

UNCONTESTED

STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

STAFF SUMMARY REPORT (Tong Yin)
MEETING DATE: September 8, 2010

ITEM: 6B

SUBJECT: City of St. Helena Wastewater Treatment and Reclamation Plant and its sewage collection system, St. Helena, Napa County - Reissuance of NPDES Permit

CHRONOLOGY: June 2005 – Permit reissued

DISCUSSION: This Revised Tentative Order (Appendix A) would reissue the NPDES permit for the City of St. Helena Wastewater Treatment and Reclamation Plant and its sewage collection system. The City owns and operates the Plant, which mainly consists of five ponds that provide secondary treatment of wastewater from a population of about 6,500. The Plant has an average dry weather flow design capacity of 0.5 million gallons per day (mgd). The City may discharge treated wastewater to the Napa River from December through April, but most of the time, it disposes of treated wastewater by applying it to an 88-acre land disposal site adjacent to the Plant. This land disposal is covered under a separate permit.

The City submitted comments (Appendix B), and our responses to the comments (Appendix C) describe changes we made to resolve the City's concerns. The Revised Tentative Order reflects all the changes made, and we expect this item to remain uncontested.

**RECOMMEN-
DATION:** Adopt the Revised Tentative Order

**CIWQS PLACE
ID:** 258386

APPENDICES: A. Revised Tentative Order
B. Comments Received
C. Response to Comments

APPENDIX A

REVISED TENTATIVE ORDER



Linda S. Adams
Secretary for
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California Regional Water Quality Control Board

San Francisco Bay Region

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Arnold Schwarzenegger
Governor

REVISED TENTATIVE ORDER NO. R2-2010-XXXX NPDES NO. CA0038016

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

Table 1. Discharger Information

Discharger	City of St. Helena
Name of Facility	City of St. Helena Wastewater Treatment and Reclamation Plant and its sewage collection system
Facility Address	1 Chaix/Thomann Lane
	St. Helena, CA, 94574
	Napa County
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Quality Control Board have classified this discharge as a minor discharge.	

Discharges by the City of St. Helena from the discharge point identified below are subject to waste discharge requirements as set forth in this Order.

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Secondary Treated Municipal Wastewater	38° 30' 10" N	122° 26' 15" W	Napa River

Table 3. Administrative Information

This Order was adopted by the Regional Water Board on:	<DATE>
This Order shall become effective on:	November 1, 2010
This Order shall expire on:	October 31, 2015
The Discharger shall file a Report of Waste Discharge in accordance with title 23, California Code of Regulations, as application for issuance of new waste discharge requirements no later than:	180 days prior to the Order expiration date

I, Bruce H. Wolfe, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on <DATE>

Bruce H. Wolfe, Executive Officer

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I. FACILITY INFORMATION

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

Table 4. Facility Information

Discharger	City of St. Helena
Name of Facility	City of St. Helena Wastewater Treatment and Reclamation Plant and its sewage collection system
Facility Address	1 Chaix/Thomann Lane
	St. Helena, CA, 94574
	Napa County
Facility Contact, Title, and Phone	John Ferons, Public Works Director, (707) 968-2741
Mailing Address	1480 Main Street, St. Helena, CA, 94574
Type of Facility	Publicly Owned Treatment Works (POTW)
Facility Design Flow	0.5 million gallons per day (mgd) average dry weather treatment capacity 2.8 mgd peak wet weather flow
Service Areas	City of St. Helena
Service Population	6,452

II. FINDINGS

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter Regional Water Board), finds:

A. Background. The City of St. Helena (hereinafter Discharger) is currently discharging under Order No. R2-2005-0025 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0038016. The Discharger submitted a Report of Waste Discharge, dated October 29, 2009, and applied for an NPDES permit reissuance to discharge treated wastewater from the City of St. Helena Wastewater Treatment and Reclamation Plant (Plant) to the Napa River. The discharge is also currently regulated under Order No. 2007-0077 (NPDES Permit CA0038849), which supersedes all requirements on mercury from wastewater discharges in the region. This Order does not affect the mercury permit. For the purposes of this Order, references to the “discharger” or “permittee” in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

B. Facility and Discharge Description.

- 1. Facility Description.** The Discharger owns and operates the Plant, which provides secondary-level treatment for domestic and commercial wastewater within the City of St. Helena. The Plant has an average dry weather treatment capacity of 0.5 mgd and can treat up to 2.8 mgd during wet weather. Treatment processes at the Plant include a headworks, a comminuter, an advanced integrated wastewater pond system, chlorine disinfection, and dechlorination.

Wastewater enters the Plant at the influent pump station via gravity flow through two open channels. Influent is pumped to the primary pond influent control structure located adjacent to Ponds 1A & 1B. From the pond influent control structure, wastewater enters Ponds 1A & 1B, which are facultative ponds with in-pond digesters, via two submerged inlet ports on the pond

bottom of each pond. Pond 2 is a “high-rate” aeration pond. Pond 3 serves as a settling pond for biological solids. Ponds 4 and 5 provide additional residence time for further breakdown of wastewater constituents and storage of treated wastewater.

An effluent control facility is located at the southeastern corner of Pond 5 between the pond and the Napa River. This facility includes the chlorine contact basin, dechlorination system, final effluent sampling station, flow metering by a 9-inch Parshall flume and pressure transducer, and valves for controlling gravity flow discharge to the Napa River. The effluent control facility provides disinfection, a sampling point, and pumping equipment for effluent disposal to land or storage in Pond 5. Discharge to the Napa River is most effectively conducted by releases from Pond 5; however, Pond 5 effluent can also be routed back to or through the effluent control facility for disinfection or dechlorination, as needed.

The Discharger’s sewer collection system conveys wastewater for the area within the city limits (3,285 acres) to the Plant. The system includes 18.8 miles of sewer pipelines ranging in diameter from 4 to 24 inches, and one lift station.

2. **Discharge Description.** During the wet weather period of December 1 through April 30, secondary treated effluent is discharged intermittently to the Napa River, a water of the State and the United States, provided that the discharge receives a minimum of 50 to 1 river to wastewater dilution flow ratio (previous permit specified a minimum of 25 to 1 river to wastewater flow ratio). Treated wastewater is discharged to a non-tidal reach of the Napa River through Outfall 001. During the previous permit term (2005-2010), the Discharger only discharged 19 days in 2006 and one day in 2010 (this discharge event was for conducting a dye study), with an average daily discharge flow rate of 4.17 mgd, and a maximum daily discharge rate of 8.06 mgd (2006 discharge flows). During the remainder of the year, discharge to the Napa River is prohibited; wastewater is either stored in the ponds or disposed to land through spray irrigation of open grass fields at the City’s 88-acre reclamation/disposal facility adjacent to and southeast of the ponds.
3. **Reclamation Activities.** Recycled water discharges to land are regulated by Water Reclamation Requirements in Regional Water Board Order No. 87-090.
4. **Biosolids Management.** The Plant does not have or require any equipment for handling and removal of solids from the wastewater treatment process. The primary processes for biosolids handling are the two in-pond digesters. Influent solids settle out and are reduced by methane-fermenting anaerobic bacteria at the two pond bottoms in partitioned areas on either side of the inlet ports. Since the digesters are fully contained within Ponds 1A & 1B, external removal of sludge is not routinely needed.
5. **Storm Water Discharge.** The Discharger’s storm water is covered under the State Water Board general permit, Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities (NPDES General Permit No. CAS000001).

Attachment B provides a map of the area around the Plant. Attachment C provides a Plant flow schematic.

- C. **Legal Authorities.** This Order is issued pursuant to Clean Water Act (CWA) section 402 and implements regulations adopted by the United States Environmental Protection Agency (USEPA) and

Chapters 5.5, Division 7 of the California Water Code (CWC) (commencing with section 13370). It shall serve as an NPDES permit for point source discharges from the Plant to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to Article 4, Chapter 4, Division 7 of the CWC (commencing with section 13260).

- D. Background and Rationale for Requirements.** The Regional Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F) contains background information and rationale for this Order's requirements, and is hereby incorporated into this Order and constitutes part of the findings for this Order. Attachments A through G are also incorporated into this Order.
- E. California Environmental Quality Act (CEQA).** Under CWC section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA.
- F. Technology-Based Effluent Limitations.** CWA section 301(b) and NPDES regulations at 40 CFR 122.44 require that permits include conditions meeting applicable technology-based requirements at 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 Secondary Treatment Standards at 40 CFR 133. A detailed discussion of technology-based effluent limitation development is included in the Fact Sheet (Attachment F).
- G. Water Quality-Based Effluent Limitations.** CWA section 301(b) and NPDES regulations at 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 that has no numeric objective, water quality-based effluent limitations (WQBELs) must be established using (1) USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in 40 CFR 122.44(d)(1)(vi).
- H. Water Quality Control Plans.** *The Water Quality Control Plan for the San Francisco Bay Basin* (hereinafter Basin Plan) is the Regional Water Board's master water quality control planning document. It designates beneficial uses and water quality objectives for waters of the State, including surface waters and groundwaters. It also includes programs of implementation to achieve water quality objectives. The Basin Plan was duly adopted by the Regional Water Board and approved by the State Water Resources Control Board (State Water Board), USEPA, and the Office of Administrative Law (OAL), as required. Requirements of this Order implement the Basin Plan.

Table 5, below, lists beneficial uses of the Napa River specifically identified in the Basin Plan.

Table 5. Basin Plan Beneficial Uses of the Napa River

Discharge Point	Receiving Water Name	Beneficial Uses
001	Napa River	Agricultural Supply (AGR) Municipal and Domestic Supply (MUN) Cold Freshwater Habitat (COLD) Fish Spawning (SPWN) Warm Freshwater Habitat (WARM) Wildlife Habitat (WILD) Water Contact Recreation (REC1) Non-Contact Water Recreation (REC2) Navigation (NAV) Fish Migration (MIGR) Preservation of Rare and Endangered Species (RARE)

The State Water Board’s *Water Quality Control Plan for Enclosed Bays and Estuaries—Part 1, Sediment Quality* became effective on August 25, 2009. This plan supersedes other narrative sediment quality objectives, and establishes new sediment quality objectives and related implementation provisions for specifically defined sediments in most bays and estuaries.

- I. National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on December 22, 1992, and later amended it on May 4, 1995, and November 9, 1999. About 40 criteria in the NTR apply in California. On May 18, 2000, USEPA adopted the CTR. The CTR contained toxics criteria for California and incorporated the previously adopted NTR criteria that applied in the State. The CTR was amended on February 13, 2001. These rules contain water quality criteria for priority pollutants.
- J. State Implementation Policy.** On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (hereinafter State Implementation Policy or SIP). The SIP became effective on April 28, 2000, with respect to the priority pollutant criteria USEPA promulgated for California through the NTR and the priority pollutant objectives the Regional Water Board established in the Basin Plan. The SIP became effective on May 18, 2000, with respect to the priority pollutant criteria USEPA promulgated through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005, that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.
- K. Compliance Schedules and Interim Requirements.** The State Water Board adopted Resolution No. 2008-0025 on April 15, 2008, titled “Policy for Compliance Schedules in National Pollutant Discharge Elimination System Permits.” Under limited circumstances, this policy allows the Regional Water Board to grant a compliance schedule based on a discharger’s request and demonstration that it is infeasible to comply immediately with certain effluent limits. This policy became effective on August 27, 2008, superseding the Basin Plan’s compliance schedule policy. This Order does not contain a compliance schedule or any interim effluent limit for any constituent.
- L. Recycled Water Policy.** On February 3, 2009, the State Water Board adopted Resolution No. 2009-0011, titled *Policy for Water Quality Control for Recycled Water*, which is intended to promote sustainable local water supplies by increasing the acceptance and promoting the use of

recycled water. The policy sets a goal to increase the use of recycled water statewide by at least one million acre feet per year (afy) over the 2002 level by 2020, and by at least two million afy by 2030. The policy also requires Regional Water Boards to exercise their authority to the fullest extent possible to encourage the use of recycled water, and to develop watershed-based salt and nutrient management plans to ensure that use of recycled water does not degrade groundwater resources.

- M. Alaska Rule.** On March 30, 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards become effective for CWA purposes [65 Fed. Reg. 24641 (April 27, 2000) (codified at 40 CFR 131.21)]. Under the revised regulation (also known as the Alaska Rule), new and revised standards submitted to USEPA after May 30, 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by May 30, 2000, may be used for CWA purposes, whether or not approved by USEPA.
- N. 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 biochemical oxygen demand (BOD) and total suspended solids (TSS). Derivation of these technology-based limitations is discussed in the Fact Sheet (Attachment F). This Order's technology-based pollutant restrictions implement the minimum applicable federal technology-based requirements. In addition, this Order contains effluent limitations more stringent than the minimum federal technology-based requirements as necessary to meet water quality standards.

WQBELs 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 WQBELs were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR 131.38. The procedures for calculating the individual WQBELs for priority pollutants are based on the SIP, which was approved by USEPA on May 18, 2000. All beneficial uses and water quality objectives contained in the Basin Plan were approved under State law and submitted to USEPA prior to May 30, 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to May 30, 2000, but not approved by USEPA before that date, are nonetheless "applicable water quality standards for the purposes of the CWA" pursuant to 40 CFR 131.21(c)(1). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the requirements of the CWA.

- O. Antidegradation Policy.** NPDES regulations at 40 CFR 131.12 require that the State water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy through State Water Board Resolution No. 68-16, which incorporates the federal antidegradation policy where the federal policy applies under federal law and requires that existing water quality be maintained unless degradation is justified based on specific findings. The Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. As discussed in the Fact Sheet, the permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16.
- P. Anti-Backsliding Requirements.** CWA Sections 402(o)(2) and 303(d)(4) and NPDES 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 where limitations may be relaxed. All effluent limitations in this Order are at least as stringent as those in the previous permit (Order No. R2-2005-0025). As discussed in the Fact Sheet, the

permitted discharge is consistent with the anti-backsliding requirements of the CWA and federal regulations.

- Q. Endangered Species Act.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the State. The Discharger is responsible for meeting all requirements of applicable State and federal law pertaining to threatened and endangered species.
- R. Monitoring and Reporting.** NPDES regulations at 40 CFR 122.48 require that all NPDES permits specify requirements for recording and reporting monitoring results. CWC sections 13267 and 13383 authorize the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program provided in Attachment E establishes monitoring and reporting requirements to implement federal and State requirements.
- S. 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 apply under 40 CFR 122.42. The Regional Water Board has also included in this Order special provisions applicable to the Discharger. The Fact Sheet provides the rationale for this Order's special provisions.
- T. Provisions and Requirements Implementing State Law.** No provisions in this Order are included to implement State law only.
- U. Notification of Interested Parties.** The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe Waste Discharge Requirements for the discharge and has provided an opportunity to submit written comments and recommendations. The Fact Sheet provides details regarding the notification.
- V. Consideration of Public Comment.** The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. The Fact Sheet provides details regarding the public hearing.

IT IS HEREBY ORDERED, that this Order supersedes Order No. R2-2005-0025, except for enforcement purposes, and, in order to meet the provisions contained in Division 7 of the California Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act (CWA) and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

III. DISCHARGE PROHIBITIONS

- A.** Discharge of treated wastewater at a location or in a manner different from that described in this Order is prohibited.

- B.** Discharge at any point at which the treated wastewater does not receive an initial dilution of at least 50:1 is prohibited. Available dilution shall be determined by the measured flow at USGS Station No. 11456000 (Napa River near St. Helena) and effluent flow as monitored at EFF-001 as defined in the Monitoring and Reporting Program (MRP, Attachment E).
- C.** The bypass of untreated or partially treated wastewater to waters of the United States is prohibited, except as provided for in the conditions stated in Subsections I.G.2 and I.G.4 of Attachment D of this Order.
- D.** The average dry weather flow, measured at Monitoring Location INF-001, as described in the attached MRP (Attachment E), shall not exceed 0.5 MGD. Actual average dry weather discharge rate shall be determined for compliance with this prohibition over three consecutive dry weather months each year.
- E.** Any sanitary sewer overflow that results in a discharge of untreated or partially treated wastewater to waters of the United States is prohibited.
- F.** Discharge to the Napa River is prohibited during the period from May 1 through November 30 of each year. The Executive Officer may authorize discharge to the Napa River prior to November 30 or later than May 1 for a specified period not to exceed 1 month based on a written request from the Discharger documenting that adequate dilution is available at the discharge point and disposal to land is infeasible due to wet weather conditions. In the event of high wastewater flows resulting from an early or late season storm, the Discharger, after considering the feasibility of reclamation and use of the storage capacity, shall notify the Regional Water Board case manager by phone or email of the need to discharge to Napa River immediately upon making the determination that such a discharge is necessary, and provide basic information justifying the request. If circumstances prevent the case manager's consideration and response to the request within the time frame necessary, the Discharger may at its discretion discharge some or all of the effluent to Napa River for the duration of the elevated flow event. The Discharger then shall submit a report within five business days from the date of the discharge. In the report, the Discharger shall fully explain the need to discharge to Napa River during the dry season and shall provide information regarding the total volume of flow discharged, duration of discharge, and estimate of dilution (effluent flow in receiving water flow) that occurred during this period. In accordance with the attached MRP, discharge quality shall be reported in the monthly self-monitoring report.
- G.** The discharge of wastewater with an elevated temperature into receiving water that supports cold fresh water habitat is prohibited unless it can be demonstrated to the satisfaction of the Regional Water Board that such an alteration of temperature does not adversely affect the beneficial uses of the receiving water.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point 001

1. Effluent Limitations for Conventional and Non-conventional Pollutants

- a. The Discharger shall maintain compliance with the following effluent limitations for Discharge Point 001, with compliance measured at Monitoring Location EFF-001D for BOD, TSS, pH, and total coliform and at EFF-001 for oil and grease and total chlorine residual, as described in the attached MRP (Attachment E).

Table 6. Effluent Limitations for Conventional and Non-Conventional Pollutants – Discharge Point 001

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Biochemical Oxygen Demand (BOD)	mg/L	30	45	---	---	---
Total Suspended Solids (TSS)	mg/L	30	45	---	---	---
Oil and Grease	mg/L	10	---	20	---	---
pH ^[1]	s.u.	---	---	---	6.5	8.5
Chlorine, Total Residual	mg/L	---	---	---	---	0.0 ^[2]

Footnotes to Table 6:

- [1] If the Discharger monitors pH continuously, pursuant to 40 CFR 401.17, the Discharger shall be in compliance with the pH limitation specified herein provided that both of the following conditions are satisfied: (i) the total time during which the pH values are outside the required range of pH values shall not exceed 7 hours and 26 minutes in any calendar month, and (ii) no individual excursion from the range of pH values shall exceed 60 minutes.
- [2] This requirement is defined as below the limit of detection in standard test methods as defined in the latest edition of *Standard Methods for the Examination of Water and Wastewater*. The Discharger may elect to use a continuous on-line monitoring system for measuring flows, sodium hypochlorite, and sodium bisulfite dosage (including a safety factor) and concentration to prove that chlorine residual exceedances are false positives. If convincing evidence is provided, the Executive Officer will conclude that these chlorine residual exceedances are false positives and are not violations of the Order’s Total Residual Chlorine limit.

- b. **BOD and TSS - 85 Percent Removal:** The concentration-based average monthly percent removal of BOD and TSS shall not be less than 85 percent.
- c. **Total Coliform Bacteria:** Treated wastewater shall meet the following limits of bacteriological quality:
- (1) The five-sample moving median value for the most probable number (MPN) of total coliform bacteria shall not exceed 23 MPN/100 mL; and
 - (2) No single sample shall exceed 240 MPN/100 mL.

2. Effluent Limitations for Toxic Pollutants

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

Table 7. Effluent Limitations for Toxic Pollutants – Discharge Point 001

Parameter	Units	Final Effluent Limitations	
		Average Monthly Effluent Limit (AMEL)	Maximum Daily Effluent Limit (MDLE)
Copper	µg/L	14	24
Cyanide	µg/L	15	30
Bis(2-ethylhexyl)phthalate	µg/L	3.0	6.0
Total Ammonia	mg/L as Nitrogen	16	39
Dioxin-TEQ	µg/L	1.3 x 10 ⁻⁸	2.6 x 10 ⁻⁸

3. Whole Effluent Acute Toxicity

- a. Representative samples of the effluent at Discharge Point 001, with compliance measured at Monitoring Location EFF-001, as described in the attached MRP, shall meet the following limits for acute toxicity. Bioassays shall be conducted in compliance with MRP Section V.A (Attachment E).

The survival of organisms in undiluted combined effluent shall be:

- A three-sample median value of not less than 90 percent survival, and
- Any single sample not less than 70 percent survival.

- b. Three-sample median is further defined as follows:

A bioassay test showing survival of less than 90 percent represents a violation of this effluent limit if one or more of the past two or less bioassay tests show less than 90 percent survival.

- c. Bioassays shall be performed using the most up-to-date USEPA protocol and the most sensitive species as specified in writing by the Executive Officer based on the most recent screening test results. Bioassays shall be conducted in compliance with "Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms," currently 5th Edition (EPA-821-R-02-012), with exceptions granted to the Discharger by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP) upon the Discharger's request with justification.
- d. If the Discharger can demonstrate to the satisfaction of the Executive Officer that toxicity exceeding the levels cited above is caused by ammonia and that the ammonia in the discharge complies with total ammonia effluent limits in this Order, then such toxicity shall not constitute a violation of this effluent limitation.

B. Reclamation Specifications

Water reclamation requirements for this Discharger are set forth in Regional Water Board Order No. 87-090.

V. SURFACE RECEIVING WATER LIMITATIONS

- A. The discharges shall not cause the following in the Napa River:
 1. Floating, suspended, or deposited macroscopic particulate matter or foams;
 2. Bottom deposits or aquatic growths to the extent that such deposits or growths cause nuisance or adversely affect beneficial uses;
 3. Alteration of temperature, turbidity, or apparent color beyond present natural background levels;
 4. Visible, floating, suspended, or deposited oil and other products of petroleum origin; or

5. Toxic or other deleterious substances to be present in concentrations or quantities that cause deleterious effects on wildlife, waterfowl, or other aquatic biota, or render any of these unfit for human consumption, either at levels created in the receiving waters or as a result of biological concentration.

B. The discharge of waste shall not cause the following limits to be exceeded in waters of the State within one foot of the water surface:

1. Dissolved Oxygen 7.0 mg/L, minimum

The median dissolved oxygen concentration for any three consecutive months shall not be less than 80% of the dissolved oxygen content at saturation. When natural factors cause concentrations less than that specified above, the discharge shall not cause further reduction in ambient dissolved oxygen concentrations.

2. Dissolved Sulfide Receiving water shall be free from dissolved sulfide concentrations above natural background levels.

3. pH The pH shall not be depressed below 6.5 or raised above 8.5. The discharge shall not cause changes greater than 0.5 pH units in normal ambient pH levels.

4. Nutrients Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.

5. Temperature. Napa River near the discharge shall not be increased by more than 5°F above natural receiving water temperatures. Compliance with this limit shall be measured as the difference between receiving water monitoring locations RSW- 001 and RSW-004 as specified in the Monitoring and Reporting Program (Attachment E).

C. The discharge shall not cause a violation of any particular water quality standard for receiving waters adopted by the Regional or State Water Boards as required by the CWA and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the CWA, or amendments thereto, the Regional Water Board will revise and modify this Order in accordance with such more stringent standards.

VI. POND LIMITATIONS

A. Wastewater within one foot of the surface of all wastewater ponds shall meet the following limits, in any grab samples:

1. Dissolved Oxygen 2.0 mg/L, minimum
2. Dissolved Sulfide 0.1 mg/L, maximum

B. A minimum freeboard of at least two (2) feet shall be maintained in all wastewater ponds, except for Pond No.1.

C. A minimum freeboard of at least one (1) foot shall be maintained in Pond No. 1.

D. All ponds shall be protected against erosion, flooding and washout from floods having a predicted frequency of once in 100 years.

VII. PROVISIONS

A. Standard Provisions

1. **Federal Standard Provisions.** The Discharger shall comply with Federal Standard Provisions included in Attachment D of this Order.
2. **Regional Standard Provisions.** The Discharger shall comply with all applicable items of the Regional Standard Provisions, and Monitoring and Reporting Requirements (Supplement to Attachment D) for NPDES Wastewater Discharge Permits (Attachment G), including amendments thereto.

B. Monitoring and Reporting Program Requirements

The Discharger shall comply with the MRP (Attachment E) and future revisions thereto, including applicable sampling and reporting requirements in the two standard provisions listed in VII.A, above.

C. Special Provisions

1. Reopener Provisions

The Regional Water Board may modify or reopen this Order prior to its expiration date in any of the following circumstances as allowed by law:

- a. If present or future investigations demonstrate that the discharges governed by this Order will have, or will cease to have, a reasonable potential to cause or contribute to adverse impacts on water quality or beneficial uses of the receiving waters.
- b. If new or revised WQOs or Total Maximum Daily Loads (TMDLs) come into effect for the San Francisco Bay estuary and contiguous water bodies (whether statewide, regional, or site-specific). In such cases, effluent limitations in this Order may be modified as necessary to reflect updated WQOs and waste load allocations in TMDLs. Adoption of effluent limitations contained in this Order is not intended to restrict in any way future modifications based on legally adopted WQOs, TMDLs, or as otherwise permitted under Federal regulations governing NPDES permit modifications.
- c. If translator or other water quality studies provide a basis for determining that a permit conditions should be modified.
- d. If an administrative or judicial decision on a separate NPDES permit or WDR addresses requirements similar to those applicable to this discharge.
- e. Or as otherwise authorized by law.

The Discharger may request permit modification based on the above. The Discharger shall include with any such request an antidegradation and antibacksliding analysis.

2. Effluent Data Evaluation

The Discharger shall continue to monitor and evaluate the discharge from Discharge Point 001 for the constituents listed in the Regional Standard Provisions (Attachment G), according to the sampling frequency specified in the MRP (Attachment E). Compliance with this requirement shall be achieved in accordance with the specifications stated in the Regional Standard Provisions.

The Discharger shall evaluate on an annual basis if concentrations of any constituent increase over past performance. The Discharger shall investigate the cause of the increase. The investigation may include, but need not be limited to, an increase in the effluent monitoring frequency, monitoring of internal process streams, and monitoring of influent sources. This may be satisfied through identification of these constituents as “Pollutants of Concern” in the Discharger’s Pollutant Minimization Program described in Provision VII.C.3 below. The Discharger shall provide a summary of the annual evaluation of data and source investigation activities in the annual self-monitoring report.

The Discharger shall submit a final report that presents all the data to the Regional Water Board no later than 180 days prior to the Order expiration date. The final report shall be submitted with the application for permit reissuance.

3. Best Management Practices and Pollution Minimization Program

- a.** The Discharger shall continue to improve, in a manner acceptable to the Executive Officer, its existing Pollutant Minimization Program to promote minimization of pollutant loadings to the treatment plant and therefore to the receiving waters.
- b.** The Discharger shall submit an annual report, acceptable to the Executive Officer, no later than February 28 of each calendar year. Each annual report shall include at least the following information:
 - i. A brief description of the treatment plant, treatment plant processes and service area.*
 - ii. A discussion of the current pollutants of concern.* Periodically, the discharger shall analyze its own situation to determine which pollutants are currently a problem and which pollutants may be potential future problems. This discussion shall include the reasons why the pollutants were chosen.
 - iii. Identification of sources for the pollutants of concern.* This discussion shall include how the Discharger intends to estimate and identify sources of the pollutants. The Discharger shall also identify sources or potential sources not directly within the ability or authority of the

Discharger to control, such as pollutants in the potable water supply and air deposition.

