

**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>

**ORDER R5-2013-0156
NPDES NO. CA0004111**

**WASTE DISCHARGE REQUIREMENTS FOR THE
AEROJET ROCKETDYNE, INC.
SACRAMENTO FACILITY
SACRAMENTO COUNTY**

The following Discharger is subject to waste discharge requirements (WDR's) set forth in this Order:

Table 1. Discharger Information

Discharger	Aerojet Rocketdyne, Inc.
Name of Facility	Sacramento Facility
Facility Address	Aerojet Road
	Rancho Cordova, CA
	Sacramento County

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	East Retention Pond	38°, 37', 14" N	121°, 13', 22" W	Buffalo Creek
002	West Retention Pond	38°, 37', 13" N	121°, 13', 28" W	Buffalo Creek
002A	West Pond to Cell 1	38 °, 37', 12" N	121 °, 13', 31" W	NA
003	West Lake, Cell 1	38 °, 37', 11" N	121 °, 13', 41" W	Buffalo Creek
004	West Lake Cell 2	38 °, 27', 11" N	121 °, 13', 55" W	Buffalo Creek
004A	Raw Industrial Water	38 °, 37', 2.0" N	121 °, 12', 50" W	Buffalo Creek
004B	Raw Industrial Water	38 °, 37', 11.8" N	121 °, 13', 18.4" W	Buffalo Creek

Table 3. Administrative Information

This Order was adopted on:	6 December 2013
This Order shall become effective on:	1 January 2014
This Order shall expire on:	31 December 2018
The Discharger shall file a Report of Waste Discharge as an application for reissuance of WDR's in accordance with title 23, California Code of Regulations, and an application for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit no later than:	180 days prior to expiration date
The U.S. Environmental Protection Agency (U.S. EPA) and the California Regional Water Quality Control Board, Central Valley Region have classified this discharge as follows:	Minor discharge

I, Pamela C. Creedon, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of the Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on **6 December 2013**.

Original Signed By:
PAMELA C. CREEDON, Executive Officer

Contents

I. Facility Information 3

II. Findings 3

III. Discharge Prohibitions 7

IV. Effluent Limitations and Discharge Specifications 7

 A. Effluent Limitations – Discharge Point 001, 002, 003, 004 ,004A, 004B 7

 1. Final Effluent Limitations..... 7

 2. Interim Effluent Limitations 8

 B. Land Discharge Specifications – Discharge Point – Not Applicable 8

 C. Recycling Specifications – Discharge Point Not Applicable 8

V. Receiving Water Limitations 8

 A. Surface Water Limitations 8

 B. Groundwater Limitations 10

VI. Provisions 11

 A. Standard Provisions 11

 B. Monitoring and Reporting Program (MRP) Requirements 14

 C. Special Provisions..... 14

 1. Reopener Provisions 14

 2. Special Studies, Technical Reports and Additional Monitoring Requirements..... 16

 3. Best Management Practices and Pollution Prevention 17

 4. Construction, Operation and Maintenance Specifications 25

 5. Special Provisions for Municipal Facilities (POTWs Only)..... 25

 6. Other Special Provisions 25

 7. Compliance Schedules 25

VII. Compliance Determination 25

Tables

Table 1. Discharger Information 1

Table 2. Discharge Location 1

Table 3. Administrative Information 1

Table 4. Basin Plan Beneficial Uses 4

Table 5. Effluent Limitations 8

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 E-1

Attachment F – Fact Sheet F-1

Attachment G – Summary of Reasonable Potential Analysis for Constituents of Concern G-1

Attachment H – Effluent and Receiving Water Characterization Study H-1

Attachment I – Dioxin and Furan Sampling I-1

I. FACILITY INFORMATION

Information describing the Sacramento Facility (Facility) is in sections I and II of the Fact Sheet (Attachment F). Section I of the Fact Sheet also includes information regarding the Facility's permit application.

II. FINDINGS

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

- A. Legal Authorities.** This Order serves as WDR's pursuant to article 4, chapter 4, division 7 of the California Water Code (commencing with section 13260). This Order is also issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. EPA and chapter 5.5, division 7 of the Water Code (commencing with section 13370). It shall serve as an NPDES permit for point source discharges from this facility to surface waters.
- B. Background and Rationale for Requirements.** The Central Valley Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for the requirements in this Order, is hereby incorporated into and constitutes Findings for this Order. Attachments A through E and G through J are also incorporated into this Order.
- C. Provisions and Requirements Implementing State Law.** The provisions/requirements in subsections IV.B, IV.C, and V.B are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.
- D. 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.
- E. Technology-based Effluent Limitations.** Section 301(b) of the CWA and implementing USEPA permit regulations at section 122.44, title 40 of the Code of Federal Regulations (40 CFR 122.44), require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Best Professional Judgment (BPJ) in accordance with 40 CFR 125.3. A detailed discussion of the technology-based effluent limitations development is included in the Fact Sheet.
- F. Water Quality-based Effluent Limitations (WQBELs).** Section 301(b) of the CWA and 40 CFR 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards. 40 CFR 122.44(d)(1)(i) mandates that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, WQBELs must be established using: (1) USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative

criterion, supplemented with other relevant information, as provided in 40 CFR 122.44(d)(1)(vi).

G. Water Quality Control Plans. The Central Valley Water Board adopted a *Water Quality Control Plan, Fourth Edition (Revised October 2011)*, 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.” Table II-1 of the Basin Plan identifies the beneficial uses of certain specific water bodies. The Basin Plan does not specifically identify beneficial uses for Buffalo Creek, Alder Creek, Sailor Bar Pond or Morrison Creek, but does identify present and potential uses for the American River and Sacramento Rivers to which those creeks drain. In addition, the Basin Plan implements State Water Resources Control Board (State Water Board) Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. Beneficial uses applicable to Buffalo Creek and Alder Creek are as follows:

Table 4 Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001, 002, 003, 004, 005 and 006	Buffalo Creek	<u>Existing:</u> Warm freshwater habitat (WARM); wildlife habitat (WILD), preservation or rare, threatened or endangered species (RARE), Ground water recharge (GWR), freshwater replenishment (FRSH), contact (REC-1) and non-contact (REC-2) water recreation, Municipal and domestic water supply (MUN).
NA	Alder Creek	<u>Existing:</u> Warm freshwater habitat (WARM); wildlife habitat (WILD), preservation or rare, threatened or endangered species (RARE), Ground water recharge (GWR), freshwater replenishment (FRSH), contact (REC-1) and non-contact (REC-2) water recreation, Municipal and domestic water supply (MUN).

A. 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 November 1999. About 40 criteria in the NTR applied in California. On 18 May 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on 13 February 2001. These rules contain water quality criteria for priority pollutants.

B. State Implementation Policy. On 2 March 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on 28 April 2000 with respect to the priority pollutant criteria promulgated for California by USEPA through the NTR and to the priority pollutant objectives established by the Central Valley Water Board in the Basin Plan. The SIP became effective on 18 May 2000 with respect to the priority pollutant criteria promulgated by USEPA through the

CTR. The State Water Board adopted amendments to the SIP on 24 February 2005 that became effective on 13 July 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

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

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

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

- D. Stringency of Requirements for Individual Pollutants.** This Order contains both technology-based effluent limitations and WQBELs for individual pollutants. The technology-based effluent limitations consist of restrictions on flow, volatile organics, trichloroethylene, NDMA and perchlorate. The WQBELs consist of restrictions on acute and chronic whole effluent toxicity, chlorine residual, and pH. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements.

WQBELs have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant WQBELs were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR 131.38. The scientific procedures for calculating the individual WQBELs for priority pollutants are based on the CTR-SIP, which was approved by USEPA on 18 May 2000. All beneficial uses and water quality objectives contained in the Basin 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 before that date, are nonetheless "*applicable water quality standards for purposes of the [Clean Water] Act*" pursuant to 40 CFR 131.211(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.

- E. Antidegradation Policy.** 40 CFR 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Central Valley Water Board's Basin 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 40 CFR 131.12 and Resolution No. 68-16.
- F. Anti-Backsliding Requirements.** Sections 303(d)(4) and 402(o)(2) of the CWA and federal regulations at 40 CFR 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions.
- G. Monitoring and Reporting.** 40 CFR 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorize the Central Valley Water Board to require technical and monitoring reports. The Monitoring and Reporting Program establishes monitoring and reporting requirements to implement federal and State requirements. The Monitoring and Reporting Program is provided in Attachment E.

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

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

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

required in accordance with Water Code section 13267. The rationale for the special provisions and need for technical reports required in this Order are provided in the Fact Sheet.

- I. Provisions and Requirements Implementing State Law - Not Applicable.**
- J. Notification of Interested Parties.** The Central Valley Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe WDR's for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of the notification are provided in the Fact Sheet.
- K. Consideration of Public Comment.** The Central Valley Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet.

THEREFORE, IT IS HEREBY ORDERED that this Order supersedes Order No. 2008-0118 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 CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order. This action in no way prevents the Central Valley Water Board from taking enforcement action for past violations of the previous Order. If any part of this Order is subject to a temporary stay of enforcement, unless otherwise specified, the Discharger shall comply with the analogous portions of the previous Order, which shall remain in effect for all purposes during the pendency of the stay.

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 Water Code.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Points 001, 002, 003, 004, 005 and 006

1. Final Effluent Limitations – Discharge Points 001, 002, 003 and 004

- a. The Discharger shall maintain compliance with the following effluent limitations at Discharge Point 001, 002, 003 and 004, with compliance measured at Monitoring Locations EFF001, EFF002, EFF003 and EFF004, respectively as described in the Monitoring and Reporting Program, Attachment E:

Table 5. Effluent Limitations

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Perchlorate	µg/L	NA	6	NA	NA
Copper, dissolved	µg/L	NA	5.9	NA	NA
Total Suspended Solids	mg/L	NA	80	NA	NA

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Total Dissolved Solids	mg/L	NA	250	NA	NA
Chemical Oxygen Demand	mg/L	NA	40	NA	NA
pH	Standard units			6.5	8.5

2. Effluent Limitations for Discharge Points 005 and 006

- a. There are no effluent limitations for these points as the discharge is of the raw industrial water supply and would only discharge excess water that was not needed by the Discharger’s industrial processes. The provided water meets effluent limitations specified for discharge to Buffalo Creek from the Discharger’s GET AB facility under another NPDES permit as the GET AB water is either discharged to Buffalo Creek or supplied as industrial process water.

- B. Interim Effluent Limitations – Not Applicable**
- C. Land Discharge Specifications – Not Applicable**
- D. Recycling Specifications – Not Applicable**

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

Receiving water limitations are based on water quality objectives contained in the Basin Plan and are a required part of this Order. The discharge shall not cause the following in Buffalo Creek at Receiving Water Monitoring Point RSW-003D and Alder Creek at Monitoring Point RSW-004D:

- 1. Un-ionized Ammonia.** Un-ionized ammonia to be present in amounts that adversely affect beneficial uses nor to be present in excess of 0.025 mg/L (as N).
- 2. Bacteria.** Not Applicable.
- 3. Biostimulatory Substances.** Water to contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.
- 4. Chemical Constituents.** Chemical constituents to be present in concentrations that adversely affect beneficial uses.
- 5. Color.** Discoloration that causes nuisance or adversely affects beneficial uses.
- 6. 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.

- 7. Floating Material.** Floating material to be present in amounts that cause nuisance or adversely affect beneficial uses.
- 8. 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.
- 9. pH.** The pH to be depressed below 6.5 nor raised above 8.5.
- 10. Pesticides:**
 - a. Pesticides to be present, individually or in combination, in concentrations that adversely affect beneficial uses;
 - b. Pesticides to be present in bottom sediments or aquatic life in concentrations that adversely affect beneficial uses;
 - c. Total identifiable persistent chlorinated hydrocarbon pesticides to be present in the water column at concentrations detectable within the accuracy of analytical methods approved by USEPA or the Executive Officer.;
 - d. Pesticide concentrations to exceed those allowable by applicable antidegradation policies (see State Water Board Resolution No. 68-16 and 40 CFR 131.12.);
 - e. Pesticide concentrations to exceed the lowest levels technically and economically achievable;
 - f. Pesticides to be present in concentration in excess of the maximum contaminant levels set forth in CCR, Title 22, division 4, chapter 15; nor
 - g. Thiobencarb to be present in excess of 1.0 µg/L.
- 11. Radioactivity:**
 - a. Radionuclides to be present in concentrations that are harmful to human, plant, animal, or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.
 - b. Radionuclides to be present in excess of the maximum contaminant levels (MCLs) specified in Table 64442 of section 64442 and Table 64443 of section 64443 of Title 22 of the California Code of Regulations.
- 12. Suspended Sediments.** The suspended sediment load and suspended sediment discharge rate of surface waters to be altered in such a manner as to cause nuisance or adversely affect beneficial uses.
- 13. Settleable Substances.** Substances to be present in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.
- 14. Suspended Material.** Suspended material to be present in concentrations that cause nuisance or adversely affect beneficial uses.

- 15. 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.
- 16. Temperature.** The natural temperature to be increased by more than 5°F. Compliance to be determined based on the difference in temperature at RSW-001 and RSW-002.
- 17. Toxicity.** Toxic substances to be present, individually or in combination, in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.
- 18. Turbidity.**
- a. Shall not exceed 2 Nephelometric Turbidity Units (NTU) where natural turbidity is less than 1 NTU;
 - b. Shall not increase more than 1 NTU where natural turbidity is between 1 and 5 NTUs;
 - c. Shall not increase more than 20 percent where natural turbidity is between 5 and 50 NTUs;
 - d. Shall not increase more than 10 NTU where natural turbidity is between 50 and 100 NTUs; nor
 - e. Shall not increase more than 10 percent where natural turbidity is greater than 100 NTUs.

B. Groundwater Limitations – Not Applicable

VI. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all Standard Provisions included in Attachment D.
2. The Discharger shall comply with the following provisions. In the event that there is any conflict, duplication, or overlap between provisions specified by this Order, the more stringent provision shall apply:
 - a. If the Discharger's wastewater treatment plant is publicly owned or subject to regulation by California Public Utilities Commission, it shall be supervised and operated by persons possessing certificates of appropriate grade according to Title 23, CCR, division 3, chapter 26.
 - b. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to:
 - i. violation of any term or condition contained in this Order;
 - ii. obtaining this Order by misrepresentation or by failing to disclose fully all relevant facts;
 - iii. a change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge; and
 - iv. a material change in the character, location, or volume of discharge.

The causes for modification include:

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

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

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

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

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

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

- e. The provisions of this Order are severable. If any provision of this Order is found invalid, the remainder of this Order shall not be affected.
- f. The Discharger shall take all reasonable steps to minimize any adverse effects to waters of the State or users of those waters resulting from any discharge or sludge use or disposal in violation of this Order. Reasonable steps shall include such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge or sludge use or disposal.
- g. The Discharger shall ensure compliance with any existing or future pretreatment standard promulgated by USEPA under section 307 of the CWA, or amendment thereto, for any discharge to the municipal system.
- h. A copy of this Order shall be maintained at the discharge facility and be available at all times to operating personnel. Key operating personnel shall be familiar with its content.
- i. Safeguard to electric power failure:
 - i. The Discharger shall provide safeguards to assure that, should there be reduction, loss, or failure of electric power, the discharge shall comply with the terms and conditions of this Order.
 - ii. Upon written request by the Central Valley Water Board, the Discharger shall submit a written description of safeguards. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures, or other means. A description of the safeguards provided shall include an analysis of the frequency, duration, and impact of power failures experienced over the past 5 years on effluent quality and on the capability of the Discharger to comply with the terms and conditions of the Order. The adequacy of the safeguards is subject to the approval of the Central Valley Water Board.
 - iii. Should the treatment works not include safeguards against reduction, loss, or failure of electric power, or should the Central Valley Water Board not approve

the existing safeguards, the Discharger shall, within 90 days of having been advised in writing by the Central Valley Water Board that the existing safeguards are inadequate, provide to the Central Valley Water Board and USEPA a schedule of compliance for providing safeguards such that in the event of reduction, loss, or failure of electric power, the Discharger shall comply with the terms and conditions of this Order. The schedule of compliance shall, upon approval of the Central Valley Water Board, become a condition of this Order.

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

The technical report shall:

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

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

- k. A publicly owned treatment works 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 Central Valley 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 Central Valley Water Board may extend the time for submitting the report.
- l. 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.

- m. The Central Valley Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.
- n. For publicly owned treatment works, prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater that results in a permanent decrease of flow in any portion of a watercourse, the Discharger must file a petition with the State Water Board, Division of Water Rights, and receive approval for such a change. (Water Code section 1211).
- o. 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 Central Valley 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 Central Valley Water Board waives confirmation. The written notification shall include the information required by the Standard Provision contained in Attachment D section V.E.1. [40 CFR 122.41(l)(6)(i)].
- p. Failure to comply with provisions or requirements of this Order, or violation of other applicable laws or regulations governing discharges from this facility, may subject the Discharger to administrative or civil liabilities, criminal penalties, and/or other enforcement remedies to ensure compliance. Additionally, certain violations may subject the Discharger to civil or criminal enforcement from appropriate local, state, or federal law enforcement entities.
- q. In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, or receiving water limitation of this Order, the Discharger shall notify the Central Valley Water Board by telephone (916) 464-3281 within 24 hours of having knowledge of such noncompliance, and shall confirm this notification in writing within five days, unless the Central Valley Water Board waives confirmation. The written notification shall state the nature, time, duration, and cause of noncompliance, and shall describe the measures being taken to remedy the current noncompliance and prevent recurrence including, where applicable, a schedule of implementation. Other noncompliance requires written notification as above at the time of the normal monitoring report.

B. Monitoring and Reporting Program (MRP) Requirements

The Discharger shall comply with the MRP, and future revisions thereto, in Attachment E.

C. Special Provisions

- 1. **Storage of Stormwater Runoff.** During periods of rainfall, Buffalo Creek and Administration Ditch flows shall be placed into West Lake Cell 1, West Lake Cell 2, East

Retention Pond and West Retention Pond. Flows from the Administration Ditch shall always be placed into those impoundments.

2. Reopener Provisions

- a. Conditions that necessitate a major modification of a permit are described in 40 CFR 122.62, including, but not limited to:
 - i. If new or amended applicable water quality standards are promulgated or approved pursuant to section 303 of the CWA, or amendments thereto, this permit may be reopened and modified in accordance with the new or amended standards.
 - ii. When new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance.
- b. This Order may be reopened for modification, or revocation and reissuance, as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are not limited to, fish tissue sampling, whole effluent toxicity, monitoring requirements on internal waste stream(s), and monitoring for surrogate parameters. Additional requirements may be included in this Order as a result of the special condition monitoring data.
- c. **Mercury.** If mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted, this Order shall be reopened and the interim mass effluent limitation modified (higher or lower) or an effluent concentration limitation imposed. If the Central Valley Water Board determines that a mercury offset program is feasible for Dischargers subject to a NPDES permit, then this Order may be reopened to reevaluate the interim mercury mass loading limitation(s) and the need for a mercury offset program for the Discharger.
- d. **Pollution Prevention.** This Order requires the Discharger prepare a Stormwater Pollution Prevention Plan. Based on a review of the pollution prevention plans, this Order may be reopened for addition and/or modification of effluent limitations and requirements for these constituents.
- e. **Whole Effluent Toxicity.** As a result of 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 the State Water Board revises the SIP's toxicity control provisions that would require the establishment of numeric chronic toxicity effluent limitations, this Order may be reopened to include a numeric chronic toxicity effluent limitation based on the new provisions
- f. **Constituent Study – Not Applicable.**
- g. **Aluminum Site-Specific Studies – Not Applicable**
- h. **Salinity/EC Site-Specific Studies – Not Applicable.**
- i. **Regional Monitoring Program.** The Central Valley Water Board is developing a Regional Monitoring Program for the Sacramento-San Joaquin Delta. This Order may be reopened to modify the monitoring requirements to implement the Regional Monitoring Program.

- j. **Drinking Water Policy.** The Central Valley Water Board is developing a Drinking Water Policy. This Order may be reopened to incorporate monitoring of drinking water constituents to implement the Drinking Water Policy.
- k. **Diazinon and Chlorpyrifos Basin Plan Amendment.** Central Valley Water Board staff is developing a Basin Plan Amendment to provide an implementation plan for NPDES-permitted domestic wastewater dischargers. This Order may be reopened to modify diazinon and chlorpyrifos effluent limitations, as appropriate, in accordance with an amendment to the Basin Plan.

3. Special Studies, Technical Reports and Additional Monitoring Requirements

a. Toxicity Reduction Requirements

If the discharge causes or contributes to chronic toxicity in the receiving water, a Toxicity Reduction Evaluation (TRE) shall be required as defined in Attachment A. The Central Valley Water Board shall require the Discharger to conduct a TRE if repeated tests reveal toxicity as a result of waste discharge under this Order. The Discharger shall take all reasonable steps to control toxicity once the source of toxicity is identified. Failure to conduct the required toxicity tests or a TRE shall result in the establishment of effluent limitations for chronic toxicity under this Order and/or appropriate enforcement action

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 (WET) testing, as specified in MRP 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 numeric toxicity monitoring trigger during accelerated monitoring 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 recurrence of toxicity. A TRE is a site-specific study conducted in a stepwise process to identify the source(s) of toxicity and the effective control measures for effluent toxicity. TREs are designed to identify the causative agents and sources of whole effluent toxicity, evaluate the effectiveness of the toxicity control options, and confirm the reduction in effluent toxicity. This Provision includes procedures for accelerated chronic toxicity monitoring and TRE initiation.

