system. Full capture of reinjected soil flushing water shall be maintained at all times.

   b. Collected screenings, residual sludge, biosolids, and other solids removed from liquid wastes shall be disposed of in a manner approved by the Executive Officer, and consistent with Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste, as set forth in Title 27, CCR, Division 2, Subdivision 1, section 20005, et seq. Removal for further treatment, disposal, or reuse at sites (i.e., landfill, composting sites, soil amendment sites) that are operated in accordance with valid waste discharge requirements issued by a Regional Water Board will satisfy these specifications.

   c. **Release Prevention/Contingency Measures Plans**. The previous Order No. R5-2003-0030 established the requirement for the Discharger to submit and implement release prevention and contingency measures plans for minimizing and controlling potential accidental discharges and for minimizing the effects of such events. These Plans were to include proposed modifications to the treatment system and a description implementation of additional monitoring and inspections in the event of an accidental discharge or spill. Within **three (3) months** of adoption of this Order, the Discharger is required to update and continue implementation of these Plans.

7. **Compliance Schedules – NOT APPLICABLE**

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 SPX Cooling Technologies. As a step in the WDR adoption process, the Regional Water Board

TENTATIVE 4 Aug 2008

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

A. Notification of Interested Parties

The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through transmittal of the Notice of Public Hearing to known interested parties, posting of the Notice by the Discharger at the discharge facility, and posting of the Notice and tentative permit on the Regional Water Board web site.

B. Written Comments

The staff determinations are tentative. Interested persons are invited to submit written comments concerning these tentative WDRs. Comments must be submitted either in person or by mail to the Executive 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 8 September 2008.

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:	23/24 October 2008
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

TENTATIVE 4 Aug 2008

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 Ken Landau at (916) 464-4726.

TENTATIVE 4 Aug 2008

ATTACHMENT G - SUMMARY OF REASONABLE POTENTIAL ANALYSIS

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Arsenic	ug/L	8	2	10	340	150	-	-	-	10	No[3]
Chromium (total)	ug/L	17	5	50	-	-	-	-	-	50	No[3]
Electrical Conductivity	umhos/cm	1460	350	700[1]	-	-	-	-	-	900	Yes
Iron	ug/L	245	N/A	300	-	-	-	-	-	300	No
Iron (dissolved)	ug/L	245	N/A	No criteria	-	-	-	-	-	-	No
Total Dissolved Solids	mg/L	910	170	500	-	-	-	-	-	500	Yes
Copper (dissolved)	ug/L	7.3	7.0	10.47	15.96	10.47	-	-	-	-	Yes[2]
Chromium VI (dissolved)	ug/L	3.4	0.2	11.00	16.00	11.00	-	-	-	-	No[3]

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

Footnotes:
1. Water Quality for Agriculture
2. Based on previous permit
3. Although the MEC for these pollutants is lower than the most stringent applicable criteria, as allowed under Section 1.3 Step 7 in the SIP, effluent limitations are being established (retained) in this Order.

TENTATIVE 4 Aug 2008