- iv. *Identification of tasks to reduce the sources of the pollutants of concern.* This discussion shall identify and prioritize tasks to address the Discharger's pollutants of concern. The Discharger may implement tasks themselves or participate in group, regional, or national tasks that will address its pollutants of concern. The Discharger is strongly encouraged to participate in group, regional, or national tasks that will address its pollutants of concern whenever it is efficient and appropriate to do so. A time line shall be included for the implementation of each task.
- v. *Outreach to employees.* The Discharger shall inform employees about the pollutants of concern, potential sources, and how they might be able to help reduce the discharge of these pollutants of concern into the treatment facilities. The Discharger may provide a forum for employees to provide input.
- vi. *Continuation of Public Outreach Program.* The Discharger shall prepare a public outreach program to communicate pollution prevention to its service area. Outreach may include participation in existing community events such as county fairs, initiating new community events such as displays and contests during Pollution Prevention Week, conducting school outreach programs, conducting plant tours, and providing public information in newspaper articles or advertisements, radio or television stories or spots, newsletters, utility bill inserts, and web site. Information shall be specific to the target audiences. The Discharger shall coordinate with other agencies as appropriate.
- vii. *Discussion of criteria used to measure Program's and tasks' effectiveness.* The Discharger shall establish criteria to evaluate the effectiveness of its Pollution Minimization Program. This shall also include a discussion of the specific criteria used to measure the effectiveness of each of the tasks in sections VII.C.b.iii, iv, v, and vi.
- viii. *Documentation of efforts and progress.* This discussion shall detail all of the Discharger's activities in the Pollution Minimization Program during the reporting year.
- ix. *Evaluation of Pollutant Minimization Program and task effectiveness.* This Discharger shall use the criteria established in section VII.C.b.vii. to evaluate the Program's and tasks' effectiveness.
- x. *Identification of specific tasks and time schedules for future efforts.* Based on the evaluation, the Discharger shall detail how it intends to continue or change its tasks in order to more effectively reduce the

amount of pollutants to the treatment plant, and subsequently in its effluent.

c. Pollutant Minimization Program for Pollutants with Effluent Limitations

The Discharger shall develop and conduct a Pollutant Minimization Program as further described below when there is evidence that a priority pollutant is present in the effluent above an effluent limitation (e.g., sample results reported as DNQ when the effluent limitation is less than the MDL, sample results from analytical methods more sensitive than those methods required by this Order, presence of whole effluent toxicity, health advisories for fish consumption, results of benthic or aquatic organism tissue sampling) and either:

- i. A sample result is reported as DNQ and the effluent limitation is less than the RL; or
- ii. A sample result is reported as ND and the effluent limitation is less than the MDL, using SIP definitions.

d. Pollutant Minimization Program Submittals for Pollutants with Effluent Limitations

If triggered by the reasons in c. above, the Discharger's Pollutant Minimization Program shall include, but not be limited to, the following actions and submittals acceptable to the Regional Water Board:

- i. An annual review and semi-annual monitoring of potential sources of the reportable priority pollutants, which may include fish tissue monitoring and other bio-uptake sampling, or alternative measures approved by the Executive Officer when it is demonstrated that source monitoring is unlikely to produce useful analytical data;
- ii. Quarterly monitoring for the reportable priority pollutants in the influent to the wastewater treatment system, or an alternative measures approved by the Executive Officer, when it is demonstrated that influent monitoring is unlikely to produce useful analytical data;
- iii. Submittal of a control strategy designed to proceed toward the goal of maintaining concentrations of the reportable priority pollutants in the effluent at or below the effluent limitation;
- iv. Implementation of appropriate cost-effective control measures for the reportable priority pollutants, consistent with the control strategy; and
- v. The annual report required by section VII.C.3.b above, shall specifically address the following items:
 1. All Pollutant Minimization Program monitoring results for the previous year;
 2. A list of potential sources of the reportable priority pollutants;

3. A summary of all actions undertaken pursuant to the control strategy; and
4. A description of actions to be taken in the following year.

4. Construction, Operation, and Maintenance Requirements

a. Reliability Status Report

As part of reviewing requests for exceptions to Basin Plan Discharge Prohibition 1, the Regional Water Board will evaluate the reliability of the Discharger’s system in preventing inadequately treated wastewater from being discharged into the receiving waters. The Discharger shall submit a Reliability Status Report, or an update as necessary, annually, to the Regional Water Board by February 1 each year.

- (1) The Discharger shall develop and maintain a Reliability Status Report for the Discharger’s wastewater treatment facilities that will allow the Regional Water Board to evaluate the reliability of the Discharger’s system in preventing inadequately treated wastewater from being discharged into the receiving waters. The Reliability Status Report shall be maintained in usable condition and be available for reference and use by all appropriate personnel.
- (2) The Discharger shall regularly review, revise, or update, as necessary, the Reliability Status Report to ensure that the document remains useful and relevant to current equipment and operations. Reviews shall be conducted annually, and revisions or updates shall be completed as necessary. For any significant changes in treatment facility equipment or operation practices, revisions shall be completed as soon as practicable.
- (3) The Discharger shall provide the Executive Officer, upon request, a summary describing the current status of its Reliability Status Report, including any recommended or planned actions and an estimated time schedule for these actions. The Discharger shall also include, in each annual self-monitoring report, a description or summary of review and evaluation procedures and changes to its Reliability Status Report.

b. Plant Upgrade and Capacity Increase Tasks and Schedule

The Discharger shall upgrade its treatment plant to increase dry weather treatment capacity to 0.8 mgd within this permit term. An antidegradation analysis based on 0.8 mgd was submitted to the Regional Water Board in June 2010. The Discharger shall comply with the following tasks and schedule to complete the plant improvements.

Table 8. Plant Upgrade and Capacity Increase Tasks and Schedule

Tasks	Schedule
1. Improvements to existing operation	
(a) Restore treatment capacity of Pond 1A (i.e., drain and remove solids, repair piping).	Complete task by November 30, 2011
(b) Reduce algae concentrations, improve downstream disinfection	Complete task by 6/30/2011

Tasks	Schedule
efficiency, and cover Pond 3.	
2. Convert Plant from a Type 1 Advanced Integrated Wastewater Pond System (AIWPS) into a Type 2 Advanced Integrated Pond System (AIPS)	
(a) Convert Pond 2 to a facultative pond with operation similar to existing Pond 1B; dredge and reconfigure Pond 2.	Complete task by December 1, 2013
(b) Allow recirculation of Pond 2 effluent to upper zone of Pond 1A (i.e., add aeration and recirculation pumps/piping to Pond 1A).	Complete task by December 1, 2013
3. Submit annual status report to report progress of the project.	Each year by February 1 with the annual Self-Monitoring Report
4. Assess Plant capacity	
(a) Conduct performance testing of upgraded plant to establish capacity of 0.8 mgd (ADWF)	Complete task by December 1, 2014
(b) Submit report to Regional Water Board that evaluates reliability, capability, and performance of the wastewater treatment facilities to maintain compliance with waste discharge requirements at 0.8 mgd (ADWF)	With Report of Waste Discharge for NPDES permit renewal

5. Special Provisions for Municipal Facilities (POTWs Only)

a. Biosolids Management Practices Requirements

- (1) All biosolids must be disposed of, managed, or reused in a municipal solid waste landfill, through land application, as a Class A compost, through a waste to energy facility, or other recognized and approved technology, or disposed of in a sludge-only landfill in accordance with 40 CFR Part 503. If the Discharger desires to dispose of biosolids by a different method, a request for permit modification shall be submitted to USEPA 180 days before start-up of the alternative disposal practice. All the requirements in 40 CFR Part 503 are enforceable by USEPA whether or not they are stated in an NPDES permit or other permit issued to the Discharger. The Regional Water Board shall be copied on relevant correspondence and reports forwarded to USEPA regarding sludge management practices.
- (2) Biosolids treatment, storage, and disposal or reuse shall not create a nuisance, such as objectionable odors or flies, or result in groundwater contamination.
- (3) The Discharger shall take all reasonable steps to prevent or minimize any biosolid use or disposal that has a likelihood of adversely affecting human health or the environment.
- (4) The discharge of sludge shall not cause waste material to be in a position where it is or can be carried from the sludge treatment and storage site and deposited in waters of the State.
- (5) The biosolids treatment and storage site shall have facilities adequate to divert surface runoff from adjacent areas, to protect boundaries of the site from erosion, and to prevent any conditions that would cause drainage from the materials in the temporary storm and protection from the highest possible tidal stage that may occur.

- (6) For biosolids applied to the land, placed on a surface disposal site, or fired in an incinerator as defined in 40 CFR Part 503, the Discharger shall submit an annual report to USEPA and the Regional Water Board containing monitoring results and pathogen and vector attraction reduction requirements as specified by 40 CFR Part 503, postmarked by February 19 of each year, for the period covering the previous calendar year.
- (7) Biosolids disposed of in a municipal solid waste landfill shall meet the requirements of 40 CFR Part 258. In the annual Self-Monitoring Report, the Discharger shall include the amount of biosolids disposed and the landfill to which it was sent.
- (8) Permanent on-site biosolids storage or disposal activities are not authorized by this Order. A Report of Waste Discharge shall be filed and the site brought into compliance with all applicable regulations prior to commencement of any such activity.
- (9) Biosolids Monitoring and Reporting Provisions of this Regional Water Board's Standard Provisions (Attachment G) apply to sludge handling, disposal, and reporting practices.
- (10) The Regional Water Board may amend this Order prior to expiration if changes occur in applicable State and federal biosolids regulations.

b. Sanitary Sewer Overflows and Sewer System Management Plan

The Discharger's collection system is part of the facility that is subject to this Order. As such, the Discharger shall properly operate and maintain its collection system (Attachment D, Federal Standard Provisions - Permit Compliance, subsection I.D). The Discharger shall report any noncompliance (Attachment D, Standard Provision - Reporting, subsections V.E.1 and V.E.2) and mitigate any discharge from the Discharger's collection system in violation of this Order (Attachment D, Standard Provisions - Permit Compliance, subsection I.C).

The Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (State Water Board Order No. 2006-0003 DWQ) has requirements for operation and maintenance of collection systems and for reporting and mitigating sanitary sewer overflows. While the Discharger must comply with both the General Waste Discharge Requirements for Sanitary Sewer Systems (Sanitary Sewer System WDRs) and this Order, the Sanitary Sewer System WDRs more clearly and specifically stipulate requirements for operation and maintenance and for reporting and mitigating sanitary sewer overflows.

Implementation of the General Collection System WDRs requirements for proper operation and maintenance and mitigation of spills will satisfy the corresponding federal NPDES requirements specified in Attachment D (as supplemented by Attachment G) of this Order. Following notification and reporting requirements in the General Collection System WDRs will satisfy NPDES reporting requirements specified in Attachment D (as supplemented by Attachment G) of the Order for sewage spills from the collection system upstream of the Plant boundaries. Attachments D and G of this Order specify reporting requirements for

unauthorized discharges from anywhere within the Plant downstream of the Plant boundaries.

VIII.COMPLIANCE DETERMINATION

Compliance with effluent limitations for priority pollutants shall be determined using sample reporting protocols defined in Attachment A—Definitions, the MRP (Attachment E), and the Regional Standard Provisions (Attachment G). For purposes of reporting and administrative enforcement by the Regional and State Water Boards, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).

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:

$$\text{Arithmetic mean} = \mu = \Sigma x / n$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Pollutant Minimization Program (PMP) means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce all potential sources of a priority pollutant(s) through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The Regional Water Board may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to California Water Code section 13263.3(d), shall be considered to fulfill the PMP requirements.

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

Reporting Level (RL) is the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the Regional Water Board either from Appendix 4 of the SIP in accordance with section 2.4.2 of the SIP or established in accordance with section 2.4.3 of the SIP. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences.

Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

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

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

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

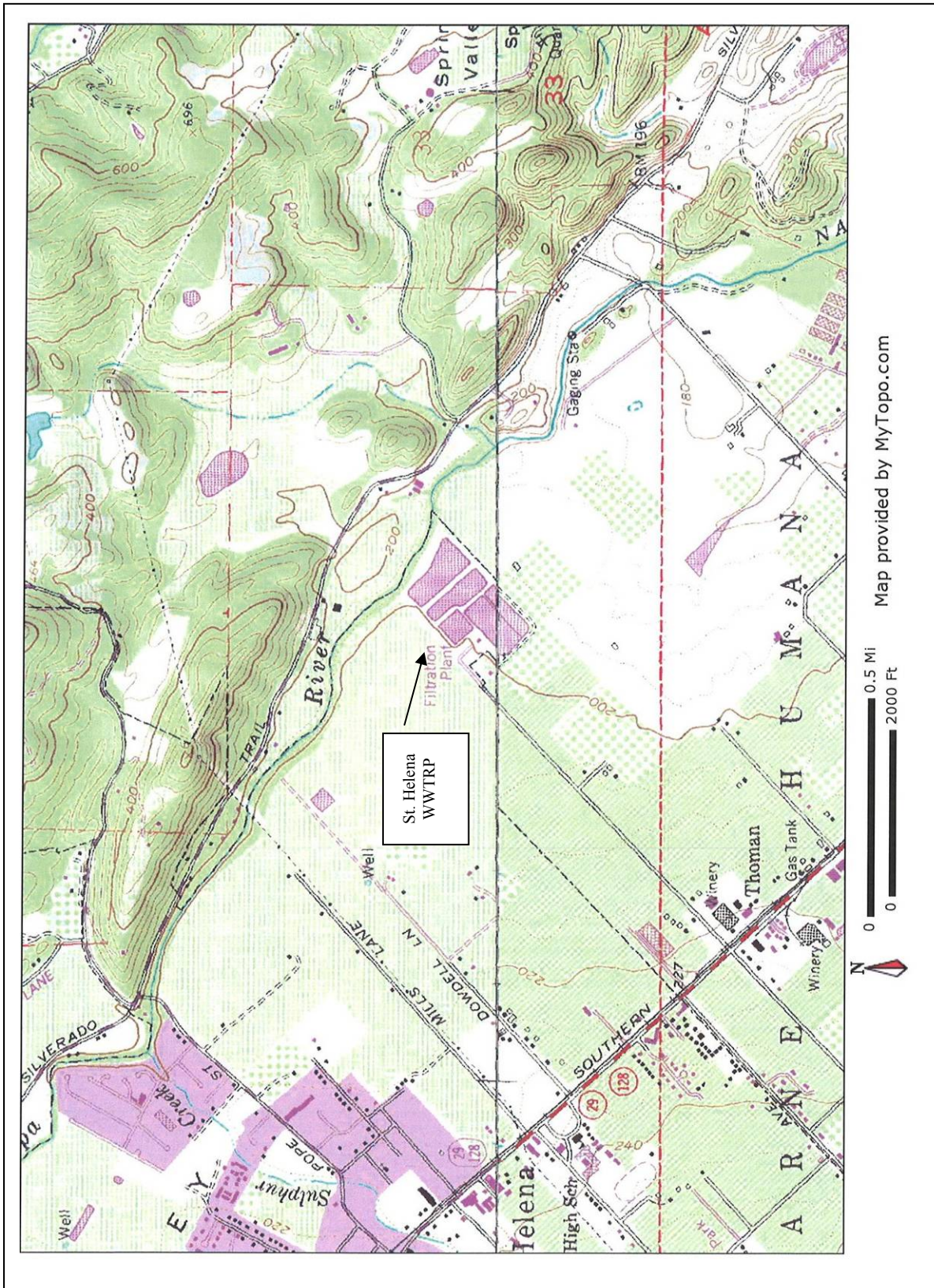
$$\sigma = (\sum[(x - \mu)^2]/(n - 1))^{0.5}$$

where:

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

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

ATTACHMENT B – FACILITY MAP



ATTACHMENT C – PROCESS FLOW DIAGRAM

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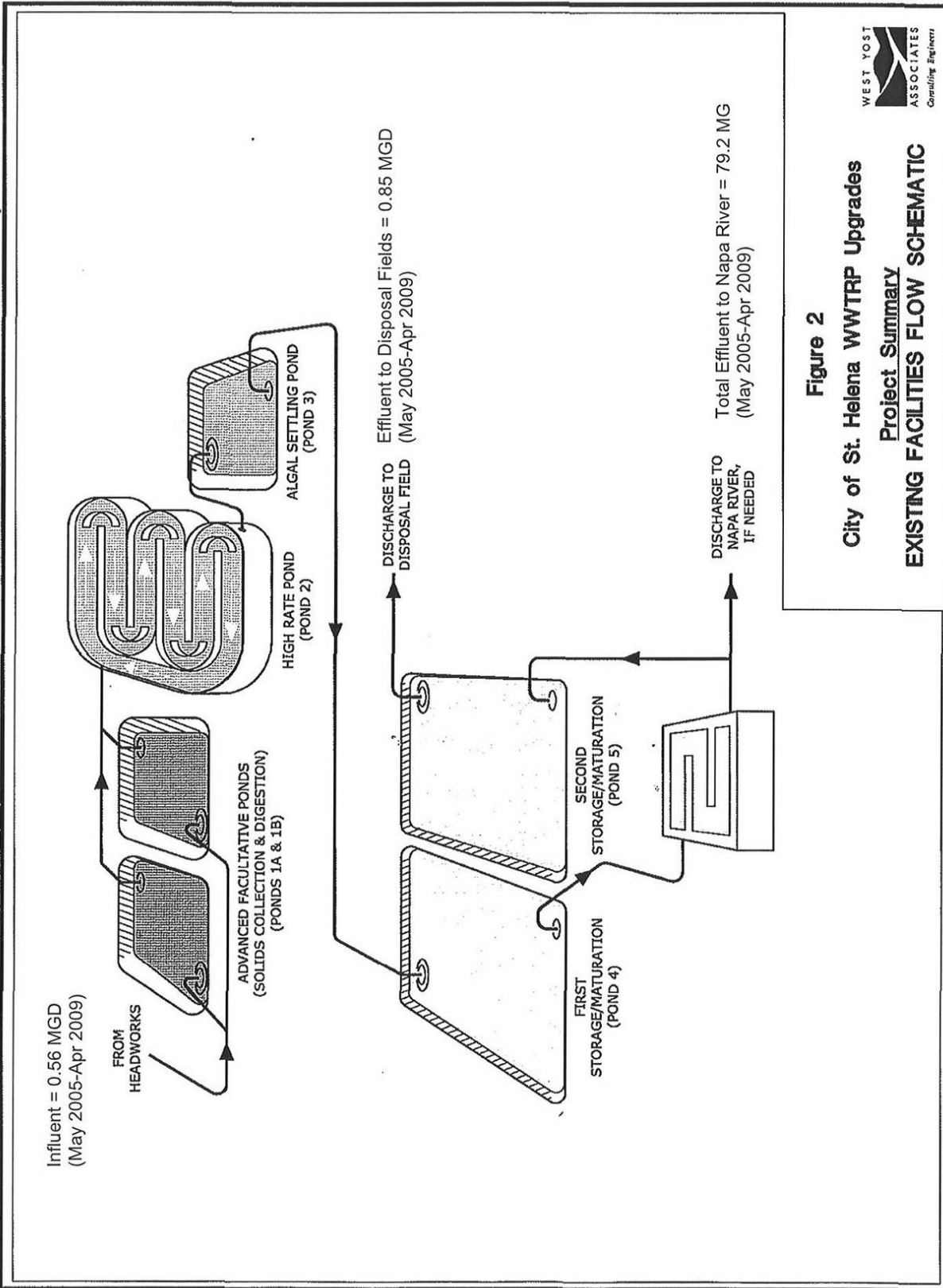


Figure 2
City of St. Helena WWTRP Upgrades
Project Summary
EXISTING FACILITIES FLOW SCHEMATIC

ATTACHMENT D –STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

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

B. Need to Halt or Reduce Activity Not a Defense

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

C. Duty to Mitigate

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

D. Proper Operation and Maintenance

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

E. Property Rights

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

F. Inspection and Entry

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

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (40 C.F.R. § 122.41(i)(1));
2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (40 C.F.R. § 122.41(i)(2));
3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (40 C.F.R. § 122.41(i)(3)); and
4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (40 C.F.R. § 122.41(i)(4).)

G. Bypass

1. Definitions
 - a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. (40 C.F.R. § 122.41(m)(1)(i).)
 - b. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 C.F.R. § 122.41(m)(1)(ii).)
2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 C.F.R. § 122.41(m)(2).)
3. Prohibition of bypass. Bypass is prohibited, and the Regional Water Board may take enforcement action against a Discharger for bypass, unless (40 C.F.R. § 122.41(m)(4)(i)):
 - a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 C.F.R. § 122.41(m)(4)(i)(A));
 - b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment

- should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 C.F.R. § 122.41(m)(4)(i)(B)); and
- c. The Discharger submitted notice to the Regional Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 C.F.R. § 122.41(m)(4)(i)(C).)
4. The Regional Water Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 C.F.R. § 122.41(m)(4)(ii).)
 5. Notice
 - a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass. (40 C.F.R. § 122.41(m)(3)(i).)
 - b. Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). (40 C.F.R. § 122.41(m)(3)(ii).)

H. Upset

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

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

- d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 C.F.R. § 122.41(n)(3)(iv).)
3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 C.F.R. § 122.41(n)(4).)

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

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

B. Duty to Reapply

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

C. Transfers

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

III. STANDARD PROVISIONS – MONITORING

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

IV. STANDARD PROVISIONS – RECORDS

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

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements (40 C.F.R. § 122.41(j)(3)(i));

2. The individual(s) who performed the sampling or measurements (40 C.F.R. § 122.41(j)(3)(ii));
 3. The date(s) analyses were performed (40 C.F.R. § 122.41(j)(3)(iii));
 4. The individual(s) who performed the analyses (40 C.F.R. § 122.41(j)(3)(iv));
 5. The analytical techniques or methods used (40 C.F.R. § 122.41(j)(3)(v)); and
 6. The results of such analyses. (40 C.F.R. § 122.41(j)(3)(vi).)
- C. Claims of confidentiality for the following information will be denied (40 C.F.R. § 122.7(b)):
1. The name and address of any permit applicant or Discharger (40 C.F.R. § 122.7(b)(1)); and
 2. Permit applications and attachments, permits and effluent data. (40 C.F.R. § 122.7(b)(2).)

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

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

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or USEPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below. (40 C.F.R. § 122.41(k).)
2. All permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of USEPA). (40 C.F.R. § 122.22(a)(3).)
3. All reports required by this Order and other information requested by the Regional Water Board, State Water Board, or USEPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:
 - a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 C.F.R. § 122.22(b)(1));
 - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant

- manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 C.F.R. § 122.22(b)(2)); and
- c. The written authorization is submitted to the Regional Water Board and State Water Board. (40 C.F.R. § 122.22(b)(3).)
4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 above must be submitted to the Regional Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 C.F.R. § 122.22(c).)
5. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:
- “I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.” (40 C.F.R. § 122.22(d).)

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 C.F.R. § 122.22(l)(4).)
2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 C.F.R. § 122.41(l)(4)(i).)
3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Water Board. (40 C.F.R. § 122.41(l)(4)(ii).)
4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 C.F.R. § 122.41(l)(4)(iii).)

D. Compliance Schedules

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

E. Twenty-Four Hour Reporting

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

F. Planned Changes

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

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in section 122.29(b) (40 C.F.R. § 122.41(l)(1)(i)); or
2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (40 C.F.R. § 122.41(l)(1)(ii).)
3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application

process or not reported pursuant to an approved land application plan. (40 C.F.R. § 122.41(l)(1)(iii).)

G. Anticipated Noncompliance

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

H. Other Noncompliance

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

I. Other Information

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

VI. STANDARD PROVISIONS – ENFORCEMENT

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

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Publicly-Owned Treatment Works (POTWs)

All POTWs shall provide adequate notice to the Regional Water Board of the following (40 C.F.R. § 122.42(b)):

1. Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to sections 301 or 306 of the CWA if it were directly discharging those pollutants (40 C.F.R. § 122.42(b)(1)); and
2. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of adoption of this Order. (40 C.F.R. § 122.42(b)(2).)
3. Adequate notice shall include information on the quality and quantity of effluent introduced into the POTW as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW. (40 C.F.R. § 122.42(b)(3).)

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

National Pollutant Discharge Elimination System (NPDES) regulations at 40 CFR 122.48 require that all NPDES permits specify monitoring and reporting requirements. California Water Code (CWC) sections 13267 and 13383 also authorize the Regional Water Quality Control Board (Regional Water Board) to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements that implement the federal and State regulations.

I. GENERAL MONITORING PROVISIONS

- A. The Discharger shall comply with this MRP. The Executive Officer may amend this MRP pursuant to 40 CFR 122.62, 122.63, and 124.5. If any discrepancies exist between the MRP and the Regional Standard Provisions, the MRP prevails.
- B. The Discharger shall conduct all monitoring in accordance with Attachment D, section III, as supplemented by Attachment G of this Order. Equivalent test methods must be more sensitive than those specified in 40 CFR 136, must be specified in the permit, and must be approved for use by the Executive Officer, following consultation with the State Water Quality Control Board (State Water Board) Quality Assurance Program.

II. MONITORING LOCATIONS

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

Table E-1. Monitoring Station Locations

Type of Sampling Location	Monitoring Location Name	Monitoring Location Description
Influent	INF-001	At any point in the treatment facility headworks at which all waste tributary to the system is present and preceding any phase of treatment, and exclusive of any return flows or process side-streams, formerly A-001.
Effluent	EFF-001	At a point in the outfall from the treatment facilities following full treatment between the point of discharge and the point at which all waste tributary to that outfall is present, formerly E-001.
Effluent	EFF-001D	At a point immediately following full treatment (before dechlorination) before land disposal or pond storage and the point at which all waste tributary is present.
Receiving Water	RSW-001	At a point in the Napa River, located about 200 feet upstream from the point of discharge.
Receiving Water	RSW-002	At a point in the Napa River, located at the point of discharge.
Receiving Water	RSW-003	At a point in the Napa River, located about 100 feet downstream from the point of discharge.
Receiving Water	RSW-004	At a point in the Napa River, located about 1000 feet downstream from the point of discharge.

Type of Sampling Location	Monitoring Location Name	Monitoring Location Description
Receiving Water	RSW-005	At a point in the Napa River that is the same station as USGS monitoring station STH (No. 11456000) in the California Data Exchange Center database (maintained by the California Department of Natural Resources and the USGS), formerly C-F.
Pond Levees	L-1 through L-n	Points located along the perimeter levees of the wastewater ponds, at intervals not to exceed 500 feet.

III. INFLUENT MONITORING REQUIREMENTS

The Discharger shall monitor influent to the facility at Monitoring Location INF-001 as follows. Influent sampling is required year-round.

Table E-2. Influent Monitoring – Monitoring Location INF-001

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow Rate ^[1]	mgd/mg	Cont	1/Day
Biochemical Oxygen Demand (BOD)	mg/L	C-24	1/Week
	kg/day	Calculate	1/Week
Total Suspended Solids (TSS)	mg/L	C-24	1/Week
	kg/day	Calculate	1/Week

Legend for Table E-2:

Units:

- mg = million gallons
- mgd = million gallons per day
- mg/L = milligrams per liter
- kg/d = kilograms per day

Sample Type:

- C-24 = 24-hour Composite
- Cont = Continuous

Frequency:

- 1/Day = once per day
- 1/week = once per week

Footnotes to Table E-2:

^[1] For influent flows, the following information shall also be reported monthly:

- Daily: Total daily flow volume (mg)
- Monthly: Monthly average flow rate (mgd)
- Monthly: Maximum average daily flow rate (mgd)
- Monthly: Minimum average daily flow rate (mgd)
- Monthly: Total flow volume (mg)

IV. EFFLUENT MONITORING REQUIREMENTS

The Discharger shall monitor treated effluent from the facility at Monitoring Location EFF-001D or EFF-001, when discharging to the Napa River, as follows.