- i. **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. The Discharger shall initiate a TRE to address effluent toxicity if any WET testing results exceed the numeric toxicity monitoring trigger during accelerated monitoring.
- ii. **Numeric Toxicity Monitoring Trigger.** The numeric toxicity monitoring trigger to initiate a TRE is $>1 \text{ TUc}$ (where $\text{TUc} = 100/\text{NOEC}$). The monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to begin accelerated monitoring and initiate a TRE.
- iii. **Accelerated Monitoring Specifications.** If the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity testing, the Discharger shall initiate accelerated monitoring within 14-days of notification by the laboratory of the

exceedance. Accelerated monitoring shall consist of four chronic toxicity tests conducted once every two weeks using the species that exhibited toxicity. The following protocol shall be used for accelerated monitoring and TRE initiation:

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

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

4. Stormwater Pollution Prevention

- a. **Implementation.** The Discharger shall develop and implement a storm water pollution prevention plan (SWPPP) in accordance with the requirements established in this Order.
- b. **Objectives.**
 - i. The SWPPP has three major objectives: (a) to identify and evaluate sources of pollutants associated with industrial and construction activities that may affect the quality of storm water discharges and authorized non-storm water discharges from the facility; (b) to identify and implement site-specific best management practices (BMPs) to reduce or prevent pollutants associated with industrial

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

activities in storm water discharges and authorized non-storm water discharges, and (c) to identify construct, and implement storm water pollution prevention measures (control practices) to reduce pollutants in storm water discharges from the construction site both during construction and after construction is completed. BMPs may include a variety of pollution prevention measures or other low-cost pollution control measures. They are generally categorized as non-structural BMPs (activity schedules, prohibitions of practices, maintenance procedures, and other low-cost measures) and as structural BMPs (treatment measures, run-off controls, over-head coverage).

- ii. The SWPPP requirements are designed to be sufficiently flexible to meet the needs of various facilities. SWPPP requirements that are not applicable to a facility should not be included in the SWPPP.
- iii. A facility's SWPPP is a written document that shall contain a compliance activity schedule, a description of industrial and construction activities and pollutant sources, descriptions of BMPs, drawings, maps, and relevant copies or references of parts of other plans. The SWPPP shall be revised whenever appropriate and shall be readily available for review by facility employees or Regional Water Quality Control Board (hereafter Board) inspectors.

c. Planning and Organization

- i. **Pollution Prevention Team.** The SWPPP shall identify a specific individual or individuals and their positions within the facility organization as members of a storm water pollution prevention team responsible for developing the SWPPP, assisting the facility manager in SWPPP implementation and revision, and conducting all monitoring program activities required in this Order. The SWPPP shall clearly identify the Order related responsibilities, duties, and activities of each team member. For small facilities, storm water pollution prevention teams may consist of one individual where appropriate.
 - ii. **Review Other Requirements and Existing Facility Plans.** The SWPPP may incorporate or reference the appropriate elements of other regulatory requirements. The Discharger should review all local, State, and Federal requirements that impact, complement, or are consistent with the requirements of this Order. The Discharger should identify any existing facility plans that contain storm water pollutant control measures or relate to requirements of this Order. As examples, Dischargers whose facilities are subject to Federal Spill Prevention and Countermeasures' requirements should already have instituted a plan to control spills of certain hazardous materials. Similarly, Dischargers whose facilities are subject to air quality related permits and regulations may already have evaluated industrial activities that generate dust or particulates.
- d. Site Maps for Industrial and Construction Activities.** The SWPPP shall include site map(s). The site maps shall be provided on an 8.5x11 inch or larger sheet and include notes, legends, and other data as appropriate to ensure that the site map is clear and understandable. If necessary, Dischargers may provide the required information on multiple site maps. The following should be included on the site map for industrial activities:
- i. The facility boundaries; the outline of all storm water drainage areas within the facility boundaries; portions of the drainage area impacted by run-on from surrounding areas; and direction of flow of each drainage area, on-site surface water bodies, and areas of soil erosion. The map shall also identify nearby water

bodies (such as rivers, lakes, ponds, wetlands) and municipal storm drain inlets where the facility's storm water discharges and authorized non-storm water discharges may be received.

- ii. The location of the storm water collection and conveyance system, associated points of discharge, and direction of flow. Include any structural control measures that affect storm water discharges, authorized no-storm water discharges, and run-on. Examples of structural control measures are catch basins, berms, detention ponds, secondary containment, oil/water separators, division barriers, etc.
- iii. An outline of all impervious areas of the facility, including paved areas, buildings, covered storage areas, or other roofed structures.
- iv. Locations where materials are directly exposed to precipitation and the locations where significant spills or leaks identified in Section 6.a.i.v, below, have occurred.
- v. Areas of industrial activity. This shall include the locations of all storage areas and storage tanks, shipping and receiving areas, fueling areas, vehicle and equipment storage/maintenance areas, material handling and processing areas, water treatment and disposal areas, dust or particulate generating areas, cleaning and rinsing areas, and other areas of industrial activity which are potential pollutant sources.

A site map should be prepared for each construction project and added to the SWPPP. The following information shall be included on the site maps for construction activities:

- vi. Location of control practices used during construction;
 - vii. Areas used to store soils and wastes;
 - viii. General topography, location of surface water bodies, and areas of cut and fill;
 - ix. Drainage patterns and slopes anticipated after major grading activities are completed;
 - x. Areas of soil disturbance and discharge points to storm water sewer or water body;
 - xi. Areas of potential soil erosion where control practices will be used during construction;
 - xii. Existing and planned paved areas and buildings;
 - xiii. Locations of post-construction control practices;
 - xiv. An outline of the drainage area for each on-site storm water discharge point;
 - xv. Vehicle storage and service areas; and
 - xvi. Areas of existing vegetation.
- e. **List of Significant Materials.** The SWPPP shall include a list of significant materials handled and stored at the site. For each material on the list, describe the locations where the material is being stored, received, shipped, and handled, as well as the typical quantities and frequency. Materials shall include raw materials, intermediate products, final or finished products, recycled materials, and waste or disposed materials.

f. Description of Potential Pollutant Sources

- i. The SWPPP shall include a narrative description of the facility's industrial and construction activities, as identified in Section 4.e., above, associated potential pollutant sources, and potential pollutants that could be discharged in storm water discharges or authorized non-storm water discharges. At a minimum, the following items related to a facility's industrial and construction activities shall be considered:
 1. **Industrial Processes.** Describe each industrial process, the type, characteristics, and quantity of significant materials used in or resulting from the process, and a description of the manufacturing, cleaning, rinsing, recycling, disposal, or other activities related to the process. Where applicable, areas protected by containment structures and the corresponding containment capacity shall be described.
 2. **Materials Handling and Storage Areas.** Describe each handling and storage area, type, characteristics, and quantity of significant materials handled or stored, description of the shipping, receiving, and loading procedures, and the spill or leak prevention and response procedures. Where applicable, areas protected by containment structures and the corresponding containment capacity shall be described.
 3. **Dust and Particulate Generating Activities.** Describe all industrial activities that generate dust or particulates that may be deposited within the facility's boundaries and identify their discharge locations; the characteristics of dust and particulate pollutants; the approximate quantity of dust and particulate pollutants that may be deposited within the facility boundaries; and a description of the primary areas of the facility where dust and particulate pollutants would settle.
 4. **Significant Spill and Leaks.** Describe materials that have spilled or leaked in significant quantities in storm water discharges or non-storm water discharges since April 17, 1994. Include toxic chemicals (listed in 40 CFR, Part 302) that have been discharged to storm water as reported on U. S. Environmental Protection Agency (USEPA) Form R, and oil and hazardous substances in excess of reportable quantities (see 40 CFR, Parts 110, 117, and 302).

The description shall include the type, characteristics, and approximate quantity of the material spilled or leaked, the cleanup or remedial actions that have occurred or are planned, the approximate remaining quantity of materials that may be exposed to storm water or non-storm water discharges, and the preventative measures taken to ensure spill or leaks do not reoccur. Such list shall be updated as appropriate during the term of this Order.
 5. **Soil Erosion.** Describe the facility locations where soil erosion may occur as a result of industrial activity, storm water discharges associated with industrial activity, or authorized non-storm water discharges.
 6. **Construction Practices.** Describe practices to minimize contact of construction materials, equipment, and vehicles with storm water. This shall include the methods of on-site storage and disposal of construction materials, and a description of the equipment storage, cleaning, and

maintenance areas. Also, describe the preconstruction practices to reduce sediment and other pollutants in storm water discharges.

- ii. The SWPPP shall include a summary of all areas of industrial activities, potential pollutant sources, and potential pollutants.

g. Assessment of Potential Pollutant Sources

- i. The SWPPP shall include a narrative assessment of all industrial and construction activities and potential pollutant sources as described in 6, above, to determine:
 - 1. Which areas of the facility are likely sources of pollutants in storm water discharges, and
 - 2. Which pollutants are likely to be present in storm water. The Discharger shall consider and evaluate various factors when performing this assessment such as current storm water BMPs; quantities of significant materials handled, produced, stored, or disposed of; likelihood of exposure to storm water or authorized non-storm water discharges; history of spills or leaks; and run-on from outside sources.
- ii. The Discharger shall summarize the areas of the facility that are likely sources of pollutants and the corresponding pollutants that are likely to be present in storm water discharges.

The Discharger is required to develop and implement additional BMPs as appropriate and necessary to prevent or reduce pollutants associated with each pollutant source. The BMPs will be described in Section 8 below.

For each construction site, estimations should be made for the size of the construction site, pre-and post-construction runoff coefficients, and the percentage area of the construction site that is impervious for both the pre-and post-construction conditions.

- h. **Storm Water Best Management Practices.** The SWPPP shall include a narrative description of the storm water BMPs to be implemented at the facility for each potential pollutant and its source identified in the site assessment phase (Sections 6 and 7, above). The BMPs shall be developed and implemented to reduce or prevent pollutants in storm water. Each pollutant and its source may require one or more BMPs. Some BMPs may be implemented for multiple pollutants and their sources, while other BMPs will be implemented for a very specific pollutant and its source.

The description of the BMPs shall identify the BMPs as (1) existing BMPs, (2) existing BMPs to be revised and implemented, or (3) BMPs to be implemented. The description shall also include a discussion on the effectiveness of each BMP to reduce or prevent pollutants in storm water discharges. The SWPPP shall provide a summary of all BMPs for each pollutant source.

The Discharger shall consider the following BMPs for implementation at the facility:

- i. **Non-Structural BMPs.** Non-structural BMPs generally consist of processes, prohibitions, procedures, schedule of activities, etc., that prevent pollutants associated with industrial activity from contacting storm water discharges. They are considered low technology, cost-effective measures. The Discharger should consider all possible non-structural BMP options before considering additional structural BMPs. Non-structural BMPs that should be considered are:

1. Good Housekeeping. Good housekeeping generally consists of practical procedures to maintain a clean and orderly facility.
2. Preventive Maintenance. Preventive maintenance includes the regular inspection and maintenance of structural storm water controls (catch basins, oil/water separators, etc.), as well as, other facility equipment systems.
3. Spill Response. This includes spill cleanup procedures and necessary cleanup equipment based upon the quantities and locations of significant materials that may spill or leak.
4. Material Handling and Storage. This includes all procedures to minimize the potential for spills and leaks and to minimize exposure of significant materials to storm water discharges.
5. Employee Training. This includes training of personnel who are responsible for (1) implementing activities identified in the SWPPP, (2) conducting inspections, sampling, and visual observations, and (3) managing storm water. Training should address topics such as spill response, good housekeeping, material handling procedures, and actions necessary to implement BMPs identified in the SWPPP. The SWPPP shall identify periodic dates for such training. Records shall be maintained of all training sessions held.
6. Waste Handling/Recycling. This includes the procedures or processes to handle, store, or dispose of waste materials or recyclable materials. At construction sites, all wastes (including equipment maintenance waste) disposed at the site or removed from the site for disposal shall be disposed of in compliance with Federal, State, and local regulations, and ordinances.
7. Record keeping and Internal Reporting. This includes the procedures to ensure that all records of inspections, spills, maintenance activities, corrective action, visual observations, etc., are developed, retained, and provided, as necessary, to the appropriate facility personnel.
8. Erosion Control and Site Stabilization. This includes a description of all sediment and erosion control activities. This may include the planting and maintenance of vegetation, diversions of run-on and runoff, placement of sandbags, silt screens, or sediment control devices, etc.

For construction activities, soil stabilization practices shall be designed to preserve existing vegetation where feasible and to revegetate open areas as soon as feasible after grading or construction. In developing these practices, the discharger shall consider: temporary seeding, permanent seeding, mulching, sod stabilization, vegetative buffer strips, protection of trees, or other soil stabilization practices. At a minimum, the operator must implement these practices on all disturbed areas during the rainy season.

Control practices utilized during construction should be designed to prevent a net increase of sediment load in the storm water discharge. In developing control practices, the discharger shall consider a full range of erosion and sediment controls such as detention basins, straw-bale dikes, silt fences, earth dikes, brush barriers, velocity dissipation devices,

drainage swales, check dams, subsurface drains, level spreaders, storm drain inlet protection, rock outlet protection, sediment traps, temporary sediment basins, or other controls. At a minimum, sandbag dikes., silt fences, straw bale dikes, or equivalent control practices are required for all significant sideslope and downslope boundaries of the construction area. The discharger must consider site-specific and seasonal conditions when designing the control practices.

9. Inspections. This includes, in addition to the preventative maintenance inspection identified above, an inspection schedule of all potential pollutant sources. Tracking and follow-up procedures shall be described to ensure adequate corrective actions are taken and SWPPPs are made. Inspections shall be made at all construction sites prior to commencement of construction and periodically during the construction period, particularly during rainfall runoff events.
 10. Quality Assurance. This includes procedures to ensure that all elements of the SWPPP and Monitoring Program are adequately conducted.
- ii. Structural BMPs. Where non-structural BMPs identified in Section 8.a., above, are not effective, structural BMPs shall be considered. Structural BMPs generally consist of structural devices that reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges. Structural BMPs that should be considered are:
 1. Overhead Coverage. This includes structures that provide horizontal coverage of materials, chemicals, and pollutant sources from contact with storm water and authorized non-storm water discharges.
 2. Retention Ponds. This includes basins, ponds, surface impoundments, bermed areas, etc., that do not allow storm water to discharge from the facility.
 3. Control Devices. This includes berms or other devices that channel or route run-on and runoff away from pollutant sources.
 4. Secondary Containment Structures. This generally includes containment structures around storage tanks and other areas for the purpose of collecting any leaks or spills.
 5. Treatment. This includes inlet controls, infiltration devices, oil/water separators, detention ponds, vegetative swales, etc., that reduce the pollutants in storm water drainages.
 - i. **Annual Comprehensive Site Compliance Evaluation.** The Discharger shall conduct one comprehensive site compliance evaluation (evaluation) in each reporting period (July 1- June 30). Evaluations should be conducted within 8-16 months of each other. The SWPPP shall be revised, as appropriate, and the revisions implemented within 90 days of the evaluation. Evaluations shall include the following:
 - i. A review of all visual observation records, inspection records, and sampling and analysis results.
 - ii. A visual inspection of all potential pollutant sources for evidence of, or the potential for, pollutants entering the drainage system.

- iii. A review and evaluation of all BMPs (both structural and non-structural) to determine whether the BMPs are adequate, properly implemented and maintained, or whether additional BMPs are needed. A visual inspection of equipment needed to implement the SWPPP, such as spill response equipment, shall be included.
- iv. An evaluation report that includes, (a) identification of personnel performing the evaluation, (b) the date(s) of the evaluation, (c) necessary SWPPP revisions, (d) schedule, as required in Section 10.e., below, for implementing SWPPP revisions, (e) any incidents of non-compliance and the corrective actions taken, and (f) a certification that the Discharger is in compliance with this Order. The evaluation report shall be submitted as part of the annual report, retained for at least five years, and signed and certified in accordance with the Provisions of this Order.

j. SWPPP General Requirements

- i. The SWPPP shall be retained on site and made available upon request of a representative of the Board and/or local storm water management (local agency) which receives the storm water discharges.
- ii. The Board and/or local agency may notify the Discharger when the SWPPP does not meet one or more of the minimum requirements of this Section. As requested by the Board and/or local agency, the Discharger shall submit an SWPPP revision and implementation schedule that meets the minimum requirements of this section to the Board and/or local agency that requested the SWPPP revisions. Within 14 days after implementing the required SWPPP revisions, the Discharger shall provide written certification to the Board and/or local agency that the revisions have been implemented.
- iii. The SWPPP shall be revised, as appropriate, and implemented prior to changes in industrial or construction activities which (a) may significantly increase the quantities of pollutants in storm water discharges, (b) cause a new area of industrial activity at the facility to be exposed to storm water, or (c) begin an industrial activity which would introduce a new pollutant source at the facility.
- iv. The SWPPP shall be revised and implemented in a timely manner, but in no case more than 90 days after the Discharger determines that the SWPPP is in violation of any requirement(s) of this Order.
- v. When any part of the SWPPP is infeasible to implement by the deadlines specified in Sections 9, 10.c, and 10.d of the Attachment due to proposed significant structural changes, the Discharger shall submit a report to the Board prior to the applicable deadline that (a) describes the portion of the SWPPP that is infeasible to implement by the deadline, (b) provides justification for a time extension, (c) provides a schedule for completing and implementing that portion of the SWPPP, and (d) describes the BMPs that will be implemented in the interim period to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges. Such reports are subject to Board approval and/or modifications. The Discharger shall provide a written notification to the Board within 14 days after the SWPPP revisions are implemented.
- vi. The SWPPP is considered a report that shall be available to the public by the Board under Section 308(b) of the Clean Water Act.

- vii. The SWPPP shall include the signature and title of the person responsible for preparation of the SWPPP and include the date of initial preparation and each amendment, thereto.

5. Best Management Practices and Pollution Prevention – Not Applicable

6. Construction, Operation and Maintenance Specifications

a. Storage Pond Operating Requirements.

- i. The storage facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
- ii. Ponds shall be managed to prevent breeding of mosquitoes. In particular,
 - (a) An erosion control program should assure that small coves and irregularities are not created around the perimeter of the water surface.
 - (b) Weeds shall be minimized.
 - (c) Dead algae, vegetation, and debris shall not accumulate on the water surface.
- iii. Freeboard shall never be less than 2 feet (measured vertically to the lowest point of overflow).

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

8. Other Special Provisions

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

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

9. Compliance Schedules – Not Applicable

VII. COMPLIANCE DETERMINATION

- A. BOD₅ and TSS Effluent Limitations - Not Applicable.**
- B. Aluminium Effluent Limitations - Not Applicable.**
- C. Total Mercury Mass Loading Effluent Limitations - Not Applicable:**
- D. Average Dry Weather Flow Effluent Limitations - Not Applicable.**
- E. Total Coliform Organisms Effluent Limitations – Not Applicable.**
- F. Instantaneous Maximum Effluent Limitation – Not Applicable.**
- G. Total Residual Chlorine Effluent Limitations – Not Applicable**
- H. Volatile Organic Compounds (VOCs) Average Monthly Effluent Limitation .** The average monthly effluent limitation of less than 0.5 µg/L applies to each VOCs. When calculating the average monthly of each VOC, non-detect results shall be counted as one-half the detection level.
- I. Mass Effluent Limitations.** The mass effluent limitations contained in the Final Effluent Limitations IV.A.1.a are based on the permitted average dry weather flow and calculated as follows:

$$\text{Mass (lbs/day)} = \text{Flow (MGD)} \times \text{Concentration (mg/L)} \times 8.34 \text{ (conversion factor)}$$

If the effluent flow exceeds the permitted average dry weather flow during wet-weather seasons, the effluent mass limitations contained in Final Effluent Limitations IV.A.1.a shall not apply. If the effluent flow is below the permitted average dry weather flow during wet-weather seasons, the effluent mass limitations do apply.
- J. Chronic Whole Effluent Toxicity Effluent Limitation** (Section IV.A.1), Compliance with the accelerated monitoring and TRE provisions of Provision VI.C.2.a shall constitute compliance with the effluent limitation.

ATTACHMENT A – DEFINITIONS

Arithmetic Mean (μ)

Also called the average, is the sum of measured values divided by the number of samples. For ambient water concentrations, the arithmetic mean is calculated as follows:

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

Average Monthly Effluent Limitation (AMEL)

The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

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.

Bioaccumulative

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

Carcinogenic

Pollutants are substances that are known to cause cancer in living organisms.

Coefficient of Variation (CV)

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

Daily Discharge

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

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

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

Detected, but Not Quantified (DNQ)

DNQ are those sample results less than the Practical Quantitation Limit, but greater than or equal to the laboratory's Method Detection Limit. Sample results reported as DNQ are estimated concentrations.

Dilution Credit

Dilution Credit is the amount of dilution granted to a discharge in the calculation of a water quality-based effluent limitation, based on the allowance of a specified mixing zone. It is calculated from the

dilution ratio or determined through conducting a mixing zone study or modeling of the discharge and receiving water.

Effluent Concentration Allowance (ECA)

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

Enclosed Bays

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

The estimated chemical concentration that results from the confirmed detection of the substance by the analytical method below the ML value.

Estuaries

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

Inland Surface Waters

All surface waters of the state that do not include the ocean, enclosed bays, or estuaries.

Instantaneous Maximum Effluent Limitation

The highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

Instantaneous Minimum Effluent Limitation

The lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

Maximum Daily Effluent Limitation (MDEL)

The highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period). For 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

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

Method Detection Limit (MDL)

MDL is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in 40 C.F.R. part 136, Attachment B, revised as of July 3, 1999.

Minimum Level (ML)

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

Mixing Zone

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

Not Detected (ND)

Sample results which are less than the laboratory's MDL.

Ocean Waters

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

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

Pollutant Minimization Program (PMP)

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

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 Water Resources Control Board (State Water Board) or Central Valley Water Board.

Practical Quantitation Limit (PQL)

The PQL is the lowest concentration level that can be reliably achieved within the specified limits of precision and accuracy during routine laboratory operating conditions

Satellite Collection System

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

Any water designated as suitable, or potentially suitable for municipal or domestic supply (MUN) in a Central Valley Water Board Basin Plan. Beneficial uses of a water body generally apply to its tributaries. Therefore, a MUN designation for a water body also applies to its tributaries.

Standard Deviation (σ)

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

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

where:

x is the observed value;

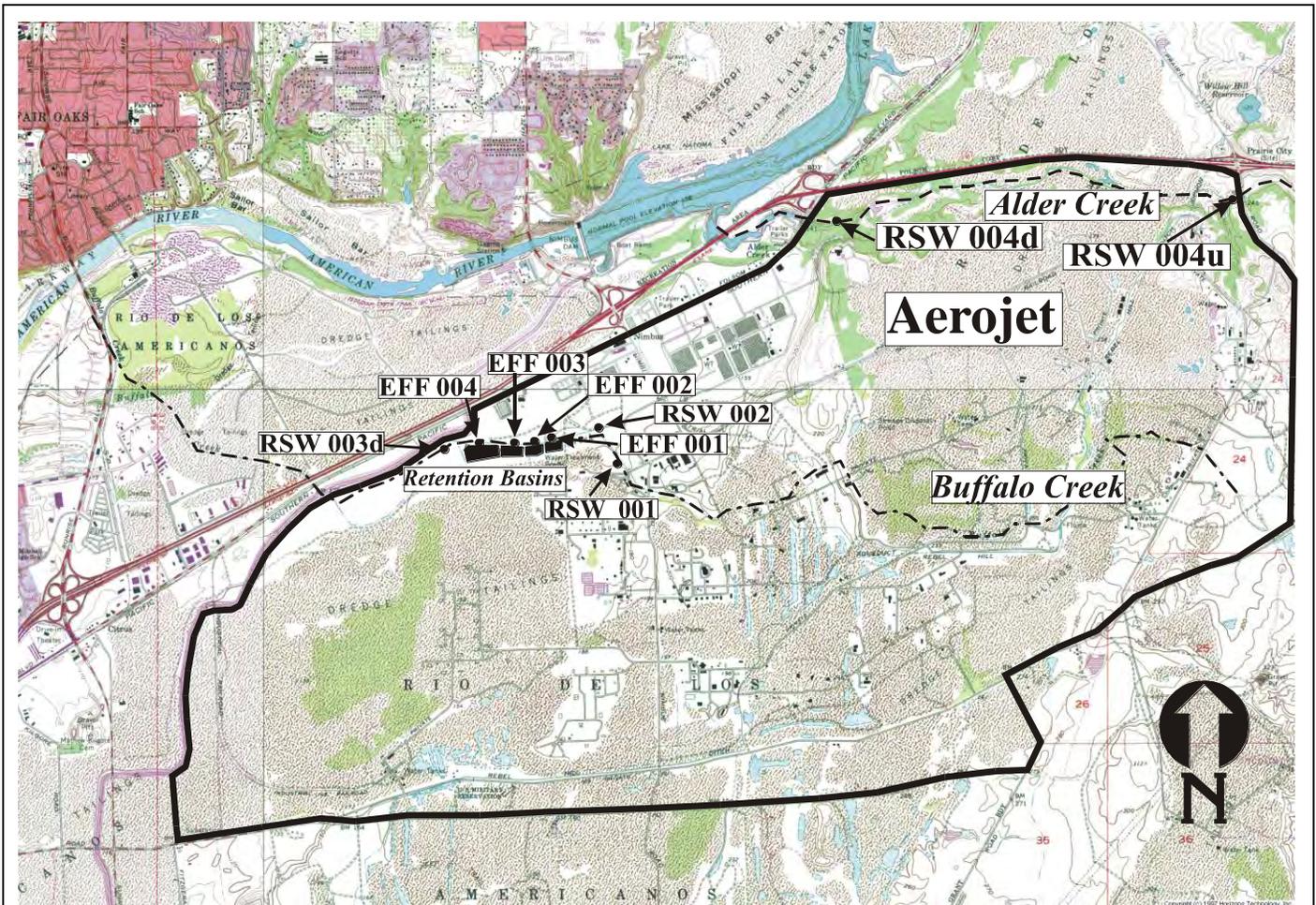
μ is the arithmetic mean of the observed values; and

n is the number of samples.

Toxicity Reduction Evaluation (TRE)

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

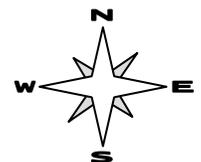
ATTACHMENT B – MAP



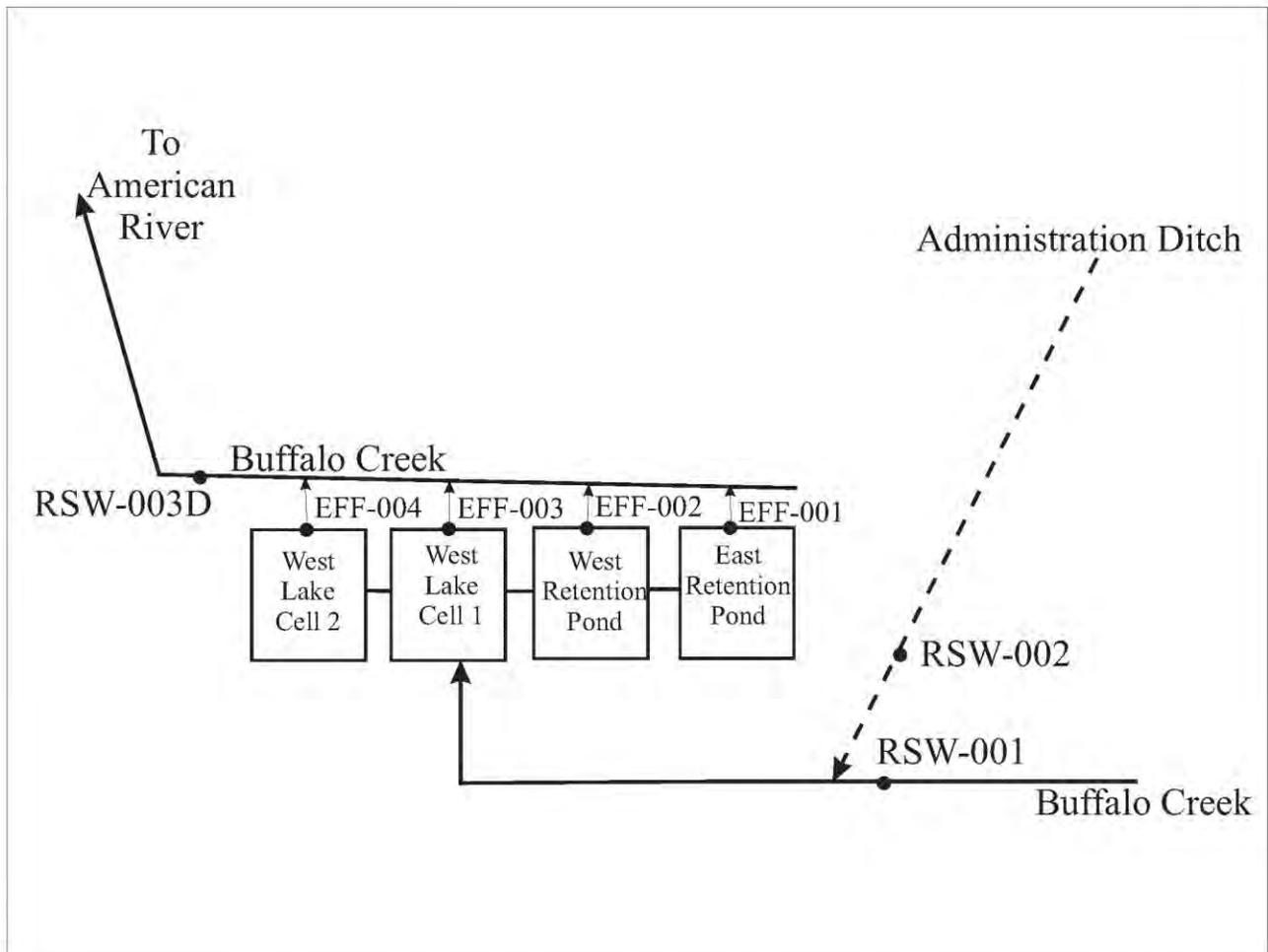
Drawing Reference:
BUFFALO CREEK QUAD
U.S.G.S TOPOGRAPHIC MAP
7.5 MINUTE QUADRANGLE
Photorevised 1973
Not to scale

SITE LOCATION MAP

AEROJET-GENERAL CORPORATION
SACRAMENTO FACILITY
SACRAMENTO COUNTY



ATTACHMENT C – FLOW SCHEMATIC



ATTACHMENT D – STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

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

B. Need to Halt or Reduce Activity Not a Defense

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

C. Duty to Mitigate

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

D. Proper Operation and Maintenance

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

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 C.F.R. § 122.41(g).)
2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations. (40 C.F.R. § 122.5(c).)

F. Inspection and Entry

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

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (40 C.F.R. § 122.41(i)(1));

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (40 C.F.R. § 122.41(i)(2));
3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (40 C.F.R. § 122.41(i)(3)); and
4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (40 C.F.R. § 122.41(i)(4).)

G. Bypass

1. Definitions
 - a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. (40 C.F.R. § 122.41(m)(1)(i).)
 - b. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 C.F.R. § 122.41(m)(1)(ii).)
2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 C.F.R. § 122.41(m)(2).)
3. Prohibition of bypass. Bypass is prohibited, and the Central Valley Water Board may take enforcement action against a Discharger for bypass, unless (40 C.F.R. § 122.41(m)(4)(i)):
 - a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 C.F.R. § 122.41(m)(4)(i)(A));
 - b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 C.F.R. § 122.41(m)(4)(i)(B)); and
 - c. The Discharger submitted notice to the Central Valley Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 C.F.R. § 122.41(m)(4)(i)(C).)
4. The Central Valley Water Board may approve an anticipated bypass, after considering its adverse effects, if the Central Valley Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 C.F.R. § 122.41(m)(4)(ii).)
5. Notice
 - a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass. (40 C.F.R. § 122.41(m)(3)(i).)

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

H. Upset

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

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 C.F.R. § 122.41(n)(2).)
2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 C.F.R. § 122.41(n)(3)):
 - a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 C.F.R. § 122.41(n)(3)(i));
 - b. The permitted facility was, at the time, being properly operated (40 C.F.R. § 122.41(n)(3)(ii));
 - c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) (40 C.F.R. § 122.41(n)(3)(iii)); and
 - d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 C.F.R. § 122.41(n)(3)(iv).)
3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 C.F.R. § 122.41(n)(4).)

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

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

B. Duty to Reapply

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

C. Transfers

This Order is not transferable to any person except after notice to the Central Valley Water Board. The Central Valley Water Board may require modification or revocation and

reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the Water Code. (40 C.F.R. § 122.41(l)(3); § 122.61.)

III. STANDARD PROVISIONS – MONITORING

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

IV. STANDARD PROVISIONS – RECORDS

- A. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 C.F.R. part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Central Valley Water Board Executive Officer at any time. (40 C.F.R. § 122.41(j)(2).)
- B. Records of monitoring information shall include:
 - 1. The date, exact place, and time of sampling or measurements (40 C.F.R. § 122.41(j)(3)(i));
 - 2. The individual(s) who performed the sampling or measurements (40 C.F.R. § 122.41(j)(3)(ii));
 - 3. The date(s) analyses were performed (40 C.F.R. § 122.41(j)(3)(iii));
 - 4. The individual(s) who performed the analyses (40 C.F.R. § 122.41(j)(3)(iv));
 - 5. The analytical techniques or methods used (40 C.F.R. § 122.41(j)(3)(v)); and
 - 6. The results of such analyses. (40 C.F.R. § 122.41(j)(3)(vi).)
- C. Claims of confidentiality for the following information will be denied (40 C.F.R. § 122.7(b)):
 - 1. The name and address of any permit applicant or Discharger (40 C.F.R. § 122.7(b)(1)); and
 - 2. Permit applications and attachments, permits and effluent data. (40 C.F.R. § 122.7(b)(2).)

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Central Valley Water Board, State Water Board, or U.S. EPA within a reasonable time, any information which the Central Valley Water Board, State Water Board, or U.S. EPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Central Valley Water Board, State Water Board, or U.S. EPA copies of records required to be kept by this Order. (40 C.F.R. § 122.41(h); Wat. Code, § 13267.)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Central Valley Water Board, State Water Board, and/or U.S. EPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below. (40 C.F.R. § 122.41(k).)
2. All permit applications shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. (40 C.F.R. § 122.22(a)(1).)
3. All reports required by this Order and other information requested by the Central Valley Water Board, State Water Board, or U.S. EPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:
 - a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 C.F.R. § 122.22(b)(1));
 - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 C.F.R. § 122.22(b)(2)); and
 - c. The written authorization is submitted to the Central Valley Water Board and State Water Board. (40 C.F.R. § 122.22(b)(3).)
4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 above must be submitted to the Central Valley Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 C.F.R. § 122.22(c).)
5. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my

inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.” (40 C.F.R. § 122.22(d).)

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 C.F.R. § 122.41(l)(4).)
2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Central Valley Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 C.F.R. § 122.41(l)(4)(i).)
3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 C.F.R. part 136, or another method required for an industry-specific waste stream under 40 C.F.R. subchapters N or O, the results of such monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Central Valley Water Board. (40 C.F.R. § 122.41(l)(4)(ii).)
4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 C.F.R. § 122.41(l)(4)(iii).)

D. Compliance Schedules

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

E. Twenty-Four Hour Reporting

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

F. Planned Changes

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

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in section 122.29(b) (40 C.F.R. § 122.41(l)(1)(i)); or
2. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 C.F.R. § 122.41(l)(1)(iii).)

G. Anticipated Noncompliance

The Discharger shall give advance notice to the Central Valley Water Board or State Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with this Order's requirements. (40 C.F.R. § 122.41(l)(2).)

H. Other Noncompliance

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

I. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Central Valley Water Board, State Water Board, or U.S. EPA, the Discharger shall promptly submit such facts or information. (40 C.F.R. § 122.41(l)(8).)

VI. STANDARD PROVISIONS – ENFORCEMENT

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

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Non-Municipal Facilities

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

1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 C.F.R. § 122.42(a)(1)):
 - a. 100 micrograms per liter (µg/L) (40 C.F.R. § 122.42(a)(1)(i));

- b. 200 µg/L for acrolein and acrylonitrile; 500 µg/L for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and 1 milligram per liter (mg/L) for antimony (40 C.F.R. § 122.42(a)(1)(ii));
 - c. Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 C.F.R. § 122.42(a)(1)(iii)); or
 - d. The level established by the Central Valley Water Board in accordance with section 122.44(f). (40 C.F.R. § 122.42(a)(1)(iv).)
2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 C.F.R. § 122.42(a)(2)):
 - a. 500 micrograms per liter (µg/L) (40 C.F.R. § 122.42(a)(2)(i));
 - b. 1 milligram per liter (mg/L) for antimony (40 C.F.R. § 122.42(a)(2)(ii));
 - c. Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 C.F.R. § 122.42(a)(2)(iii)); or
 - d. The level established by the Central Valley Water Board in accordance with section 122.44(f). (40 C.F.R. § 122.42(a)(2)(iv).)

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

Contents

I.	General Monitoring Provisions	E-2
II.	Monitoring Locations	E-3
III.	Influent Monitoring Requirements – Not Applicable	E-3
IV.	Effluent Monitoring Requirements	E-3
	A. Monitoring Location EFF001, EFF002, EWFF003, EFF004	E-3
V.	Whole Effluent Toxicity Testing Requirements	E-4
VI.	Land Discharge Monitoring Requirements –Not Applicable	E-7
VII.	Recycling Monitoring Requirements – Not Applicable	E-7
VIII.	Receiving Water Monitoring Requirements	E-7
	A. Monitoring Location Buffalo Creek Upstream –RSW001 and RSW002	E-7
	B. Monitoring Location Buffalo Creek Downstream RSW003d	E-8
	C. Monitoring Location Alder Creek Upstream - RSW-004u	E-8
	D. Monitoring Location Alder Creek Downstream - RSW-004d	E-9
IX.	Other Monitoring Requirements	E-10
X.	Reporting Requirements	E-10
	A. General Monitoring and Reporting Requirements	E-10
	B. Self-Monitoring Reports (SMR's).....	E-11
	C. Discharge Monitoring Reports (DMR's).....	E-13
	D. Other Reports	E-14

Tables

Table E-1.	Monitoring Station Locations.....	E-3
Table E-2.	Effluent Monitoring.....	E-4
Table E-3.	Chronic Toxicity Testin Dilution Series.....	E-6
Table E-4a.	Receiving Water Monitoring Requirements.....	E-7
Table E-4b.	Receiving Water Monitoring Requirements.....	E-8
Table E-4c.	Receiving Water Monitoring Requirements.....	E-9
Table E-4d.	Receiving Water Monitoring Requirements.....	E-9
Table E-5.	Storage Ponds Monitoring Requirements	E-10
Table E-6.	Monitoring Periods and Reporting Schedule.....	E-11

ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

The Code of Federal Regulations (40 C.F.R. § 122.48) requires that all NPDES permits specify monitoring and reporting requirements. Water Code sections 13267 and 13383 also authorize the Central Valley Water Board to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements that implement federal and California regulations.

I. GENERAL MONITORING PROVISIONS

- A.** Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring locations specified below and, unless otherwise specified, before the monitored flow joins or is diluted by any other waste stream, body of water, or substance. Monitoring locations shall not be changed without notification to and the approval of the Central Valley Water Board.
- B.** Effluent samples shall be taken downstream of the last addition of wastes to the treatment or discharge works where a representative sample may be obtained prior to mixing with the receiving waters. Samples shall be collected at such a point and in such a manner to ensure a representative sample of the discharge.
- C.** Chemical, bacteriological, and bioassay analyses of any material required by this Order shall be conducted by a laboratory certified for such analyses by the Department of Public Health (DPH). Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Central Valley Water Board. In the event a certified laboratory is not available to the Discharger for any onsite field measurements such as pH, DO, turbidity, temperature, and residual chlorine, such analyses performed by a noncertified laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program for any onsite field measurements such as pH, DO, turbidity, temperature, and residual chlorine must be kept onsite in the treatment facility laboratory and shall be available for inspection by Central Valley Water Board staff. The Discharger must demonstrate sufficient capability (qualified and trained employees, properly calibrated and maintained field instruments, etc.) to adequately perform these field measurements. The Quality Assurance-Quality Control Program must conform to USEPA guidelines or to procedures approved by the Central Valley Water Board.
- D.** Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary, at least yearly, to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year to ensure continued accuracy of the devices.
- E.** Monitoring results, including noncompliance, shall be reported at intervals and in a manner specified in this Monitoring and Reporting Program.
- F.** Laboratories analyzing monitoring samples shall be certified by the Department of Public Health (DPH), in accordance with the provision of Water Code section 13176, and must include quality assurance/quality control data with their reports.

- G. The Discharger shall conduct analysis on any sample provided by USEPA as part of the Discharge Monitoring Quality Assurance (DMQA) program. The results of any such analysis shall be submitted to USEPA's DMQA manager.
- H. The Discharger shall file with the Central Valley Water Board technical reports on self-monitoring performed according to the detailed specifications contained in this Monitoring and Reporting Program.
- I. The results of all monitoring required by this Order shall be reported to the Central Valley Water Board, and shall be submitted in such a format as to allow direct comparison with the limitations and requirements of this Order. Unless otherwise specified, discharge flows shall be reported in terms of the monthly average and the daily maximum discharge flows.

II. MONITORING LOCATIONS

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

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description (include Latitude and Longitude when available)
001	EFF-001	Discharge from East Retention Basin to Buffalo Creek
002	EFF-002	Discharge from West Retention Basin to Buffalo Creek
003	EFF-003	Discharge from West Lake Cell 1 to Buffalo Creek
004	EFF-004	Discharge from West Lake Cell 2 to Buffalo Creek
--	RSW-001	Buffalo Creek upstream of Retention Basins
--	RSW-002	Administration Ditch Prior to Buffalo Creek
--	RSW-003d	Buffalo Creek downstream from retention ponds
--	RSW-004u	Alder Creek upstream at Prairie City Road
--	RSW-004d	Alder Creek downstream near Folsom Boulevard
	POND001	East Retention Basin
	POND002	West Retention Basin
	POND003	Westlake Cell 1
	POND004	Westlake Cell 2

III. INFLUENT MONITORING REQUIREMENTS - NOT APPLICABLE

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001, EFF-002, EFF-003 and EFF-004

- 1. The Discharger shall monitor the discharges from the retention ponds at EFF-001, EFF-002, EFF-003, EFF-004 as follows with only two of the four monitoring points required to be sampled on any given discharge event. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding Minimum Level:

Table E-2. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Perchlorate	µg/L	Grab	Once per discharge	[1]
Copper, Total Recoverable	mg/L	Grab	Once per discharge	[2]
Copper, Dissolved	mg/L	Grab	Once per discharge	[2]
Hardness as CaCO ₃	mg/L	Grab	Once per discharge	
Temperature ^[3]	°F	Meter	Once per discharge	
Total Suspended Solids	mg/L	Grab	Once per discharge	
Total Dissolved Solids	mg/L	Grab	Once per discharge	
Settleable Solids	mL/L	Grab	Once per discharge	
Turbidity	NTU	Grab	Once per discharge	
Dissolved Oxygen	mg/L	Grab	Once per discharge	
Electrical Conductivity @ 25°C	µmhos/cm	Grab	Once per discharge	
pH	pH units	Grab	Once per discharge	
Chemical Oxygen Demand	mg/L	Grab	Once per discharge	
Standard Minerals ^[5]	mg/L	Grab	Once per discharge	
Priority Pollutants ^{[4], [6]}	µg/L	Grab	Once per year	
Mercury (methyl)	µg/L	Grab	1/Month	[7]
Mercury, Total Recoverable	µg/L	Grab	1/Month	[7]
Acute Toxicity	% Survival	Grab	Once per year	[8]
Whole Effluent Toxicity (see Section V. below)	--	--	--	--

[1] EPA Method 314.1, or equivalent with a Practical Quantitation Level less than or equal to 4.0 µg/L.