Table E-3. Effluent Monitoring – Monitoring Location EFF-001 or EFF-001D

Parameter	Units	Sample Type	Minimum Sampling Frequency	Sampling Station
Flow Rate ^[1]	mgd/mg	Cont.	1/Day	EFF-001
pH ^[2]	s.u.	Cont.	1/Day	EFF-001D
BOD ₅	mg/L	C-24	3/Week	EFF-001D
	kg/day	Calculate	3/Week	EFF-001D
TSS	mg/L	C-24	3/Week	EFF-001D
	kg/day	Caluclate	3/Week	EFF-001D
BOD ₅ and TSS percent removal ^[3]	%	Calculate	1/Month	EFF-001D
Total Chlorine Residual ^[4]	mg/L	Cont or 2/hour	2/Hour	EFF-001
Oil and Grease ^[5]	mg/L	Grabs	1/Month	EFF-001D
Total Coliform Bacteria	MPN/100mL	Grab	3/Week	EFF-001D
Temperature	°C	Grab	1/Day	EFF-001
Acute Toxicity ^[6]	% survival	Static Renewal	1/Month	EFF-001
Dissolved Oxygen (DO)	mg/L	Grab	1/Day	EFF-001
	% saturation	Calculate	1/Day	EFF-001
Sulfides, total and dissolved (mg/L) (if DO < 2.0 mg/L)	mg/L	Grab	1/Day	EFF-001
Copper	µg/L	C-24	1/Month	EFF-001
Cyanide	µg/L	Grab	1/Month	EFF-001
Bis(2-ethylhexyl)phthalate	µg/L	Grab	2/Year	EFF-001
Dioxin-TEQ	µg/L	Grab	1/Year	EFF-001
Total Ammonia	mg/L as N	C-24	1/Month	EFF-001
Un-ionized Ammonia ^[7]	mg/L as N	Calculate	1/Month	EFF-001
Total Nitrogen ^[8]	mg/L as N	C-24	1/Month	EFF-001
Standard Observations	--	--	1/Day	EFF-001
Remaining Priority Pollutants	µg/L	^[9]	1/5 years	EFF-001
Dilution Ratio – River:Effluent Flow ^[10]	--	Calculate	Cont or 1/Hour	EFF-001

Legends for Table E-3:

Units:

- mg = million gallons
- mgd = million gallons per day
- s.u. = standard units
- °C = degrees Celsius
- mg/L = milligrams per liter
- kg/d = kilograms per day
- µg/L = micrograms per liter
- MPN/100 mL = most probable number per 100 milliliters

Sample Type:

- C-24 = 24-hour Composite
- Cont = Continuous

Sampling Frequency:

- 1/Day = once per day
- 1/Hour = once per hour
- 2/Hour = once every two hours
- 3/Week = three times per week
- 1/Week = once per week
- 1/Month = once per month

- 1/Year = once per year
- 2/Year = Twice per year
- 1/5 years = once every five years

Footnotes to Table E-3:

- [1] Flow Monitoring:
For effluent flows, the following information shall be reported monthly:
Daily: Total daily flow volume (mg)
Daily: Length of discharge in hours and minutes in a day
Daily: Average daily flow rate during discharge period (mgd)
Monthly: Total flow volume (mg)
Monthly: Length of discharge in hours and minutes in a month
Monthly: Monthly average flow rate during discharge period (mgd) = total flow volume/total length of discharge in a month
Monthly: Monthly average flow rate (mgd) during the entire month = total flow volume/number of days in a calendar month
Monthly: Maximum average daily flow rate (mgd)
Monthly: Minimum average daily flow rate (mgd)
- [2] If pH is monitored continuously, the minimum and maximum pH values for each day shall be reported in monthly Self-Monitoring Reports (SMRs).
- [3] The percent removal for BOD₅ and TSS shall be reported for each calendar month in accordance with Effluent Limitations IV.A.1.b. Samples for BOD₅ and TSS shall be collected simultaneously with influent samples.
- [4] Chlorine residual concentrations shall be monitored and reported for sampling points both before and after dechlorination. The Discharger shall report the maximum residual chlorine concentration observed following dechlorination on a daily basis. Total chlorine dosage (kg/day) shall be recorded on a daily basis.
- [5] Each oil and grease sample event shall consist of a composite sample comprised of three grab samples taken at equal intervals during the sampling date, with each grab sample being collected in a glass container. The grab samples shall be mixed in proportion to the instantaneous flow rates occurring at the time of each grab sample, within the accuracy of plus or minus 5%. Each glass container used for sample collection or mixing shall be thoroughly rinsed with solvent rinsings as soon as possible after use, and the solvent rinsings shall be added to the composite sample for extraction or analysis.
- [6] Acute bioassay tests shall be performed in accordance with Section V.A of this MRP.
- [7] The Discharger shall calculate the un-ionized fraction of ammonia using the pH and temperature of the effluent at the time of sampling.
- [8] Total nitrogen in this MRP refers to Nitrate Nitrogen and Total Organic Nitrogen.
- [9] If no discharge to the Napa River occurs during the term of the permit, samples shall be collected at EFF-001D.
- [10] The dilution during a calendar day shall be calculated and reported as long as the discharge continues. The dilution shall be determined using the hourly average river flow obtained from USGS station No. 11456000 and the maximum discharge flow of the next hour at Monitoring Location EFF-001; 24 dilution ratios within a calendar day shall be reported. Allowable maximum discharge flow for the next hour shall be determined based on the average river flow for the previous hour.

V. WHOLE EFFLUENT ACUTE TOXICITY TESTING REQUIREMENTS

The Discharger shall monitor acute toxicity at the compliance location and frequency specified in Table E-3, as follows.

1. Compliance with the acute toxicity effluent limitations of this Order shall be evaluated by measuring survival of test organisms exposed to 96-hour static renewal bioassays.
2. Test organism shall be fathead minnow unless the Executive Officer specifies otherwise in writing.
3. All bioassays shall be performed according to the most up-to-date protocols in 40 CFR 136, currently in *Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms*, 5th Edition.

4. To minimize the effects of ammonia toxicity during testing, the Discharger may adjust the pH of each 24-hour composite sample to match the pH measured at RSW-001 during the same day as effluent sample collection.
5. The sample may be taken from final secondary effluent prior to disinfection. Monitoring of the bioassay water shall include, on a daily basis, the following parameters: pH, dissolved oxygen, ammonia (if toxicity is observed), temperature, hardness, and alkalinity. These results shall be reported. If a violation of acute toxicity requirements occurs, the bioassay test shall be repeated with new fish as soon as practical and shall be repeated until a test fish survival rate of 90 percent or greater is observed. If the control fish survival rate is less than 90 percent, the bioassay test shall be restarted with new fish and shall continue as soon as practical until an acceptable test is completed (i.e., control fish survival rate is 90 percent or greater).

VI. RECLAMATION MONITORING REQUIREMENTS

Reclamation monitoring requirements are contained in Order No. 87- 090 (for land application) or 40 CFR 258 (for landfill disposal).

VII. RECEIVING WATER MONITORING REQUIREMENTS

The Discharger shall monitor the Napa River at RSW-001 through RSW-005 when there is discharge to the Napa River, as specified in Table E-4.

Table E-4. Receiving Water Monitoring – Monitoring Locations RSW-001 through RSW-005

Parameter	Units	Sample Type	Minimum Sampling Frequency
RSW-001 through RSW-005			
pH ^[1]	s.u.	Grab	1/Month
Temperature ^[1]	°C	Grab	1/Month
Turbidity	NTU	Grab	1/Month
Dissolved Oxygen	mg/L and % saturation	Grab	1/Month
Sulfides, total and dissolved (mg/L) (required only when DO < 2.0 mg/L)	mg/L	Grab	1/month
Standard Observations	--	--	1/Day
RSW-003 only			
Ammonia Nitrogen	mg/L as Nitrogen	Grab	1/Month
Un-ionized Ammonia Nitrogen	mg/L as Nitrogen	Calculate	1/Month
Total Nitrogen ^[4]	mg/L as Nitrogen	Grab	1/Month
Nitrate Nitrogen	mg/L as Nitrogen	Grab	1/Month
Total Organic Nitrogen	mg/L as Nitrogen		1/Month
Total Phosphate	mg/L as Phosphorous	Grab	1/Month
Total Dissolved Solids	mg/L	Grab	1/Month
Hardness	mg/L as CaCO ₃	Grab	1/Month
Conductivity	µmhos	Grab	1/Month
Salinity or TDS ^[2]	ppt or mg/L	Grab	1/Month
Chloride	mg/L	Grab	1/Month

Parameter	Units	Sample Type	Minimum Sampling Frequency
<i>RSW-005 only</i>			
Dilution Ratio – River:Effluent Flow ^[3]	--	Calculate	1/Hour

Legend to Table E-4:

Units:

- s.u. = standard units
- °C = degrees Celsius
- mg/L = milligrams per liter

Sampling Frequency:

- 1/Day = once per day
- 1/Month = once per month
- 1/Hour = once every hour

Footnotes to Table E-4:

- ^[1] Samples for pH and temperature shall be taken concurrently with effluent samples for ammonia.
- ^[2] The Discharger may choose to sample either total dissolved solids, salinity, or both, and shall sample the same parameters throughout the permit term.
- ^[3] The dilution during a calendar day shall be calculated and reported as long as the discharge continues. The dilution shall be determined using the hourly average river flow obtained from USGS station No. 11456000 and the maximum discharge flow of the next hour at Monitoring Location EFF-001; 24 dilution ratios within a calendar day shall be reported. Allowable maximum discharge flow for the next hour shall be determined based on the average river flow for the previous hour.

VIII. OTHER MONITORING REQUIREMENTS

A. Biosolids Monitoring

The Discharger shall adhere to sludge monitoring requirements required by 40 CFR 503 (for land application) or 40 CFR 258 (for landfill disposal)..

B. Pond Monitoring Requirements

The Discharger shall monitor the wastewater ponds at points located along the perimeter levees of the wastewater ponds as follows:

Table E-5. Pond Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency
Dissolved Sulfide (required only when D.O. is < 2.0 mg/L)	mg/L	Grab	1/Quarter
Dissolved Oxygen	mg/L	Grab	1/Quarter
Standard Observation	--	Observation	1/Week

Legends to Table E-5:

- mg/L = milligrams per liter
- 1/Quarter = once per quarter
- 1/Week = once per week

IX. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

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

B. Self Monitoring Reports

1. At any time during the term of this Order, the State or Regional Water Board may notify the Discharger to electronically submit SMRs using the State Water Board’s California Integrated Water Quality System (CIWQS) Program Web site (<http://www.waterboards.ca.gov/ciwqs/index.html>). Until such notification is given, the Discharger shall submit hard copy SMRs. The CIWQS Web site will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.
2. The Discharger shall submit monthly and annual SMRs including the results of all required monitoring using USEPA-approved test methods or other test methods specified in this Order for each calendar month. 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. Monthly SMRs shall be due on the 30th day following the end of each calendar month, covering samples collected during that calendar month; Annual Reports shall be due on February 1 following each calendar year.
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
Continuous	Day after permit effective date	All
1/Hour	Day after permit effective date	Hourly
1/Day	Day after permit effective date	Midnight through 11:59 PM or any 24-hour period that reasonably represents a calendar day for purposes of sampling.
1/Week	Sunday following permit effective date or on permit effective date if on a Sunday	Sunday through Saturday
1/Month	First day of calendar month following permit effective date or on permit effective date if that date is first day of the month	1 st day of calendar month through last day of calendar month
1/Quarter	Closest of March 1, June 1, September 1, December 1 following (or on) permit effective date	December 1 through February 28 or 29 March 1 through May 31 June 1 through August 31 September 1 through November 30
2/Year	Closest of June 1 or December 1 following (or on) permit effective date	Once during December 1 through May 31 Once during June 1 through November 30
1/Year	January 1 following (or on) permit effective date	January 1 through December 31, preferably during the discharge season
1/5 years	Day after permit effective date	All

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period
Per Discharge Event	Anytime during the discharge event or as soon as possible after aware of the event	At a time when sampling can characterize the discharge event

4. The Discharger shall report with each sample result the applicable Reporting Level (RL) and the current Method Detection Limit (MDL), as determined by the procedure in 40 CFR 136.

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

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

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

- c. Sample results less than the laboratory’s MDL shall be reported as “Not Detected,” or ND.
 - d. Dischargers are to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.
5. The Discharger shall submit SMRs 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 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 WDRs; discuss corrective actions taken or planned; and set forth 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.

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

Executive Officer
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612
ATTN: NPDES Wastewater Division

C. Discharge Monitoring Reports

1. As described in Section X.B.1 above, at any time during the term of this Order, the State or Regional Water Board may notify the Discharger to electronically submit SMRs that will satisfy federal requirements for submittal of Discharge Monitoring Reports (DMRs). Until such notification is given, the Discharger is not required to submit DMRs in accordance with the requirements described below.
2. Once notified by the State or Regional Water Board, the Discharger shall submit hard copy DMRs. DMRs must be signed and certified as required by the standard provisions (Attachment D). The Discharge shall submit the original DMR and one copy of the DMR to one of the addresses 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 USEPA pre-printed DMR forms (EPA Form 3320-1). Forms that are self-generated will not be accepted unless they follow the exact same format of EPA Form 3320-1.

D. Other Reports

The Discharger shall report the results of effluent monitoring required by Section VII.C.2 of this Order with the first monthly SMR following the respective due date.

ATTACHMENT F - FACT SHEET

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ATTACHMENT F – FACT SHEET

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

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

I. PERMIT INFORMATION

The following table summarizes administrative information related to the City of St. Helena Wastewater Treatment and Reclamation Plant (Plant).

Table F-1. Facility Information

WDID	2 283014001
CIWQS Place ID	258386
Discharger	City of St. Helena
Name of Facility	City of St. Helena Wastewater Treatment and Reclamation Plant and its sewage collection system
Facility Address	1 Chaix/Thomann Lane
	St. Helena, CA, 94574
	Napa County
Facility Contact, Title, Phone	John Ferons, Public Works Director, (707) 968-2741, johnf@ci.st-helena.ca.us
Authorized Person to Sign and Submit Reports	John Ferons, Public Works Director Michael Sample, Chief Plant Operator, (707) 967-2878, Michaels@ci.st-helena.ca.us
Mailing Address	1480 Main Street, St. Helena, CA, 94574
Billing Address	1480 Main Street, St. Helena, CA, 94574
Type of Facility	Publicly Owned Treatment Works (POTW)
Major or Minor Facility	Minor
Threat to Water Quality	2
Complexity	B
Pretreatment Program	No
Reclamation Requirements	Regional Water Board Order No. 87-090
Facility Permitted Flow	0.5 million gallons per day (MGD) average dry weather flow
Facility Design Flow	0.5 MGD (average dry weather treatment capacity)
	2.8 MGD (peak wet weather flow)
Watershed	San Pablo Bay
Receiving Water	Napa River
Receiving Water Type	Freshwater
Service Areas	City of St. Helena
Service Area Population	6,452

- A. The City of St. Helena (hereinafter the Discharger) owns and operates the Plant, a publicly owned treatment works, and its associated sewage collection system (collectively the facility). The facility provides secondary treatment of wastewater collected from its service areas and discharges to the Napa River during the discharge season.

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

- B. The discharge of treated wastewater from the facility to the Napa River, a water of the United States, is currently regulated by Order No. R2-2005-0025 (NPDES Permit No. CA0038016), which was adopted on June 15, 2005, and expired on April 27, 2010. Discharges to the Napa River are also covered by Regional Water Board Order No. R2-2007-0077 (NPDES Permit No. CA0038849), which supersedes all requirements regarding mercury in the Region. Permit No. CA0038849 is unaffected by this Order.
- C. The Discharger filed a Report of Waste Discharge and submitted an application for reissuance of its waste discharge requirements (WDRs) and NPDES permit dated October 29, 2009. The application was deemed complete, and the previous permit was administratively extended.

II. FACILITY DESCRIPTION

A. Description of Wastewater Treatment

- 1. **Facility Description.** The Discharger owns and operates the facility, which provides secondary-level treatment for domestic and commercial wastewater within the City of St. Helena. The facility has a current average dry weather design treatment capacity of 0.5 mgd.

The Discharger’s collection system conveys wastewater from the service area (3,285 acres) of City of St. Helena to the Plant via 18.8 miles of sewer pipelines ranging in diameter from four to 24 inches, and one lift station on Crinella Drive.

- 2. **Treatment Process Description.** Treatment processes include a headworks, comminuter, an advanced integrated wastewater pond system, chlorine disinfection and dechlorination.

Wastewater enters the Plant at the influent pump station via gravity into two open channels. Influent is pumped to the pond influent control structure located adjacent to Ponds 1A and 1B. From the pond influent control structure, wastewater enters Ponds 1A and 1B, which are facultative ponds with in-pond digesters, via submerged inlet ports on the pond bottoms. Pond 2 is a “high-rate” pond designed as an oxygen source. Pond 3 serves as a settling pond for biological solids. Ponds 4 and 5 provide additional residence time for breakdown of wastewater constituents and storage of treated wastewater. Pond characteristics are presented in the table below.

Table F-2. Wastewater Treatment Plant Pond Characteristics

Pond No.	Pond Type	Surface Area (acres)	Depth (ft)	Volume (million gallons)
1A	Facultative with Digester	2.9	10	8.1
1B	Facultative with Digester	2.1	14	7.5
2	High-Rate (aeration)	5.1	2.5-3	4.0
3	Algae Sedimentation	2.5	9	6.3
4	Maturation/Storage	3.0	11.5	9.8
5	Maturation/Storage	6.7	13	24.6

An effluent control facility is located at the southeastern corner of Pond 5 between the pond and the Napa River. This facility includes the chlorine contact basin, dechlorination system, final effluent sampling station, flow metering by a 9-inch Parshall flume and pressure transducer, and valves for controlling gravity flow discharge to the Napa River. The effluent control facility includes sampling and pumping equipment for effluent disposal to land.

3. **Discharge Description.** During the wet weather period of December 1 through April 30, secondary treated effluent is discharged intermittently to the Napa River, a water of the State and the United States, provided that the discharge receives a minimum of 25 to 1 river to wastewater flow ratio (under previous permit condition) and 50 to 1 river to wastewater flow ratio (this permit condition). Treated wastewater is discharged to a non-tidal reach of the Napa River through Outfall 001. From 2005 – 2010, the Discharger only discharged 19 days in 2006 and one day in 2010 (this discharge was for conducting a dye study). The average daily discharge flow rate from Outfall 001 was 4.17 mgd, with a maximum daily discharge flow rate of 8.06 mgd. During the remainder of the year, wastewater is either stored in the ponds or disposed to land through spray irrigation of open grass fields at the City’s 88-acre reclamation/disposal facility adjacent to and southeast of the ponds. Recycled water discharges to land are regulated by Water Reclamation Requirements in Regional Water Board Order No. 87-090.
4. **Biosolids Management.** The Plant does not have any equipment for handling and removal of solids from the wastewater treatment process. The primary process for biosolids handling are the two in-pond digesters. Influent solids settle out and are reduced by methane-fermenting anaerobic bacteria at the two pond bottoms in partitioned areas created by four-foot high redwood walls on either side of the inlet ports. Since the digesters are fully contained within Ponds 1A and 1B, external removal of sludge is not routinely needed.
5. **Storm Water Discharge.** The Discharger’s storm water is covered under the State Water Board’s general NPDES permit, Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities (NPDES General Permit No. CAS000001).
6. **Collection System Projects.** In 2003, the Discharger developed a Capital Improvement Plan for collection system maintenance and improvements. The specific projects budgeted in the plan include system-wide upgrades aimed at reducing infiltration and inflow, such as installation of pipe liners, sealing manholes, and disconnection of existing building drains. To-date, the Discharger has completed some slip-lining in the 8 inch mainline, replaced approximately 50 feet of broken pipe, and sealed 10 manholes. Known sewer system hotspots are routinely cleaned at 2 to 3 month intervals.

The Discharger completed an Inflow/Infiltration (I/I) Analysis in July 2000 and a Sewer Flow Isolation Study in the spring of 2007. A Sewer System Master Plan is almost complete. The Discharger is in the process of videotaping sewer lines. To-date, the Discharger has videotaped 11 miles of mainline sewer. The remaining 7 miles will be videotaped by the fall of 2010.

B. Discharge Points and Receiving Waters

Table F-3 below identifies the locations of the discharge points and receiving water. The Napa River is located in the Napa River hydrologic area within the San Pablo Watershed.

Table F-3. Outfall Locations

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Secondary Treated Municipal Wastewater	38° 30' 10" N	122° 26' 15" W	Napa River

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

Effluent limitations contained in the previous permit (Order No. R2-2005-0025), and representative monitoring data from the term of the previous permit, collected during the discharge season (discharges to Napa River only occurred in January 2006 and one day in 2010), are as follows. The data used in the summary below are for 2006 river discharge only.

Table F-4. Effluent Limitations (Previous Permit) and Monitoring Data for Conventional and Non-Conventional Pollutants

Parameter	(units)	Effluent Limitations			Monitoring Data (From January-April 2006)		
		Monthly Average	Weekly Average	Daily Maximum	Highest Monthly Average	Highest Weekly Average	Highest Daily Discharge
BOD ₅	mg/L	30	45	---	31	41	70
TSS	mg/L	30	45	---	17	17	22
Oil and Grease	mg/L	10	---	20	5.6	5.6	5.6
pH	s.u.	Within 6.0 – 9.0			Minimum – 6.4 Maximum – 8.0		
Chlorine, Total Residual	mg/L	---	---	0.0 ^[1]	---	---	0.0 ^[1]
Acute Toxicity	% Survival	[2]			Single sample minimum: 25%		
Total Coliform Bacteria	MPN/100 mL	[3]					

Footnotes to Table F-3:

mg/L = milligrams per liter

MPN/100 mL = Most Probable Number per 100 milliliters

% survival = percent survival

[1] Effluent limitation and monitoring results reported as an instantaneous maximum effluent limitation.

[2] A single sample value of not less than 70 percent survival.

[3] The 5-day moving median value for the MPN value of total coliform bacteria is not to exceed 23 MPN/100mL, and no single sample is to exceed 240 MPN/100 mL.

Table F-5. Effluent Limitations (Previous Permit) and Monitoring Data for Toxic Pollutants

Parameter	Units	Final Limits		Interim Limits		Monitoring Data (From 02/07 to 04/09)
		Daily Maximum	Monthly Average	Daily Maximum	Monthly Average	Highest Daily Concentration
Copper	µg/L	70	35	---	---	9.4
Lead	µg/L	--	--		23	0.66
Mercury	µg/L	--	--		0.08	0.012
Cyanide	µg/L	83	41	---	---	8.4

Footnotes to Table F-4:

µg/L = micrograms per liter

D. Compliance Summary

- 1. Compliance with Numeric Effluent Limits.** The Discharger conducted acute toxicity tests during January, March, and April 2006 discharge events. The April 2006 sample was toxic to fathead minnow with a 25% survival rate. The Discharger conducted a TIE study and concluded that ammonia might be the cause of the toxicity; and the same sample with pH adjusted to 7.0 was not toxic to fathead minnow.
- 2. Compliance with Previous Permit Provisions.** A list of special activities required by the previous permit (Order No. R2-2005-0025) and the status of those requirements are shown in Table F-6, below.

Table F-6. Compliance with Previous Permit Provisions

Provision Number	Requirement	Status of Completion
F.4	Dry Weather Capacity and Reliability Study	The Discharger submitted a Dry Weather Capacity and Reliability Study Report in April 2006 that described planned upgrades, including expanding treatment capacity to 0.65 MGD. In January 2007, the Regional Water Board provided comments and stated that treatment capacity should be increased to more than 0.65 MGD. The Discharger subsequently submitted a letter indicating plans to upgrade capacity in stages – initially to 0.8 MGD, with a final capacity upgrade to 1.1 mgd. Because the Discharger intends to provide increasing amounts of treated wastewater for reclamation uses, planned increases in treatment capacity will not result in an increase in discharge rate to the receiving water.
F.5	Bis(2-ethylhexyl)phthalate Special Study	The Discharger submitted a Bis(2-ethylhexyl)phthalate Sampling and Analytical Reliability Study in October 2009.
F.6	Diffuser Study and Installation	The Discharger submitted a Diffuser Study, but has decided to use its limited financial resources to upgrade Plant processes and expand the recycled water system.

E. Planned Changes

The Discharger plans to upgrade the Plant to increase treatment capacity to 0.8 mgd average dry weather flow and to maximize reclamation to ultimately pursue zero discharge to the Napa River. The Permit contains a schedule for the Discharger to achieve the 0.8 mgd average dry weather flow capacity.

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 is issued pursuant to CWA section 402 and implementing regulations adopted by the USEPA and Chapter 5.5, Division 7 of the CWC (commencing with section 13370). It shall serve as an NPDES permit for point source discharges from the Plant to surface waters. This Order also serves as WDRs pursuant to CWC Article 4, Chapter 4, Division 7 (commencing with section 13260).

B. California Environmental Quality Act (CEQA)

Under CWC section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA.

C. State and Federal Regulations, Policies, and Plans

- 1. Water Quality Control Plans.** The *Water Quality Control Plan for the San Francisco Bay Basin* (hereinafter Basin Plan) is the Regional Water Board’s master water quality control planning document. It designates beneficial uses and water quality objectives for waters of the State, including surface waters and groundwaters. It also includes programs of implementation to achieve water quality objectives. The Basin Plan was adopted by the Regional Water Board and approved by the State Water Resources Control Board, USEPA, and the Office of Administrative Law, as required. Requirements of this Order implement the Basin Plan.

Table F-7, below, lists the beneficial uses of the Napa River specifically identified in the Basin Plan.

Table F-7. Basin Plan Beneficial Uses of the Napa River

Discharge Point	Receiving Water Name	Beneficial Uses
001	Napa River (non-tidal)	Agricultural Supply (AGR) Municipal and Domestic Supply (MUN) Cold Freshwater Habitat (COLD) Fish Spawning (SPWN) Warm Freshwater Habitat (WARM) Wildlife Habitat (WILD) Water Contact Recreation (REC1) Non-Contact Water Recreation (REC2) Navigation (NAV) Fish Migration (MIGR) Preservation of Rare and Endangered Species (RARE)

2. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on December 22, 1992, and amended it on May 4, 1995, and November 9, 1999. About 40 criteria in the NTR applied in California. On May 18, 2000, USEPA adopted the CTR. The CTR contained toxics criteria for California and incorporated the previously adopted NTR criteria that applied in the State. The CTR was amended on February 13, 2001. These rules contain water quality criteria for priority toxic pollutants that apply to the receiving waters for this Discharger.
3. **State Implementation Policy.** On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (hereinafter State Implementation Policy or SIP). The SIP became effective on April 28, 2000, with respect to the priority pollutant criteria USEPA promulgated for California through the NTR and the priority pollutant objectives the Regional Water Board established in the Basin Plan. The SIP became effective on May 18, 2000, with respect to the priority pollutant criteria USEPA promulgated through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005, that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.
4. **Alaska Rule.** On March 30, 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards become effective for CWA purposes [40 CFR 131.21, 65 Fed. Reg. 24641 (April 27, 2000)]. Under the revised regulation (also known as the Alaska Rule), new and revised standards submitted to USEPA after May 30, 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by May 30, 2000, may be used for CWA purposes, whether or not approved by USEPA.
5. **Antidegradation Policy.** 40 CFR 131.12 requires that 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, which incorporates the federal antidegradation policy where the federal policy applies under federal law and requires that existing water quality be maintained unless degradation is justified based on specific findings. The Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. The permitted discharge must be consistent with the antidegradation provisions of 40 CFR 131.12 and Resolution 68-16.
6. **Anti-Backsliding Requirements.** CWA Sections 402(o)(2) and 303(d)(4) and 40 CFR 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed.

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

In November 2006, the USEPA approved a revised list of impaired water bodies prepared by the State [the 303(d) list], prepared pursuant to CWA section 303(d), which requires identification of specific water bodies where it is expected that water quality standards will not be met after implementation of technology-based effluent limitations on point sources. The Napa River appears

on the list due to nutrients, pathogens and sediment. San Pablo Bay, to which the Napa River is tributary, is on the list due to chlordane, DDT, dieldrin, dioxins and furans, mercury, nickel, PCBs, selenium, and exotic species. The SIP requires final effluent limitations for all 303(d)-listed pollutants to be consistent with total maximum daily loads and associated waste load allocations.

The Regional Water Board adopted a pathogens TMDL for the Napa River on November 13, 2006; a mercury TMDL for San Francisco Bay (including San Pablo Bay) on February 12, 2008; and a sediment TMDL for the Napa River on September 9, 2009. USEPA approved the Napa River pathogens TMDL on November 13, 2006, and the San Francisco Bay mercury TMDL on February 12, 2008.

TMDLs establish WLAs for point sources and load allocations (LAs) for non-point sources and are intended to achieve the water quality standards for the impaired waterbodies. Mercury discharges from the Plant are regulated by Regional Water Board Order No. R2-2007-0077, which implements the mercury TMDL and contains monitoring and reporting requirements. This Order's effluent limitations for total coliform bacteria are consistent with the Napa River pathogen TMDL. This Order's effluent limitations for TSS are consistent with the Napa River sediment TMDL.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into 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 NPDES 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 water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality criteria (WQC) to protect the beneficial uses of the receiving water.

Several specific factors affecting the development of limitations and requirements in this Order are discussed as follows.

A. Discharge Prohibitions

1. **Discharge Prohibition III.A** (Discharge of treated wastewater at a location or in a manner different from that described in this Order is prohibited): This prohibition is based on CWC section 13260, which requires filing a Report of Waste Discharge before discharges can occur. Discharges not described in the Report of Waste Discharge, and subsequently in this Order, are prohibited.
2. **Discharge Prohibition III.B** (No discharges receiving less than 50:1 dilution): This prohibition is intended to ensure that the discharge does not fully use the assimilative capacity of the Napa River in consideration of the other permitted wastewater discharges to this same segment of the river, specifically the City of Calistoga and the Town of Yountville. The detailed calculations underlying the 50:1 ratio are included as Attachment F-1 to this Fact Sheet. The calculations are intended to be relatively simple, yet sufficiently protective to ensure that assimilative capacity remains available. They involve the following assumptions:

- The mass of pollutants flowing downstream through the river equals the masses from each source flowing into the river;
- Urban runoff flows are about 15 times the combined flows of the treatment plants discharging to this box of river; and
- Urban runoff copper loads are about eight times those of the wastewater discharges.

Compliance with Discharge Prohibition III.B ensures, in part, compliance with Basin Plan Table 4-1, Discharge Prohibition 1, which prohibits the discharge of any wastewater with particular characteristics of concern to beneficial uses that does not receive at least a minimum initial dilution of 10:1. The purpose of Discharge Prohibition 1 is to (a) provide an added degree of protection from the continuous effects of waste discharge, (b) provide a buffer against the effects of abnormal discharges caused by temporary plant upsets or malfunctions, (c) minimize public contact with undiluted wastes, and (d) reduce the visual (aesthetic) impacts of waste discharges.

Previous permits have imposed Prohibition 1 by requiring minimum river-to-wastewater flow ratios of 50:1 (1992 permit) and 25:1 (2005 permit) for Discharge Point 001. This Order increases the stringency of the requirement by reverting back to the ratio of 50:1 to minimize the discharge's impact on the receiving water. However, this does not fully address the issue of initial dilution and previous permits did not clearly outline their rationale. Initial dilution roughly equates to instantaneous mixing. Because the outfall does not have a diffuser, it does not have initial dilution. This fact is made evident in the dilution credit discussion in Fact Sheet Section IV.C.3, below, and is addressed by the following justification for a partial exception for the initial dilution element of Prohibition 1. The minimum river-to-wastewater flow ratios are necessary to ensure compliance with the full intent of Prohibition 1, specifically (b) through (d), as listed above.

The Basin Plan allows for exceptions to Prohibition 1 if there is “an inordinate burden ... relative to beneficial uses protected, and an equivalent level of environmental protection can be achieved by alternate means” In this case, installing diffusers would impose an inordinate burden relative to the beneficial uses protected, and in fact might damage rather than protect beneficial uses. The Discharger estimates that the costs to construct, anchor, and maintain diffusers in a dynamic river bed would be substantial. The Discharger recycles a significant portion of its effluent now and plans to increase recycling in the future, and has stated its preference to direct resources toward improving existing treatment processes and increasing recycling instead of constructing a diffuser. The Discharger certified a Draft EIR in September 2006 (*Draft Environmental Impact Report for Wastewater Treatment and Reclamation Plant Upgrade Project, September 2006*) that identified environmental impacts of installing a diffuser in the Napa River. The following potential impacts of construction were identified: dewatering of the Napa River; changing drainage patterns in the 100-yr flood zone; use of the river for recreation; and adverse effects on special status species (e.g, plants, northwestern pond turtle, migratory birds, steelhead). Mitigation plans were proposed for each of the construction impacts, but the Discharger believes it is better to avoid these impacts by not undertaking diffuser installation. In addition, operation and maintenance of the diffuser may be challenging under the condition of a frequently changing riverbed.

Organisms within the mixing zone would be unlikely to experience any acute or chronic toxicity. For most pollutants, the 99th percentile observed during the most recent permit term was less than the most protective water quality objective. Copper, cyanide, total ammonia, and bis(2-ethylhexyl)phthalate were exceptions. Nevertheless, the Discharger's mixing zone study indicates that mixing occurs rapidly, and, during worst case conditions, any organisms floating through the mixing zone would have a short residence time (approximately 1.2 minutes, which is much shorter than the 1-hour averaging period for acute water quality objectives or the 4-day averaging period for chronic water quality objectives) and would therefore be unlikely to experience acute or chronic toxicity. Moreover, the threat to beneficial uses is further minimized because the Order prohibits discharge during most of the year and allows discharge only when the river-to-wastewater flow ratio is adequate. The Discharger recycles, stores, or land applies all of its effluent when discharge is prohibited (May 1 through November 30), and recycles or land applies approximately 75 percent of its effluent during the wet season (based on 2009/10 season records). The storage and land application facilities are sufficiently sized such that discharge to the Napa River was only necessary during 20 days from January 1, 2006 to April 30, 2010.

The Discharger provides a level of protection that is equivalent to installing a diffuser by maintaining effluent quality at secondary treatment standards (required by 40 CFR part 133.102) and planning significant treatment process upgrades during the next 5 years. In addition to providing this level of treatment for its discharges and restricting discharges to times when river-to-wastewater flows are sufficient, this Order also requires the Discharger to evaluate the reliability of its treatment system to prevent inadequately treated wastewater from being discharged into the receiving waters. The requirement to maintain a Reliability Status Report (Provision VII.4.a) protects against the discharge of inadequately treated wastewater and also helps continue current treatment plant performance. It provides a buffer against the potential effects of any abnormal discharges that could be caused by temporary Plant upsets or malfunctions. Therefore, this discharge satisfies the inordinate burden/equivalent protection exception that the Basin Plan allows for Prohibition 1, because compliance with the requirements in this Order provides an alternate means to ensure an equivalent level of protection in lieu of imposing an inordinate burden on the Discharger.

3. **Discharge Prohibition III.C** (No bypass or overflow of untreated or partially treated wastewaters): This prohibition is based on 40 CFR 122.41(m). See federal Standard Provisions, Attachment D, section G. This Prohibition is retained from the previous permit.
4. **Discharge Prohibition III.D** (Average dry weather flow not to exceed dry weather design capacity): This prohibition is based on the design treatment capacity of the Plant. Exceedance of the Plant's average dry weather flow design capacity of 0.5 MGD may result in lowering the reliability of achieving compliance with water quality requirements.
5. **Discharge Prohibition III. E** (No sanitary sewer overflows to waters of the United States): Discharge Prohibition No. 15 from Basin Plan Table 4-1 and the CWA prohibit the discharge of wastewater to surface waters except as authorized under an NPDES permit. POTWs must achieve secondary treatment, at a minimum, and any more stringent limitations that are necessary to achieve water quality standards [33 U.S.C. § 1311 (b)(1)(B and C)]. Therefore, a sanitary sewer overflow that results in the discharge of raw sewage, or sewage not meeting

secondary treatment requirements, to surface waters is prohibited under the CWA and the Basin Plan.

- 6. Discharge Prohibition III.F** (Discharge to Napa River is prohibited from May 1 through November 30 each year): This prohibition is retained from the previous permit and is based on Basin Plan Discharge Prohibition 1, which prohibits the discharge of any wastewater that does not receive a 10:1 initial dilution. During the dry season, the Napa River decreases in flow, and does not provide sufficient dilution; therefore, discharge is prohibited during this period to protect downstream beneficial uses. A partial exception to Discharge Prohibition 1 is granted during the wet season from December through April, as explained in IV.A.2, above, and IV.B, below.

The Executive Officer may authorize an exception to the prohibition during May and November under emergency situations. This condition is explained in Prohibition III.F.

- 7. Discharge Prohibition III.G.** (Discharge of elevated temperature waste into a receiving water that supports cold fresh water habitat is prohibited unless it can be demonstrated that such an alteration does not adversely affect the beneficial uses of the receiving water): This requirement is based on Basin Plan Section 3.3.17, Temperature. This requirement is new.

B. Technology-Based Effluent Limitations

1. Scope and Authority

CWA section 301(b)(1)(B) requires USEPA to develop secondary treatment standards (the level of effluent quality attainable through application of secondary or equivalent treatment) for publicly owned treatment works. USEPA promulgated such technology-based effluent guidelines at 40 CFR Part 133. These secondary treatment regulations include the following minimum requirements that apply to Plant discharges.

Table F-8. Secondary Treatment Requirements

Parameter	Units	30-Day Average	7-Day Average
BOD ₅	mg/L	30	45
TSS	mg/L	30	45
BOD and TSS	% Removal	85	--
pH	standard units	6.0 - 9.0	

2. Applicable Effluent Limitations

Table F-8 summarizes technology-based effluent limitations for conventional and non-conventional pollutants.

Table F-9. Summary of Conventional and Non-Conventional Pollutants for Discharge Point 001

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
BOD ₅	mg/L	30	45	---	---	---
TSS	mg/L	30	45	---	---	---

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
BOD and TSS	% Removal	85	---	---	---	---
Oil and Grease	mg/L	10	---	20	---	---
pH	s.u.	---	---	---	6.5	8.5
Total Residual Chlorine	mg/L	---	---	---	---	0.0 ^[1]
Total Coliform Bacteria	MPN/100mL	5-Sample Moving Median Maximum: 23 Single Sample Maximum: 240				

^[1] Requirement defined as below the limit of detection in standard test methods defined in the latest USEPA approved edition of *Standard Methods for the Examination of Water and Wastewater*. The Discharger may elect to use a continuous on-line monitoring system for measuring flow, chlorine and sodium bisulfite dosage (including a safety factor) and concentration to prove that chlorine residual exceedances are false positives. Convincing evidence must be provided to the Regional Water Board to conclude these false positives are not violations of this permit.

Except as noted, this Order retains the effluent limitations for conventional and non-conventional pollutants from the previous permit.

- a. **BOD₅ and TSS.** Secondary treatment standards of 40 CFR Part 133 for BOD₅ and TSS are retained from the previous permit. 40 CFR 122.45(d) specifies that discharge limitations shall be stated as average weekly limitations and average monthly limitations, unless impracticable.
- b. **Oil and Grease.** Effluent limitations for oil and grease are retained from the previous permit and based on Basin Plan Table 4-2 for shallow water dischargers.
- c. **pH.** The pH limitation has been changed from the Basin Plan Table 4-2 limits for deep water discharges to more stringent Basin Plan Table 4-2 limits for shallow water discharges. This is consistent with the Basin Plan’s definition of deep and shallow water discharges in Basin Plan section 4.6.1. The discharge is not a deep water discharge because the outfall is not equipped with a diffuser.
- d. **Total chlorine residual.** The effluent limitation for total chlorine residual is retained from the previous permit and based on Basin Plan Table 4-2.
- e. **Total coliform bacteria.** The effluent limitations for total coliform bacteria are based on the alternative total coliform limitations for shallow water dischargers in Basin Plan Table 4-2, and are unchanged from the previous permit. Alternate limitations for total coliform bacteria are allowed by Basin Plan Table 4-2 footnote “e” because these limitations will not compromise the beneficial uses of the receiving water. These total coliform limits are consistent with the Basin Plan amendment the Regional Water Board approved through Resolution No. R2-2010-0066.

C. Water Quality-Based Effluent Limitations (WQBELs)

WQBELs have been derived to implement water quality objectives (WQOs) that protect beneficial uses. Both the beneficial uses and the WQOs have been approved pursuant to federal law. The procedures for calculating individual WQBELs are based on the SIP and the Basin Plan. Most beneficial uses and WQOs contained in the Basin Plan were approved under State law and submitted to and approved by USEPA prior to May 30, 2000. Any WQOs and beneficial uses

submitted to USEPA prior to May 30, 2000, but not approved by USEPA before that date, are nonetheless applicable water quality standards for purposes of the Clean Water Act pursuant to 40 CFR 131.21(c)(1). Collectively, this Order's restrictions on individual pollutants are no more stringent than the applicable CWA water quality standards.

1. Scope and Authority

- a. 40 CFR 122.44(d)(1)(i) requires permits to include effluent limitations for pollutants (including toxicity) that are or may be discharged at levels that cause, have reasonable potential to cause, or contribute to an excursion of a water quality standard, including numeric and narrative objectives within a standard. As specified in 40 CFR 122.44(d)(1)(i), permits are required to include WQBELs for all pollutants "which the Director determines are or may be discharges at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard."

The process for determining Reasonable Potential and calculating WQBELs when necessary is intended to protect the designated beneficial uses of the receiving water as specified in the Basin Plan, and to achieve applicable WQOs contained in the Basin Plan, other State plans and policies, the CTR, and NTR.

- b. NPDES regulations and the SIP provide the basis to establish maximum daily effluent limitations (MDELs).
 - (1) **NPDES Regulations.** 40 CFR 122.45(d) states: "For continuous discharges all permit effluent limitations, standards, and prohibitions, including those necessary to achieve water quality standards, shall *unless impracticable* be stated as maximum daily and average monthly discharge limitations for all discharges other than publicly owned treatment works."
 - (2) **SIP.** SIP Section 1.4 requires WQBELs to be expressed as MDELs and average monthly effluent limitations (AMELs).
- c. MDELs are used in this Order to protect against acute water quality effects. The MDELs are necessary for preventing fish kills or mortality to aquatic organisms.

2. Applicable Beneficial Uses and Water Quality Objectives

The WQOs applicable to the receiving water for this discharge are from the Basin Plan; the CTR, established by USEPA at 40 CFR 131.38; and the NTR, established by USEPA at 40 CFR 131.36. Some pollutants have WQOs established by more than one of these three sources.

- a. **Basin Plan.** The Basin Plan specifies numeric WQOs for 10 priority toxic pollutants, as well as narrative WQOs for toxicity and bioaccumulation in order to protect beneficial uses. The pollutants for which the Basin Plan specifies numeric objectives are arsenic, cadmium, chromium (VI), copper in marine and freshwater, lead, mercury, nickel, silver, zinc, and cyanide. The narrative toxicity objective states in part, "All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce

other detrimental responses in aquatic organisms.” The bioaccumulation objective states in part, “Controllable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered.” Effluent limitations and provisions contained in this Order are based on available information to implement these objectives.

The Basin Plan also contains a narrative objective for surface waters designated for use as a domestic or municipal supply (MUN) that states that these surface waters shall not contain concentrations of constituents in excess of the maximum contaminant levels (MCLs) or secondary MCLs specified in Title 22 of the California Code of Regulations. Effluent limitations and provisions contained in this Order are designed to implement these objectives, based on available information.

- b. CTR.** The CTR specifies numeric aquatic life criteria for 23 priority toxic pollutants and numeric human health criteria for 57 priority toxic pollutants. These criteria apply to all inland surface waters and enclosed bays and estuaries of San Francisco Bay Region, although Basin Plan Tables 3-3 and 3-4 include numeric objectives for certain of these priority toxic pollutants that supersede CTR criteria (except in the South Bay south of the Dumbarton Bridge). CTR human health criteria are further identified as “water and organisms” and “organisms only,” both of which apply to the receiving water for this discharge due to the MUN beneficial use designation.
- c. NTR.** The NTR establishes numeric aquatic life criteria for selenium and numeric human health criteria for 33 toxic organic pollutants for waters of San Francisco Bay upstream to and including Suisun Bay and the Sacramento River-San Joaquin River Delta. These criteria apply to the Napa River, the receiving water for this Discharger.
- d. Narrative Objectives for Water Quality-Based Toxics Controls.** Where numeric objectives have not been established or updated in the Basin Plan, 40 CFR 122.44(d) requires that WQBELs be established based on USEPA criteria, supplemented where necessary by other relevant information, to attain and maintain narrative WQOs to fully protect designated beneficial uses.

To determine the need for and establish WQBELs when necessary, the Regional Water Board has followed the requirements of applicable NPDES regulations, including 40 CFR 122 and 131; as well as guidance and requirements established by the Basin Plan; USEPA’s *Technical Support Document for Water Quality-Based Toxics Control* (the TSD, EPA/505/2-90-001, 1991); and the SIP.

- e. Basin Plan Receiving Water Salinity Policy.** The Basin Plan (like the CTR and the NTR) states that the salinity characteristics (i.e., freshwater vs. saltwater) of the receiving water are to be considered in determining the applicable WQO. Freshwater WQOs apply to discharges to waters with salinities equal to or less than one part per thousand (ppt) at least 95 percent of the time. Saltwater WQOs apply to discharges to waters with salinities equal to or greater than 10 ppt at least 95 percent of the time in a normal water year. For discharges to water with salinities in between these two categories, or tidally influenced freshwaters that support estuarine beneficial uses, the WQOs are to be the lower of the

salt or freshwater criteria (the latter calculated based on ambient hardness) for each substance.

The Napa River at the location of discharge is a freshwater river. As confirmed by the “Collaborative Napa River Receiving Water Evaluation,” salinity data measured in at the Napa River upstream and downstream of the discharge show that all the data (8 data points) fall below 1 ppt, indicating a freshwater environment. The reasonable potential analysis and effluent limitations in this Order are therefore based on freshwater objectives.

- f. Receiving Water Hardness.** Ambient hardness values are used to calculate freshwater WQOs that are hardness dependent. In determining WQOs for this Order, the Regional Water Board used a hardness of 81 mg/L as CaCO₃, which is the adjusted geometric mean value of twelve samples collected from February 2002 to February 2009 as part of the Napa River Collaborative Receiving Water Study upstream of the discharge.
- g. Metals Translators.** 40 CFR 122.45(c) requires that effluent limitations for metals be expressed as total recoverable metal. Since WQOs for metals are typically expressed as dissolved metal, translators must be used to convert metals concentrations from dissolved to total recoverable and vice versa. The CTR at 40 CFR 131.38(b)(2), Table 2, includes default translators that are used in NPDES permitting. These default translators were used to determine the need for and calculate metals WQBELs for this Order.

3. Determining the Need for WQBELs

Assessing whether a pollutant has “Reasonable Potential” is the fundamental step in determining whether or not a WQBEL is required. Using the methods prescribed in SIP section 1.3, the Regional Water Board analyzed effluent data to determine if the discharge demonstrates Reasonable Potential. The Reasonable Potential Analysis (RPA) compares the effluent data with numeric and narrative WQOs in the Basin Plan, the NTR, the CTR, and MCLs in CCR.

- a. Reasonable Potential Methodology.** The RPA identifies the observed maximum effluent concentration (MEC) for each pollutant based on existing effluent data. There are three triggers in determining Reasonable Potential.
 - (1) The first trigger (Trigger 1) is activated if the MEC is greater than or equal to the lowest applicable WQO ($MEC \geq WQO$), which has been adjusted, if appropriate, for pH, hardness, and translator data. If the MEC is greater than or equal to the adjusted WQO, then that pollutant has Reasonable Potential, and a WQBEL is required.
 - (2) The second trigger (Trigger 2) is activated if the observed maximum ambient background concentration (B) is greater than the adjusted WQO ($B > WQO$), and the pollutant is detected in any of the effluent samples ($MEC > ND$).
 - (3) The third trigger (Trigger 3) is activated if a review of other information determines that a WQBEL is required to protect beneficial uses, even though both MEC and B are less than the WQO. A limitation may be required under certain circumstances to protect beneficial uses.

- b. Effluent Data.** The Regional Water Board analyzed the Discharger's data for priority pollutants and the nature of the discharge to determine if the discharge has Reasonable Potential. The RPA was based on effluent monitoring data collected by the Discharger from January 2006 to April 2010 for most inorganic pollutants, and from January 2006 to March 2007 for most organic pollutants. Effluent was only discharged to the Napa River during periods in January 2006, March 2006, April 2006, and April 2010. All other effluent data represent samples collected from Pond 5.
- c. Ambient Background Data.** Ambient background values are used to determine reasonable potential and to calculate effluent limitations, when necessary. For the RPA, ambient background concentrations are the observed maximum detected water column concentrations. The SIP states that, for calculating WQBELs, ambient background concentrations are either the observed maximum ambient water column concentrations or, for WQOs intended to protect human health from carcinogenic effects, the arithmetic mean of observed ambient water concentrations.

On March 5, 2003, a group of five dischargers to the Napa River, including the City of St. Helena, submitted the "Collaborative Napa River Receiving Water Evaluation," which provided ambient data upstream of City of Napa. Water quality data from a monitoring location immediately upstream of the discharge was selected to represent background water quality for the RPA using freshwater objectives. These data were supplemented by receiving water data collected by the City of Calistoga, City of St. Helena, and the Town of Yountville from April 2007 to February 2009. (The Napa Sanitation District and the City of American Canyon were not involved in recent monitoring efforts, because their discharges are located in the lower, tidal section of the Napa River and are subject to saltwater objectives.) The SIP states that, for calculating WQBELs, ambient background concentrations are either the observed maximum ambient water column concentrations or, for objectives intended to protect human health from carcinogenic effects, the arithmetic mean of observed ambient water concentrations. For the RPA, ambient background concentrations are the observed maximum detected water column concentrations (when all data are non-detects, the maximum detection limit is used as the background concentration for RPA and WQBELs calculation).

- d. Sediment Quality.** Pollutants in some receiving water sediments may be present in quantities that, alone or in combination, are toxic to benthic communities. Efforts are underway to identify stressors causing such conditions. However, to date there is no evidence directly linking compromised sediment conditions to the discharge subject to this Order; therefore, the Regional Water Board cannot draw a conclusion about reasonable potential for the discharge to cause or contribute to exceedances of the sediment quality objectives. Nevertheless, the Discharger continues to participate in the RMP, which monitors San Francisco Bay sediment and seeks to identify stressors responsible for degraded sediment quality. Thus far, the monitoring has provided only limited information about potential stressors and sediment transport. The Regional Water Board is exploring appropriate requirements to impose on the Discharger, along with other dischargers in the region, to obtain additional information that may inform future RPAs.

e. **Reasonable Potential Determination.** Table F-10, below, presents the MECs, most stringent applicable WQO, and background concentrations used in the RPA, along with the RPA result (Yes or No) for each pollutant analyzed. Reasonable Potential was not determined for all pollutants because there are not applicable WQOs for all pollutants and monitoring data are not available for others. The RPA determined that copper, cyanide, bis(2-ethylhexyl)phthalate, and total ammonia demonstrate reasonable potential by Trigger 1; mercury demonstrates reasonable potential by Trigger 2; and dioxin-TEQ demonstrates reasonable potential by Trigger 3.

Table F-10. Reasonable Potential Analysis Summary

CTR #	Priority Pollutants	MEC or Minimum DL ^{[a][b]} (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background or Minimum DL ^{[a][b]} (µg/L)	RPA Results ^[c]
1	Antimony	0.2	6	1.8	No
2	Arsenic	1.6	50	4.3	No
3	Beryllium	0.007	4	0.06	No
4	Cadmium	0.03	1.0	< 0.02	No
5a	Chromium (III)	2	50	1.8	No
5b	Chromium (VI)	2.1	11	< 0.6	No
6	Copper	12	7.8	3.1	Yes
7	Lead	1.2	2.4	1.1	No
8	Mercury (303d listed) ^[d]	0.010	0.025	0.036	Yes
9	Nickel (303 listed)	6.8	44	4.1	No
10	Selenium (303d listed)	2	5	3	No
11	Silver	0.4	2.8	0.02	No
12	Thallium	0.07	1.7	< 0.01	No
13	Zinc	20	100	12	No
14	Cyanide	11	5.2	<0.6	Yes
15	Asbestos	No Data	7000000	< 0.99	Ud
16	2,3,7,8-TCDD (303d listed)	< 6.7E-07	1.3E-08	< 3.4 E-07	No
	Dioxin TEQ (303 listed)	2.4E-09	1.3E-08	1.1 E-11	Yes
17	Acrolein	< 0.5	320	<1.2	No
18	Acrylonitrile	< 0.6	0.059	< 0.58	No
19	Benzene	< 0.03	1.0	< 0.1	No
20	Bromoform	< 0.03	4.3	< 0.09	No
21	Carbon Tetrachloride	< 0.04	0.25	< 0.06	No
22	Chlorobenzene	< 0.03	70	< 0.1	No
23	Chlorodibromomethane	< 0.03	0.41	< 0.08	No
24	Chloroethane	< 0.03	No Criteria	< 0.11	Ud
25	2-Chloroethylvinyl ether	< 0.1	No Criteria	< 0.29	Ud
26	Chloroform	0.7	No Criteria	< 0.09	Ud
27	Dichlorobromomethane	< 0.04	0.56	< 0.08	No
28	1,1-Dichloroethane	< 0.04	5	< 0.06	No
29	1,2-Dichloroethane	< 0.04	0.38	< 0.09	No
30	1,1-Dichloroethylene	< 0.07	0.057	< 0.07	Yes
31	1,2-Dichloropropane	< 0.03	0.52	< 0.07	No
32	1,3-Dichloropropylene	< 0.03	0.5	< 0.07	No
33	Ethylbenzene	< 0.04	300	< 0.09	No
34	Methyl Bromide	< 0.08	48	< 0.06	No
35	Methyl Chloride	< 0.06	No Criteria	< 0.09	Ud
36	Methylene Chloride	< 0.08	4.7	< 0.08	No
37	1,1,2,2-Tetrachloroethane	< 0.04	0.17	< 0.07	No
38	Tetrachloroethylene	< 0.04	0.8	< 0.12	No
39	Toluene	1.9	150	< 0.06	No

CTR #	Priority Pollutants	MEC or Minimum DL ^{[a][b]} (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background or Minimum DL ^{[a][b]} (µg/L)	RPA Results ^[c]
40	1,2-Trans-Dichloroethylene	< 0.06	10	< 0.09	No
41	1,1,1-Trichloroethane	< 0.03	200	< 0.11	No
42	1,1,2-Trichloroethane	< 0.05	0.6	< 0.06	No
43	Trichloroethylene	< 0.05	2.7	< 0.07	No
44	Vinyl Chloride	< 0.06	0.5	< 0.14	No
45	2-Chlorophenol	< 0.8	120	< 0.8	No
46	2,4-Dichlorophenol	< 0.7	93	< 0.7	No
47	2,4-Dimethylphenol	< 0.8	540	< 0.8	No
48	2-Methyl- 4,6-Dinitrophenol	< 0.6	13.4	< 0.6	No
49	2,4-Dinitrophenol	< 0.6	70	< 0.6	No
50	2-Nitrophenol	< 0.6	No Criteria	< 0.6	Ud
51	4-Nitrophenol	< 0.7	No Criteria	< 0.7	Ud
52	3-Methyl 4-Chlorophenol	< 0.6	No Criteria	< 0.6	Ud
53	Pentachlorophenol	< 0.6	0.28	< 0.6	No
54	Phenol	No Data	21000	< 0.6	No
55	2,4,6-Trichlorophenol	< 0.6	2.1	< 0.6	No
56	Acenaphthene	< 0.03	1200	< 0.03	No
57	Acenaphthylene	< 0.02	No Criteria	< 0.02	Ud
58	Anthracene	< 0.02	9600	0.02	No
59	Benzidine	< 5	0.00012	< 5	No
60	Benzo(a)Anthracene	< 0.02	0.0044	< 0.02	No
61	Benzo(a)Pyrene	< 0.02	0.0044	< 0.02	No
62	Benzo(b)Fluoranthene	< 0.02	0.0044	< 0.02	No
63	Benzo(ghi)Perylene	< 0.02	No Criteria	< 0.02	Ud
64	Benzo(k)Fluoranthene	< 0.03	0.0044	< 0.03	No
65	Bis(2-Chloroethoxy)Methane	< 0.7	No Criteria	< 0.7	Ud
66	Bis(2-Chloroethyl)Ether	< 0.9	0.031	< 0.9	No
67	Bis(2-Chloroisopropyl)Ether	< 0.6	1400	< 0.6	No
68	Bis(2-Ethylhexyl)Phthalate	2.9	1.8	< 0.6	Yes
69	4-Bromophenyl Phenyl Ether	< 1	No Criteria	< 0.97	Ud
70	Butylbenzyl Phthalate	< 0.7	3000	< 0.7	No
71	2-Chloronaphthalene	< 1	1700	< 0.98	No
72	4-Chlorophenyl Phenyl Ether	< 1	No Criteria	< 0.99	Ud
73	Chrysene	< 0.02	0.0044	< 0.02	No
74	Dibenzo(a,h)Anthracene	< 0.02	0.0044	< 0.02	No
75	1,2-Dichlorobenzene	< 0.03	600	< 0.11	No
76	1,3-Dichlorobenzene	< 0.03	400	< 0.11	No
77	1,4-Dichlorobenzene	< 0.04	5	< 0.1	No
78	3,3 Dichlorobenzidine	< 1	0.04	< 0.1	No
79	Diethyl Phthalate	< 0.6	23000	< 0.6	No
80	Dimethyl Phthalate	< 0.7	313000	< 0.7	No
81	Di-n-Butyl Phthalate	< 0.6	2700	< 0.6	No
82	2,4-Dinitrotoluene	< 0.6	0.11	< 0.6	No
83	2,6-Dinitrotoluene	< 0.6	No Criteria	< 0.6	Ud
84	Di-n-Octyl Phthalate	< 0.7	No Criteria	< 0.7	Ud
85	1,2-Diphenylhydrazine	< 0.6	0.04	< 0.6	No
86	Fluoranthene	0.0208	300	< 0.02	No
87	Fluorene	< 0.02	1300	< 0.02	No
88	Hexachlorobenzene	< 1	0.00075	< 0.91	No
89	Hexachlorobutadiene	< 1	0.44	< 0.92	No
90	Hexachlorocyclopentadiene	< 0.8	50	< 0.8	No
91	Hexachloroethane	< 1	1.9	< 0.94	No
92	Indeno(1,2,3-cd)Pyrene	< 0.02	0.0044	< 0.02	No