[2] EPA method with a Practical Quantitation Level less than or equal to 2.0 µg/L.

[3] Field Measurements

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

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

[6] Concurrent with receiving water sampling.

[7] Unfiltered methyl mercury and total mercury samples shall be taken using clean hands/dirty hands procedures, as described in U.S. EPA method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels, for collection of equipment blanks (section 9.4.4.2), and shall be analyzed by U.S. EPA method 1630/1631 (Revision E) with a method detection limit of 0.02 ng/l for methyl mercury and 0.2 ng/l for total mercury

[8] Acute toxicity testing shall be performed as described in [Whole Effluent Toxicity Testing Requirements V.A.](#), below

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 acute toxicity testing once per year per discharge point, unless discharge does not occur from that point during the year. If there are no discharges from the impoundments during the year, then no toxicity testing is required to be conducted for that year.
 2. Sample Types – The Discharger may use flow-through or static renewal testing. For static renewal testing, the samples shall be grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent monitoring location EFF001, EFF002, EFF003 and EFF004.
 3. Test Species – Test species shall be fathead minnows (*Pimephales promelas*).
 4. Methods – The acute toxicity testing samples shall be analyzed using EPA-821-R-02-012, Fifth Edition. Temperature, total residual chlorine, and pH shall be recorded at the time of sample collection. No pH adjustment may be made unless approved by the Executive Officer.
 5. Test Failure – If an acute toxicity test does not meet all test acceptability criteria, as specified in the test method, the Discharger must re-sample and re-test as soon as possible, not to exceed 7 days following notification of test failure.
- B. Chronic Toxicity Testing.** The Discharger shall conduct three species chronic toxicity testing to determine whether the effluent is contributing chronic toxicity to the receiving water. The Discharger shall meet the following chronic toxicity testing requirements:
1. Monitoring Frequency – The Discharger shall perform annual three species chronic toxicity testing, unless no discharge occurs during the year from EFF001, EFF002, EFF003 or EFF004. If there are no discharges, then there is no requirement to conduct the chronic toxicity testing for that year.
 2. Sample Types – Effluent samples shall grab and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent monitoring location EFF001, EFF002, EFF003 or EFF004. The receiving water control shall be a grab sample obtained from the RSW001 sampling location, as identified in this Monitoring and Reporting Program.
 3. Sample Volumes – Adequate sample volumes shall be collected to provide renewal water to complete the test in the event that the discharge is intermittent.
 4. Test Species – Chronic toxicity testing measures sublethal (e.g., reduced growth, reproduction) and/or lethal effects to test organisms exposed to an effluent compared to that of the control organisms. The Discharger shall conduct chronic toxicity tests with:
 - The cladoceran, water flea, *Ceriodaphnia dubia* (survival and reproduction test);
 - The fathead minnow, *Pimephales promelas* (larval survival and growth test); and

- The green alga, *Selenastrum capricornutum* (growth test).
5. **Methods** – The presence of chronic toxicity shall be estimated as specified in *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*, EPA/821-R-02-013, October 2002.
 6. **Reference Toxicant** – As required by the SIP, all chronic toxicity tests shall be conducted with concurrent testing with a reference toxicant and shall be reported with the chronic toxicity test results.
 7. **Dilutions** – For regular and accelerated chronic toxicity monitoring, it is not necessary to perform the test using a dilution series. The test may be performed using 100% effluent and two controls. For TRE monitoring, the chronic toxicity testing shall be performed using the dilution series identified in Table E-5, below, unless use of an alternative diluent is detailed in the submitted TRE Action Plan, or when the receiving water is toxic.

Table E-3. Chronic Toxicity Testing Dilution Series

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

8. **Test Failure** – The Discharger must re-sample and re-test as soon as possible, but no later than fourteen (14) days after receiving notification of a test failure. A test failure is defined as follows:
 - a. The reference toxicant test or the effluent test does not meet all test acceptability criteria as specified in the *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*, EPA/821-R-02-013, October 2002 (Method Manual), and its subsequent amendments or revisions; or
 - b. The percent minimum significant difference (PMSD) measured for the test exceeds the upper PMSD bound variability criterion in Table 6 on page 52 of the Method Manual. (A retest is only required in this case if the test results do not exceed the monitoring trigger specified in the Special Provision at section VI. 2.a.iii. of the Order.)
- C. **WET Testing Notification Requirements.** The Discharger shall notify the Central Valley Water Board within 24-hours after the receipt of test results exceeding the monitoring trigger during regular or accelerated monitoring, or an exceedance of the acute toxicity effluent limitation.
- D. **WET Testing Reporting Requirements.** All toxicity test reports shall include the contracting laboratory’s complete report provided to the Discharger and shall be in accordance with the

appropriate “Report Preparation and Test Review” sections of the method manuals. At a minimum, whole effluent toxicity monitoring shall be reported as follows:

1. **Chronic WET Reporting.** Regular chronic toxicity monitoring results shall be reported to the Central Valley Water Board within 30 days following completion of the test, and shall contain, at minimum:
 - a. The dates of sample collection and initiation of each toxicity test; and
 - b. The results compared to the numeric toxicity monitoring trigger.

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

2. **Acute WET Reporting.** Acute toxicity test results shall be submitted with the monthly discharger self-monitoring reports and reported as percent survival.
3. **TRE Reporting.** Reports for TREs shall be submitted in accordance with the schedule contained in the Discharger’s approved TRE Workplan, or as amended by the Discharger’s TRE Action Plan.
4. **Quality Assurance (QA).** The Discharger must provide the following information for QA purposes:
 - a. Results of the applicable reference toxicant data with the statistical output page giving the species, NOEC, LOEC, type of toxicant, dilution water used, concentrations used, PMSD, and dates tested.
 - b. The reference toxicant control charts for each endpoint, which include summaries of reference toxicant tests performed by the contracting laboratory.
 - c. Any information on deviations or problems encountered and how they were dealt with.

VI. LAND DISCHARGE MONITORING REQUIREMENTS NOT APPLICABLE

VII. RECYCLING MONITORING REQUIREMENTS – NOT APPLICABLE

VIII. RECEIVING WATER MONITORING REQUIREMENTS

A. Monitoring Location Buffalo Creek - Upstream

1. The Discharger shall monitor Buffalo Creek Upstream at RSW-001 and RSW-002 (Administration Ditch) as follows:

Table E-4a. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency[4]	Required Analytical Test Method
Perchlorate	µg/L	Grab	Once per month	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency[4]	Required Analytical Test Method
Copper, Total	mg/L	Grab	Once per month	[2]
Copper, Dissolved	mg/L	Grab	Once per month	[2]
Temperature[3]	°F	Meter	Once per month	
Total Suspended Solids	mg/L	Grab	Once per month	
Total Dissolved Solids	mg/L	Grab	Once per month	
Settleable Solids	mL/L	Grab	Once per month	
Turbidity	NTU	Grab	Once per month	
Dissolved Oxygen	mg/L	Grab	Once per month	
Electrical Conductivity @ 25°C	µmhos/cm	Grab	Once per month	
pH	pH units	Grab	Once per month	
Chemical Oxygen Demand	mg/L	Grab	Once per month	
Turbidity	NTU	Meter	Once per month	

[1] EPA Method 314.1, or equivalent with a Practical Quantitation Level less than or equal to 4.0 µg/L.

[2] EPA method with a Practical Quantitation Level less than or equal to 2.0 µg/L.

[3] Field Measurements.

[4] Samples only required if there is stream flow past the monitoring point.

B. Monitoring Location – Buffalo Creek – Downstream

1. The Discharger shall monitor Buffalo Creek downstream of the discharges at RSW-003d as follows:

Table E-4b. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Perchlorate	µg/L	Grab	Once per discharge	[1]
Copper, Total	mg/L	Grab	Once per discharge	[2]
Copper, Dissolved	mg/L	Grab	Once per discharge	[2]
Temperature[3]	°F	Meter	Once per discharge	
Total Suspended Solids	mg/L	Grab	Once per discharge	
Total Dissolved Solids	mg/L	Grab	Once per discharge	
Settleable Solids	mL/L	Grab	Once per discharge	
Turbidity	NTU	Grab	Once per discharge	
Dissolved Oxygen	mg/L	Grab	Once per discharge	
Electrical Conductivity @ 25°C	µmhos/cm	Grab	Once per discharge	
pH	pH units	Grab	Once per discharge	
Chemical Oxygen Demand	mg/L	Grab	Once per discharge	
Turbidity	NTU	Grab	Once per discharge	

[1] EPA Method 314.1, or equivalent with a Practical Quantitation Level less than or equal to 4.0 µg/L.

[2] EPA method with a Practical Quantitation Level less than or equal to 2.0 µg/L.

[3] Field Measurements

C. Monitoring Location – Alder Creek – Upstream

- The Discharger shall monitor Alder Creek upstream at RSW-004u as follows:

Table E-4c. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Perchlorate	µg/L	Grab	Once per month	[1]
Temperature ^[2]	°F	Meter	Once per month	
Total Suspended Solids	mg/L	Grab	Once per month	
Total Dissolved Solids	mg/L	Grab	Once per month	
Settleable Solids	mL/L	Grab	Once per month	
Turbidity	NTU	Grab	Once per month	
Dissolved Oxygen	mg/L	Grab	Once per month	
Electrical Conductivity @ 25°C ^[2]	µmhos/cm	Grab	Once per month	
pH ^[2]	pH units	Grab	Once per month	
Chemical Oxygen Demand	mg/L	Grab	Once per month	
Turbidity	NTU	Grab	Once per month	

[1] EPA Method 314.1, or equivalent with a Practical Quantitation Level less than or equal to 4.0 µg/L.

[2] Field Measurements

D. Monitoring Location Alder Creek Downstream

- The Discharger shall monitor Alder Creek at RSW-004d as follows:

Table E-4d. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Perchlorate	µg/L	Grab	Once per month	[1]
Temperature ^[2]	°F	Meter	Once per month	
Total Suspended Solids	mg/L	Grab	Once per month	
Total Dissolved Solids	mg/L	Grab	Once per month	
Settleable Solids	mL/L	Grab	Once per month	
Turbidity	NTU	Grab	Once per month	
Dissolved Oxygen	mg/L	Grab	Once per month	
Electrical Conductivity @ 25°C ^[2]	µmhos/cm	Grab	Once per month	
pH	pH units	Grab	Once per month	
Chemical Oxygen Demand	mg/L	Grab	Once per month	
Turbidity	NTU	Grab	Once per month	

- [1] EPA Method 314.1, or equivalent with a Practical Quantitation Level less than or equal to 4.0 µg/L.
[2] Field Measurements

E. Monitoring Location Groundwater Monitoring - Not Applicable

IX. OTHER MONITORING REQUIREMENTS

A. Biosolids – Not Applicable

B. Municipal Water Supply – Not Applicable

C. Ultraviolet Light (UV) Disinfection System

D. Storage Ponds

1. The Discharger shall monitor the East Retention Basin, West Retention Basin, Westlake Cell 1 and West Lake Cell 2 at POND001, POND002, POND003 and POND004 as follows:

Table E-5 Storage Pond Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Freeboard	feet	Grab	Once per month/week[1]	

- [1] Once per month during dry season (May thru September) and weekly during wet season (November thru April).

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. The Discharger shall notify the Regional Water Board and City of Sacramento, Department of Utilities prior to commencing discharge from the storm water detention basins.
3. Upon written request of the Central Valley Water Board, the Discharger shall submit a summary monitoring report. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year(s).
4. **Compliance Time Schedules.** For compliance time schedules included in the Order, the Discharger shall submit to the Central Valley 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 Central Valley Water Board by letter when it returns to compliance with the compliance time schedule.

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

B. Self-Monitoring Reports (SMR's)

1. The Discharger shall electronically submit SMR's using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (<http://www.waterboards.ca.gov/ciwqs/index.html>). The CIWQS Web site will provide additional information for SMR submittal in the event there will be a planned service interruption for electronic submittal.
2. The Discharger shall report in the SMR the results for all monitoring specified in this MRP under sections III through IX. The Discharger shall submit monthly SMR's including the results of all required monitoring using U.S. EPA-approved test methods or other test methods specified in this Order. SMR's are to include all new monitoring results obtained since the last SMR was submitted. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR.
3. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Table E-6 Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period	SMR Due Date
Continuous	Permit effective date	All	Submit with monthly SMR
Monthly	Permit effective date	1 st day of calendar month through last day of calendar month	15 th day of the second month following the monitoring period
Quarterly	Permit effective date	1 January through 31 March 1 April through 30 June 1 July through 30 September 1 October through 31 December	Submit with Monthly SMR for last month of quarter
Semiannually	Permit effective date	1 January through 30 June 1 July through 31 December	Submit with Monthly SMR for last month of period
Annually	Permit effective date	1 January through 31 December	Submit with December SMR

4. Reporting Protocols. The Discharger shall report with each sample result the applicable Practical Quantitation Level (PQL) and the current laboratory's Method Detection Limit (MDL), as determined by the procedure in 40 C.F.R. 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 PQL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

- b. Sample results less than the PQL, 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. The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (\pm a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.
 - c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.
 - d. Dischargers are to instruct laboratories to establish calibration standards so that the Minimum Level (ML) value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.
5. Multiple Sample Data. When determining compliance with an AMEL 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.
6. The Discharger shall submit SMR's in accordance with the following requirements:
- a. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.
 - b. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the WDR's; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation. Signature and certification requirements found in Attachment D need to be met.

7. The Discharger shall submit in the SMR's calculations and reports in accordance with the following requirements:

- a. **Annual Average Limitations.** For constituents with effluent limitations specified as "annual average" (aluminum, electrical conductivity, iron, and manganese) the Discharger shall report the annual average in the June SMR. The annual average shall be calculated as the average of the samples gathered for the calendar year.
- b. **Mass Loading Limitations.** For BOD5, TSS, and ammonia, the Discharger shall calculate and report the mass loading (lbs/day) in the SMRs. The mass loading shall be calculated as follows:

$$\text{Mass Loading (lbs/day)} = \text{Flow (MGD)} \times \text{Concentration (mg/L)} \times 8.34$$

When calculating daily mass loading, the daily average flow and constituent concentration shall be used. For weekly average mass loading, the weekly average flow and constituent concentration shall be used. For monthly average mass loading, the monthly average flow and constituent concentration shall be used.

- c. **Removal Efficiency (BOD5 and TSS).** The Discharger shall calculate and report the percent removal of BOD5 and TSS in the SMRs. The percent removal shall be calculated as specified in Section VII.A. of the Limitations and Discharge Requirements.
- d. **Total Coliform Organisms Effluent Limitations.** The Discharger shall calculate and report the 7-day median of total coliform organisms for the effluent. The 7 day median of total coliform organisms shall be calculated as specified in <Section VII.C.> of the Limitations and Discharge Requirements.
- e. **Dissolved Oxygen Receiving Water Limitations.** The Discharger shall calculate and report monthly in the self-monitoring report: i) the dissolved oxygen concentration, ii) the percent of saturation in the main water mass, and iii) the 95th percentile dissolved oxygen concentration.
- f. **Turbidity Receiving Water Limitations.** The Discharger shall calculate and report the turbidity increase in the receiving water applicable to the natural turbidity condition specified in Section V.A.17.a-e. of the Limitations and Discharge Requirements.
- g. **Temperature Receiving Water Limitations.** The Discharger shall calculate and report the temperature increase in the receiving water based on the difference in temperature at RSW-001 and RSW-002.

C. Discharge Monitoring Reports (DMR's)

1. At any time during the term of this permit, the State Water Board or Central Valley Water Board may notify the Discharger to electronically submit DMR's. Until such notification is given specifically for the submittal of DMR's, the Discharger shall submit DMR's in accordance with the requirements described below.

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

STANDARD MAIL	FEDEX/UPS/ OTHER PRIVATE CARRIERS
State Water Resources Control Board Division of Water Quality c/o DMR Processing Center PO Box 100 Sacramento, CA 95812-1000	State Water Resources Control Board Division of Water Quality c/o DMR Processing Center 1001 I Street, 15 th Floor Sacramento, CA 95814

3. All discharge monitoring results must be reported on the official U.S. EPA pre-printed DMR forms (EPA Form 3320-1) or on self-generated forms that follow the exact same format of EPA Form 3320-1.

D. Other Reports –

1. Annual Operations Report. By 30 January of each year, the Discharger shall submit a written report to the Executive Officer containing the following:
 - a. The names and telephone numbers of persons to contact regarding the facility for emergency and routine situations.
 - b. A statement certifying when the flow meter(s) and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration.
 - c. The Discharger may also be requested to submit an annual report to the Central Valley Water Board with both tabular and graphical summaries of the monitoring data obtained during the previous year. Any such request shall be made in writing. The report shall discuss the compliance record. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with the waste discharge requirements.

ATTACHMENT F – FACT SHEET

Contents

I.	Permit Information.....	F-3
II.	Facility Description.....	F-4
	A. Description of Wastewater and Biosolids Treatment and Controls.....	F-4
	B. Discharge Points and Receiving Waters.....	F-5
	C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data.....	F-13
	D. Compliance Summary.....	F-14
	E. Planned Changes.....	F-14
III.	Applicable Plans, Policies, and Regulations.....	F-14
	A. Legal Authorities.....	F-14
	B. California Environmental Quality Act (CEQA).....	F-14
	C. State and Federal Laws, Regulations, Policies, and Plans.....	F-14
	D. Impaired Water Bodies on CWA 303(d) List.....	F-16
	E. Other Plans, Policies and Regulations.....	F-17
IV.	Rationale For Effluent Limitations and Discharge Specifications.....	F-17
	A. Discharge Prohibitions.....	F-18
	B. Technology-Based Effluent Limitations.....	F-18
	1. Scope and Authority.....	F-18
	2. Applicable Technology-Based Effluent Limitations.....	F-19
	C. Water Quality-Based Effluent Limitations (WQBELs).....	F-19
	1. Scope and Authority.....	F-19
	2. Applicable Beneficial Uses and Water Quality Criteria and Objectives.....	F-20
	3. Determining the Need for WQBELs.....	F-25
	4. WQBEL Calculations.....	F-29
	5. Whole Effluent Toxicity (WET).....	F-31
	D. Final Effluent Limitation Considerations.....	F-33
	1. Mass-based Effluent Limitations.....	F-33
	2. Averaging Periods for Effluent Limitations.....	F-33
	3. Anti-Backsliding Requirements.....	F-34
	4. Antidegradation Policies.....	F-34
	5. Stringency of Requirements for Individual Pollutants.....	F-34
	E. Interim Effluent Limitations.....	F-35
	F. Land Discharge Specifications – Not Applicable.....	F-36
	G. Recycling Specifications – Not Applicable.....	F-36
V.	Rationale for Receiving Water Limitations.....	F-35
	A. Surface Water.....	F-35
	B. Groundwater.....	F-36
VI.	Rationale for Provisions.....	F-36
	A. Standard Provisions.....	F-36
	B. Special Provisions.....	F-36
	1. Reopener Provisions.....	F-36
	2. Special Studies and Additional Monitoring Requirements.....	F-37
	3. Best Management Practices and Pollution Prevention.....	F-40
	4. Construction, Operation, and Maintenance Specifications.....	F-40
	5. Special Provisions for Municipal Facilities (POTWs Only).....	F-40
	6. Other Special Provisions.....	F-40

7. Compliance Schedules	F-40
VII. Rationale for Monitoring and Reporting Requirements	F-40
A. Influent Monitoring	F-40
B. Effluent Monitoring	F-40
C. Whole Effluent Toxicity Testing Requirements	F-41
D. Receiving Water Monitoring	F-41
1. Surface Water	F-41
2. Groundwater	F-41
E. Other Monitoring Requirements	F-41
VIII. Public Participation	F-41
A. Notification of Interested Parties	F-41
B. Written Comments	F-41
C. Public Hearing	F-42
D. Reconsideration of Waste Discharge Requirements	F-42
E. Information and Copying	F-42
F. Register of Interested Persons	F-42
G. Additional Information	F-42

Tables

Table F-1. Facility Information	F-3
Table F-2. Current Discharge Locations... ..	F-6
Table F-3. Historic Effluent Limitations and Monitoring Data	F-13
Table F-4. Basin Plan Beneficial Uses	F-15
Table F-5. 303 (d) List for Buffalo Creek	F-17
Table F-6. Summary of ECD Evaluations for CTR Hardness-Dependent Metals	F-26
Table F-7. RPA Summary for Detected Constituents Discharges 001-004	F-27
Table F-8. Salinity Water Quality Criteria/Objectives	F-27
Table F-9. Summary of Water Quality-based Effluent Limitations	F-31
Table F-10. Summary of Effluent Limitations	F-31

ATTACHMENT F – FACT SHEET

As described in section I, the Central Valley Water Board incorporates this Fact Sheet as findings of the Central Valley Water Board supporting the issuance of this Order. This Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

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

I. PERMIT INFORMATION

The following table summarizes administrative information related to the facility.

Table F-1. Facility Information

WDID	
Discharger	Aerojet Rocketdyne, Inc.
Name of Facility	Sacramento Facility
Facility Address	Aerojet Road
	Rancho Cordova, CA 95670
	Sacramento County
Facility Contact, Title and Phone	Karen Gunderson, Environmental Health and Safety Director, 916-355-2387
Authorized Person to Sign and Submit Reports	Karen Gunderson, Environmental Health and Safety Director, 916-355-2387
Mailing Address	P.O. Box 13222 Sacramento, CA 95813-6000
Billing Address	SAME
Type of Facility	Industrial – Guided Missile and Space Vehicle Propulsion
Major or Minor Facility	Minor
Threat to Water Quality	2
Complexity	C
Pretreatment Program	NA
Reclamation Requirements	NA
Facility Permitted Flow	NA
Facility Design Flow	NA
Watershed	American River
Receiving Water	Buffalo and Alder Creeks
Receiving Water Type	Inland surface water

- A. Aerojet Rocketdyne, Inc. (hereinafter Discharger) is the owner and operator of the Sacramento Facility (hereafter Facility), a a rocket propulsion systems testing and manufacturing facility.
- B. 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.
- C. The Facility discharges wastewater to Buffalo Creek and Alder Creek waters of the United States, and is currently regulated by Order No. R5-2008-0118 adopted on 31 July 2008 and expired on 31 July 2013. The terms and conditions of the current Order have been automatically continued and remain in effect until new Waste Discharge Requirements and NPDES permit are adopted pursuant to this Order. Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the Facility.

Prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater that results in a decrease of flow in any portion of a watercourse, the Discharger must file a petition with the State Water Board, Division of Water Rights, and receive approval for such a change. The State Water Board retains the jurisdictional authority to enforce such requirements under Water Code section 1211.

- D. The Discharger filed a report of waste discharge and submitted an application for reissuance of its WDR's and NPDES permit on 31 January 2013. Supplemental information was requested on 17 April 2013 and received on 21 May and 17 June 2013. The application was deemed complete on 17 June 2013.

II. FACILITY DESCRIPTION

The Discharger's business activities at the Facility include the development of rocket propulsion systems, engineering, manufacturing, and testing; and custom and specialty chemical manufacturing and related activities. The Discharger discharges storm water, cooling tower overflow, boiler blowdown and numerous low-threat discharges such as eyewash/safety showers, condensate, roof drains, non-lubricated compressor blowdowns, and chiller waters. The majority of these discharges discharge directly into infiltration zones not directly connected to surface waters. Some of the discharges could reach surface waters during significant storm water runoff events.

These discharges have been permitted under waste discharge requirements commencing in 1952, changing to an NPDES permit in 1984. Past discharges that no longer occur include process wastewaters from rocket testing and manufacturing, and chemical manufacturing. Several of these past discharges have led to contamination of the soils and groundwater at the Facility, leading to placing the Facility on the Federal Superfund List in 1982. The Discharger is in the process of investigating and remediating the pollution from past discharge/disposal practices and spills. Monitoring and cleanup of the groundwater is occurring under the Superfund Program.

A. Description of Wastewater and Biosolids Treatment and Controls

In the 1970/80's the Discharger constructed six holding ponds along Buffalo Creek to be used for spill control and containment and in part, to help the groundwater remediation pollution control systems control the flow of the groundwater pollution by recharging freshwater to impede the groundwater flow and funnel it towards groundwater extraction wells. The first impoundment along Buffalo Creek is located near the eastern end of the facility in the liquid

rocket test area, not too far from the headwaters of Buffalo Creek. This pond, known as F-Area Lake, received storm water from the liquid rocket test area, along with treated process flows from the testing operations. F-Area Lake now only receives storm water runoff from the deactivated liquid rocket test area.

The remaining 5 impoundments – West Lake Cells 1, 2 and 3, and east and west retention basins - are found on the northwestern side of the Facility. Buffalo Creek has realigned to flow into West Lake Cell 1. Cell 1 is connected to Cell 2, and Cell 3 is no longer used. Buffalo Creek is impounded at that point and is only released back to Buffalo Creek when capacity is needed in the impoundments to accept additional storm water runoff. Water remaining in the impoundments evaporates or percolates to groundwater. Generally, the Administration Ditch conveys runoff from the Administration Area and is connected to Buffalo Creek over a v-notch weir into the West Retention Pond. East and West Retention Ponds, and Cell 1 and Cell 2 are connected, with the valves between them kept open. Thus, the retention ponds act to reduce suspended materials and sediments in the storm water runoff providing defacto treatment of the flows in Buffalo Creek.

During 2003 to 2007 there were a total of 9 discharges from the retention basins to Buffalo Creek. From 2008 to 2011 there was only one discharge from the retention basins to Buffalo Creek. See Attachment B, Figure B-1, a part of this Order for the flow layout of Buffalo Creek and its impoundments. Flows ranged from 3 million gallons to 14 million gallons for each discharge, with the discharge lasting 1 to 3 days.

B. Discharge Points and Receiving Waters

1. The Facility is located in T9N, R7E MDB&M, as shown in Attachment B (Figure B-2), a part of this Order.
2. Numerous wastewater discharges, primarily cooling tower and boiler blowdown and low-threat discharges take place across the 8800 acres of the Facility. See Table B.1, below for the list of current discharge points and the receiving waters for the watersheds into which the discharges occur. A majority of the discharges fall within the drainage area for Buffalo Creek, or areas that do not appear to drain to surface waters – including drainage to Rebel Hill Ditch, which has no exit to surface water. A small number of the discharges are into the drainage area for Alder Creek. See Attachment B, Figure B-3, a part of this Order.
3. Buffalo Creek is tributary to the American River just upstream of the Sunrise Bridge overcrossing. Buffalo Creek originates on the far eastern side of the Discharger's property, flowing westerly until exiting the Facility near US50. Buffalo Creek's channel has been modified many times during the 1900's as the property on which the Facility is located was part of larger area that was dredged for gold. These dredging operations caused severe disruption to the surface of the property leaving nearly 75% of it covered with tall cobble piles. As described above, the Discharger impounds the entire flow of the intermittent creek (only contains flow after stormwater runoff events) on its property for percolation and evaporation. The intermittency of Buffalo Creek will change in 2014 as Aerojet will discharge water from its GET AB treatment facility (under separate NPDES permit) on the eastern side of Aerojet to Buffalo Creek depending on other demands for the water. The Discharger has control or the use of the creek on its property and the creek is not used for any domestic, municipal or industrial supply purposes on the Facility.

4. Alder Creek enters the Facility along the northeastern boundary after crossing Prairie City Road. The creek meanders along the northern boundary of the Facility exiting the Facility at Folsom Boulevard. Alder Creek is tributary to the American River at Lake Natoma.
5. Discharges 001, 002, 003, and 004 are from the East Retention Pond, West Retention Pond, West Lake Cell 1, and West Lake Cell 2, respectively to Buffalo Creek. These discharges are monitored to assess compliance with effluent limitations prior to discharge.
6. In addition to those discharges, prior to the adoption of the last version of the permit the Discharger monitored several other process and storm water discharges to F-Area Lake and the discharge from F-Area Lake to Buffalo Creek. As the process waters are no longer produced, those discharges are no longer monitored.
7. The Discharger also has historically monitored six receiving water locations: S-1 on Buffalo Creek prior to the retention basins, S-2 on the Administration Ditch prior Buffalo Creek, S-3 on Buffalo Creek after the discharge from the retention basins, S-4 on Buffalo Creek at F-Area Lake, S-5 upstream on Alder Creek and S-6 downstream on Buffalo Creek. Sampling frequency has varied over time including up to 3 times per week, weekly, monthly and quarterly. With process water discharges significantly reduced and the results of past monitoring, the monitoring of the creeks has been reduced.
8. The Discharger has added two new discharges, Discharger 004A and 004B. These discharges are of the raw industrial water supply that is in excess of the demand. The supply comes from the Discharger's groundwater extraction and treatment system GET AB. The effluent from that system is regulated pursuant to another NPDES permit and is permitted to discharge to Buffalo Creek or to be used as an industrial water supply. The effluent is monitored under the Discharger's other NPDES permit. – Order No. R5-2013-0155.

Table F-2- Current Discharge Locations - Note this list may not be comprehensive and discharges similar to Discharge points 006 thru 182 may be added or deleted during the life of the permit.

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	East Retention Pond	38°, 37', 14"	121°, 13', 22"	Buffalo Creek
002	West Retention Pond	38°, 37', 13"	121°, 13', 28"	Buffalo Creek
002A	West Pond to Cell 1	38 °, 37', 12"	121 °, 13', 31"	NA
003	West Lake, Cell 1	38 °, 37', 11"	121 °, 13', 41"	Buffalo Creek
004	West Lake Cell 2	38 °, 27', 11"	121 °, 13', 55"	Buffalo Creek
004A	Raw Industrial Water	38 °, 27', 2" N	121 °, 13', 50" W	Buffalo Creek
004B	Raw Industrial Water	38 °, 37', 11.8" N	121 °, 12', 18.4" W	Buffalo Creek

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
005	No longer used	38 °, 37', 4"	121 °, 14', 52"	NA
006	F-Area Lake – Neutralization and Chemical Oxidation	38 °, 37', 25.33"	121 °, 9', 29.26"	Buffalo Creek
007A thru 007D	No longer used			NA
007E	E-Zone Sumps	38 °, 37', 39.48"	121 °, 9', 25.91"	Buffalo Creek
008	North and South Basins			Buffalo Creek
009	G-4, G-5 and G-6 basin rainwater diversion			Buffalo Creek
010	No longer used	NA	NA	NA
011	Bldg 0003 – non-treated cooling tower	38 °, 37', 11.838"	121 °, 12', 35.238"	Buffalo Creek
012	Bldg 00005 – non-treated cooling tower	38 °, 37', 11.465"	121 °, 12', 40.497"	Buffalo Creek
013	No longer used	38 °, 37', 4.363"	121 °, 12', 46.635"	Buffalo Creek
014 thru 016	No longer used	NA	NA	NA
017	No longer used	38 °, 36', 40.754"	121 °, 12', 28.355"	Buffalo Creek
018	No longer used	NA	NA	NA
018A	Bldg 01012 – treated boiler	38 °, 36', 32"	121 °, 12', 26"	Buffalo Creek
019	No longer used	38 °, 36', 32.060"	121 °, 12', 26.376"	Buffalo Creek
020 - 021	No longer used	NA	NA	NA
022	Bldg 01023 - four treated boilers	38 °, 36', 36.08"	121 °, 12', 5.45"	Buffalo Creek
023	Bldg 01024 non-treated cooling tower	38 °, 36', 32.666"	121 °, 12', 11.196"	Buffalo Creek
024	Bldg 01025 – non-treated cooling tower, two vacuum pumps	38 °, 36', 33.01"	121 °, 12', 5.02"	Buffalo Creek
025	No longer used	NA	NA	NA
025	Bldg 01028 – 2 treated boilers	38 °, 36', 42.54"	121 °, 12', 38.36"	Buffalo Creek
027-028	No longer used	NA	NA	NA
029	Bldg 01034 – two treated boilers	38 °, 37', 5.199"	121 °, 11', 39.490"	Buffalo Creek
030 -031	No longer used	NA	NA	NA
032	Bldg 01039 - equipment sump water	38 °, 36', 32.21"	121 °, 12', 31.89"	Buffalo Creek
033	Bldg 01042 – 2 untreated cooling towers	38 °, 36', 49.220"	121 °, 12', 12.791"	Buffalo Creek

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
034	No longer used	NA	NA	NA
035	Bldg 01049 – non-treated cooling tower			Buffalo Creek
036	Bldg 01050 – treated boiler	38 °, 36', 35"	121 °, 12', 38"	
037	No longer used	NA	NA	NA
038	Bldg 01056 – one treated boiler	38, ° 36', 54.72"	121 °, 12', 10.55"	
039	Bldg 01058 – 2 treated boiler, non-treated cooling tower	38 °, 37', 07.931"	121 °, 11', 44.345"	
040	Bldg 01062 – 2 treated boilers, non treated cooling tower	38 °, 37', 01.068"	121 °, 11', 48.185"	
041	Bldg 01066 – 2 treated boilers, non treated cooling tower	38 °, 36', 47.130"	121 °, 12', 14.210"	
042	Bldg 01083 – 3 non-treated cooling towers	38 °, 36', 53.58"	121 °, 11', 55.23"	
043 - 044	No longer used	NA	NA	NA
045	Bldg 01086 – 2 treated boilers, non-treated cooling tower	38 °, 36', 57.320"	121 °, 12', 01.499"	
046	Bldg 01087 – non-treated cooling tower	38 °, 36', 53.485"	121 °, 11', 54.850"	
047	Bldg 01095 - - non-treated cooling tower	38 °, 36', 36.304"	121 °, 12', 28.545"	
048	Bldg 01096 – 2 treated boilers	38 °, 36', 36.04"	121 °, 12', 27.72"	
049-050	No longer used	NA	NA	NA
051	Bldg 01100 – treated cooling tower	38 °, 36', 40.13"	121 °, 12, 5.60"	
052	Bldg 01101 – non-treated cooling tower	38 °, 36', 35.374"	121 °, 12', 08.651"	
053	Bldg 01102 – treated cooling tower	38 °, 36', 39.98"	121 °, 12', 11.18"	
054	Bldg 01103 – non-treated cooling tower, treated cooling tower	38 °, 36', 27.373"	121 °, 12', 16.940"	
055 thru 058	No longer used	NA	NA	NA
059	Bldg 02024 – non treated cooling tower	38 °, 37', 13.110"	121 °, 12', 53.425"	
060 – 061	No longer used			NA
062	Bldg 04116 – non-treated cooling tower	38 °, 36', 2.89"	121 °, 11', 58.14"	
063	two non-treated cooling towers			

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
064 - 065	No longer used	NA	NA	NA
066	Bldg 05014 – non-treated cooling tower	38 °, 36', 51.375"	121 °, 13', 07.169"	
067	Bldg 05015 – non-treated cooling tower, sump drain			
068 thru 073	No longer used	NA	NA	NA
074	Bldg 05022 – two non-treated cooling towers	38 °, 36', 56.060"	121 °, 13', 11.810"	
075	No longer used	NA	NA	NA
076	Bldg 05025 – non treated cooling tower	38 °, 36', 51.23"	121 °, 12', 57.62"	
077-081	No longer used	NA	NA	NA
082	Bldg 05032 – 2 non-treated cooling towers	38 °, 36', 47.793"	121 °, 13', 08.393"	
083	Bldg 05033 – one non-treated cooling tower	38 °, 36', 56.362"	121 °, 13', 27.512"	
084 thru 090	No longer used	NA	NA	NA
091	Bldg 05061 – treated boiler – AMPAC boiler			
092-093	No longer used	NA	NA	NA
094	Bldg 05079 – non-treated cooling tower	38 °, 37', 00.535"	121 °, 13', 27.631"	
095	Bldg 05080 – 2 treated boilers, non-treated cooling tower	38 °, 37', 01.626"	121 °, 13', 23.338"	
096 thru 102	No longer used	NA	NA	NA
103	Bldg 05104 – non-treated cooling tower			
104	Bldg 05106 – steam condensate discharge from heater	38 °, 37', 55.27"	121 °, 12', 54.93"	
105 thru 108	No longer used	NA	NA	NA
109	Bldg 20001 – non-treated boiler	38 °, 37', 44.78	121 °, 12', 19.99"	
110	Bldg 20002 – 2 non-treated boiler, 4 non-treated cooling towers, 2 treated cooling towers	38 °, 37', 47.320"	121 °, 12', 15.498"	
111	Bldg 2004 – lab hydraulic press coolant	38 °, 37', 37.399"	121 °, 12', 14.246"	
	lab(D) water system			
	dev ops assy & fab			

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
	platelet AC degreaser coolant			
	lab DI water system coolant			
	GTAW machine cooling tower			
	lab apparatus coolant			
	lab vapor degreaser coolant			
	platelet cooling tower drain overflow			
	platelet ipsen furnace cooling tower drain			
	platelet clean room A/C condensate lines			
	EP weld coolant			
	six treated boilers			
	six treated cooling towers			
	2 non-treated cooling towers, non-lubricated compressor			
112	Bldg 20006 non-treated boiler, treated cooling tower	38 °, 37', 42.738"	121 °, 12', 26.882"	
113	No longer exists	38 °, 37', 37.806"	121 °, 12', 32.933"	
114	Bldg 20015 – non-treated boiler, non treated cooling tower	38 °, 37', 35.682"	121 °, 12', 25.208"	
115	Building 20019, 2 non-treated boilers, 2 non-treated cooling towers	38 °, 37', 37.428"	121 °, 12', 14.289"	
116	No longer used	NA	NA	NA
117	Bldg 20025 – non-treated boiler	38 °, 37', 35.151"	121 °, 12', 21.985"	
118-119	No longer used	NA	NA	NA
120	Bldg 30002 – non-treated cooling tower - inactive	38 °, 38', 12.559"	121 °, 9', 36.143"	
121	Bldg 30003 – 1 non-treated cooling tower	38 °, 38', 13.512"	121 °, 9', 38.428"	
122	Bldg 30004 – vacuum pump coolant	38 °, 38', 11.37"	121 °, 9', 34.75"	
123	Bldg 30005 – power supply coolant - inactive	38 °, 38', 11.37"	121 °, 9', 34.25"	
124	Bldg 30010 – bay A-7 LH2 storage tank deluge system, bay A-7 vacuum pump coolant, Bay A-5 water flow facility	38 °, 38', 11.24"	121 °, 9', 32.67"	
125	Bldg 33008 – one boiler	38 °, 37', 38.37"	121 °, 9', 17.92"	

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
	drain, 1 temperature controlled test lines			
126-127	No longer used	NA	NA	NA
128	Bldg 34006 – hydraulic pump coolant			
129	Bldg 34009 – treated boiler, heat exchanger, boiler condensate from heat exchangers, non-treated cooling tower	38 ° ,37', 32.336"	121 ° , 9', 24.698"	
130	Bldg 34109 – RP-1TI secondary containment	38 ° , 37', 30.44"	121 ° , 9', 24.40"	
131	No longer used	NA	NA	NA
132	Bldg 36009 – 2 non-treated cooling towers	38 ° , 37', 5.569"	121 ° , 9', 41.226"	
133	Bldg 36010 – sump pump, bearing water coolant	38 ° , 37', 6.26"	121 ° , 9', 41.83"	
134	No longer exists	38 ° , 37', 07.055"	121 ° , 9', 40.381"	
135 thru 137	No longer used	NA	NA	NA
138	Area 38 J-Zone lift station			
139	Bldg 38001 - non-treated cooling tower	38 ° , 37', 02.984"	121 ° , 9', 30.185"	
140	No longer used	NA	NA	NA
141	Bldg 38003 – J-11 hydraulic pump coolant, J-14 diffuser and ejector coolant, J-14A ICS elbow coolant			
142	No longer exists			
143	Bldg 38005 – J-3 condenser cooling, Mon 3 tank secondary containment			
144	Bldg 38006 – MMH tank secondary containment			
	J-5 hydraulic pump secondary containment			
	J-5 diffuser coolant			
	J-5 duct elbow coolant			
145	Bldg 38007 – J-4 diffuser and duct coolant			
	J-4 system pump coolant			
	Steam system condensate			
146	Bldg 38008 – Flourine pit			

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
	secondary containment, 2 treated boilers			
147	No longer exists			
148	Bldg 38086 A-50 secondary containment			
149	Bldg 38087 - N ₂ O ₄ secondary containment			
150	No longer used	NA	NA	NA
151	Bldg 46109 – non-treated boiler			
152	No longer used	NA	NA	NA
153	Bldg 46032 – env. conditioning cell	38 °, 37', 49.241"	121 °, 10', 18.356"	
154	Bldg 46035 – one treated boiler	38 °, 37', 17.97"	121 °, 10', 43.05"	
155	Bldg 46038 – treated boiler	38 °, 37', 31.307"	121 °, 10', 37.509"	
156	Bldg 46039 – NT boiler	38 °, 37', 50.32"	121 °, 10', 3.89"	
157	Bldg 46037 – non-treated cooling tower	38 °, 37', 15.71"	121 °, 11', 7.59"	
158	Bldg 46068 – treated boiler	38 °, 37', 16.30"	121 °, 11', 7.25"	
159	Bldg 49010 – non-treated boiler			
160	No longer used	38 °, 37', 36.56"	121 °, 13', 10.30"	
161	No longer used	38 °, 37', 35.09"	121 °, 13', 2.65"	
162	Area 30 – A Zone CLAS/Waste tanks secondary containment			
163	J-Zone Aspirator tanks secondary containment			
164	No longer used	NA	NA	NA
165	Bldg 01066 – diesel tank secondary containment	38 °, 36', 47.73"	121 °, 12', 15.50"	
166	Bldg 46030 – Hydroproof test water	38 °, 37', 11.44"	121 °, 10', 54.28"	
167	Former RCRA V Tank 04051 secondary containment			
168	Former diesel tank 01110 secondary containment			
169	Bldg 20002 – flushing of deionized water tank	38 °, 37', 40.720"	121 °, 12', 16.146"	
170	Bldg 30015 – backflushing of clam growth control filter	38 °, 38', 17.91"	121 °, 9', 39.94"	
171 - 176	No longer used	NA	NA	NA

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
177	Car-Washing adjacent to Building 02028, 20022, 4900 area and/or 2000 Administration Area			Buffalo Creek
178 thru 180	No longer used	NA	NA	NA
181	Bldg 38011 – drum storage secondary containment			
182	No longer used	38 °, 38, 12.687”	121 °, 9’, 33.996”	
183-186	No longer used	NA	NA	NA
187	Bldg. 01151 – one non-treated cooling tower			
188	Bldg. 46025 – one cooling tower			
189	Bldg. 46035 one cooling tower			
190	Bldg-46068 – one cooling tower			
191	Bldg. 46022 – one cooling tower			
192	Bldg 01007 – storm water collected in escape tunnel			

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

Effluent limitations contained in the existing Order for discharges from East Retention Pond, West Retention Pond, Westlake Cell 1 and Westlake Cell 2 to Buffalo Creek at EFF001, EFF002, EFF003 and EFF004, respectively and representative monitoring data from the term of the previous Order are as follows:

Table F-3. Historic Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitation			Monitoring Data 1 Jan 2009 to 1 April 2013		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
perchlorate	µg/L			6.0			<4
Copper	µg/L			6.2			2.9
Total Suspended Solids	mg/L			80			6.5
Total Dissolved Solids	mg/L			250			69
Chemical Oxygen Demand	mg/L			40			14

D. Compliance Summary

There were no violations of the previous permit during its term.