CTR #	Priority Pollutants	MEC or Minimum DL ^{[a][b]} (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background or Minimum DL ^{[a][b]} (µg/L)	RPA Results ^[c]
93	Isophorone	< 0.8	8.4	< 0.8	No
94	Naphthalene	< 0.02	No Criteria	< 0.02	Ud
95	Nitrobenzene	< 0.7	17	< 0.7	No
96	N-Nitrosodimethylamine	< 0.8	0.00069	< 0.8	No
97	N-Nitrosodi-n-Propylamine	< 0.6	0.005	< 0.6	No
98	N-Nitrosodiphenylamine	< 0.6	5	< 0.6	No
99	Phenanthrene	0.0314	No Criteria	0.04	Ud
100	Pyrene	< 0.02	960	< 0.02	No
101	1,2,4-Trichlorobenzene	< 2	5	< 0.98	No
102	Aldrin	< 0.002	0.00013	< 0.002	No
103	Alpha-BHC	< 0.003	0.0039	< 0.002	No
104	Beta-BHC	< 0.003	0.014	< 0.002	No
105	Gamma-BHC	< 0.003	0.019	< 0.002	No
106	Delta-BHC	< 0.003	No Criteria	< 0.002	Ud
107	Chlordane (303d listed)	< 0.02	0.00057	< 0.02	No
108	4,4'-DDT (303d listed)	< 0.003	0.00059	< 0.003	No
109	4,4'-DDE	< 0.003	0.00059	< 0.003	Yes
110	4,4'-DDD	< 0.003	0.00083	< 0.003	No
111	Dieldrin (303d listed)	< 0.002	0.00014	< 0.002	No
112	Alpha-Endosulfan	< 0.003	0.056	< 0.003	No
113	beta-Endosulfan	< 0.003	0.056	< 0.003	No
114	Endosulfan Sulfate	< 0.002	110	< 0.002	No
115	Endrin	< 0.002	0.036	< 0.002	No
116	Endrin Aldehyde	< 0.003	0.76	< 0.002	No
117	Heptachlor	< 0.003	0.00021	< 0.003	No
118	Heptachlor Epoxide	< 0.002	0.0001	< 0.002	No
119-125	PCBs sum (303d listed)	< 0.02	0.00017	< 0.002	No
126	Toxaphene	< 0.19	0.0002	< 0.19	No
	Tributyltin	No Data	0.072	< 0.00036	Ud
	Total PAHs	< 0.02	No Criteria	0.06	No
	Total Ammonia (mg/L N)	20	1.3	< 0.04	Yes

Footnotes to Table F-10:

- [a] The Maximum Effluent Concentration (MEC) and maximum background concentration (B) are the actual detected concentrations unless preceded by a "<" sign, in which case the value shown is the minimum detection level (DL).
- [b] The MEC or B is "Not Available" when there are no monitoring data for the constituent.
- [c] RPA Results = Yes, if MEC > WQO, B > WQO and MEC is detected, or Trigger 3;
= No, if MEC and B are < WQO or all effluent data are undetected;
= Undetermined (Ud), if no criteria have been promulgated or there are insufficient data.
- [d] Though reasonable potential was found for mercury, the mercury discharge is regulated under Regional Water Board Order No. R2-2007-0077, which implements the San Francisco Bay Mercury TMDL.

f. Constituents with limited data. In some cases, Reasonable Potential cannot be determined because effluent data are limited, or ambient background concentrations are unavailable. The Discharger will continue to monitor for these constituents in the effluent using analytical methods that provide the best feasible detection limits. When additional data become available, further RPA will be conducted to determine whether to add numeric effluent limitations.

g. Pollutants with no Reasonable Potential. This Order does not contain WQBELs for constituents that do not demonstrate Reasonable Potential; however, monitoring for those pollutants is still required.

4. WQBEL Calculations

- a. Pollutants with Reasonable Potential.** WQBELs were developed for the toxic and priority pollutants determined to have reasonable potential to cause or contribute to exceedances of WQOs. The WQBELs were calculated based on appropriate WQOs and the procedures specified in SIP Section 1.4. The WQOs used for each pollutant with Reasonable Potential are discussed below.
- b. Dilution Credit.** This Order allows dilution credits for certain pollutants. SIP Section 1.4.2.1 requires an evaluation of the receiving water available to provide dilution of the discharge, which is classified as “completely-mixed” or “incompletely-mixed.” A completely-mixed discharge is defined as one where the concentration of a pollutant across a transect of the water body within two river widths downstream of the discharge point does not vary by more than five percent. The outfall does not have a diffuser, and the Discharger’s June 2010 mixing zone study (*City of St. Helena Effluent Mixing Zone / Dilution Credit Study*, Larry Walker Associates, Inc., June 9, 2010) concurs with the Regional Water Board’s finding in the previous Order that the discharge is incompletely-mixed. The mixing zone study consisted of a tracer study conducted in April 2010 and simulation modeling using the USEPA-supported CORMIX mixing zone model.

During the tracer study, strong lateral mixing caused by the momentum of the discharge was observed within the first 25 feet downstream of the outfall. The effluent plume was measured to mix initially 10 feet across the width of the river. The plume containing 68% of the dye was diluted by at least 5:1 before the 25-foot transect. Dye concentrations across the transect 100 feet downstream indicated that the plume had spread across almost half of the river’s width (12 feet across 26 feet total).

The CORMIX model was run for five critical flow conditions for Discharge Point 001 with a 50:1 river-to-wastewater flow ratio. The five critical flow scenarios were based on

- (1) maximum daily average flow,
- (2) minimum daily average flow,
- (3) maximum four-day average flow,
- (4) minimum four-day average flow, and
- (5) long-term average flow.

These scenarios correspond to acute WQOs (scenarios 1 and 2), chronic WQOs (scenarios 3 and 4), and human health WQOs (scenario 5). Within 25 feet downstream, the simulated effluent plume had 6:1 dilution and spread 5 to 10 feet across the channel due to lateral momentum. The plume was fully mixed vertically at approximately 100 feet downstream of the outfall.

The results of this mixing zone study show that the effluent plume mixes to 21:1 dilution ($D=20$) into the Napa River within a maximum distance of 225 feet downstream of Discharge Point 001 under critical discharge conditions. Normal discharge conditions (on the rare occasions when discharges to the river actually occur) take place when there is greater than 100:1 river-to-effluent flow, which would provide greater mixing.

The SIP allows dilution credits for completely-mixed discharges, and incompletely-mixed discharges under certain circumstances. SIP Section 1.4.2.2 allows mixing zones and dilution credits for incompletely-mixed discharges, but the mixing zone must be as small as practicable and it must not:

- Compromise the integrity of the water body
- Cause acute toxicity conditions to aquatic life passing through the mixing zone;
- Restrict the passage of aquatic life;
- Adversely impact biologically sensitive or critical habitats, including, but not limited to, habitats of species listed under federal or State endangered species laws;
- Produce undesirable or nuisance aquatic life;
- Result in floating debris, oil, or scum;
- Produce objectionable color, odor, taste, or turbidity;
- Cause objectionable bottom deposits;
- Cause nuisance;
- Dominate the receiving water body or overlap a mixing zone from different outfall; or
- Be located at or near any drinking water intake.

The Discharger's June 2010 study found that a mixing zone extending about 225 feet downstream of Discharge Point 001 would correspond to a maximum dilution credit of $D=20$ when the minimum river-to-effluent flow ratio is 50:1. Such a mixing zone would comply with all the above conditions. On a pollutant-by-pollutant basis, therefore, the smallest practicable mixing zone can be no larger than one extending 225 feet from the outfall. Since this mixing zone meets the SIP criteria listed above, smaller mixing zones also meet these criteria.

For each pollutant, the smallest practicable mixing zone is the mixing zone that results in the smallest dilution credit, not to exceed 21:1 (or $D=20$), the upper bound for the model results. This Order, therefore, is based on mixing zones that provide the smallest dilution credits less than $D=20$ resulting in WQBELs with which the Discharger can feasibly comply. Because there are only a few data points available for each pollutant, statistical analyses are not meaningful. Therefore, dilution credits were set so that the MEC was less than the resulting AMEL. This Order allows dilution credits of $D = 2.8$ for cyanide, $D = 1.8$ for copper, $D = 1$ for bis(2-ethylhexyl)phthalate, and $D = 20$ for total ammonia.

No dilution credit was granted for dioxin-TEQ because none is necessary to comply with the AMEL and MDEL, and because none is warranted because it is bioaccumulative and the receiving water flows into San Francisco Bay, which is listed as impaired by dioxins and furans.

c. Calculation of Pollutant-Specific WQBELs

(1) Copper

- (a) **Copper WQOs.** The most stringent WQOs for copper are the Basin Plan freshwater aquatic life criteria of 7.8 and 12 micrograms per liter ($\mu\text{g/L}$), chronic and acute, respectively, expressed as total metal using default translators and based on a hardness of 81 mg/L.
- (b) **RPA Results.** This Order establishes effluent limitations for copper because the MEC of 12 $\mu\text{g/L}$ exceeds the governing WQO for copper, demonstrating Reasonable Potential by Trigger 1.
- (c) **Copper WQBELs.** Effluent limitations for copper, calculated according to SIP procedures using a coefficient of variation (CV) of 0.41 and a dilution credit of $D=1.8$, are an AMEL of 14 $\mu\text{g/L}$ and an MDEL of 24 $\mu\text{g/L}$.
- (d) **Immediate Compliance Feasible.** It is feasible for the Discharger to comply with the copper WQBELs because the 95th percentile of the effluent data (14 $\mu\text{g/L}$) is the same as the AMEL, the 99th percentile (18 $\mu\text{g/L}$) is less than the MDEL, and the average of the effluent data (7.2 $\mu\text{g/L}$) is less than the long term average (LTA) of 10.4 $\mu\text{g/L}$ ¹.
- (e) **Anti-backsliding.** Anti-backsliding requirements are satisfied because the new copper limits are more stringent than the limits in the previous permit.

(2) Cyanide

- (a) **Cyanide WQOs.** The most stringent WQOs for cyanide are the Basin Plan fresh water aquatic life criteria of 5.2 $\mu\text{g/L}$ and 22 $\mu\text{g/L}$, chronic and acute, respectively.
- (b) **RPA Results.** This Order establishes effluent limitations for cyanide because the MEC of 11 $\mu\text{g/L}$ exceeds the governing WQO for cyanide, demonstrating Reasonable Potential by Trigger 1.
- (c) **Cyanide WQBELs.** Effluent limitations for cyanide, calculated according to SIP procedures using an effluent CV of 0.6 and a dilution credit of $D=2.8$, are an AMEL of 15 $\mu\text{g/L}$ and an MDEL of 30 $\mu\text{g/L}$.

¹ The statistical feasibility analysis consisted of the following steps:

- Use statistical software (MiniTab) to fit a statistical distribution of the effluent data.
- Calculate the mean, 95th, and 99th percentiles of the effluent data for each constituent considered (using the fitted distribution for percentiles calculation).
- Compare the mean, 95th, and 99th percentile values with the long-term average (LTA), AMEL, and MDEL calculated using the SIP procedure, respectively.
- If any of the LTA, AMEL, and MDEL exceeds the mean, 95th percentile, or 99th percentile, it may be infeasible for the Discharger to immediately comply with WQBELs.
- Where the 95th and 99th percentile values cannot be estimated due to too few data or too many data being non-detect, the determination was based on staff judgment after examination of the raw data, such as direct comparison of the MEC with the AMEL. If $\text{MEC} > \text{AMEL}$, it may be infeasible for the Discharger to immediately comply with WQBELs.

- (d) **Immediate Compliance Feasible.** It is feasible for the Discharger to comply with the cyanide WQBELs because the 95th percentile of the effluent data (14.8 µg/L) is less than the AMEL, the 99th percentile (24.1 µg/L) is less than the MDEL, and the average of the effluent data (5.6 µg/L) is less than the LTA of 9.5 µg/L.
- (e) **Anti-backsliding.** Anti-backsliding requirements are satisfied because the new cyanide limits are more stringent than the limits in the previous permit.

(3) Dioxin-TEQ

- (a) **Bioaccumulation WQO.** The Basin Plan narrative WQO for bioaccumulative substances states, “Many pollutants can accumulate on particulates, in sediments, or bioaccumulate in fish and other aquatic organisms. Controllable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered.”

Because the consensus of the scientific community is that dioxins and furans associate with particulates, accumulate in sediments, and bioaccumulate in the fatty tissues of fish and other organisms, the Basin Plan’s narrative bioaccumulation WQO applies to these pollutants. Elevated levels of dioxins and furans in San Francisco Bay fish tissue demonstrate that the narrative bioaccumulation WQO is not being met. USEPA has therefore included San Francisco Bay as impaired by dioxins and furans in the current CWA section 303(d) listing of waters where WQOs are not being met after imposition of technology-based requirements.

The CTR establishes a numeric WQO for 2,3,7,8-tetrachlorinated dibenzo-p-dioxin (2,3,7,8-TCDD) of 1.3×10^{-8} µg/L to protect human health when water is consumed. When the CTR was promulgated, USEPA stated its support of the regulation of other dioxin and dioxin-like compounds through the use of toxicity equivalencies (TEQs) in NPDES permits. USEPA stated specifically, “For California waters, if the discharge of dioxin or dioxin-like compounds has reasonable potential to cause or contribute to a violation of a narrative criterion, numeric WQBELs for dioxin or dioxin-like compounds should be included in NPDES permits and should be expressed using a TEQ scheme” [65 Fed. Reg. 31682, 31695 (2000)].

This Order uses a TEQ scheme based on a set of toxicity equivalency factors (TEFs) the World Health Organization (WHO) developed in 1998, and a set of bioaccumulation equivalency factors (BEFs) USEPA developed for the Great Lakes region (40 CFR132, Appendix F), to convert the concentration of any congener of dioxin or furan into an equivalent concentration of 2,3,7,8-TCDD. The CTR criterion is used as a criterion for dioxin-TEQ because dioxin-TEQ represents a toxicity-weighted concentration equivalent to 2,3,7,8-TCDD, thus translating the narrative bioaccumulation objective into a numeric criterion appropriate for the RPA.

To determine if the discharge of dioxin or dioxin-like compounds has reasonable potential to cause or contribute to a violation of the Basin Plan's narrative bioaccumulation WQO, TEFs and BEFs were used to express the measured concentrations of 16 dioxin congeners in effluent and background samples as 2,3,7,8-TCDD. These "equivalent" concentrations were then compared to the CTR numeric criterion for 2,3,7,8-TCDD (1.4×10^{-8} $\mu\text{g/L}$). Although the 1998 WHO scheme includes TEFs for dioxin-like PCBs, they are not included in this Order's TEQ scheme. The CTR has established a specific water quality standard for PCBs, and dioxin-like PCBs are included in the analysis of total PCBs.

- (b) **RPA Results.** Due to measured concentrations of dioxins and furans in effluent and receiving waters, and based on the findings of other municipal dischargers in the San Francisco Bay Region, the Regional Water Board finds that dioxin-TEQ can be discharged at concentrations that cause exceedance of the Basin Plan's bioaccumulation objective. Therefore, the Regional Water Board finds Reasonable Potential by Trigger 3.
- (c) **Dioxin-TEQ WQBELs.** Effluent limitations for dioxin-TEQ, calculated according to SIP procedures using a default CV of 0.60 and no dilution credit, are an AMEL of 1.3×10^{-8} $\mu\text{g/L}$ and an MDEL of 2.6×10^{-8} $\mu\text{g/L}$.
- (d) **Immediate Compliance Feasible.** It is feasible for the Discharger to comply with the dioxin-TEQ WQBELs because the observed MEC of dioxin congeners expressed as "equivalent" 2,3,7,8-TCDD (2.4×10^{-9} $\mu\text{g/L}$) is lower than both the AMEL and the MDEL.
- (e) **Anti-backsliding.** Anti-backsliding requirements are satisfied because the previous permit did not include final effluent limitations for dioxin-TEQ.

(4) Bis(2-Ethylhexyl)Phthalate

- (a) **Bis(2-Ethylhexyl)Phthalate WQO.** The most stringent WQO for bis(2-ethylhexyl)phthalate is the CTR criterion for protection of human health of 1.8 $\mu\text{g/L}$ when water is consumed.
- (b) **RPA Results.** This Order establishes effluent limitations for bis(2-ethylhexyl)phthalate because the MEC of 2.9 $\mu\text{g/L}$ exceeds the governing WQO for bis(2-ethylhexyl)phthalate, demonstrating Reasonable Potential by Trigger 1.
- (c) **Bis(2-Ethylhexyl)Phthalate WQBELs.** Effluent limitations for bis(2-ethylhexyl)phthalate, calculated according to SIP procedures using a default CV of 0.6 and dilution credit of $D=1$, are an AMEL of 3.0 $\mu\text{g/L}$ and an MDEL of 6.0 $\mu\text{g/L}$.
- (d) **Immediate Compliance Feasible.** It is feasible for the Discharger to comply with the bis(2-ethylhexyl)phthalate WQBELs because the observed MEC of 2.9 $\mu\text{g/L}$ is less than the AMEL and MDEL.

- (e) **Anti-backsliding.** Anti-backsliding requirements are satisfied because the previous permit did not contain final effluent limitations for bis(2-ethylhexyl)phthalate.

(5) Total Ammonia

- (a) **Ammonia WQOs.** The Basin Plan contains WQOs for un-ionized ammonia of 0.025 mg/L as an annual median and 0.16 mg/L as a maximum for upstream reaches of San Francisco Bay, including the receiving waters for this discharge. The Regional Water Board translated these un-ionized ammonia WQOs to equivalent total ammonia concentrations (as nitrogen) since (1) sampling and laboratory methods are not available to analyze for un-ionized ammonia; and (2) the fraction of total ammonia that exists in the toxic un-ionized form depends on the pH, salinity, and temperature of the receiving water. To translate the Basin Plan un-ionized ammonia objectives, the Regional Water Board used pH and temperature data from February 2002 to February 2009 from upstream and downstream monitoring stations on the Napa River near St. Helena. The Regional Water Board used the following equations for freshwater environments to determine the fraction of total ammonia that would exist in the toxic, un-ionized form in the receiving water [*Ambient Water Quality Criteria for Ammonia* (saltwater) – 1989, EPA Publication 440/5-88-004, USEPA, 1989]:

$$\text{For salinity} < 1 \text{ ppt: fraction of NH}_3 = \frac{1}{1 + 10^{(pK - pH)}}$$

Where:

$$pK = 0.09018 + 2729.92/(273 + T), \text{ and}$$

T = Temperature in degrees Celsius

To convert the Basin Plan's chronic un-ionized ammonia WQO to an equivalent total ammonia concentration, the median un-ionized ammonia fraction of the receiving water data set was used. To convert the Basin Plan's acute un-ionized ammonia WQO to an equivalent total ammonia concentration, the 90th percentile un-ionized ammonia fraction of the receiving water data set was used. Using the 90th percentile and median to express the acute and chronic un-ionized ammonia WQOs as equivalent total ammonia concentrations is consistent with USEPA guidance, as expressed by USEPA in *The Metals Translator: Guidance for Calculating a Total Recoverable Limit from a Dissolved Criterion* (EPA Publication Number 823-B-96-007, 1996).

The equivalent total ammonia chronic and acute WQOs are 1.2 mg/L and 1.9 mg/L, respectively.

- (b) **RPA Results.** This Order establishes effluent limitations for total ammonia because the MEC of 20 mg/L exceeds the governing WQO for total ammonia, demonstrating Reasonable Potential by Trigger 1.

- (c) **Ammonia WQBELs.** To set limitations for toxic pollutants, Basin Plan section 4.5.5.2 indicates that WQBELs are to be calculated using the SIP methodology. Basin Plan section 3.3.20 refers to ammonia as a toxic pollutant; therefore, it is consistent with the Basin Plan to use the SIP methodology to determine and establish effluent limitations for ammonia. Effluent limitations for total ammonia, calculated according to SIP procedures using an effluent CV of 0.54 and a dilution credit of $D=20$, are an AMEL of 16 mg/L and an MDEL of 39 mg/L.

To calculate these total ammonia limits, some statistical adjustments were made because the Basin Plan's chronic WQO for un-ionized ammonia is based on an annual median, while chronic criteria are usually based on a 4-day average. The SIP also assumes a monthly sampling frequency of 4 days per month to calculate effluent limitations based on chronic criteria. To use the SIP methodology to calculate effluent limits for a Basin Plan objective that is based on an annual median, an averaging period of 365 days and a monitoring frequency of 30 days per month (the maximum daily sampling frequency in a month since the averaging period for a chronic criterion is longer than 30 days) were used. These statistical adjustments are supported by USEPA's *Water Quality Criteria; Notice of Availability; 1999 Update of Ambient Water Quality Criteria for Ammonia*; published on December 22, 1999, in the Federal Register.

Following the SIP methodology as guidance, the Regional Water Board used the maximum ambient background total ammonia concentration to calculate effluent limitations based on the acute objective, and the median background total ammonia concentration to calculate effluent limitations based on the chronic objective. Because the Basin Plan's chronic un-ionized ammonia objective is an annual median, the median background concentration is more representative of ambient conditions than a daily maximum.

- (d) **Immediate Compliance Feasible.** Statistical analysis of effluent data for ammonia, collected from January 2006 through April 2010, shows that the 95th percentile (19 mg/L) is more than the AMEL (16 mg/L), and the 99th percentile (28 mg/L) is less than the MDEL (39 mg/L). Since the Discharger's data are close to feasibility and the Discharger may choose to sample more frequently to lower the average monthly concentrations, the Regional Water Board believes that the Discharger can comply with the effluent limits.

- (e) **Anti-backsliding.** Anti-backsliding requirements are satisfied because the previous permit did not include limits for total ammonia.

- e. **Effluent Limit Calculations.** The following table shows the WQBEL calculations for copper, cyanide, dioxin-TEQ, bis(2-ethylhexyl)phthalate, and total ammonia.

Table F-11. Effluent Limit Calculations

PRIORITY POLLUTANTS	Copper	Cyanide	Dioxin-TEQ	Bis(2-Ethylhexyl) Phthalate	Total Ammonia (acute)	Total Ammonia (chronic)
Units	ug/L	ug/L	ug/L	ug/L	mg/L N	mg/L N
Basis and Criteria type	BP & CTR FW Aquatic Life	BP & CTR FW Aquatic Life	BP Narrative	CTR Human Health	Basin Plan Aquatic Life	Basin Plan Aquatic Life
Criteria -Acute	12	22	----	----	----	----
Criteria -Chronic	7.8	5.2	----	----	----	----
SSO Criteria -Acute	----	----	----	----	----	----
SSO Criteria -Chronic	----	----	----	----	----	----
Water Effects ratio (WER)	1	1	1	1	1	1
Lowest WQO	7.8	5.2	1.3E-08	1.8	1.9	1.2
Site Specific Translator - MDEL	----	----	----	----	----	----
Site Specific Translator - AMEL	----	----	----	----	----	----
Dilution Factor (D) (if applicable)	1.8	2.8	0	1	20	20
No. of samples per month	4	4	4	4	4	30
Aquatic life criteria analysis required? (Y/N)	Y	Y	N	N	Y	Y
HH criteria analysis required? (Y/N)	Y	Y	Y	Y	N	N
Applicable Acute WQO	12	22	----	----	1.90	
Applicable Chronic WQO	7.8	5.2	----	----		1.20
HH criteria	1300	700	1.3E-08	1.8		
Background (Maximum Conc for Aquatic Life calc)	3.1	0.6	1.1E-11	0.6	0.04	0.04
Background (Average Conc for Human Health calc)	1.6	0.6	1.1E-11	0.6		
Is the pollutant on the 303d list (Y/N)?	N	N	Y	N	N	N
ECA acute	28.0	82			39	
ECA chronic	16.2	18				24.4
ECA HH	3637.174	2658	1.30E-08	3		
Number of data points <10 or at least 80% of data reported non detect? (Y/N)	N	N	Y	Y	N	N
Average of effluent data points	7.19	5.6			9.2	9.2
Standard Deviation of effluent data points	2.94	3.4			5.0	5.0
CV calculated	0.41	0.6	N/A	N/A	0.5	0.5
CV (Selected) - Final	0.41	0.60	0.6	0.6	0.5	0.5
ECA acute mult99	0.43	0.32			0.35	
ECA chronic mult99	0.64	0.53				0.94
LTA acute	12.1	26.3			13.7	
LTA chronic	10.4	9.5				22.85
minimum of LTAs	10.4	9.5			13.68	13.68
AMEL mult95	1.4	1.6	1.6	1.6	1.49	1.17
MDEL mult99	2.3	3.1	3.1	3.1	2.86	2.86
AMEL (aq life)	14.1	14.8			20	16

PRIORITY POLLUTANTS	Copper	Cyanide	Dioxin-TEQ	Bis(2-Ethylhexyl) Phthalate	Total Ammonia (acute)	Total Ammonia (chronic)
MDEL(aq life)	23.9	29.7			39	39
MDEL/AMEL Multiplier	1.69	2.01	2.01	2.01	1.91	2.44
AMEL (human hlth)	3637	2658	1.3E-08	3		
MDEL (human hlth)	6148	5330	2.6E-08	6		
minimum of AMEL for Aq. life vs HH	14.1	15	1.3E-08	3.0	20.4	16.0
minimum of MDEL for Aq. Life vs HH	23.9	30	2.6E-08	6.0	39.1	39.1
Current limit in permit (30-day average)	35	41	----	----	----	----
Current limit in permit (daily)	70	83	----	----	----	----
Final limit - AMEL	14	15	1.3E-08	3.0		16
Final limit - MDEL	24	30	2.6E-08	6.0		39
Max Effl Conc (MEC)	12	11	2.4E-09	2.9	20	20

5. Whole Effluent Acute Toxicity

- a. **Permit Requirements.** This Order includes effluent limitations for whole effluent acute toxicity based on Basin Plan Table 4-3. The limits are different than those in the previous permit to reflect the monthly testing schedule for acute toxicity. Compliance evaluation is based on 96-hour static-renewal bioassays. All bioassays are to be performed according to the USEPA-approved method in 40 CFR Part 136, currently *Methods for Measuring the Acute Toxicity of Effluents and Receiving Water, 5th Edition*.
- b. **Ammonia Toxicity.** Toxicity due to ammonia may not be a concern as long as the concentrations are below the WQBELs. The Discharger is allowed to adjust effluent pH during testing to minimize the impacts of ammonia toxicity. The pH of each 24-hr composite effluent sample may be adjusted to match the pH measured in the Napa River at RSW-001 during the same day as effluent sample collection.