E. Planned Changes

There are no planned changes in the operation of the facility during the life of the permit that would affect compliance. There could be elimination of some of the discharges allowed under the permit, i.e., the discontinued operation at a particular building could eliminate the use of the boiler and/or cooling tower associated with the building. Little to no rocket testing currently occurs that generates wastewater or cooling water, with most of those activities moved to the Discharger's facilities in other states.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

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

A. Legal Authorities

This Order serves as WDR's pursuant to article 4, chapter 4, division 7 of the California Water Code (commencing with section 13260). This Order is also issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. EPA and chapter 5.5, division 7 of the Water Code (commencing with section 13370). It shall serve as an NPDES permit for point source discharges from this facility to surface waters.

B. California Environmental Quality Act (CEQA)

Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of CEQA, (commencing with section 21100) of Division 13 of the Public Resources Code.

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

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

- a. The Central Valley Water Board adopted a Water Quality Control Plan for the 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. Requirements in this Order implement the Basin.

The Basin Plan at II-2.00 states that the beneficial uses of any specifically identified water body generally apply to its tributary streams. The Basin Plan in Table II-1, Section II, does not specifically identify beneficial uses for Buffalo Creek, but does identify present and potential uses for the American River, to which Buffalo Creek, These beneficial uses of the American and Sacramento Rivers are municipal and domestic supply (MUN); agricultural supply, irrigation and stock watering (AGR); water contact recreation (REC-1); 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 (SPWN); wildlife habitat (WILD).. In addition, State Water Resources Control Board (State Water

Board) Resolution No. 88-63 requires that, with certain exceptions, the Regional Water Board assign the municipal and domestic supply use to water bodies that do not have beneficial uses listed in the Basin Plan. Thus, as discussed in detail in this Fact Sheet, beneficial uses applicable to Buffalo Creek and Alder Creek are as follows:

Table F-4. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001, 002, 003, 004	Buffalo Creek	<u>Existing:</u> Warm freshwater habitat (WARM); wildlife habitat (WILD), preservation or rare, threatened or endangered species (RARE), Ground water recharge (GWR), freshwater replenishment (FRSH), contact (REC-1) and non-contact (REC-2) water recreation, Municipal and domestic water supply (MUN).
NA	Alder Creek	<u>Existing:</u> Warm freshwater habitat (WARM); wildlife habitat (WILD), preservation or rare, threatened or endangered species (RARE), Ground water recharge (GWR), freshwater replenishment (FRSH), contact (REC-1) and non-contact (REC-2) water recreation, Municipal and domestic water supply (MUN).

- b. **Thermal Plan.** The State Water Board adopted the Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (Thermal Plan) on 7 January 1971, and amended this plan on 18 September 1975. This plan contains temperature objectives for surface waters. Requirements of this Order implement the Thermal Plan.
2. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** U.S. EPA 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, U.S. EPA 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 federal water quality criteria for priority pollutants.
3. **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 U.S. EPA through the NTR and to the priority pollutant objectives established by the Central Valley Water Board in the Basin Plan. The SIP became effective on 18 May 2000, with respect to the priority pollutant criteria promulgated by the U.S. EPA 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.
4. **Antidegradation Policy.** Federal regulation 40 C.F.R. 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 68-16. Resolution 68-16 is deemed to incorporate the federal antidegradation policy where the federal policy applies under federal law. Resolution 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Central Valley Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. The permitted discharge must be consistent with the antidegradation provision of 40 C.F.R. section 131.12 and State Water Board Resolution 68-16.

5. **Anti-Backsliding Requirements.** Sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 C.F.R. section 122.44(l) restrict backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed.
6. **Endangered Species Act Requirements.** 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, §§ 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. §§ 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.
7. **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 from industrial facilities. This order incorporates the Stormwater requirements of the General Industrial Stormwater Permit.

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

1. Under section 303(d) of the 1972 CWA, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On 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 Part 130, et seq.)*." The Basin Plan also states, "*Additional treatment beyond minimum federal standards will be imposed on dischargers to [WQLSs]. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment.*" The listing for the American River includes mercury, PCBs and unknown toxicity.
2. **Total Maximum Daily Loads (TMDLs).** USEPA requires the Central Valley Water Board to develop TMDLs for each 303(d) listed pollutant and water body combination. Table F-5, below, identifies the 303(d) listings and the status of each TMDL.

Table F-5. 303 (d) List for the American River

Pollutant	Potential Sources	Proposed TMDL Completion
Methyl mercury	Abandoned Mines	Completed 2010
PCBs		2021
Unknown Toxicity		2021

- The 303(d) listings and TMDLs have been considered in the development of the Order. Monitoring results supplied by the Discharger have not detected methyl mercury or PCBs in the effluent. Toxicity has also not been identified in the effluent, but has been detected in the upstream receiving water.

E. Other Plans, Polices and Regulations – Not Applicable

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

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

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

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the Code of Federal Regulations: 40 CFR 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 CFR 122.44(d) requires that permits include WQBELs to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water where numeric water quality objectives have not been established. The Basin Plan at page IV-17.00, contains an implementation policy, “Policy for Application of Water Quality Objectives”, that specifies that the Central Valley Water Board “will, on a case-by-case basis, adopt numerical limitations in orders which will implement the narrative objectives.” This

Policy complies with 40 CFR 122.44(d)(1). With respect to narrative objectives, the Central Valley Water Board must establish effluent limitations using one or more of three specified sources, including: (1) USEPA's published water quality criteria, (2) a proposed state criterion (i.e., water quality objective) or an explicit state policy interpreting its narrative water quality criteria (i.e., the Central Valley Water Board's "Policy for Application of Water Quality Objectives")(40 CFR 122.44(d)(1)(vi)(A), (B) or (C)), or (3) an indicator parameter.

The Basin Plan includes numeric site-specific water quality objectives and narrative objectives for toxicity, chemical constituents, discoloration, radionuclides, and tastes and odors. The narrative toxicity objective states: "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." (Basin Plan at III-8.00) 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 narrative chemical constituents objective states that waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At minimum, "...water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs)" in Title 22 of CCR. The Basin Plan further states that, to protect all beneficial uses, the Central Valley Water Board may apply limits more stringent than MCLs. 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."

A. Discharge Prohibitions

- 1. Prohibition III.A (No discharge or application of waste other than that described in this Order).** This prohibition is based on Water Code section 13260 that requires filing of a report of waste discharge (ROWD) before discharges can occur. The Discharger submitted a ROWD for the discharges described in this Order; therefore, discharges not described in this Order are prohibited.
- 2. Prohibition III.B (No bypasses or overflow of untreated wastewater, except under the conditions at CFR Part 122.41(m)(4)).** As stated in section I.G of Attachment D, Standard Provisions, this Order prohibits bypass from any portion of the treatment facility. Federal regulations, 40 CFR 122.41(m), define "bypass" as the intentional diversion of waste streams from any portion of a treatment facility. This section of the federal regulations, 40 CFR 122.41(m)(4), prohibits bypass unless it is unavoidable to prevent loss of life, personal injury, or severe property damage. In considering the 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. Prohibition III.C (No controllable condition shall create a nuisance).** This prohibition is based on Water Code section 13050 that requires water quality objectives established for the prevention of nuisance within a specific area. The Basin Plan prohibits conditions that create a nuisance

B. Technology-Based Effluent Limitations

- 1. Scope and Authority**

Section 301(b) of the CWA and implementing U.S. EPA permit regulations at 40 C.F.R. section 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 C.F.R. section 125.3.

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

- a. Best practicable treatment control technology (BPT) represents the average of the best existing performance by well-operated facilities within an industrial category or subcategory. BPT standards apply to toxic, conventional, and non-conventional pollutants.
- b. Best available technology economically achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. BAT standards apply to toxic and non-conventional pollutants.
- c. Best conventional pollutant control technology (BCT) represents the control from existing industrial point sources of conventional pollutants including BOD, TSS, fecal coliform, pH, and oil and grease. The BCT standard is established after considering a two-part reasonableness test. The first test compares the relationship between the costs of attaining a reduction in effluent discharge and the resulting benefits. The second test examines the cost and level of reduction of pollutants from the discharge from publicly owned treatment works to the cost and level of reduction of such pollutants from a class or category of industrial sources. Effluent limitations must be reasonable under both tests.
- d. New source performance standards (NSPS) represent the best available demonstrated control technology standards. The intent of NSPS guidelines is to set limitations that represent state-of-the-art treatment technology for new sources.

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

2. **Applicable Technology-Based Effluent Limitations – Not Applicable**

C. Water Quality-Based Effluent Limitations (WQBELs)

1. **Scope and Authority**

CWA Section 301(b) and 40 C.F.R. section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards.

Section 122.44(d)(1)(i) of 40 C.F.R. requires 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) U.S. EPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in section 122.44(d)(1)(vi).

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

The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, the Basin Plan implements State Water Board Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply.

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

The federal CWA section 101(a)(2), states: "it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water be achieved by July 1, 1983." Federal Regulations, developed to implement the requirements of the CWA, create a rebuttable presumption that all waters be designated as fishable and swimmable. Federal Regulations, 40 CFR sections 131.2 and 131.10, require that all waters of the State regulated to protect the beneficial uses of public water supply, protection and propagation of fish, shell fish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation. Section 131.3(e), 40 CFR, defines existing beneficial uses as those uses actually attained after 28 November 1975, whether or not they are included in the water quality standards. Federal Regulation, 40 CFR section 131.10 requires that uses be obtained by implementing effluent limitations, requires that all downstream uses be protected and states that in no case shall a state adopt waste transport or waste assimilation as a beneficial use for any waters of the United States.

- a. **Receiving Water and Beneficial Uses.** Refer to III.C.1. above for a complete description of the receiving water and beneficial uses.
- b. **Effluent and Ambient Background Data.** The reasonable potential analysis (RPA), as described in section IV.C.3 of this Fact Sheet, was based on data from May 2008

to April 2013, which includes effluent and ambient background data submitted in SMRs and the Report of Waste Discharge (ROWD).

- c. **Assimilative Capacity/Mixing Zone.** The Regional Board finds that based on the available information Buffalo Creek, absent the discharges, are ephemeral streams, or at times the flow upstream of the discharges is significantly less than that of the discharge. The ephemeral and/or low flow nature of the creeks means that the designated beneficial uses must be protected, but that no credit for receiving water dilution is available. As the discharge, at times, maintains the aquatic habitat, constituents may not be discharged that may cause harm to aquatic life. At other times, natural flows within the creeks help support the aquatic life. Dry conditions occur primarily in the summer months, but dry conditions may also occur throughout the year, particularly in low rainfall years. The lack of dilution results in more stringent effluent limitations to protect contact recreational uses, drinking water standards, agricultural water quality goals and aquatic life. Therefore, the Regional Water Board has evaluated the need for water quality-based effluent limitations for pollutants without benefit of dilution in this Order. These water quality-based effluent limitations are based on the application of water quality criteria or objectives at the points of discharge.
- d. **Conversion Factors.** The CTR contains aquatic life criteria for arsenic, cadmium, chromium III, chromium VI, copper, lead, nickel, silver, and zinc which are presented in dissolved concentrations. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. The default USEPA conversion factors contained in Appendix 3 of the SIP were used to convert the applicable dissolved criteria to total recoverable criteria.
- e. **Hardness-Dependent CTR Metals Criteria.** The *California Toxics Rule* and the *National Toxics Rule* contain water quality criteria for seven metals that vary as a function of hardness. The lower the hardness the lower the water quality criteria. The metals with hardness-dependent criteria include cadmium, copper, chromium III, lead, nickel, silver, and zinc.

This Order has established the criteria for hardness-dependent metals based on the reasonable worst-case ambient hardness as required by the SIP¹, the CTR² and State Water Board Order No. WQO 2008-0008 (City of Davis). The SIP and the CTR require the use of "receiving water" or "actual ambient" hardness, respectively, to determine effluent limitations for these metals. (SIP, § 1.2; 40 CFR § 131.38(c)(4)) The CTR does not define whether the term "ambient," as applied in the regulations, necessarily requires the consideration of upstream as opposed to downstream hardness conditions. Therefore, where reliable, representative data are available, the hardness value for calculating criteria can be the downstream receiving water hardness, after mixing with the effluent (Order WQO 2008-0008, p. 11). The Central

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

² The CTR requires that, for waters with a hardness of 400 mg/L (as CaCO₃), or less, the actual ambient hardness of the surface water must be used. It further requires that the hardness values used must be consistent with the design discharge conditions for design flows and mixing zones.

Valley Water Board thus has considerable discretion in determining ambient hardness (*Id.*, p.10).

As discussed below, scientific literature provides a reliable method for calculating protective hardness-dependent CTR criteria, considering all discharge conditions. This methodology produces hardness-dependent CTR criteria based on the reasonable worst-case downstream ambient hardness that ensure these metals do not cause receiving water toxicity under any downstream receiving water condition. Under this methodology, the Central Valley Water Board considers all hardness conditions that could occur in the ambient downstream receiving water after the effluent has mixed with the water body¹. This ensures that effluent limitations are fully protective of aquatic life in all areas of the receiving water affected by the discharge under all flow conditions, at the fully mixed location, and throughout the water body including at the point of discharge into the water body.

- i. **Conducting the Reasonable Potential Analysis (RPA).** The SIP in Section 1.3 states, “The RWQCB shall...determine whether a discharge may: (1) cause, (2) have a reasonable potential to cause, or (3) contribute to an excursion above any applicable priority pollutant criterion or objective.” Section 1.3 provides a step-by-step procedure for conducting the RPA. The procedure requires the comparison of the Maximum Effluent Concentration (MEC) and Maximum Ambient Background Concentration to the applicable criterion that has been properly adjusted for hardness. Unless otherwise noted, for the hardness-dependent CTR metals criteria the following procedures were followed for properly adjusting the criterion for hardness when conducting the RPA.
 - a) The SIP requires water quality-based effluent limitations (WQBELs) if the MEC is equal to or exceeds the applicable criterion, adjusted for hardness. For comparing the MEC to the applicable criterion, the “fully mixed” reasonable worst-case downstream ambient hardness was used to adjust the criterion. In this evaluation the portion of the receiving water affected by the discharge is analyzed. For hardness-dependent criteria, the hardness of the effluent has an impact on the determination of the applicable criterion in areas of the receiving water affected by the discharge. Therefore, for comparing the MEC to the applicable criterion, the reasonable worst-case downstream ambient hardness was used to adjust the criterion. For this situation it is necessary to consider the hardness of the effluent in determining the applicable hardness to adjust the criterion. The procedures for determining the applicable criterion after proper adjustment using the reasonable worst-case downstream ambient hardness is outlined in subsection ii, below.
 - b) The SIP requires WQBELs if the receiving water is impaired upstream (outside the influence) of the discharge, i.e., if the Maximum Ambient Background Concentration of a pollutant exceeds the applicable criterion, adjusted for hardness². For comparing the Maximum Ambient Background Concentration to the applicable criterion, the reasonable worst-case upstream

¹ All effluent discharges will change the ambient downstream metals concentration and hardness. It is not possible to change the metals concentration without also changing the hardness.

² The pollutant must also be detected in the effluent.

ambient hardness was used to adjust the criteria. This is appropriate, because this area is outside the influence of the discharge. Since the discharge does not impact the upstream hardness, the effect of the effluent hardness was not included in this evaluation.

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

A 2006 Study¹ developed procedures for calculating the effluent concentration allowance (ECA)² for CTR hardness-dependent metals. The 2006 Study demonstrated that it is necessary to evaluate all discharge conditions (e.g. high and low flow conditions) and the hardness and metals concentrations of the effluent and receiving water when determining the appropriate ECA for these hardness-dependent metals. This method is superior to relying on downstream receiving water samples alone because it captures all possible mixed conditions in the receiving water. Both receiving water and effluent hardness vary based on flow and other factors, but the variability of receiving water and effluent hardness is sometimes independent. Using a calculated hardness value ensures that the Central Valley Water Board considers all possible mixed downstream values that may result from these two independent variables. Relying on receiving water sampling alone is less likely to capture all possible mixed downstream conditions.

The equation describing the total recoverable regulatory criterion, as established in the CTR³, is as follows:

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

Where:

H = hardness (as CaCO₃)⁴

WER = water-effect ratio

m, b = metal- and criterion-specific constants

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

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

¹ Emerick, R.W.; Borroum, Y.; & Pedri, J.E., 2006. California and National Toxics Rule Implementation and Development of Protective Hardness Based Metal Effluent Limitations. WEFTEC, Chicago, Ill.

² The ECA is defined in Appendix 1 of the SIP (page Appendix 1-2). The ECA is used to calculate WQBELs in accordance with Section 1.4 of the SIP.

³ 40 CFR § 131.38(b)(2).

⁴ For this discussion, all hardness values are in mg/L as CaCO₃.

$$ECA = C \quad (\text{when } C \leq B)^1 \quad (\text{Equation 2})$$

Where:

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

B = the ambient background concentration

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

ECA for Chronic Cadmium, Chromium III, Copper, Nickel, and Zinc – For Concave Down Metals (i.e., chronic cadmium, chromium III, copper, nickel, and zinc) the 2006 Study demonstrates that when the effluent is in compliance with the CTR criteria and the upstream receiving water is in compliance with the CTR criteria, any mixture of the effluent and receiving water will always be in compliance with the CTR criteria². The 2006 Study proves that regardless of whether the effluent hardness is lower or greater than the upstream hardness, the reasonable worst-case flow condition is the effluent dominated condition (i.e., no receiving water flow)³. Consequently, for Concave Down Metals, the CTR criteria have been calculated using the downstream ambient hardness under this condition.

As Buffalo Creek is an ephemeral stream and would generally be dry except for the discharge and/or storm water runoff, the effluent must meet the Water Quality Objective. Therefore, only the effluent hardness and contaminant concentration are used in calculating the ECA.

The effluent hardness ranged from 24 mg/L to 38 mg/L, based on 8 samples from April 2001 to April 2013 2008. Under the effluent dominated condition, the reasonable worst-case downstream ambient hardness is 24 mg/L. However, prior to Buffalo Creek leaving the property, two groundwater extraction and treatment systems discharge into the Buffalo Creek upstream of RSW003d and have a hardness of 82 -100 mg/l as CaCO₃, with a flow of 9000 gpm. Therefore a hardness of 40 mg/L as CaCO₃ is appropriate.

¹ The 2006 Study assumes the ambient background metals concentration is equal to the CTR criterion (i.e. $C \leq B$)

² 2006 Study, p. 5700

³ There are two typographical errors in the 2006 Study in the discussion of Concave Down Metals when the effluent hardness is less than the receiving water hardness. The effluent and receiving water hardness were transposed in the discussion, but the correct hardness values were used in the calculations. The typographical errors were confirmed by the author of the 2006 Study, by email dated 1 April 2011, from Dr. Robert Emerick to Mr. James Marshall, Central Valley Water Board.

ECA for Acute Cadmium, Lead, and Acute Silver – For Concave Up Metals (i.e., acute cadmium, lead, and acute silver), the relationship between hardness and the metals criteria is different than for Concave Down Metals. The 2006 Study demonstrates that for Concave Up Metals, the effluent and upstream receiving water can be in compliance with the CTR criteria, but the resulting mixture may contain metals concentrations that exceed the CTR criteria and could cause toxicity. For these metals, the 2006 Study provides a mathematical approach to calculate the ECA that is protective of aquatic life, in all areas of the receiving water affected by the discharge, under all discharge and receiving water flow conditions. As for the Concave Down Metals, the flow in the stream is essentially the effluent from the treatment facility and therefore using a hardness of 40 mg/L will result in WQBELs that are protective under all flow conditions.