6. Whole Effluent Chronic Toxicity

This Order does not contain chronic toxicity requirements like the previous permit. This consideration is based on the discharge flow and water quality impacts, as well as cost and benefits. If in the future, there is concern of chronic toxicity from the discharge, the Regional Water Board may reopen the permit, or in the next permit, to include chronic toxicity requirements.

E. Anti-backsliding and Antidegradation

The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution 68-16. This Order continues the status quo with respect to the level of discharge authorized in the previous permit and thus there will be no change in water quality beyond the level authorized in the last permit. The limitations in this Order comply with antidegradation requirements because they hold the Discharger to performance levels that will neither cause nor contribute to water quality impairment, nor further water quality degradation.

This is because this Order does not provide for an increase in the permitted design flow, allow for a reduced level of treatment, or increase effluent limitations. Because antidegradation requirements are met, there will be no lowering of water quality beyond the current level authorized in the previous permit, which is the baseline by which to measure whether degradation will occur. Therefore, further analysis in this permit is unnecessary, and findings authorizing degradation are unnecessary.

1. Effluent Limitations Retained from Previous Permit. Limitations for the following parameters are retained and are unchanged from the previous permit.

- BOD₅ and TSS
- 85% removal requirement for BOD and TSS
- Oil and grease
- Total residual chlorine
- Total coliform bacteria
- acute toxicity

Retaining effluent limitations for these parameters in this Order ensures that these limitations are at least as stringent as those in the previous permit, meeting CWA anti-backsliding requirements. Retaining effluent limitations for these parameters also ensures that the existing receiving water quality will not be degraded in terms of these parameters as a result of this Order.

2. New Effluent Limitations. The previous permit did not contain final, concentration-based limitations for the following parameters:

- Bis(2-ethylhexyl)phthalate
- Total Ammonia
- Dioxin-TEQ

The establishment of new effluent limitations for these pollutants effectively creates limitations more stringent than those in the previous permit, thereby meeting anti-backsliding requirements and ensuring that the existing quality of the receiving water will not be degraded in terms of these parameters as a result of this Order.

3. More Stringent Effluent Limitations. This Order establishes effluent limitations for pH, copper, and cyanide that are more stringent than those contained in the previous permit, thereby satisfying antidegradation and anti-backsliding requirements.

4. Effluent Limitations Not Retained from the Previous Permit. This Order does not retain limitations for the following parameters from the previous permit:

- Lead
- Mercury

This Order does not retain effluent limitations for lead because the RPA did not show reasonable potential for lead to violate WQOs. Elimination of WQBELs for this pollutant is consistent with State Water Board Order WQ 2001-16 and does not violate anti-backsliding

policies. Antidegradation policies are also satisfied because the exclusion of these limitations will not result in degradation of the receiving waters.

This Order does not retain effluent limitations for mercury because mercury discharges to the San Francisco Bay are now regulated by Regional Water Board Order No. R2-2007-0077, which is a Watershed Permit that implements the San Francisco Bay Mercury TMDL. That order was established consistent with applicable federal and State antidegradation requirements.

5. **Effluent Limitations Less Stringent than the Previous Permit.** No effluent limitations in this Order are less stringent than those in the previous permit.
6. **Increased Design Capacity.** During the term of the previous permit, influent flows to the Plant have approached its current design capacity (0.5 mgd). The Discharger has indicated that it plans to upgrade the facility to increase the design capacity initially to 0.8 mgd. The facility upgrades will also increase the production of Title 22 disinfected tertiary recycled water to allow for expanded water reclamation and reduced discharge to the Napa River.

The Discharger conducted a water quality impacts assessment to determine if the proposed increase in dry weather design capacity from 0.5 mgd to 0.8 mgd will produce significant changes in the ambient water quality of the Napa River. The results of the water quality impact analysis are contained in a report titled, "City of St. Helena Antidegradation Study" (June 2010). The study states that since the Plant is prohibited to discharge into the river during the dry season, and the Discharger reclaims/land disposes most of the wastewater; during discharge to Napa River, effluent water quality will only cause a minor or negligible, temporary water quality change in Napa River. Therefore, the capacity increase from 0.5 mgd to 0.8 mgd is consistent with the antidegradation requirements.

Because the plant upgrade project is scheduled to be completed by the end of this permit term, the Regional Water Board will evaluate a capacity increase from 0.5 mgd to 0.8 mgd with the next permit reissuance after all the tasks in Provision VII.C.4.b are completed.

F. Reclamation Specifications

Water reclamation requirements for this Discharger are set forth in Regional Water Board Order No. 87-090.

V. RATIONALE FOR SURFACE RECEIVING WATER LIMITATIONS

The receiving water limitations are based on Basin Plan WQOs and are a required part of this Order. They are retained from the previous permit, except the temperature limits are new, and are based on the Basin Plan for cold fresh water habitat protection (Section 3.3.17).

VI. RATIONAL FOR POND LIMITATIONS

These requirements are retained from the previous permit to ensure that effluent stored in the ponds does not cause odors (dissolved oxygen and dissolved sulfides); to ensure that the ponds are in

sufficient condition to prevent flooding, erosion, and washout; and to ensure that sufficient pond freeboard exists to prevent overflow, consistent with Basin Plan section 4.9.3.

VII. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

The principal purposes of a monitoring program by a discharger are to:

- Document compliance with waste discharge requirements and prohibitions established by the Regional Water Board;
- Facilitate self-policing by the discharger in the prevention and abatement of pollution arising from waste discharge;
- Develop or assist in the development of limitations, discharge prohibitions, national standards of performance, pretreatment and toxicity standards, and other standards; and
- Prepare water and wastewater quality inventories.

The MRP is a standard requirement in almost all NPDES permits the Regional Water Board issues, including this Order. It contains definitions of terms and sets out requirements for reporting routine monitoring data in accordance with NPDES regulations, the CWC, and Regional Water Board policies. The MRP also defines the sampling stations and frequency, the pollutants to be monitored, and additional reporting requirements. Pollutants to be monitored include all parameters for which effluent limitations are specified. Monitoring for additional constituents, for which no effluent limitations are established, is also required to provide data for future completion of RPAs.

A. Influent Monitoring

Influent monitoring requirements for BOD₅ and TSS allows determination of compliance with this Order's 85 percent removal requirement. Influent flow monitoring requirements are retained from the previous permit.

B. Effluent Monitoring

The MRP retains most effluent monitoring requirements from the previous permit. Changes in effluent monitoring at EFF-001 are summarized as follows.

- Monthly monitoring for mercury is no longer required because the discharge of mercury is now regulated under Regional Water Board Order No. 2007-0077.
- Routine effluent monitoring for lead is no longer required because this Order does not retain lead effluent limitations.

C. Whole Effluent Toxicity Testing Requirements

This Order retains monthly acute toxicity monitoring with fathead minnow. When the Discharger conducted four tests with fathead minnow and rainbow trout in 2006, rainbow trout showed 100% survival in all samples, and one sample was toxic to fathead minnow. Therefore, this permit only requires testing with fathead minnow as allowed by the previous permit.

D. Other Monitoring Requirements

- 1. Biosolids Monitoring.** Biosolids monitoring is required pursuant to 40 CFR 503.
- 2. Pond Monitoring.** This monitoring is necessary to determine compliance with pond limitations.

VIII. RATIONALE FOR PROVISIONS

A. Standard Provisions (Provision VII.A)

Standard Provisions, which in accordance with 40 CFR 122.41 and 122.42 apply to all NPDES discharges and must be included in every NPDES permit, are provided in Attachments D of this Order. 40 CFR 122.41(a)(1) and (b) through (n) establish conditions that apply to all state-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. 40 CFR 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. The Regional Standard Provisions (Attachment G) supplement the Federal Standard Provisions. In accordance with 40 CFR 123.25, this Order omits federal conditions that address enforcement authority specified in 40 CFR 122.41(j)(5) and (k)(2) because the CWC enforcement authority is more stringent. In lieu of these conditions, this Order incorporates by reference CWC Section 13387(e).

B. Monitoring and Reporting Requirements (Provision VII.B)

The Discharger is required to monitor the permitted discharges in order to evaluate compliance with permit conditions. Monitoring requirements are contained in the MRP (Attachment E) and Regional Standard Provisions (Attachment G). This provision requires compliance with these documents and is based on 40 CFR 122.63 and CWC Section 13267.

C. Special Provisions (Provision VII.C)

1. Reopener Provisions

These provisions are based on 40 CFR 123 and allow modification of this Order and its effluent limitations as necessary in response to updated WQOs that may be established in the future or certain other information.

2. Effluent Data Evaluation

This Order does not include effluent limitations for the selected constituents addressed in the August 6, 2001 Letter that do not demonstrate Reasonable Potential, but this provision requires the Discharger to continue monitoring for these pollutants as described in the August 6, 2001 Letter and as specified in the MRP of this Order. If concentrations of these constituents increase significantly, the Discharger will be required to investigate the source of the increases and establish remedial measures if the increases result in reasonable potential to cause or contribute to an excursion above the applicable WQO/WQC. This provision is based on the Basin Plan and the SIP.

3. Best Management Practices and Pollution Minimization Program

This provision is based on Basin Plan section 4.13.2 and SIP section 2.4.5.

4. Construction, Operation, and Maintenance Specifications

- a. Reliability Status Report. This provision is required to ensure that the Discharger qualifies for an exception to Basin Plan Discharge Prohibition 1. Discharge Prohibition 1 is further discussed in Fact Sheet section IV.A.2.
- b. Plant Upgrade and Capacity Increase. This provision requires the Discharger to upgrade the Plant and to increase capacity because the influent flow is approaching its maximum dry weather capacity, a situation that could lower the reliability of the treatment plant. This provision is based on California Code of Regulations, Title 23. Waters, § 2232 Ensuring Adequate Capacity, and is intended to update the dry weather flow capacity. Such action is necessary since the dry weather flows have been approaching the dry weather capacity of the facility.

5. Special Provisions for Municipal Facilities (POTWs Only)

- a. Biosolids Management Practices Requirements. This provision is based on Basin Plan Chapter 4 and 40 CFR Parts 257 and 503, and is retained from the previous permit.
- b. Sanitary Sewer Overflows and Sewer System Management Plan. This provision is to explain the Order's requirements as they relate to the Discharger's collection system, and to promote consistency with the State Water Resources Control Board's Statewide General Waste Discharge Requirements for Sanitary Sewer Overflow and related Monitoring and Reporting Program (Order No. 2006-0003-DWQ).

The General Order requires public agencies that own or operate sanitary sewer systems with greater than one mile of pipes or sewer lines to enroll for coverage under the General Order. The General Order requires agencies to develop sanitary sewer management plans and report all sanitary sewer overflows, among other requirements and prohibitions. Furthermore, the General Order contains requirements for operation and maintenance of collection systems and for reporting and mitigating sanitary sewer overflows. Inasmuch that the Discharger's collection system is part of the system that is subject to this Order, certain standard provisions apply as specified in Provisions, section VII.C.5. The Discharger must comply with both the General Order and this Order. The Discharger and public agencies that are discharging wastewater into the facility were required to enroll under the General Order by December 1, 2006.

The State Water Board amended the General Order on February 20, 2008, in Order No. WQ 2008-0002-EXEC, to strengthen the notification and reporting requirements for sanitary sewer overflows. The Regional Water Board issued a 13267 letter on May 1, 2008, requiring dischargers to comply with the new notification requirements. The Regional Standard Provisions (Attachment G) contains the same notification and reporting requirements for spills from wastewater treatment facilities.

VIII. PUBLIC PARTICIPATION

The Regional Water Board is considering the issuance of WDRs that will serve as an NPDES permit for the Plant discharges. As a step in the WDR adoption process, the Regional Water Board has developed tentative WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The Regional Water Board notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and has provided an opportunity to submit written comments and recommendations. Notification was provided through the Napa Valley Register.

B. Written Comments

Staff determinations are tentative. Interested persons are invited to submit written comments concerning these tentative WDRs. Comments must be submitted either in person or by mail to the Executive Office at the Regional Water Board at the address above on the cover page of this Order, Attention: Tong Yin.

To be fully responded to by staff and considered by the Regional Water Board, written comments must be received at the Regional Water Board offices by 5:00 p.m. on August 2, 2010.

C. Public Hearing

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

Date: September 8, 2010
Time: 9:00 am
Location: Elihu Harris State Office Building
1515 Clay Street, 1st Floor Auditorium
Oakland, CA 94612

Contact: Tong Yin, (510) 622-2418, email TYin@waterboards.ca.gov

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

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

D. Waste Discharge Requirements Petitions

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

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

E. Information and Copying

The Report of Waste Discharge, related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., except from noon to 1:00 p.m., Monday through Friday. Copying of documents may be arranged by calling 510-622-2300.

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional Water Board, reference the City of St. Helena Wastewater Treatment and Reclamation Plant, and provide a name, address, and phone number.

G. Additional Information

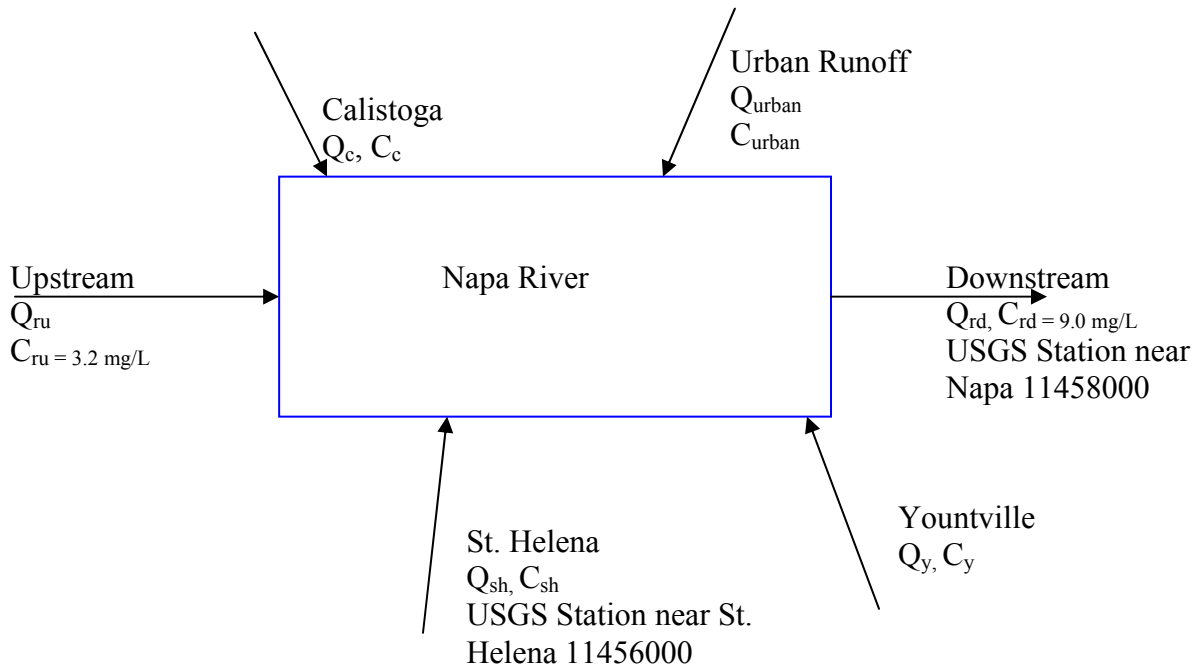
Requests for additional information or questions regarding this Order may be directed to Tong Yin at 510-622-2418 (e-mail at TYin@waterboards.ca.gov).

IX. APPENDIX

Appendix F-1. River-to-Effluent Flow Ratio Calculations.

**APPENDIX F-1
CITY OF ST. HELENA RIVER-TO-DISCHARGE
FLOW RATIO CALCULATIONS**

We treat Napa River from upstream of Calistoga to downstream of Yountville as a box. The flow balance for this box of Napa River can be expressed as in Equation 1a and 1b.



Equation 1a: $Q_{ru} + Q_c + Q_{sh} + Q_y + Q_{urban} + Q_{trib} = Q_{rd}$

where:

- Q_{ru} = Upstream River Flow
- Q_c = Calistoga Effluent Flow
- Q_{sh} = Saint Helena Effluent Flow
- Q_y = Yountville Effluent Flow
- Q_{urban} = Urban Runoff Flow
- Q_{trib} = Tributary Flow
- Q_{rd} = Downstream River Flow

Conservatively assuming that Q_{trib} is negligible during the early part of the discharge season, this equation yields:

Equation 1b: $Q_{ru} + Q_c + Q_{sh} + Q_y + Q_{urban} = Q_{rd}$

Conservatively using the 2007/2008 wet weather influent data to estimate the flows of each facility.

$$\begin{aligned}
 Q_{sh} &= 106 \text{ Mgal/year} \\
 Q_c &= 154 \text{ Mgal/year} = 1.45 * Q_{sh} \\
 Q_y &= 104 \text{ Mgal/year} = 0.98 * Q_{sh} \\
 Q_c + Q_{sh} + Q_y &= 364 \text{ Mgal/year}
 \end{aligned}$$

Q_{urban} can be estimated through this equation: ¹

$$Q_{urban} = C_{mun} * I * A_{mun} + C_{ind} * I * A_{ind}$$

Where:

$$\begin{aligned}
 I &= \text{rainfall} = 30 \text{ inches / year} \\
 C_{mun} &= \text{municipal runoff fraction} = 0.2 \\
 C_{ind} &= \text{industrial runoff fraction} = 1.0 \\
 A_{mun} &= \text{municipal area} = 25,667 \text{ acres} \\
 A_{ind} &= \text{industrial area} = 1,447 \text{ acres}
 \end{aligned}$$

$$\begin{aligned}
 Q_{urban} &= \left[0.2 \left(\frac{30 \text{ in}}{\text{year}} \right) (25667 \text{ acres}) + 1.0 \left(\frac{30 \text{ in}}{\text{year}} \right) (1447 \text{ acres}) \right] \times \left[\frac{1.008 \text{ ft}^3 / \text{sec}}{\text{acre} - \text{in} / \text{hr}} \right] \times \left[\frac{3600 \text{ sec}}{\text{hr}} \right] \times \left[\frac{7.4805 \text{ gal}}{\text{ft}^3} \right] \\
 Q_{urban} &= 5,359 \text{ Mgal/year}
 \end{aligned}$$

Therefore, Q_{urban} is about 15 times the combined flow of the treatment plants.

$$\frac{Q_{urban}}{Q_c + Q_{sh} + Q_y} = \frac{5359 \text{ Mgal/year}}{364 \text{ Mgal/year}} = 14.7 \approx 15$$

$$Q_{Urban} = 15 * (Q_c + Q_{sh} + Q_y)$$

Substituting this ratio into Equation 1:

$$Q_{ru} + 16 * (Q_c + Q_{sh} + Q_y) = Q_{rd}$$

Solving for Q_{ru} :

$$Q_{ru} = Q_{rd} - 16 * (Q_c + Q_{sh} + Q_y) =$$

Because the ambient background and effluent data suggest that assimilative capacity may be most limited with respect to copper, the mass balance calculations are based on copper concentrations.

The mass balance can be expressed as follows:

$$\text{Equation 2 : } Q_{ru} * C_b + Q_c * C_c + Q_{sh} * C_{sh} + Q_y * C_y + Q_{urban} * C_{urban} = Q_{rd} * C_o$$

¹ Table 7b of January 16, 2007, staff report for the Napa River Sediment Total Maximum Daily Loads.

where:

- C_b = Upstream Background River Copper Concentration
- C_c = Calistoga Effluent Copper Concentration
- C_{sh} = Saint Helena Effluent Copper Concentration
- C_y = Yountville Effluent Copper Concentration
- C_{urban} = Urban Runoff Copper Concentration
- C_{trib} = Tributary Copper Concentration
- C_o = Downstream River Copper Water Quality Objective Concentration

Assuming that urban and non-urban runoff copper loads are about eight times those of the wastewater treatment plants².

$$Q_{urban} * C_{urban} = 8 * (Q_c * C_c + Q_{sh} * C_{sh} + Q_y * C_y)$$

Combining the above equations:

$$Q_{ru} * C_b + 9 * (Q_c * C_c + Q_{sh} * C_{sh} + Q_y * C_y) = Q_{rd} * C_o$$

The following effluent copper concentrations are base on the 95th percentiles of the effluent data for each wastewater treatment facility (using combined data from both of Calistoga’s outfalls), and the downstream copper water quality objective is based on the lowest measured downstream hardness of 103 mg/L. The background copper concentration in the Napa River reflects upstream measurements above Calistoga.

- $C_c = 9.0 \text{ mg/L}$
- $C_{sh} = 14.4 \text{ mg/L}$
- $C_y = 28 \text{ mg/L}$
- $C_o = 6.4 \text{ mg/L}$
- $C_b = 3.2 \text{ mg/L}$

Substituting these values into Equation 2:

$$[Q_{rd} - 16 * (1.45 * Q_{sh} + Q_{sh} + 0.98 * Q_{sh})] * 3.2 + 9 * (1.45 * Q_{sh} * 9.0 + Q_{sh} * 14.4 + 0.98 * Q_{sh} * 28) = Q_{rd} * 9.6$$

Solving this equation for the ratio of the downstream flow to the Calistoga plant flow yields a river-to-wastewater ratio of approximately 50:1:

$$\frac{Q_{rd}}{Q_{sh}} \cong \frac{50}{1}$$

Using United States Geological Service (USGS) flow records for the Napa River at historical station USGS 11456000 near St. Helena, and station USGS 11458000 near Napa, the annual mean flow at Napa (209.4 cubic feet per second [cfs] from 1960 to 2008) is approximately 3.4 times that at St. Helena (61.6 cfs from 1960 to 2008). Applying this factor, the equivalent flow-to-discharge ratio at St. Helena would be approximately **15:1**. However,

² June 6, 2007, staff report for Copper Site Specific Objectives

- (1) the mass balance contains simplifying assumptions and uncertainty in estimates of flow and copper loading;
- (2) a river-to-wastewater ratio of at least 50:1 is required to comply with the intent of the Basin Plan's Prohibition 1 against discharges receiving less than 10:1 initial dilution;
- (3) the Discharger's mixing zone study, upon which dilution credits for copper and other pollutants are based, was conducted based on a river-to-wastewater ratio of 50:1; and
- (4) when discharges to Napa River occurred, the flow rate was normally much higher than the influent flow rate (e.g., in 2006, the average discharge flow rate was 4.2 mgd for 19 days, with a maximum discharge rate of about 8 mgd).

Therefore, the dilution ratio of 50:1 for river discharge will be imposed to ensure the Napa River's water quality will not be degraded as a result of the combined discharges of Calistoga, St. Helena, and Yountville, and that its beneficial uses will be protected. The 50:1 river-to-wastewater flow ratio for discharge also encourages wastewater recycling. The Discharger can operate its facility under this requirement without hardship.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ATTACHMENT G
REGIONAL STANDARD PROVISIONS, AND MONITORING
AND REPORTING REQUIREMENTS
(SUPPLEMENT TO ATTACHMENT D)

For

NPDES WASTEWATER DISCHARGE PERMITS

March 2010

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**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION**

**REGIONAL STANDARD PROVISIONS, AND MONITORING AND
REPORTING REQUIREMENTS
(SUPPLEMENT TO ATTACHMENT D)**

FOR

NPDES WASTEWATER DISCHARGE PERMITS

APPLICABILITY

This document applies to dischargers covered by a National Pollutant Discharge Elimination System (NPDES) permit. This document does not apply to Municipal Separate Storm Sewer System (MS4) NPDES permits.

The purpose of this document is to supplement the requirements of Attachment D, Standard Provisions. The requirements in this supplemental document are designed to ensure permit compliance through preventative planning, monitoring, recordkeeping, and reporting. In addition, this document requires proper characterization of issues as they arise, and timely and full responses to problems encountered. To provide clarity on which sections of Attachment D this document supplements, this document is arranged in the same format as Attachment D.

I. STANDARD PROVISIONS - PERMIT COMPLIANCE

A. Duty to Comply

Not Supplemented

B. Need to Halt or Reduce Activity Not a Defense

Not Supplemented

C. Duty to Mitigate

This supplements I.C. of Standard Provisions (Attachment D)

1. Contingency Plan

The Discharger shall maintain a Contingency Plan as originally required by Regional Water Board Resolution 74-10 and as prudent in accordance with current municipal facility emergency planning. The Contingency Plan shall describe procedures to ensure that existing facilities remain in, or are rapidly returned to, operation in the event of a process failure or emergency incident, such as employee strike, strike by suppliers of chemicals or maintenance services, power outage, vandalism, earthquake, or fire. The Discharger may combine the Contingency Plan and Spill Prevention Plan into one document. Discharge in violation of the permit where the Discharger has failed to develop and implement a Contingency Plan as

described below will be the basis for considering the discharge a willful and negligent violation of the permit pursuant to California Water Code Section 13387. The Contingency Plan shall, at a minimum, contain the provisions of a. through g. below.

- a. Provision of personnel for continued operation and maintenance of sewerage facilities during employee strikes or strikes against contractors providing services.
- b. Maintenance of adequate chemicals or other supplies and spare parts necessary for continued operations of sewerage facilities.
- c. Provisions of emergency standby power.
- d. Protection against vandalism.
- e. Expedient action to repair failures of, or damage to, equipment and sewer lines.
- f. Report of spills and discharges of untreated or inadequately treated wastes, including measures taken to clean up the effects of such discharges.
- g. Programs for maintenance, replacement, and surveillance of physical condition of equipment, facilities, and sewer lines.

2. Spill Prevention Plan

The Discharger shall maintain a Spill Prevention Plan to prevent accidental discharges and minimize the effects of such events. The Spill Prevention Plan shall:

- a. Identify the possible sources of accidental discharge, untreated or partially treated waste bypass, and polluted drainage;
- b. Evaluate the effectiveness of present facilities and procedures, and state when they became operational; and
- c. 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.

This Regional Water Board, after review of the Contingency and Spill Prevention Plans or their updated revisions, may establish conditions it deems necessary to control accidental discharges and to minimize the effects of such events. Such conditions may be incorporated as part of the permit upon notice to the Discharger.

D. Proper Operation & Maintenance

This supplements I.D of Standard Provisions (Attachment D)

1. Operation and Maintenance (O&M) Manual

The Discharger shall maintain an O&M Manual to provide the plant and regulatory personnel with a source of information describing all equipment, recommended operational strategies, process control monitoring, and maintenance activities. To remain a useful and relevant

document, the O&M Manual shall be kept updated to reflect significant changes in treatment facility equipment and operational practices. The O&M Manual shall be maintained in usable condition and be available for reference and use by all relevant personnel and the Regional Water Board.

2. Wastewater Facilities Status Report

The Discharger shall regularly review, revise, or update, as necessary, its Wastewater Facilities Status Report. This report shall document how the Discharger operates and maintains its wastewater collection, treatment, and disposal facilities to ensure that all facilities are adequately staffed, supervised, financed, operated, maintained, repaired, and upgraded as necessary to provide adequate and reliable transport, treatment, and disposal of all wastewater from both existing and planned future wastewater sources under the Discharger's service responsibilities.

3. Proper Supervision and Operation of Publicly Owned Treatment Works (POTWs)

POTWs shall be supervised and operated by persons possessing certificates of appropriate grade pursuant to Division 4, Chapter 14, Title 23 of the California Code of Regulations.

E. Property Rights

Not Supplemented

F. Inspection and Entry

Not Supplemented

G. Bypass

Not Supplemented

H. Upset

Not Supplemented

I. Other

This section is an addition to Standard Provisions (Attachment D)

1. Neither the treatment nor the discharge of pollutants shall create pollution, contamination, or nuisance as defined by California Water Code Section 13050.
2. Collection, treatment, storage, and disposal systems shall be operated in a manner that precludes public contact with wastewater, except in cases where excluding the public is infeasible, such as private property. If public contact with wastewater could reasonably occur on public property, warning signs shall be posted.
3. If the Discharger submits a timely and complete Report of Waste Discharge for permit reissuance, this permit continues in force and effect until a new permit is issued or the Regional Water Board rescinds the permit.

J. Storm Water

This section is an addition to Standard Provisions (Attachment D)

These provisions apply to facilities that do not direct all storm water flows from the facility to the wastewater treatment plant headworks.