Table F-6. Summary of ECA Evaluations for CTR Hardness-dependent Metals

CTR Metals	ECA (µg/L, total recoverable)	
	acute	chronic
Copper	4.3	5.9
Chromium III	98	820
Cadmium	1.2	1.6
Lead	0.99	25
Nickel	24	220
Silver	0.84	0.84
Zinc	55	55

3. Determining the Need for WQBELs

- a. The Central Valley Water Board conducted the reasonable potential analysis (RPA) according to 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 Boards may use the SIP as guidance for water quality-based toxics control. The SIP states in the introduction *“The goal of this Policy is to establish a standardized approach to permitting discharges of toxic pollutants to non-ocean surface waters in a manner that promotes statewide consistency.”* Therefore, in this Order, unless otherwise specified, the RPA procedures from the SIP were used to evaluate reasonable potential for both CTR and non-CTR constituents based on information as part of the application, in studies, and as directed by monitoring and reporting programs.
- b. **Constituents with No Reasonable Potential.** WQBELs are not included in this Order for constituents that do not demonstrate reasonable potential (i.e. constituents were not detected in the effluent or receiving water); however, monitoring for those

pollutants is established in this Order as required by the SIP. If the results of effluent monitoring demonstrate reasonable potential, this Order may be reopened and modified by adding an appropriate effluent limitation.

Most constituents with no reasonable potential are not discussed in this Order.

c. Constituents with Limited Data – Not Applicable

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

**Table F-7. RPA Summary for Detected Constituents
Discharges 001-004**

Parameter	Units	MEC ¹	99 th MEC ¹	WQO/ WQC ²	Source	RP ³
Copper	µg/L	4	4.3	4.3/5.9	CTR CCC/CMC	Y
Mercury	µg/L	0.02	0.02	0.05	CTR HH	N
Nickel	µg/L	5	5	19/170	CTR CCC/CMC	N
Zinc	µg/L	42	48	150	CTR CCC/CMC	N
Perchlorate	µg/L	<1	<1	6	California Primary MCL	N
Barium	µg/L	64	78	1000	California Primary MCL	N
Iron	µg/L	190	230	300	California Secondary MCL	N
Manganese	µg/L	9.8	11	50	California Secondary MCL	N
Chloride	mg/L	13	39	250	Secondary MCL	N
Nitrate	mg/L	0.76	0.98	10	California Primary MCL	N
Sulfate	mg/L	12	60	250	California Secondary MCL	N
Electrical Conductivity	µmhos/cm	100	135	900	Secondary MCL	N
Total Dissolved Solids	mg/L	96	118	500	Secondary MCL	N

¹ Maximum Effluent Concentration

² Water Quality Objective/Water Quality Criteria

³ Reasonable Potential

i. Copper

(a) **WQO.** The NAWQC for the protection of freshwater aquatic life for copper (1-hour average; criteria maximum concentration or CMC) standards based on a hardness of 40 mg/L and chronic (30-day average; criteria continuous concentration or CCC) standards are 4.3 µg/L and 5.9 µg/L, respectively. Buffalo Creek has a beneficial use of cold freshwater habitat based on the tributary rule and the American River beneficial use which has presence of salmonids and early fish life stages. The recommended criteria for waters where salmonids and early life stages are present were used.

- (b) **RPA Results.** The maximum effluent concentration (MEC) for copper was 4.3 µg/L. The copper concentration in the discharge equals the criteria, therefore the effluent has a reasonable potential to cause or contribute to an in-stream excursion above the narrative toxicity objective.
- (c) **WQBELs.** The Central Valley Water Board calculates WQBELs in accordance with SIP procedures for CTR constituents, and copper is a CTR constituent. The SIP procedure assumes a 4-day averaging period for calculating the long-term average discharge condition (LTA). This Order contains a final and maximum daily effluent limitation (MDEL) for copper of 5.9 µg/L as the discharge occurs for duration of 1-3 days and is infrequent (1 discharge in last 5 years).

ii. **pH**

- (a) 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.”
- (b) **RPA Results.** The effluent pH ranged from 6.8 to 7.7 while the upstream receiving water pH ranged from 6.3 to 6.9. As the discharge is the essentially the receiving water, the effluent must meet the criteria.
- (c) Effluent limitations for pH of 6.5 as an instantaneous minimum and 8.5 as an instantaneous maximum are included in this Order based on protection of the Basin Plan objectives for pH.

ii. **Salinity**

- (a) **WQO.** The Basin Plan contains a chemical constituent objective that incorporates state MCLs, contains a narrative objective, and contains numeric water quality objectives for certain specified water bodies for electrical conductivity, total dissolved solids, sulfate, and chloride. The USEPA Ambient Water Quality Criteria for Chloride recommends acute and chronic criteria for the protection of aquatic life. There are no USEPA water quality criteria for the protection of aquatic life for electrical conductivity, total dissolved solids, and sulfate. Additionally, there are no USEPA numeric water quality criteria for the protection of agricultural, live stock, and industrial uses. Numeric values for the protection of these uses are typically based on site specific conditions and evaluations to determine the appropriate constituent threshold necessary to interpret the narrative chemical constituent Basin Plan objective. The Central Valley Water Board must determine the applicable numeric limit to implement the narrative objective for the protection of agricultural supply. The Central Valley Water Board is currently implementing the CV-SALTS initiative to develop a Basin Plan Amendment that will establish a salt and nitrate Management Plan for the Central Valley. Through this effort the Basin Plan will be amended to define how the narrative water quality objective is to be interpreted for the protection of agricultural use. All studies conducted through this Order to establish an agricultural limit to implement the narrative objective will be reviewed by and consistent with the efforts currently underway by CV-SALTS.

Table F-8. Salinity Water Quality Criteria/Objectives

Parameter	Agricultural WQ Objective ¹	Secondary MCL ³	USEPA NAWQC	Effluent	
				Average	Maximum
EC (µmhos/cm)	Varies ²	900, 1600, 2200	N/A	71	100
TDS (mg/L)	Varies	500, 1000, 1500	N/A	69	96
Chloride (mg/L)	Varies	250, 500, 600	860 1-hr 230 4-day	2.5	4.8

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

² Maximum calendar annual average.

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

- 1) **Chloride.** The Secondary MCL for chloride is 250 mg/L, as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum.
- 2) **Electrical Conductivity.** The Secondary MCL for EC is 900 µmhos/cm as a recommended level, 1600 µmhos/cm as an upper level, and 2200 µmhos/cm as a short-term maximum. <
- 3) **Total Dissolved Solids.** The Secondary MCL for TDS is 500 mg/L as a recommended level, 1000 mg/L as an upper level, and 1500 mg/L as a short-term maximum.

(b) RPA Results – See Table F-7.

(c) **WQBELs.**

Based on the relatively low reported salinity, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion of water quality objectives for salinity. However, since the Discharger discharges to Buffalo Creek, a tributary of the American River and eventually the Sacramento-San Joaquin Delta, of additional concern is the salt contribution to Delta waters. Allowing the Discharger to significantly increase its current salt loading may be contrary to the Region-wide effort to address salinity in the Central Valley. Therefore, this Order includes an effluent limitation of 250 mg/L TDS.

iii. **Settleable Solids**

- (a) **WQO.** For inland surface waters, the Basin Plan states that “[w]ater shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.”

- (b) **RPA Results.** The discharge of Stormwater does not have a reasonable potential to cause or contribute to an excursion above the Basin Plan's narrative objective for settleable solids. However, there are times when the receiving water has had greater than the effluent limit for settleable solids.
- (c) **WQBELs.** This Order contains a daily maximum effluent limitation for settleable solids. Because the amount of settleable solids is measured in terms of volume per volume without a mass component, it is impracticable to calculate mass limitations for inclusion in this Order.

iv. **Perchlorate**

- (a) **WQO.** DPH has adopted a Primary MCL for perchlorate of 6 µg/L, which is protective of the Basin Plan's chemical constituent objective.
- (b) **RPA Results.** The maximum effluent concentration (MEC) for perchlorate was <1 µg/L while the maximum observed upstream receiving water concentration was 3.8 µg/L. Therefore, perchlorate in the discharge does not have a reasonable potential to cause or contribute to an in-stream excursion above the primary MCL.
- (c) **WQBELs.** Due to no assimilative capacity, dilution credits are not allowed for development of the WQBELs for perchlorate. This contains an effluent limit of 6 µg/L for perchlorate based on the Basin Plan's narrative chemical constituents objective for protection of the MUN beneficial use and the potential for perchlorate to be found in the receiving water upstream due to seepage of groundwater containing perchlorate.

4. **WQBEL Calculations**

- a. This Order includes WQBELs for pH, TDS, suspended solids, toxicity, perchlorate and NDMA. The general methodology for calculating WQBELs based on the different criteria/objectives is described in subsections IV.C.4.b through e, below. See Attachment H for the WQBEL calculations
- b. **Effluent Concentration Allowance.** For each water quality criterion/objective, the ECA is calculated using the following steady-state mass balance equation from Section 1.4 of the SIP:

$$\begin{aligned} ECA &= C + D(C - B) && \text{where } C > B, \text{ and} \\ ECA &= C && \text{where } C \leq B \end{aligned}$$

where:

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

According to the SIP, the ambient background concentration (B) in the equation above shall be the observed maximum with the exception that an ECA calculated from a

priority pollutant criterion/objective that is intended to protect human health from carcinogenic effects shall use the arithmetic mean concentration of the ambient background samples. For ECAs based on MCLs, which implement the Basin Plan’s chemical constituents objective and are applied as annual averages, an arithmetic mean is also used for B due to the long-term basis of the criteria.

- c. **Basin Plan Objectives and MCLs.** For WQBELs based on site-specific numeric Basin Plan objectives or MCLs, the effluent limitations are applied directly as the ECA as either an MDEL, AMEL, or average annual effluent limitations, depending on the averaging period of the objective.
- d. **Aquatic Toxicity Criteria.** WQBELs based on acute and chronic aquatic toxicity criteria are calculated in accordance with Section 1.4 of the SIP. The ECAs are converted to equivalent long-term averages (i.e. LTA_{acute} and LTA_{chronic}) using statistical multipliers and the lowest LTA is used to calculate the AMEL and MDEL using additional statistical multipliers.
- e. **Human Health Criteria.** WQBELs based on human health criteria, are also calculated in accordance with Section 1.4 of the SIP. The ECAs are set equal to the AMEL and a statistical multiplier was used to calculate the MDEL.

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

where:

- $mult_{AMEL}$ = statistical multiplier converting minimum LTA to AMEL
- $mult_{MDEL}$ = statistical multiplier converting minimum LTA to MDEL
- M_A = statistical multiplier converting acute ECA to LTA_{acute}
- M_C = statistical multiplier converting chronic ECA to LTA_{chronic}

**Summary of Water Quality-Based Effluent Limitations
Discharge Point No. 001, 002, 003 and 004**

Table F-9. Summary of Water Quality-Based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Copper	µg/L			6		
perchlorate	µg/L			6		
Total Dissolved Solids	mg/L			250		
Suspended Solids	ml/L			80		
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 page III-8.00. The Basin Plan also states that, “...effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate...”.

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

USEPA Region 9 provided guidance for the development of acute toxicity effluent limitations in the absence of numeric water quality objectives for toxicity in its document titled "Guidance for NPDES Permit Issuance", dated February 1994. In section B.2. "Toxicity Requirements" (pgs. 14-15) it states that, "In the absence of specific numeric water quality objectives for acute and chronic toxicity, the narrative

criterion 'no toxics in toxic amounts' applies. Achievement of the narrative criterion, as applied herein, means that ambient waters shall not demonstrate for acute toxicity: 1) less than 90% survival, 50% of the time, based on the monthly median, or 2) less than 70% survival, 10% of the time, based on any monthly median. For chronic toxicity, ambient waters shall not demonstrate a test result of greater than 1 TUc." Accordingly, effluent limitations for acute toxicity have been included in this Order as follows:

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

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

- b. **Chronic Aquatic Toxicity.** The Basin 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). Over the period of the last permit only one discharge occurred from EFF001, EFF002, EFF003 or EFF004 and chronic-aquatic toxicity testing was not performed on the discharge. It is therefore, unknown whether or not the discharge is causing a toxicity issue. Adequate chronic WET data is not available to determine if the discharge has reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative toxicity objective

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.

The Monitoring and Reporting Program of this Order requires annual chronic WET monitoring for demonstration of compliance with the narrative toxicity objective. In addition to WET monitoring, the Special Provision in section VI.C.2.a of the Order requires the Discharger to submit to the Central Valley Water Board an Initial Investigative TRE Workplan 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, requirements for accelerated monitoring, and requirements for TRE initiation if toxicity is demonstrated.

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 Region¹ 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

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)

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

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

D. Final Effluent Limitation Considerations

1. Mass-based Effluent Limitations

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

2. Averaging Periods for Effluent Limitations

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

For effluent limitations based on Primary and Secondary MCLs, except nitrate and nitrite, this Order includes annual average effluent limitations. The Primary and Secondary MCLs are drinking water standards contained in Title 22 of the California

Code of Regulations. Title 22 requires compliance with these standards on an annual average basis (except for nitrate and nitrite), when sampling at least quarterly. Since it is necessary to determine compliance on an annual average basis, it is impracticable to calculate average weekly and average monthly effluent limitations.

3. **Anti-Backsliding Requirements**

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

All effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order.

4. **Antidegradation Policies**

This Order does not allow for an increase in flow or mass of pollutants to the receiving water. Therefore, a complete antidegradation analysis is not necessary. The Order requires compliance with applicable federal technology-based standards and with WQBELs where the discharge could have the reasonable potential to cause or contribute to an exceedance of water quality standards. The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.

5. **Stringency of Requirements for Individual Pollutants**

Water quality-based effluent limitations have been 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 C.F.R. section 131.38. The procedures for calculating the individual water quality-based effluent limitations for priority pollutants are based on the CTR implemented by the SIP, which was approved by U.S. EPA on May 18, 2000. Most beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by U.S. EPA prior to May 30, 2000. Any water quality objectives and beneficial uses submitted to U.S. EPA prior to May 30, 2000, but not approved by U.S. EPA before that date, are nonetheless "applicable water quality standards for purposes of the CWA" pursuant to 40 C.F.R. section 131.21(c)(1). The remaining water quality objectives and beneficial uses implemented by this Order were approved by U.S. EPA and are applicable water quality standards pursuant to section 131.21(c)(2). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the requirements of the CWA.

**Summary of Final Effluent Limitations
Discharge Point Nos. 001, 002, 003 and 004**

Table F-10. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations					Basis ¹
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
perchlorate	µg/L			6			BP
copper	µg/L			5.9			NAWQC
TDS	mg/L			250			BP
Settable Solids	ml/L			80			BP
pH					6.5	8.5	BP
COD	mg/L			40			

DC – Based on the design capacity of the Facility.

TTC – Based on tertiary treatment capability. These effluent limitations reflect the capability of a properly operated tertiary treatment plant.

CFR – Based on secondary treatment standards contained in 40 CFR Part 133.

BP – Based on water quality objectives contained in the Basin Plan.

CTR – Based on water quality criteria contained in the California Toxics Rule and applied as specified in the SIP.

NAWQC – Based on USEPA’s National Ambient Water Quality Criteria for the protection of freshwater aquatic life.

SEC MCL – Based on the Secondary Maximum Contaminant Level.

TMDL – Based on the TMDL for salinity and boron in the lower San Joaquin River.

MCL – Based on the Primary Maximum Contaminant Level.

Title 22 – Based on CA Department of Public Health Reclamation Criteria, CCR, Division 4, Chapter 3 (Title 22).

- 6. **Interim Effluent Limitations – Not Applicable**
- 7. **Land Discharge Specifications – Not Applicable**
- 8. **Recycling Specifications – Not Applicable**

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

A. Surface Water

1. CWA section 303(a-c), requires states to adopt water quality standards, including criteria where they are necessary to protect beneficial uses. The Central Valley Water Board adopted water quality criteria as water quality objectives in the Basin 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 un-ionized ammonia 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 – Not Applicable

VI. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with 40 C.F.R. section 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 C.F.R. 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.

Sections 122.41(a)(1) and (b) through (n) of 40 C.F.R. 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) of 40 C.F.R. allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 C.F.R. section 123.25, this Order omits federal conditions that address enforcement authority specified in 40 C.F.R. 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. **Mercury.** This provision allows the Central Valley Water Board to reopen this Order in the event mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted. In addition, this Order may be reopened if the Central Valley Water Board determines that a mercury offset program is feasible for dischargers subject to NPDES permits.
- b. **Whole Effluent Toxicity.** This Order requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity through a Toxicity Reduction Evaluation (TRE). This Order may be reopened to include a numeric chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if a numeric chronic toxicity water quality objective is adopted by the State Water Board, this Order may be reopened to include a numeric chronic toxicity limitation based on that objective.
- c. **Water Effects Ratio (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating CTR criteria for applicable priority pollutant inorganic constituents. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable when developing effluent limitations for copper. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.
- d. **Pollution Prevention.** This Order requires the Discharger prepare a Stormwater Pollution Prevention Plan. Based on a review of the pollution prevention plans, this Order may be reopened for addition and/or modification of effluent limitations and requirements for these constituents.

- e. **Regional Monitoring Program.** The Central Valley Water Board is developing a Regional Monitoring Program for the Sacramento-San Joaquin Delta. This Order may be reopened to modify the monitoring requirements to implement the Regional Monitoring Program.
- f. **Drinking Water Policy.** The Central Valley Water Board is developing a Drinking Water Policy. This Order may be reopened to incorporate monitoring of drinking water constituents to implement the Drinking Water Policy.
- g. **Diazinon and Chlorpyrifos Basin Plan Amendment.** Central Valley Water Board staff is developing a Basin Plan Amendment to provide an implementation plan for NPDES-permitted domestic wastewater dischargers. This Order may be reopened to modify diazinon and chlorpyrifos effluent limitations, as appropriate, in accordance with an amendment to the Basin Plan.

2. Special Studies and Additional Monitoring Requirements

- a. The Basin Plan contains a narrative toxicity objective that states, "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." (Basin Plan at page III-8.00 Based on whole effluent chronic toxicity testing performed by the Discharger from December 2003 to March 2013 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.

The Monitoring and Reporting Program of this Order requires 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 Central Valley Water Board an Initial Investigative TRE Workplan 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, requirements for accelerated monitoring, and requirements for TRE initiation if 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 toxicity at 100% effluent.

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

The provision requires accelerated monitoring consisting of four chronic toxicity tests in a six-week period (i.e., one test every two weeks) using the species that exhibited toxicity. Guidance regarding accelerated monitoring and TRE initiation is provided in the *Technical Support Document for Water Quality-based Toxics Control*, EPA/505/2-90-001, March 1991 (TSD). The TSD at page 118 states, "EPA recommends if toxicity is repeatedly or periodically present at levels above effluent limits more than 20

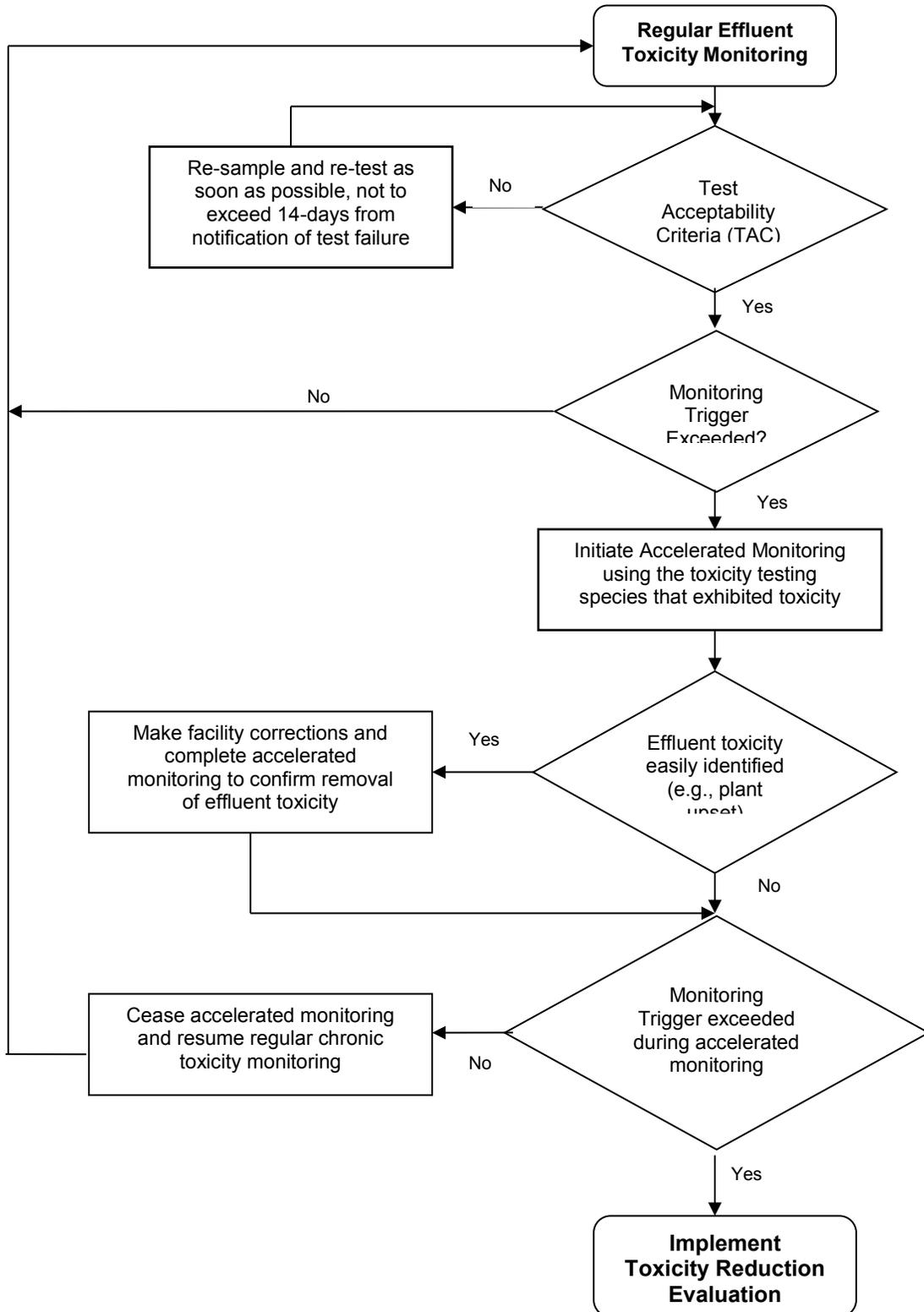
percent of the time, a TRE should be required.” Therefore, four accelerated monitoring tests are required in this provision. If no toxicity is demonstrated in the four accelerated tests, then it demonstrates that toxicity is not present at levels above the monitoring trigger more than 20 percent of the time (only 1 of 5 tests are toxic, including the initial test). However, notwithstanding the accelerated monitoring results, if there is adequate evidence of effluent toxicity (i.e. toxicity present exceeding the monitoring trigger more than 20 percent of the time), the Executive Officer may require that the Discharger initiate a TRE.