1. Storm Water Pollution Prevention Plan (SWPP Plan)

The SWPP Plan shall be designed in accordance with good engineering practices and shall address the following objectives:

- a. To identify pollutant sources that may affect the quality of storm water discharges; and
- b. To identify, assign, and implement control measures and management practices to reduce pollutants in storm water discharges.

The SWPP Plan may be combined with the existing Spill Prevention Plan as required in accordance with Section C.2. The SWPP Plan shall be retained on-site and made available upon request of a representative of the Regional Water Board.

2. Source Identification

The SWPP Plan shall provide a description of potential sources that may be expected to add significant quantities of pollutants to storm water discharges, or may result in non-storm water discharges from the facility. The SWPP Plan shall include, at a minimum, the following items:

- a. A topographical map (or other acceptable map if a topographical map is unavailable), extending one-quarter mile beyond the property boundaries of the facility, showing the wastewater treatment facility process areas, surface water bodies (including springs and wells), and discharge point(s) where the facility's storm water discharges to a municipal storm drain system or other points of discharge to waters of the State. The requirements of this paragraph may be included in the site map required under the following paragraph if appropriate.
- b. A site map showing the following:
 - (1) Storm water conveyance, drainage, and discharge structures;
 - (2) An outline of the storm water drainage areas for each storm water discharge point;
 - (3) Paved areas and buildings;
 - (4) Areas of actual or potential pollutant contact with storm water or release to storm water, including but not limited to outdoor storage and process areas; material loading, unloading, and access areas; and waste treatment, storage, and disposal areas;
 - (5) Location of existing storm water structural control measures (i.e., berms, coverings, etc.);

- (6) Surface water locations, including springs and wetlands; and
- (7) Vehicle service areas.
- c. A narrative description of the following:
 - (1) Wastewater treatment process activity areas;
 - (2) Materials, equipment, and vehicle management practices employed to minimize contact of significant materials of concern with storm water discharges;
 - (3) Material storage, loading, unloading, and access areas;
 - (4) Existing structural and non-structural control measures (if any) to reduce pollutants in storm water discharges; and
 - (5) Methods of on-site storage and disposal of significant materials.
- d. A list of pollutants that have a reasonable potential to be present in storm water discharges in significant quantities.

3. Storm Water Management Controls

The SWPP Plan shall describe the storm water management controls appropriate for the facility and a time schedule for fully implementing such controls. The appropriateness and priorities of controls in the SWPP Plan shall reflect identified potential sources of pollutants. The description of storm water management controls to be implemented shall include, as appropriate:

- a. Storm water pollution prevention personnel

Identify specific individuals (and job titles) that are responsible for developing, implementing, and reviewing the SWPP Plan.

- b. Good housekeeping

Good housekeeping requires the maintenance of clean, orderly facility areas that discharge storm water. Material handling areas shall be inspected and cleaned to reduce the potential for pollutants to enter the storm drain conveyance system.

- c. Spill prevention and response

Identify areas where significant materials can spill into or otherwise enter storm water conveyance systems and their accompanying drainage points. Specific material handling procedures, storage requirements, and cleanup equipment and procedures shall be identified, as appropriate. The necessary equipment to implement a cleanup shall be available, and personnel shall be trained in proper response, containment, and cleanup of spills. Internal reporting procedures for spills of significant materials shall be established.

- d. Source control

Source controls include, for example, elimination or reduction of the use of toxic pollutants, covering of pollutant source areas, sweeping of paved areas, containment of potential pollutants, labeling of all storm drain inlets with “No Dumping” signs, isolation or separation of industrial and non-industrial pollutant sources so that runoff from these areas does not mix, etc.

e. Storm water management practices

Storm water management practices are practices other than those that control the sources of pollutants. Such practices include treatment or conveyance structures, such as drop inlets, channels, retention and detention basins, treatment vaults, infiltration galleries, filters, oil/water separators, etc. Based on assessment of the potential of various sources to contribute pollutants to storm water discharges in significant quantities, additional storm water management practices to remove pollutants from storm water discharges shall be implemented and design criteria shall be described.

f. Sediment and erosion control

Measures to minimize erosion around the storm water drainage and discharge points, such as riprap, revegetation, slope stabilization, etc., shall be described.

g. Employee training

Employee training programs shall inform all personnel responsible for implementing the SWPP Plan. Training shall address spill response, good housekeeping, and material management practices. New employee and refresher training schedules shall be identified.

h. Inspections

All inspections shall be done by trained personnel. Material handling areas shall be inspected for evidence of, or the potential for, pollutants entering storm water discharges. A tracking or follow up procedure shall be used to ensure appropriate response has been taken in response to an inspection. Inspections and maintenance activities shall be documented and recorded. Inspection records shall be retained for five years.

i. Records

A tracking and follow-up procedure shall be described to ensure that adequate response and corrective actions have been taken in response to inspections.

4. Annual Verification of SWPP Plan

An annual facility inspection shall be conducted to verify that all elements of the SWPP Plan are accurate and up-to-date. The results of this review shall be reported in the Annual Report to the Regional Water Board described in Section V.C.f.

K. Biosolids Management

This section is an addition to Standard Provisions (Attachment D)

Biosolids must meet the following requirements prior to land application. The Discharger must either demonstrate compliance or, if it sends the biosolids to another party for further treatment or distribution, must give the recipient the information necessary to ensure compliance.

1. Exceptional quality biosolids meet the pollutant concentration limits in Table III of 40 CFR Part 503.13, Class A pathogen limits, and one of the vector attraction reduction requirements in 503.33(b)(1)-(b)(8). Such biosolids do not have to be tracked further for compliance with general requirements (503.12) and management practices (503.14).
2. Biosolids used for agricultural land, forest, or reclamation shall meet the pollutant limits in Table I (ceiling concentrations) and Table II or Table III (cumulative loadings or pollutant concentration limits) of 503.13. They shall also meet the general requirements (503.12) and management practices (503.14) (if not exceptional quality biosolids) for Class A or Class B pathogen levels with associated access restrictions (503.32) and one of the 10 vector attraction reduction requirements in 503.33(b)(1)-(b)(10).
3. Biosolids used for lawn or home gardens must meet exceptional quality biosolids limits.
4. Biosolids sold or given away in a bag or other container must meet the pollutant limits in either Table III or Table IV (pollutant concentration limits or annual pollutant loading rate limits) of 503.13. If Table IV is used, a label or information sheet must be attached to the biosolids packing that explains Table IV (see 503.14). The biosolids must also meet the Class A pathogen limits and one of the vector attraction reduction requirements in 503.33(b)(1)-(b)(8).

II. STANDARD PROVISIONS – PERMIT ACTION

Not Supplemented

III. STANDARD PROVISIONS – MONITORING

A. Sampling and Analyses

This section is a supplement to III.A and III.B of Standard Provisions (Attachment D)

1. Use of Certified Laboratories

Water and waste analyses shall be performed by a laboratory certified for these analyses in accordance with California Water Code Section 13176.

2. Use of Appropriate Minimum Levels

Table C lists the suggested analytical methods for the 126 priority pollutants and other toxic pollutants that should be used, unless a particular method or minimum level (ML) is required in the MRP.

For priority pollutant monitoring, when there is more than one ML value for a given substance, the Discharger may select any one of the analytical methods cited in Table C for compliance determination, or any other method described in 40 CFR part 136 or approved by USEPA (such as the 1600 series) if authorized by the Regional Water Board. However, the ML must be below the effluent limitation and water quality objective. If no ML value is

below the effluent limitation and water quality objective, then the method must achieve an ML no greater than the lowest ML value indicated in Table C. All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

3. Frequency of Monitoring

The minimum schedule of sampling analysis is specified in the MRP portion of the permit.

a. Timing of Sample Collection

- (1) The Discharger shall collect samples of influent on varying days selected at random and shall not include any plant recirculation or other sidestream wastes, unless otherwise stipulated by the MRP.
- (2) The Discharger shall collect samples of effluent on days coincident with influent sampling unless otherwise stipulated by the MRP or the Executive Officer. The Executive Officer may approve an alternative sampling plan if it is demonstrated to be representative of plant discharge flow and in compliance with all other permit requirements.
- (3) The Discharger shall collect grab samples of effluent during periods of day-time maximum peak effluent flows (or peak flows through secondary treatment units for facilities that recycle effluent flows).
- (4) Effluent sampling for conventional pollutants shall occur on at least one day of any multiple-day bioassay test the MRP requires. During the course of the test, on at least one day, the Discharger shall collect and retain samples of the discharge. In the event a bioassay test does not comply with permit limits, the Discharger shall analyze these retained samples for pollutants that could be toxic to aquatic life and for which it has effluent limits.
 - (a) The Discharger shall perform bioassay tests on final effluent samples; when chlorine is used for disinfection, bioassay tests shall be performed on effluent after chlorination-dechlorination; and
 - (b) The Discharger shall analyze for total ammonia nitrogen and calculate the amount of un-ionized ammonia whenever test results fail to meet the percent survival specified in the permit.

b. Conditions Triggering Accelerated Monitoring

- (1) If the results from two consecutive samples of a constituent monitored in a 30-day period exceed the monthly average limit for any parameter (or if the required sampling frequency is once per month and the monthly sample exceeds the monthly average limit), the Discharger shall, within 24 hours after the results are received, increase its sampling frequency to daily until the results from the additional sampling show that the parameter is in compliance with the monthly average limit.
- (2) If any maximum daily limit is exceeded, the Discharger shall increase its sampling frequency to daily within 24 hours after the results are received that indicate the

exceedance of the maximum daily limit until two samples collected on consecutive days show compliance with the maximum daily limit.

- (3) If final or intermediate results of an acute bioassay test indicate a violation or threatened violation (e.g., the percentage of surviving test organisms of any single acute bioassay test is less than 70 percent), the Discharger shall initiate a new test as soon as practical, and the Discharger shall investigate the cause of the mortalities and report its findings in the next self monitoring report (SMR).
- (4) The Discharger shall calibrate chlorine residual analyzers against grab samples as frequently as necessary to maintain accurate control and reliable operation. If an effluent violation is detected, the Discharger shall collect grab samples at least every 30 minutes until compliance with the limit is achieved, unless the Discharger monitors chlorine residual continuously. In such cases, the Discharger shall continue to conduct continuous monitoring as required by its permit.
- (5) When a bypass occurs (except one subject to provision III.A.3.b.6 below), the Discharger shall monitor flows and collect samples on a daily basis for all constituents at affected discharge points that have effluent limits for the duration of the bypass (including acute toxicity using static renewals), except chronic toxicity, unless otherwise stipulated by the MRP.
- (6) Unless otherwise stipulated by the MRP, when a bypass approved pursuant to Attachment D, Standard Provisions, Sections I.G.2 or I.G.4, occurs, the Discharger shall monitor flows and, using appropriate procedures as specified in the MRP, collect and retain samples for affected discharge points on a daily basis for the duration of the bypass. The Discharger shall analyze for total suspended solids (TSS) using 24-hour composites (or more frequent increments) and for bacteria indicators with effluent limits using grab samples. If TSS exceeds 45 mg/L in any composite sample, the Discharger shall also analyze the retained samples for that discharge for all other constituents that have effluent limits, except oil and grease, mercury, dioxin-TEQ, and acute and chronic toxicity. Additionally, at least once each year, the Discharger shall analyze the retained samples for one approved bypass discharge event for all other constituents that have effluent limits, except oil and grease, mercury, dioxin-TEQ, and acute and chronic toxicity. This monitoring shall be in addition to the minimum monitoring specified in the MRP.

c. Storm Water Monitoring

The requirements of this section only apply to facilities that are not covered by an NPDES permit for storm water discharges and where not all site storm drainage from process areas (i.e., areas of the treatment facility where chemicals or wastewater could come in contact with storm water) is directed to the headworks. For storm water not directed to the headworks during the wet season (October 1 to April 30), the Discharger shall:

- (1) Conduct visual observations of the storm water discharge locations during daylight hours at least once per month during a storm event that produces significant storm water discharge to observe the presence of floating and suspended materials, oil and grease, discoloration, turbidity, and odor, etc.

- (2) Measure (or estimate) the total volume of storm water discharge, collect grab samples of storm water discharge from at least two storm events that produce significant storm water discharge, and analyze the samples for oil and grease, pH, TSS, and specific conductance.

The grab samples shall be taken during the first 30 minutes of the discharge. If collection of the grab samples during the first 30 minutes is impracticable, grab samples may be taken during the first hour of the discharge, and the Discharger shall explain in the Annual Report why the grab sample(s) could not be taken in the first 30 minutes.

- (3) Testing for the presence of non-storm water discharges shall be conducted no less than twice during the dry season (May 1 to September 30) at all storm water discharge locations. Tests may include visual observations of flows, stains, sludges, odors, and other abnormal conditions; dye tests; TV line surveys; or analysis and validation of accurate piping schematics. Records shall be maintained describing the method used, date of testing, locations observed, and test results.
- (4) Samples shall be collected from all locations where storm water is discharged. Samples shall represent the quality and quantity of storm water discharged from the facility. If a facility discharges storm water at multiple locations, the Discharger may sample a reduced number of locations if it establishes and documents through the monitoring program that storm water discharges from different locations are substantially identical.
- (5) Records of all storm water monitoring information and copies of all reports required by the permit shall be retained for a period of at least three years from the date of sample, observation, or report.

d. Receiving Water Monitoring

The requirements of this section only apply when the MRP requires receiving water sampling.

- (1) Receiving water samples shall be collected on days coincident with effluent sampling for conventional pollutants.
- (2) Receiving water samples shall be collected at each station on each sampling day during the period within one hour following low slack water. Where sampling during lower slack water is impractical, sampling shall be performed during higher slack water. Samples shall be collected within the discharge plume and down current of the discharge point so as to be representative, unless otherwise stipulated in the MRP.
- (3) Samples shall be collected within one foot of the surface of the receiving water, unless otherwise stipulated in the MRP.

B. Biosolids Monitoring

This section supplements III.B of Standard Provisions (Attachment D)

When biosolids are sent to a landfill, sent to a surface disposal site, or applied to land as a soil amendment, they must be monitored as follows:

1. Biosolids Monitoring Frequency

Biosolids disposal must be monitored at the following frequency:

Metric tons biosolids/365 days	Frequency
0-290	Once per year
290-1500	Quarterly
1500-15,000	Six times per year
Over 15,000	Once per month

(Metric tons are on a dry weight basis)

2. Biosolids Pollutants to Monitor

Biosolids shall be monitored for the following constituents:

Land Application: arsenic, cadmium, copper, mercury, molybdenum, nickel, lead, selenium, and zinc

Municipal Landfill: Paint filter test (pursuant to 40 CFR 258)

Biosolids-only Landfill or Surface Disposal Site (if no liner and leachate system): arsenic, chromium, and nickel

C. Standard Observations

This section is an addition to III of Standard Provisions (Attachment D)

1. Receiving Water Observations

The requirements of this section only apply when the MRP requires standard observations of the receiving water. Standard observations shall include the following:

- a. *Floating and suspended materials* (e.g., oil, grease, algae, and other macroscopic particulate matter): presence or absence, source, and size of affected area.
- b. *Discoloration and turbidity*: description of color, source, and size of affected area.
- c. *Odor*: presence or absence, characterization, source, distance of travel, and wind direction.
- d. *Beneficial water use*: presence of water-associated waterfowl or wildlife, fisherpeople, and other recreational activities in the vicinity of each sampling station.
- e. *Hydrographic condition*: time and height of corrected high and low tides (corrected to nearest National Oceanic and Atmospheric Administration location for the sampling date and time of sample collection).
- f. Weather conditions:

- (1) Air temperature; and
- (2) Total precipitation during the five days prior to observation.

2. Wastewater Effluent Observations

The requirements of this section only apply when the MRP requires wastewater effluent standard observations. Standard observations shall include the following:

- a. *Floating and suspended material of wastewater origin* (e.g., oil, grease, algae, and other macroscopic particulate matter): presence or absence.
- b. *Odor*: presence or absence, characterization, source, distance of travel, and wind direction.

3. Beach and Shoreline Observations

The requirements of this section only apply when the MRP requires beach and shoreline standard observations. Standard observations shall include the following:

- a. *Material of wastewater origin*: presence or absence, description of material, estimated size of affected area, and source.
- b. *Beneficial use*: estimate number of people participating in recreational water contact, non-water contact, or fishing activities.

4. Land Retention or Disposal Area Observations

The requirements of this section only apply to facilities with on-site surface impoundments or disposal areas that are in use. This section applies to both liquid and solid wastes, whether confined or unconfined. The Discharger shall conduct the following for each impoundment:

- a. Determine the amount of freeboard at the lowest point of dikes confining liquid wastes.
- b. Report evidence of leaching liquid from area of confinement and estimated size of affected area. Show affected area on a sketch and volume of flow (e.g., gallons per minute [gpm]).
- c. Regarding odor, describe presence or absence, characterization, source, distance of travel, and wind direction.
- d. Estimate number of waterfowl and other water-associated birds in the disposal area and vicinity.

5. Periphery of Waste Treatment and/or Disposal Facilities Observations

The requirements of this section only apply when the MRP specifies periphery standard observations. Standard observations shall include the following:

- a. *Odor*: presence or absence, characterization, source, and distance of travel.
- b. *Weather conditions*: wind direction and estimated velocity.

IV. STANDARD PROVISIONS – RECORDS

A. Records to be Maintained

This supplements IV.A of Standard Provisions (Attachment D)

The Discharger shall maintain records in a manner and at a location (e.g., wastewater treatment plant or Discharger offices) such that the records are accessible to the Regional Water Board. The minimum period of retention specified in Section IV, Records, of the Federal Standard Provisions shall be extended during the course of any unresolved litigation regarding the subject discharge, or when requested by the Regional Water Board or Regional Administrator of USEPA, Region IX.

A copy of the permit shall be maintained at the discharge facility and be available at all times to operating personnel.

A. Records of monitoring information shall include

This supplements IV.B of Standard Provision (Attachment D)

1. Analytical Information

Records shall include analytical method detection limits, minimum levels, reporting levels, and related quantification parameters.

2. Flow Monitoring Data

For all required flow monitoring (e.g., influent and effluent flows), the additional records shall include the following, unless otherwise stipulated by the MRP:

- a. Total volume for each day; and
- b. Maximum, minimum, and average daily flows for each calendar month.

3. Wastewater Treatment Process Solids

- a. For each treatment unit process that involves solids removal from the wastewater stream, records shall include the following:
 - (1) Total volume or mass of solids removed from each collection unit (e.g., grit, skimmings, undigested biosolids, or combination) for each calendar month or other time period as appropriate, but not to exceed annually; and
 - (2) Final disposition of such solids (e.g., landfill, other subsequent treatment unit).
- b. For final dewatered biosolids from the treatment plant as a whole, records shall include the following:
 - (1) Total volume or mass of dewatered biosolids for each calendar month;
 - (2) Solids content of the dewatered biosolids; and
 - (3) Final disposition of dewatered biosolids (disposal location and disposal method).

4. Disinfection Process

For the disinfection process, these additional records shall be maintained documenting process operation and performance:

- a. For bacteriological analyses:
 - (1) Wastewater flow rate at the time of sample collection; and
 - (2) Required statistical parameters for cumulative bacterial values (e.g., moving median or geometric mean for the number of samples or sampling period identified in this Order).
- b. For the chlorination process, when chlorine is used for disinfection, at least daily average values for the following:
 - (1) Chlorine residual of treated wastewater as it enters the contact basin (mg/L);
 - (2) Chlorine dosage (kg/day); and
 - (3) Dechlorination chemical dosage (kg/day).

5. Treatment Process Bypasses

A chronological log of all treatment process bypasses, including wet weather blending, shall include the following:

- a. Identification of the treatment process bypassed;
- b. Dates and times of bypass beginning and end;
- c. Total bypass duration;
- d. Estimated total bypass volume; and
- e. Description of, or reference to other reports describing, the bypass event, the cause, the corrective actions taken (except for wet weather blending that is in compliance with permit conditions), and any additional monitoring conducted.

6. Treatment Facility Overflows

This section applies to records for overflows at the treatment facility. This includes the headworks and all units and appurtenances downstream. The Discharger shall retain a chronological log of overflows at the treatment facility and records supporting the information provided in section V.E.2.

C. Claims of Confidentiality

Not Supplemented

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

Not Supplemented

B. Signatory and Certification Requirements

Not Supplemented

C. Monitoring Reports

This section supplements V.C of Standard Provisions (Attachment D)

1. Self Monitoring Reports

For each reporting period established in the MRP, the Discharger shall submit an SMR to the Regional Water Board in accordance with the requirements listed in this document and at the frequency the MRP specifies. The purpose of the SMR is to document treatment performance, effluent quality, and compliance with the waste discharge requirements of this Order.

a. Transmittal letter

Each SMR shall be submitted with a transmittal letter. This letter shall include the following:

- (1) Identification of all violations of effluent limits or other waste discharge requirements found during the reporting period;
- (2) Details regarding violations: parameters, magnitude, test results, frequency, and dates;
- (3) Causes of violations;
- (4) Discussion of corrective actions taken or planned to resolve violations and prevent recurrences, and dates or time schedule of action implementation (if previous reports have been submitted that address corrective actions, reference to the earlier reports is satisfactory);
- (5) Data invalidation (Data should not be submitted in an SMR if it does not meet quality assurance/quality control standards. However, if the Discharger wishes to invalidate any measurement after it was submitted in an SMR, a letter shall identify the measurement suspected to be invalid and state the Discharger's intent to submit, within 60 days, a formal request to invalidate the measurement. This request shall include the original measurement in question, the reason for invalidating the measurement, all relevant documentation that supports invalidation [e.g., laboratory sheet, log entry, test results, etc.], and discussion of the corrective actions taken or planned [with a time schedule for completion] to prevent recurrence of the sampling or measurement problem.);

- (6) If the Discharger blends, the letter shall describe the duration of blending events and certify whether blended effluent was in compliance with the conditions for blending; and
- (7) Signature (The transmittal letter shall be signed according to Section V.B of this Order, Attachment D – Standard Provisions.).

b. Compliance evaluation summary

Each report shall include a compliance evaluation summary. This summary shall include each parameter for which the permit specifies effluent limits, the number of samples taken during the monitoring period, and the number of samples that exceed applicable effluent limits.

c. Results of analyses and observations

- (1) Tabulations of all required analyses and observations, including parameter, date, time, sample station, type of sample, test result, method detection limit, method minimum level, and method reporting level, if applicable, signed by the laboratory director or other responsible official.
- (2) When determining compliance with an average monthly effluent limitation and more than one sample result is available in a month, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of detected but not quantified (DNQ) or nondetect (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, 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.

If a sample result, or the arithmetic mean or median of multiple sample results, is below the reporting limit, and there is evidence that the priority pollutant is present in the effluent above an effluent limitation and the Discharger conducts a Pollutant Minimization Program, the Discharger shall not be deemed out of compliance.

- (3) Dioxin-TEQ Reporting: The Discharger shall report for each dioxin and furan congener the analytical results of effluent monitoring, including the quantifiable limit (reporting level), the method detection limit, and the measured concentration. The Discharger shall report all measured values of individual congeners, including data qualifiers. When calculating dioxin-TEQ, the Discharger shall set congener concentrations below the minimum levels (ML) to zero. The Discharger shall

calculate and report dioxin-TEQs using the following formula, where the MLs, toxicity equivalency factors (TEFs), and bioaccumulation equivalency factors (BEFs) are as provided in Table A:

$$\text{Dioxin-TEQ} = \Sigma (C_x \times \text{TEF}_x \times \text{BEF}_x)$$

where: C_x = measured or estimated concentration of congener x

TEF_x = toxicity equivalency factor for congener x

BEF_x = bioaccumulation equivalency factor for congener x

Table A

Minimum Levels, Toxicity Equivalency Factors,
and Bioaccumulation Equivalency Factors

Dioxin or Furan Congener	Minimum Level (pg/L)	1998 Toxicity Equivalency Factor (TEF)	Bioaccumulation Equivalency Factor (BEF)
2,3,7,8-TCDD	10	1.0	1.0
1,2,3,7,8-PeCDD	50	1.0	0.9
1,2,3,4,7,8-HxCDD	50	0.1	0.3
1,2,3,6,7,8-HxCDD	50	0.1	0.1
1,2,3,7,8,9-HxCDD	50	0.1	0.1
1,2,3,4,6,7,8-HpCDD	50	0.01	0.05
OCDD	100	0.0001	0.01
2,3,7,8-TCDF	10	0.1	0.8
1,2,3,7,8-PeCDF	50	0.05	0.2
2,3,4,7,8-PeCDF	50	0.5	1.6
1,2,3,4,7,8-HxCDF	50	0.1	0.08
1,2,3,6,7,8-HxCDF	50	0.1	0.2
1,2,3,7,8,9-HxCDF	50	0.1	0.6
2,3,4,6,7,8-HxCDF	50	0.1	0.7
1,2,3,4,6,7,8-HpCDF	50	0.01	0.01
1,2,3,4,7,8,9-HpCDF	50	0.01	0.4
OCDF	100	0.0001	0.02

d. Data reporting for results not yet available

The Discharger shall make all reasonable efforts to obtain analytical data for required parameter sampling in a timely manner. Certain analyses require additional time to complete analytical processes and report results. For cases where required monitoring parameters require additional time to complete analytical processes and reports, and results are not available in time to be included in the SMR for the subject monitoring period, the Discharger shall describe such circumstances in the SMR and include the data for these parameters and relevant discussions of any observed exceedances in the next SMR due after the results are available.

e. Flow data

The Discharger shall provide flow data tabulation pursuant to Section IV.B.2.

f. Annual self monitoring report requirements

By the date specified in the MRP, the Discharger shall submit an annual report to the Regional Water Board covering the previous calendar year. The report shall contain the following:

- (1) Annual compliance summary table of treatment plant performance, including documentation of any blending events;
- (2) Comprehensive discussion of treatment plant performance and compliance with the permit (This discussion shall include any corrective actions taken or planned, such as changes to facility equipment or operation practices that may be needed to achieve compliance, and any other actions taken or planned that are intended to improve performance and reliability of the Discharger's wastewater collection, treatment, or disposal practices.);
- (3) Both tabular and graphical summaries of the monitoring data for the previous year if parameters are monitored at a frequency of monthly or greater;
- (4) List of approved analyses, including the following:
 - (a) List of analyses for which the Discharger is certified;
 - (b) List of analyses performed for the Discharger by a separate certified laboratory (copies of reports signed by the laboratory director of that laboratory shall not be submitted but be retained onsite); and
 - (c) List of "waived" analyses, as approved;
- (5) Plan view drawing or map showing the Discharger's facility, flow routing, and sampling and observation station locations;
- (6) Results of annual facility inspection to verify that all elements of the SWPP Plan are accurate and up to date (only required if the Discharger does not route all storm water to the headworks of its wastewater treatment plant); and
- (7) Results of facility report reviews (The Discharger shall regularly review, revise, and update, as necessary, the O&M Manual, the Contingency Plan, the Spill Prevention Plan, and Wastewater Facilities Status Report so that these documents remain useful and relevant to current practices. At a minimum, reviews shall be conducted annually. The Discharger shall include, in each Annual Report, a description or summary of review and evaluation procedures, recommended or planned actions, and an estimated time schedule for implementing these actions. The Discharger shall complete changes to these documents to ensure they are up-to-date.).

g. Report submittal

The Discharger shall submit SMRs to:

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612
Attn: NPDES Wastewater Division

h. Reporting data in electronic format

The Discharger has the option to submit all monitoring results in an electronic reporting format approved by the Executive Officer. If the Discharger chooses to submit SMRs electronically, the following shall apply:

- (1) Reporting Method: The Discharger shall submit SMRs electronically via a process approved by the Executive Officer (see, for example, the letter dated December 17, 1999, "Official Implementation of Electronic Reporting System [ERS]" and the progress report letter dated December 17, 2000).
- (2) Monthly or Quarterly Reporting Requirements: For each reporting period (monthly or quarterly as specified in the MRP), the Discharger shall submit an electronic SMR to the Regional Water Board in accordance with the provisions of Section V.C.1.a-e, except for requirements under Section V.C.1.c(1) where ERS does not have fields for dischargers to input certain information (e.g., sample time). However, until USEPA approves the electronic signature or other signature technologies, Dischargers that use ERS shall submit a hard copy of the original transmittal letter, an ERS printout of the data sheet, and a violation report (a receipt of the electronic transmittal shall be retained by the Discharger). This electronic SMR submittal suffices for the signed tabulations specified under Section V.C.1.c(1).
- (3) Annual Reporting Requirements: Dischargers who have submitted data using the ERS for at least one calendar year are exempt from submitting the portion of the annual report required under Section V.C.1.f(1) and (3).