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

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

- Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants, EPA/833-B-99/002, August 1999.
- Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations (TREs), EPA/600/2-88/070, April 1989.
- Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures, Second Edition, EPA 600/6-91/003, February 1991.
- Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I, EPA/600/6-91/005F, May 1992.
- Methods for Aquatic Toxicity Identification Evaluations: Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity, Second Edition, EPA/600/R-92/080, September 1993.
- Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity, Second Edition, EPA 600/R-92/081, September 1993.
- Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, EPA-821-R-02-012, October 2002.
- Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition, EPA-821-R-02-013, October 2002.
- Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991.

Figure F-1
WET Accelerated Monitoring Flow Chart



3. **Best Management Practices and Pollution Prevention**
 - a. **Stormwater Pollution Prevention Plan (SWPPP).** A SWPPP is required by this order and was developed by the Discharger in the previous version of the permit.
4. **Construction, Operation, and Maintenance Specifications**
 - a. The stormwater retention basins are required to be operated to prevent erosion, prevent over-topping, prevent mosquito breeding and maintain a minimum 2-foot freeboard.
5. **Special Provisions for Municipal Facilities (POTWs Only) -Not Applicable**
6. **Other Special Provisions**
 - a. **Ownership Change.** To maintain the accountability of the operation of the Facility, the Discharger is required to notify the succeeding owner or operator of the existence of this Order by letter if, and when, there is any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger.
7. **Compliance Schedules – Not applicable**

VII. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

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

A. Influent Monitoring – Not Applicable

B. Effluent Monitoring

1. Pursuant to the requirements of 40 CFR 122.44(i)(2) effluent monitoring is required for all constituents with effluent limitations. Effluent monitoring is necessary to assess compliance with effluent limitations, assess the effectiveness of the treatment process, and to assess the impacts of the discharge on the receiving stream and groundwater.
2. Effluent monitoring frequencies and sample types for all constituents have been retained from Order No. R5-2008-0118 to determine compliance with effluent limitations for these parameters.
3. California Water Code section 13176, subdivision (a), states: “The analysis of any material required by [Water Code sections 13000-16104] shall be performed by a laboratory that has accreditation or certification pursuant to Article 3 (commencing with Section 100825) of Chapter 4 of Part 1 of Division 101 of the Health and Safety Code.” The Department of Public Health certifies laboratories through its Environmental Laboratory Accreditation Program (ELAP).

Section 13176 cannot be interpreted in a manner that would violate federal holding time requirements that apply to NPDES permits pursuant to the Clean Water Act. (Wat. Code §§ 13370, subd. (c), 13372, 13377.) Section 13176 is inapplicable to NPDES permits to the extent it is inconsistent with Clean Water Act requirements.

C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** For each discharge a 96-hour bioassay testing is required to demonstrate compliance with the effluent limitation for acute toxicity.
2. **Chronic Toxicity.** Annual chronic whole effluent toxicity testing is required in order to demonstrate compliance with the Basin Plan's narrative toxicity objective.

D. Receiving Water Monitoring

1. **Surface Water**
 - a. Receiving water monitoring is necessary to assess compliance with receiving water limitations and to assess the impacts of the discharge on the receiving stream.
2. **Groundwater – Not Applicable**

E. Other Monitoring Requirements

1. **Pond Monitoring**
 - a. The storage pond freeboard is required to be monitored on a weekly basis. .

VIII. PUBLIC PARTICIPATION

The Central Valley Water Board has considered the issuance of WDR's that will serve as an NPDES permit for the Aerojet-Rocketdyne, Inc. Sacramento Facility. As a step in the WDR adoption process, the Central Valley Water Board staff has developed tentative WDR's and has encouraged public participation in the WDR adoption process.

A. Notification of Interested Parties

The Central Valley Water Board notified the Discharger and interested agencies and persons of its intent to prescribe WDR's for the discharge and provided an opportunity to submit written comments and recommendations. Notification was provided through posting at the Rancho Cordova City Hall.

The public had access to the agenda and any changes in dates and locations through the Central Valley Water Board's website at:
www.waterboards.ca.gov/centralvalley

Written Comments

Interested persons were invited to submit written comments concerning tentative WDR's as provided through the notification process. Comments were due either in person or by mail to the Executive Office at the Central Valley Water Board at 11020 Sun Center Drive, Suite 200, Rancho Cordova

To be fully responded to by staff and considered by the Central Valley Water Board, the written comments were due at the Central Valley Water Board office by 5:00 p.m. on **1 October 2013**.

Public Hearing

The **Central Valley Water Board** held a public hearing on the tentative WDR's during its regular Board meeting on the following date and time and at the following location:

Date: **5/6 December 2013**
Time: 8:30 a.m.
Location: Regional Water Quality Control Board, Central Valley Region
11020 Sun Center Dr., Suite #200
Rancho Cordova, CA 95670

Interested persons were invited to attend. At the public hearing, the Central Valley Water Board heard testimony pertinent to the discharge, WDR's, and permit. For accuracy of the record, important testimony was requested in writing.

Reconsideration of Waste Discharge Requirements

Any aggrieved person may petition the State Water Board to review the decision of the Central Valley Water Board regarding the final WDR's. The petition must be received by the State Water Board at the following address within 30 calendar days of the Central Valley Water Board's action:

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

For instructions on how to file a petition for review, see
http://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_instr.shtml

Information and Copying

The Report of Waste Discharge, other supporting documents, and comments received 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 Central Valley Water Board by calling (916) 464-3291.

Register of Interested Persons

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

Additional Information

Requests for additional information or questions regarding this order should be directed to Alexander MacDonald at 916-464-4625.

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

Constituent	Units	MEC	B	C	CMC	CC C	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Copper	µg/L	4		CCC/CMC	5.9	4.3	1300			1300	Y
Mercury	µg/L	0.02		CTR HH						2	N
Nickel	µg/L	5		CCC/CMC	170	19	610	4600		100	N
Zinc	µg/L	42		CCC/CMC	150	150	7400	26000		5000	N
Perchlorate	µg/L	<1	3.8	MCL						6	N
Barium	µg/L	64		MCL			1000			1000	N
Iron	µg/L	190		Sec. MCL		100 0				300	N
Manganese	µg/L	9.8		Sec. MCL				100		50	N
Chloride	mg/L	13		Sec. MCL	860	230				250	N
Nitrate	mg/L	0.76		MCL				10		10	N
Sulfate	mg/L	12		Sec. MCL						250	N
Electrical Conductivity	µmhos/ cm	100		Sec. MCL						900	N
Total Dissolved Solids	mg/L	96		Sec. MCL						500	N

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

ATTACHMENT H – EFFLUENT AND RECEIVING WATER CHARACTERIZATION STUDY

- I. **Background.** Sections 2.4.1 through 2.4.4 of the SIP provide minimum standards for analyses and reporting. (Copies of the SIP may be obtained from the State Water Resources Control Board, or downloaded from <http://www.waterboards.ca.gov/iswp/index.html>). To implement the SIP, effluent and receiving water data are needed for all priority pollutants. Effluent and receiving water pH and hardness are required to evaluate the toxicity of certain priority pollutants (such as heavy metals) where the toxicity of the constituents varies with pH and/or hardness. Section 3 of the SIP prescribes mandatory monitoring of dioxin congeners. In addition to specific requirements of the SIP, the Central Valley Water Board is requiring the following monitoring:
- A. Drinking water constituents.** Constituents for which drinking water Maximum Contaminant Levels (MCLs) have been prescribed in the California Code of Regulation are included in the *Water Quality Control Plan, Fourth Edition, for the Sacramento and San Joaquin River Basins* (Basin Plan). The Basin Plan defines virtually all surface waters within the Central Valley Region as having existing or potential beneficial uses for municipal and domestic supply. The Basin Plan further requires that, at a minimum, water designated for use as domestic or municipal supply shall not contain concentrations of chemical constituents in excess of the MCLs contained in the California Code of Regulations.
- B. Effluent and receiving water temperature.** This is both a concern for application of certain temperature-sensitive constituents, such as fluoride, and for compliance with the Basin Plan's thermal discharge requirements.
- C. Effluent and receiving water hardness and pH.** These are necessary because several of the CTR constituents are hardness and pH dependent.
- D. Dioxin and furan sampling.** Section 3 of the SIP has specific requirements for the collection of samples for analysis of dioxin and furan congeners, which are detailed in Attachment I. Pursuant to Section 13267 of the California Water Code, this Order includes a requirement for the Discharger to submit monitoring data for the effluent and receiving water as described in Attachment J.

II. Monitoring Requirements.

- A. Annual Monitoring.** Annual priority pollutant samples shall be collected from the effluent and upstream receiving water (EFF-001 or EFF-2 or EFF003 or EFF004, and RSW-001) and analyzed for the constituents listed in Table H-1. Annual monitoring shall be conducted for the first three years of the permit and the results of such monitoring be submitted to the Central Valley Water Board, during the fourth year of the permit term. Each individual monitoring event shall provide representative sample results for the effluent and upstream receiving water.
- B. Semi-annual Monitoring (dioxins and furans only).** Annual monitoring is required for dioxins and furans, as specified in Attachment J. The results of dioxin and furan monitoring shall be submitted to the Central Valley Water Board with the quarterly priority data at the completion of the Effluent and Receiving Water Characterization Study, and during the fourth year of the permit term.

- C. Concurrent Sampling.** Effluent and receiving water sampling shall be performed at approximately the same time, on the same date.
- D. Sample type.** All effluent samples shall be taken as 24-hour flow proportioned composite samples. All receiving water samples shall be taken as grab samples.
- E. Additional Monitoring/Reporting Requirements.** The Discharger shall conduct the monitoring and reporting in accordance with the General Monitoring Provisions and Reporting Requirements in Attachment E.

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

CTR #	Constituent	CAS Number	Practical Quantitation Limit ¹ µg/L or noted
28	1,1-Dichloroethane	75343	1
30	1,1-Dichloroethene	75354	0.5
41	1,1,1-Trichloroethane	71556	2
42	1,1,2-Trichloroethane	79005	0.5
37	1,1,2,2-Tetrachloroethane	79345	0.5
75	1,2-Dichlorobenzene	95501	2
29	1,2-Dichloroethane	107062	0.5
	cis-1,2-Dichloroethene	156592	
31	1,2-Dichloropropane	78875	0.5
101	1,2,4-Trichlorobenzene	120821	1
76	1,3-Dichlorobenzene	541731	2
32	1,3-Dichloropropene	542756	0.5
77	1,4-Dichlorobenzene	106467	2
17	Acrolein	107028	2
18	Acrylonitrile	107131	2
19	Benzene	71432	0.5
20	Bromoform	75252	2
34	Bromomethane	74839	2
21	Carbon tetrachloride	56235	0.5
22	Chlorobenzene (mono chlorobenzene)	108907	2
24	Chloroethane	75003	2
25	2- Chloroethyl vinyl ether	110758	1
26	Chloroform	67663	2
35	Chloromethane	74873	2
23	Dibromochloromethane	124481	0.5

¹ The PQLs required in these tables for priority pollutant constituents are established based on Section 2.4.2 and Appendix 4 of the SIP.

CTR #	Constituent	CAS Number	Practical Quantitation Limit ¹ µg/L or noted
27	Dichlorobromomethane	75274	0.5
36	Dichloromethane	75092	2
33	Ethylbenzene	100414	2
88	Hexachlorobenzene	118741	1
89	Hexachlorobutadiene	87683	1
91	Hexachloroethane	67721	1
94	Naphthalene	91203	10
38	Tetrachloroethene	127184	0.5
39	Toluene	108883	2
40	trans-1,2-Dichloroethylene	156605	1
43	Trichloroethene	79016	2
44	Vinyl chloride	75014	0.5
	Methyl-tert-butyl ether (MTBE)	1634044	
	Trichlorofluoromethane	75694	
	1,1,2-Trichloro-1,2,2-Trifluoroethane	76131	
	Styrene	100425	
	Xylenes	1330207	
60	1,2-Benzanthracene	56553	5
85	1,2-Diphenylhydrazine	122667	1
45	2-Chlorophenol	95578	5
46	2,4-Dichlorophenol	120832	5
47	2,4-Dimethylphenol	105679	2
49	2,4-Dinitrophenol	51285	5
82	2,4-Dinitrotoluene	121142	5
55	2,4,6-Trichlorophenol	88062	10
83	2,6-Dinitrotoluene	606202	5
50	2-Nitrophenol	25154557	10
71	2-Chloronaphthalene	91587	10
78	3,3'-Dichlorobenzidine	91941	5
62	3,4-Benzofluoranthene	205992	10
52	4-Chloro-3-methylphenol	59507	5
48	4,6-Dinitro-2-methylphenol	534521	10
51	4-Nitrophenol	100027	10
69	4-Bromophenyl phenyl ether	101553	10
72	4-Chlorophenyl phenyl ether	7005723	5

CTR #	Constituent	CAS Number	Practical Quantitation Limit ¹ µg/L or noted
56	Acenaphthene	83329	1
57	Acenaphthylene	208968	10
58	Anthracene	120127	10
59	Benzidine	92875	5
61	Benzo(a)pyrene (3,4-Benzopyrene)	50328	2
63	Benzo(g,h,i)perylene	191242	5
64	Benzo(k)fluoranthene	207089	2
65	Bis(2-chloroethoxy) methane	111911	5
66	Bis(2-chloroethyl) ether	111444	1
67	Bis(2-chloroisopropyl) ether	39638329	10
68	Bis(2-ethylhexyl) phthalate	117817	5
70	Butyl benzyl phthalate	85687	10
73	Chrysene	218019	5
81	Di-n-butylphthalate	84742	10
84	Di-n-octylphthalate	117840	10
74	Dibenzo(a,h)-anthracene	53703	0.1
79	Diethyl phthalate	84662	10
80	Dimethyl phthalate	131113	10
86	Fluoranthene	206440	10
87	Fluorene	86737	10
90	Hexachlorocyclopentadiene	77474	5
92	Indeno(1,2,3-c,d)pyrene	193395	0.05
93	Isophorone	78591	1
98	N-Nitrosodiphenylamine	86306	1
96	N-Nitrosodimethylamine	62759	5
97	N-Nitrosodi-n-propylamine	621647	5
95	Nitrobenzene	98953	10
53	Pentachlorophenol	87865	1
99	Phenanthrene	85018	5
54	Phenol	108952	1
100	Pyrene	129000	10
	Aluminum	7429905	
1	Antimony	7440360	5
2	Arsenic	7440382	10
15	Asbestos	1332214	

CTR #	Constituent	CAS Number	Practical Quantitation Limit ¹ µg/L or noted
	Barium	7440393	
3	Beryllium	7440417	2
4	Cadmium	7440439	0.25
5a	Chromium (III)	7440473	2
5b	Chromium (VI)	18540299	10
6	Copper	7440508	0.5
14	Cyanide	57125	5
	Fluoride	7782414	
	Iron	7439896	
7	Lead	7439921	0.5
8	Mercury	7439976	0.5
	Manganese	7439965	
	Molybdenum	7439987	
9	Nickel	7440020	5
10	Selenium	7782492	5
11	Silver	7440224	1
12	Thallium	7440280	1
	Tributyltin	688733	
13	Zinc	7440666	10
110	4,4'-DDD	72548	0.05
109	4,4'-DDE	72559	0.05
108	4,4'-DDT	50293	0.01
112	alpha-Endosulfan	959988	0.02
103	alpha-Hexachlorocyclohexane (BHC)	319846	0.01
	Alachlor	15972608	
102	Aldrin	309002	0.005
113	beta-Endosulfan	33213659	0.01
104	beta-Hexachlorocyclohexane	319857	0.005
107	Chlordane	57749	0.1
106	delta-Hexachlorocyclohexane	319868	0.005
111	Dieldrin	60571	0.01
114	Endosulfan sulfate	1031078	0.05
115	Endrin	72208	0.01
116	Endrin Aldehyde	7421934	0.01
117	Heptachlor	76448	0.01

CTR #	Constituent	CAS Number	Practical Quantitation Limit ¹ µg/L or noted
118	Heptachlor Epoxide	1024573	0.01
105	Lindane (gamma-Hexachlorocyclohexane)	58899	0.02
119	PCB-1016	12674112	0.5
120	PCB-1221	11104282	0.5
121	PCB-1232	11141165	0.5
122	PCB-1242	53469219	0.5
123	PCB-1248	12672296	0.5
124	PCB-1254	11097691	0.5
125	PCB-1260	11096825	0.5
126	Toxaphene	8001352	0.5
	Atrazine	1912249	
	Bentazon	25057890	
	Carbofuran	1563662	
	2,4-D	94757	
	Dalapon	75990	
	1,2-Dibromo-3-chloropropane (DBCP)	96128	
	Di(2-ethylhexyl)adipate	103231	
	Dinoseb	88857	
	Diquat	85007	
	Endothal	145733	
	Ethylene Dibromide	106934	
	Glyphosate	1071836	
	Methoxychlor	72435	
	Molinate (Ordram)	2212671	
	Oxamyl	23135220	
	Picloram	1918021	
	Simazine (Princep)	122349	
	Thiobencarb	28249776	
16	2,3,7,8-TCDD (Dioxin)	1746016	
	2,4,5-TP (Silvex)	93765	
	Diazinon	333415	0.015 µg/L*
	Chlorpyrifos	2921882	0.014 µg/L*
	Ammonia (as N)	7664417	
	Boron	7440428	
	Chloride	16887006	

CTR #	Constituent	CAS Number	Practical Quantitation Limit ¹ µg/L or noted
	Flow		
	Hardness (as CaCO ₃)		
	Foaming Agents (MBAS)		
	Mercury, Methyl	22967926	0.06 ng/L*
	Nitrate (as N)	14797558	2,000
	Nitrite (as N)	14797650	400
	pH		0.1
	Phosphorus, Total (as P)	7723140	
	Specific conductance (EC)		
	Sulfate		500
	Sulfide (as S)		
	Sulfite (as SO ₃)		
	Temperature		
	Total Dissolved Solids (TDS)		

*Total Maximum Daily Load (TMDL) for this constituent, which requires a maximum PQL to determine reasonable potential and determine compliance with the TMDL.

ATTACHMENT I – DIOXIN AND FURAN SAMPLING

The CTR includes criteria for 2,3,7,8-tetrachlorodibenzo-pdioxin (2,3,7,8-TCDD). In addition to this compound, there are many congeners of chlorinated dibenzodioxins (2,3,7,8-CDDs) and chlorinated dibenzofurans (2,3,7,8-CDFs) that exhibit toxic effects similar to those of 2,3,7,8-TCDD. The USEPA has published toxic equivalency factors (TEFs) for 17 of the congeners. The TEFs express the relative toxicities of the congeners compared to 2,3,7,8-TCDD (whose TEF equals 1.0). In June 1997, participants in a World Health Organization (WHO) expert meeting revised TEF values for 1,2,3,7,8-PentaCDD, OctaCDD, and OctaCDF. The current TEFs for the 17 congeners, which include the three revised values, are shown below:

Toxic Equivalency Factors (TEFs) for 2,3,7,8-TCDD Equivalents

Congener	TEF
2,3,7,8-TetraCDD	1
1,2,3,7,8-PentaCDD	1.0
1,2,3,4,7,8-HexaCDD	0.1
1,2,3,6,7,8-HexaCDD	0.1
1,2,3,7,8,9-HexaCDD	0.1
1,2,3,4,6,7,8-HeptaCDD	0.01
OctaCDD	0.0001
2,3,7,8-TetraCDF	0.1
1,2,3,7,8-PentaCDF	0.05
2,3,4,7,8-PentaCDF	0.5
1,2,3,4,7,8-HexaCDF	0.1
1,2,3,6,7,8-HexaCDF	0.1
1,2,3,7,8,9-HexaCDF	0.1
2,3,4,6,7,8-HexaCDF	0.1
1,2,3,4,6,7,8-HeptaCDF	0.01
1,2,3,4,7,8,9-HeptaCDF	0.01
OctaCDF	0.0001

The Discharger shall conduct effluent and receiving water monitoring for the 2,3,7,8-TCDD congeners listed above to assess the presence and amounts of the congeners being discharged and already present in the receiving water. Effluent and upstream receiving water shall be monitored for the presence of the 17 congeners once within the term of the study.

The Discharger shall report, for each congener, the analytical results of the effluent and receiving water monitoring, including the quantifiable limit and the method detection limit, and the measured or estimated concentration.

In addition, the Discharger shall multiply each measured or estimated congener concentration by its respective TEF value and report the sum of these values.