D. Compliance Schedules

Not supplemented

E. Twenty-Four Hour Reporting

This section supplements V.E of Standard Provision (Attachment D)

1. Spill of Oil or Other Hazardous Material Reports

- a. Within 24 hours of becoming aware of a spill of oil or other hazardous material that is not contained onsite and completely cleaned up, the Discharger shall report by telephone to the Regional Water Board at (510) 622-2369.
- b. The Discharger shall also report such spills to the State Office of Emergency Services [telephone (800) 852-7550] only when the spills are in accordance with applicable reporting quantities for hazardous materials.

- c. The Discharger shall submit a written report to the Regional Water Board within five working days following telephone notification unless directed otherwise by the Regional Water Board. A report submitted electronically is acceptable. The written report shall include the following:
- (1) Date and time of spill, and duration if known;
 - (2) Location of spill (street address or description of location);
 - (3) Nature of material spilled;
 - (4) Quantity of material involved;
 - (5) Receiving water body affected, if any;
 - (6) Cause of spill;
 - (7) Estimated size of affected area;
 - (8) Observed impacts to receiving waters (e.g., oil sheen, fish kill, water discoloration);
 - (9) Corrective actions taken to contain, minimize, or clean up the spill;
 - (10) Future corrective actions planned to be taken to prevent recurrence, and schedule of implementation; and
 - (11) Persons or agencies notified.

2. Unauthorized Discharges from Municipal Wastewater Treatment Plants¹

The following requirements apply to municipal wastewater treatment plants that experience an unauthorized discharge at their treatment facilities and are consistent with and supercede requirements imposed on the Discharger by the Executive Officer by letter of May 1, 2008, issued pursuant to California Water Code Section 13383.

a. Two (2)-Hour Notification

For any unauthorized discharges that result in a discharge to a drainage channel or a surface water, the Discharger shall, as soon as possible, but not later than two (2) hours after becoming aware of the discharge, notify the State Office of Emergency Services (telephone 800-852-7550), the local health officers or directors of environmental health with jurisdiction over the affected water bodies, and the Regional Water Board. The notification to the Regional Water Board shall be via the Regional Water Board's online reporting system at www.wbers.net, and shall include the following:

- (1) Incident description and cause;
- (2) Location of threatened or involved waterway(s) or storm drains;
- (3) Date and time the unauthorized discharge started;

¹ California Code of Regulations, Title 23, Section 2250(b), defines an unauthorized discharge to be a discharge, not regulated by waste discharge requirements, of treated, partially treated, or untreated wastewater resulting from the intentional or unintentional diversion of wastewater from a collection, treatment or disposal system.

- (4) Estimated quantity and duration of the unauthorized discharge (to the extent known), and the estimated amount recovered;
- (5) Level of treatment prior to discharge (e.g., raw wastewater, primary treated, undisinfected secondary treated, and so on); and
- (6) Identity of the person reporting the unauthorized discharge.

b. 24-hour Certification

Within 24 hours, the Discharger shall certify to the Regional Water Board, at www.wbers.net, that the State Office of Emergency Services and the local health officers or directors of environmental health with jurisdiction over the affected water bodies have been notified of the unauthorized discharge.

c. 5-Day Written Report

Within five business days, the Discharger shall submit a written report, via the Regional Water Board's online reporting system at www.wbers.net, that includes, in addition to the information required above, the following:

- (1) Methods used to delineate the geographical extent of the unauthorized discharge within receiving waters;
- (2) Efforts implemented to minimize public exposure to the unauthorized discharge;
- (3) Visual observations of the impacts (if any) noted in the receiving waters (e.g., fish kill, discoloration of water) and the extent of sampling if conducted;
- (4) Corrective measures taken to minimize the impact of the unauthorized discharge;
- (5) Measures to be taken to minimize the chances of a similar unauthorized discharge occurring in the future;
- (6) Summary of Spill Prevention Plan or O&M Manual modifications to be made, if necessary, to minimize the chances of future unauthorized discharges; and
- (7) Quantity and duration of the unauthorized discharge, and the amount recovered.

d. Communication Protocol

To clarify the multiple levels of notification, certification, and reporting, the current communication requirements for unauthorized discharges from municipal wastewater treatment plants are summarized in Table B that follows.

Table B

Summary of Communication Requirements for Unauthorized Discharges¹ from
Municipal Wastewater Treatment Plants

Discharger is required to:	Agency Receiving Information	Time frame	Method for Contact
1. Notify	California Emergency Management Agency (Cal EMA)	As soon as possible, but not later than 2 hours after becoming aware of the unauthorized discharge.	Telephone – (800) 852-7550 (obtain a control number from Cal EMA)
	Local health department	As soon as possible, but not later than 2 hours after becoming aware of the unauthorized discharge.	Depends on local health department
	Regional Water Board	As soon as possible, but not later than 2 hours after becoming aware of the unauthorized discharge.	Electronic ² www.wbers.net
2. Certify	Regional Water Board	As soon as possible, but not later than 24 hours after becoming aware of the unauthorized discharge.	Electronic ³ www.wbers.net
3. Report	Regional Water Board	Within 5 business days of becoming aware of the unauthorized discharge.	Electronic ⁴ www.wbers.net

F. Planned Changes

Not supplemented

G. Anticipated Noncompliance

Not supplemented

¹ California Code of Regulations, Title 23, Section 2250(b), defines an unauthorized discharge to be a discharge, not regulated by waste discharge requirements, of treated, partially treated, or untreated wastewater resulting from the intentional or unintentional diversion of wastewater from a collection, treatment or disposal system.

² In the event that the Discharger is unable to provide online notification within 2 hours of becoming aware of an unauthorized discharge, it shall phone the Regional Water Board’s spill hotline at (510) 622-2369 and convey the same information contained in the notification form. In addition, within 3 business days of becoming aware of the unauthorized discharge, the Discharger shall enter the notification information into the Regional Water Board’s online system in electronic format.

³ In most instances, the 2-hour notification will also satisfy 24-hour certification requirements. This is because the notification form includes fields for documenting that OES and the local health department have been contacted. In other words, if the Discharger is able to complete all the fields in the notification form within 2 hours, certification requirements are also satisfied. In the event that the Discharger is unable to provide online certification within 24 hours of becoming aware of an unauthorized discharge, it shall phone the Regional Water Board’s spill hotline at (510) 622-2369 and convey the same information contained in the certification form. In addition, within 3 business days of becoming aware of the unauthorized discharge, the Discharger shall enter the certification information into the Regional Water Board’s online system in electronic format.

⁴ If the Discharger cannot satisfy the 5-day reporting requirements via the Regional Water Board’s online reporting system, it shall submit a written report (preferably electronically in pdf) to the appropriate Regional Water Board case manager. In cases where the Discharger cannot satisfy the 5-day reporting requirements via the online reporting system, it must still complete the Regional Water Board’s online reporting requirements within 15 calendar days of becoming aware of the unauthorized discharge.

H. Other Noncompliance

Not supplemented

I. Other Information

Not supplemented

VI. STANDARD PROVISIONS – ENFORCEMENT

Not Supplemented

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

Not Supplemented

VIII. DEFINITIONS

This section is an addition to Standard Provisions (Attachment D)

More definitions can be found in Attachment A of this NPDES Permit.

1. Arithmetic Calculations

- a. Geometric mean is the antilog of the log mean or the back-transformed mean of the logarithmically transformed variables, which is equivalent to the multiplication of the antilogarithms. The geometric mean can be calculated with either of the following equations:

$$\text{Geometric Mean} = \text{Anti log} \left(\frac{1}{N} \sum_{i=1}^N \text{Log}(C_i) \right)$$

or

$$\text{Geometric Mean} = (C_1 * C_2 * \dots * C_N)^{1/N}$$

Where “N” is the number of data points for the period analyzed and “C” is the concentration for each of the “N” data points.

- b. Mass emission rate is obtained from the following calculation for any calendar day:

$$\text{Mass emission rate (lb/day)} = \frac{8.345}{N} \sum_{i=1}^N Q_i C_i$$

$$\text{Mass emission rate (kg/day)} = \frac{3.785}{N} \sum_{i=1}^N Q_i C_i$$

In which “N” is the number of samples analyzed in any calendar day and “Qi” and “Ci” are the flow rate (MGD) and the constituent concentration (mg/L) associated with each of the “N” grab samples that may be taken in any calendar day. If a composite sample is taken, “Ci” is the concentration measured in the composite sample and “Qi” is the average flow rate occurring during the period over which the samples are composited. The daily concentration

of a constituent measured over any calendar day shall be determined from the flow-weighted average of the same constituent in the combined waste streams as follows:

$$C_d = \text{Average daily concentration} = \frac{1}{Q_t} \sum_{i=1}^N Q_i C_i$$

In which “N” is the number of component waste streams and “Q” and “C” are the flow rate (MGD) and the constituent concentration (mg/L) associated with each of the “N” waste streams. “Q_t” is the total flow rate of the combined waste streams.

- c. Maximum allowable mass emission rate, whether for a 24-hour, weekly 7-day, monthly 30-day, or 6-month period, is a limitation expressed as a daily rate determined with the formulas in the paragraph above, using the effluent concentration limit specified in the permit for the period and the specified allowable flow.
- d. POTW removal efficiency is the ratio of pollutants removed by the treatment facilities to pollutants entering the treatment facilities (expressed as a percentage). The Discharger shall determine removal efficiencies using monthly averages (by calendar month unless otherwise specified) of pollutant concentration of influent and effluent samples collected at about the same time and using the following equation (or its equivalent):

$$\text{Removal Efficiency (\%)} = 100 \times [1 - (\text{Effluent Concentration} / \text{Influent Concentration})]$$

2. Biosolids means the solids, semi-liquid suspensions of solids, residues, screenings, grit, scum, and precipitates separated from or created in wastewater by the unit processes of a treatment system. It also includes, but is not limited to, all supernatant, filtrate, centrate, decantate, and thickener overflow and underflow in the solids handling parts of the wastewater treatment system.
3. Blending is the practice of recombining wastewater that has been biologically treated with wastewater that has bypassed around biological treatment units.
4. Bottom sediment sample is (1) a separate grab sample taken at each sampling station for the determination of selected physical-chemical parameters, or (2) four grab samples collected from different locations in the immediate vicinity of a sampling station while the boat is anchored and analyzed separately for macroinvertebrates.
5. Composite sample is a sample composed of individual grab samples collected manually or by an automatic sampling device on the basis of time or flow as specified in the MRP. For flow-based composites, the proportion of each grab sample included in the composite sample shall be within plus or minus five percent (+/-5%) of the representative flow rate of the waste stream being measured at the time of grab sample collection. Alternatively, equal volume grab samples may be individually analyzed with the flow-weighted average calculated by averaging flow-weighted ratios of each grab sample analytical result. Grab samples comprising time-based composite samples shall be collected at intervals not greater than those specified in the MRP. The quantity of each grab sample comprising a time-based composite sample shall be a set of flow proportional volumes as specified in the MRP. If a particular time-based or flow-based composite sampling protocol is not specified in the MRP, the Discharger shall determine and implement the most representative sampling protocol for the given parameter subject to Executive Officer approval.

6. Depth-integrated sample is defined as a water or waste sample collected by allowing a sampling device to fill during a vertical traverse in the waste or receiving water body being sampled. The Discharger shall collect depth-integrated samples in such a manner that the collected sample will be representative of the waste or water body at that sampling point.
7. Flow sample is an accurate measurement of the average daily flow volume using a properly calibrated and maintained flow measuring device.
8. Grab sample is an individual sample collected in a short period of time not exceeding 15 minutes. Grab samples represent only the condition that exists at the time the wastewater is collected.
9. Initial dilution is the process that results in the rapid and irreversible turbulent mixing of wastewater with receiving water around the point of discharge.
10. Overflow is the intentional or unintentional spilling or forcing out of untreated or partially treated wastes from a transport system (e.g., through manholes, at pump stations, and at collection points) upstream from the treatment plant headworks or from any part of a treatment plant facility.
11. Priority pollutants are those constituents referred to in 40 CFR Part 122 as promulgated in the Federal Register, Vol. 65, No. 97, Thursday, May 18, 2000, also known as the California Toxics Rule, the presence or discharge of which could reasonably be expected to interfere with maintaining designated uses.
12. Storm water means storm water runoff, snow melt runoff, and surface runoff and drainage. It excludes infiltration and runoff from agricultural land.
13. Toxic pollutant means any pollutant listed as toxic under federal Clean Water Act section 307(a)(1) or under 40 CFR 401.15.
14. Untreated waste is raw wastewater.
15. Waste, waste discharge, discharge of waste, and discharge are used interchangeably in the permit. The requirements of the permit apply to the entire volume of water, and the material therein, that is disposed of to surface and ground waters of the State of California.

Table C

List of Monitoring Parameters and Analytical Methods

CTR No.	Pollutant/Parameter	Analytical Method ¹	Minimum Levels ² (µg/l)											
			GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
1.	Antimony	204.2					10	5	50	0.5	5	0.5		1000
2.	Arsenic	206.3				20		2	10	2	2	1		1000
3.	Beryllium						20	0.5	2	0.5	1			1000
4.	Cadmium	200 or 213					10	0.5	10	0.25	0.5			1000
5a.	Chromium (III)	SM 3500												
5b.	Chromium (VI)	SM 3500				10	5							1000
	Chromium total ³	SM 3500					50	2	10	0.5	1			1000
6.	Copper	200.9					25	5	10	0.5	2			1000
7.	Lead	200.9					20	5	5	0.5	2			10,000
8.	Mercury	1631 (note) ⁴												
9.	Nickel	249.2					50	5	20	1	5			1000
10.	Selenium	200.8 or SM 3114B or C						5	10	2	5	1		1000
11.	Silver	272.2					10	1	10	0.25	2			1000
12.	Thallium	279.2					10	2	10	1	5			1000
13.	Zinc	200 or 289					20		20	1	10			
14.	Cyanide	SM 4500 CN ⁻ C or I				5								
15.	Asbestos (only required for dischargers to MUN waters) ⁵	0100.2 ⁶												
16.	2,3,7,8-TCDD and 17 congeners (Dioxin)	1613												
17.	Acrolein	603	2.0	5										
18.	Acrylonitrile	603	2.0	2										
19.	Benzene	602	0.5	2										
33.	Ethylbenzene	602	0.5	2										
39.	Toluene	602	0.5	2										
20.	Bromoform	601	0.5	2										
21.	Carbon Tetrachloride	601	0.5	2										
22.	Chlorobenzene	601	0.5	2										
23.	Chlorodibromomethane	601	0.5	2										
24.	Chloroethane	601	0.5	2										
25.	2-Chloroethylvinyl Ether	601	1	1										
26.	Chloroform	601	0.5	2										
75.	1,2-Dichlorobenzene	601	0.5	2										
76.	1,3-Dichlorobenzene	601	0.5	2										
77.	1,4-Dichlorobenzene	601	0.5	2										
27.	Dichlorobromomethane	601	0.5	2										
28.	1,1-Dichloroethane	601	0.5	1										
29.	1,2-Dichloroethane	601	0.5	2										
30.	1,1-Dichloroethylene or 1,1-Dichloroethene	601	0.5	2										
31.	1,2-Dichloropropane	601	0.5	1										
32.	1,3-Dichloropropylene or 1,3-Dichloropropene	601	0.5	2										
34.	Methyl Bromide or Bromomethane	601	1.0	2										
35.	Methyl Chloride or Chloromethane	601	0.5	2										
36.	Methylene Chloride or	601	0.5	2										

CTR No.	Pollutant/Parameter	Analytical Method ¹	Minimum Levels ² (µg/l)											
			GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
	Dichloromethane													
37.	1,1,2,2-Tetrachloroethane	601	0.5	1										
38.	Tetrachloroethylene	601	0.5	2										
40.	1,2-Trans-Dichloroethylene	601	0.5	1										
41.	1,1,1-Trichloroethane	601	0.5	2										
42.	1,1,2-Trichloroethane	601	0.5	2										
43.	Trichloroethene	601	0.5	2										
44.	Vinyl Chloride	601	0.5	2										
45.	2-Chlorophenol	604	2	5										
46.	2,4-Dichlorophenol	604	1	5										
47.	2,4-Dimethylphenol	604	1	2										
48.	2-Methyl-4,6-Dinitrophenol or Dinitro-2-methylphenol	604	10	5										
49.	2,4-Dinitrophenol	604	5	5										
50.	2-Nitrophenol	604		10										
51.	4-Nitrophenol	604	5	10										
52.	3-Methyl-4-Chlorophenol	604	5	1										
53.	Pentachlorophenol	604	1	5										
54.	Phenol	604	1	1		50								
55.	2,4,6-Trichlorophenol	604	10	10										
56.	Acenaphthene	610 HPLC	1	1	0.5									
57.	Acenaphthylene	610 HPLC		10	0.2									
58.	Anthracene	610 HPLC		10	2									
60.	Benzo(a)Anthracene or 1,2 Benzanthracene	610 HPLC	10	5										
61.	Benzo(a)Pyrene	610 HPLC		10	2									
62.	Benzo(b)Fluoranthene or 3,4 Benzofluoranthene	610 HPLC		10	10									
63.	Benzo(ghi)Perylene	610 HPLC		5	0.1									
64.	Benzo(k)Fluoranthene	610 HPLC		10	2									
74.	Dibenzo(a,h)Anthracene	610 HPLC		10	0.1									
86.	Fluoranthene	610 HPLC	10	1	0.05									
87.	Fluorene	610 HPLC		10	0.1									
92.	Indeno(1,2,3-cd) Pyrene	610 HPLC		10	0.05									
100.	Pyrene	610 HPLC		10	0.05									
68.	Bis(2-Ethylhexyl)Phthalate	606 or 625	10	5										
70.	Butylbenzyl Phthalate	606 or 625	10	10										
79.	Diethyl Phthalate	606 or 625	10	2										
80.	Dimethyl Phthalate	606 or 625	10	2										
81.	Di-n-Butyl Phthalate	606 or 625		10										
84.	Di-n-Octyl Phthalate	606 or 625		10										
59.	Benzidine	625		5										
65.	Bis(2-Chloroethoxy)Methane	625		5										
66.	Bis(2-Chloroethyl)Ether	625	10	1										
67.	Bis(2-Chloroisopropyl)Ether	625	10	2										
69.	4-Bromophenyl Phenyl Ether	625	10	5										
71.	2-Chloronaphthalene	625		10										
72.	4-Chlorophenyl Phenyl Ether	625		5										
73.	Chrysene	625		10	5									
78.	3,3'-Dichlorobenzidine	625		5										
82.	2,4-Dinitrotoluene	625	10	5										
83.	2,6-Dinitrotoluene	625		5										

CTR No.	Pollutant/Parameter	Analytical Method ¹	Minimum Levels ² (µg/l)											
			GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
85.	1,2-Diphenylhydrazine (note) ⁷	625		1										
88.	Hexachlorobenzene	625	5	1										
89.	Hexachlorobutadiene	625	5	1										
90.	Hexachlorocyclopentadiene	625	5	5										
91.	Hexachloroethane	625	5	1										
93.	Isophorone	625	10	1										
94.	Naphthalene	625	10	1	0.2									
95.	Nitrobenzene	625	10	1										
96.	N-Nitrosodimethylamine	625	10	5										
97.	N-Nitrosodi-n-Propylamine	625	10	5										
98.	N-Nitrosodiphenylamine	625	10	1										
99.	Phenanthrene	625		5	0.05									
101.	1,2,4-Trichlorobenzene	625	1	5										
102.	Aldrin	608	0.005											
103.	α-BHC	608	0.01											
104.	β-BHC	608	0.005											
105.	γ-BHC (Lindane)	608	0.02											
106.	δ-BHC	608	0.005											
107.	Chlordane	608	0.1											
108.	4,4'-DDT	608	0.01											
109.	4,4'-DDE	608	0.05											
110.	4,4'-DDD	608	0.05											
111.	Dieldrin	608	0.01											
112.	Endosulfan (alpha)	608	0.02											
113.	Endosulfan (beta)	608	0.01											
114.	Endosulfan Sulfate	608	0.05											
115.	Endrin	608	0.01											
116.	Endrin Aldehyde	608	0.01											
117.	Heptachlor	608	0.01											
118.	Heptachlor Epoxide	608	0.01											
119-125	PCBs: Aroclors 1016, 1221, 1232, 1242, 1248, 1254, 1260	608	0.5											
126.	Toxaphene	608	0.5											

Footnotes to Table C:

- 1 The suggested method is the USEPA Method unless otherwise specified (SM = Standard Methods). The Discharger may use another USEPA-approved or recognized method if that method has a level of quantification below the applicable water quality objective. Where no method is suggested, the Discharger has the discretion to use any standard method.
- 2 Minimum levels are from the *State Implementation Policy*. They are the concentration of the lowest calibration standard for that technique based on a survey of contract laboratories. Laboratory techniques are defined as follows: GC = Gas Chromatography; GCMS = Gas Chromatography/Mass Spectrometry; LC = High Pressure Liquid Chromatography; Color = Colorimetric; FAA = Flame Atomic Absorption; GFAA = Graphite Furnace Atomic Absorption; ICP = Inductively Coupled Plasma; ICPMS = Inductively Coupled Plasma/Mass Spectrometry; SPGFAA = Stabilized Platform Graphite Furnace Atomic Absorption (i.e., U.S. EPA 200.9); Hydride = Gaseous Hydride Atomic Absorption; CVAA = Cold Vapor Atomic Absorption; DCP = Direct Current Plasma.
- 3 Analysis for total chromium may be substituted for analysis of chromium (III) and chromium (VI) if the concentration measured is below the lowest hexavalent chromium criterion (11 µg/l).
- 4 The Discharger shall use ultra-clean sampling (USEPA Method 1669) and ultra-clean analytical methods (USEPA Method 1631) for mercury monitoring. The minimum level for mercury is 2 ng/l (or 0.002 µg/l).
- 5 MUN = Municipal and Domestic Supply. This designation, if applicable, is in the Findings of the permit.
- 6 Determination of Asbestos Structures over 10 [micrometers] in Length in Drinking Water Using MCE Filters, U.S. EPA 600/R-94-134, June 1994.
- 7 Measurement for 1,2-diphenylhydrazine may use azobenzene as a screen: if azobenzene is measured at >1 µg/l, then the Discharger shall analyze for 1,2-diphenylhydrazine.

APPENDIX B

COMMENTS RECEIVED



City of St. Helena

*"We will conduct city affairs on behalf of our citizens
using an open and creative process."*

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OFFICE OF THE DIRECTOR OF PUBLIC WORKS

July 27, 2010

Dr. Tong Yin
Water Resources Control Engineer
California Regional Water Quality Control Board,
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612
By email: TYin@waterboards.ca.gov

**Subject: City of St. Helena Comments on Tentative Order for the City of St. Helena
Wastewater Treatment and Reclamation Plant (Reissuance of NPDES Permit No.
CA0038016)**

Dear Dr. Yin:

The City of St. Helena has reviewed the Tentative Order (TO) issued by the Regional Water Board on July 1, 2010. The attached comments are being submitted prior to the August 2, 2010 deadline to be considered for inclusion in the final adopted permit.

The City's comments are minor and primarily related to the previously submitted antidegradation analysis and the Napa River hardness assumptions. The City appreciates the Regional Water Board staff efforts on these matters. The City will continue to maintain and operate its wastewater treatment facilities to ensure production of high quality effluent while practicing responsible stewardship of the Upper Napa River.

Please contact me at 707-968-2658 (or by email, JohnF@ci.st-helena.ca.us) if you have any questions on the attached comments.

Sincerely,

John Ferons
Public Works Director/City Engineer

July 27, 2010

City of St. Helena
Wastewater Treatment and Reclamation Facility

Comments Regarding the Reissuance of NPDES Permit No. CA0038016

The City of St. Helena (City) appreciates the opportunity to submit the following comments on the revised Tentative Order (TO) released for review and comment on July 1, 2010.

For suggested revisions to the text of the TO, underline is shown for suggested additions, and ~~strike-out~~ is shown for suggested deletions.

Comments Regarding Tentative Order – Substantive

- 1. At the request of Regional Water Board staff, an antidegradation analysis for increasing dry weather treatment capacity from 0.5 mgd to 0.8 mgd was submitted on June 10, 2010. The analysis showed that increasing treatment capacity will cause minor or negligible impacts to water quality in the Napa River and is consistent with antidegradation provisions. The City would like the permit and Fact Sheet to recognize that the antidegradation analysis was submitted and approved by the Regional Water Board. This acknowledgement would be made in the following sections.**

VI. C.4.b. Provisions (page 17)

b. Plant Upgrade and Capacity Increase Tasks and Schedule

The Discharger shall upgrade its treatment plant to increase dry weather treatment capacity to 0.8 mgd within this permit term. An antidegradation analysis based on 0.8 mgd was submitted to the Regional Water Board and approved in June 2010. The Discharger shall comply with the following tasks and schedule to complete the plant improvements.

III.C.5 (page F-9)

- 5. Antidegradation Policy.** 40 CFR 131.12 requires that 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, which incorporates the federal antidegradation policy where the federal policy applies under federal law and requires that existing water quality be maintained unless degradation is justified based on specific findings. The Basin Plan implements, and incorporates by reference, both the State and

federal antidegradation policies. The permitted discharge must be consistent with the antidegradation provisions of 40 CFR 131.12 and Resolution 68-16.

The Discharger conducted a water quality impacts assessment to determine if the proposed increase in dry weather design capacity from 0.5 MGD to 0.8 MGD will produce significant changes in the ambient water quality of the Napa River. The results of the water quality impact analysis are contained in a report titled, "City of St. Helena Antidegradation Study" (June 2010). The study states that since the Plant is prohibited to discharge into the river during the dry season, and the Discharger reclaims/land disposals most of the wastewater; during discharge to Napa River, effluent water quality will only cause a minor or negligible, temporary water quality change in Napa River. Therefore, the capacity increase from 0.5 mgd to 0.8 mgd during the permit term is consistent with the antidegradation requirements.

IV. E. 6. (p. F-32)

- 6. Increased Design Capacity.** During the term of the previous permit, influent flows to the Plant have approached current design capacity (0.5 mgd). The Discharger has indicated that it plans to upgrade the facility to increase design capacity initially to 0.8 mgd. The facility upgrades will also increase the production of Title 22 disinfected tertiary recycled water to allow for expanded water reclamation, and reducing the amount of water discharged to the Napa River. ~~The Discharger will need to satisfy antidegradation requirements when seeking approval of increase capacity.~~

The Discharger submitted an antidegradation analysis in June 2010 (City of St. Helena Antidegradation Study). The Study states that since the Plant is prohibited to discharge into the river during the dry season, and the Discharger reclaims/land disposals most of the wastewater; during discharge to Napa River, effluent water quality will only cause a minor or negligible, temporary water quality change in Napa River. Therefore, the capacity increase from 0.5 mgd to 0.8 mgd during the permit term is consistent with the antidegradation requirements.

- 2. The TO includes Surface Receiving Water Limitations for temperature. In order to clarify that this limit applies outside the mixing zone, the following language is suggested:**

V.B.5. Temperature (page 12):

Napa River near the discharge shall not be increased by more than 5°F above natural receiving water temperatures. Compliance with this limit shall be measured as the difference between receiving water monitoring locations RSW-001 and RSW-004.

3. The TO includes effluent limits based on upstream hardness values only. The City believes this approach does not reflect actual impacts to the receiving water and deviates from Regional Water Board policy for determining the applicable hardness used to calculate water quality objectives for hardness-dependent metals. The City requests that the Regional Water Board incorporate the minimum downstream hardness, as was done for the Town of Yountville. Downstream hardness data collected by the Napa River Collaborative Monitoring Program is presented in the table below:

Sampling Location	Sampling Date	Concentration (mg/L as CaCO ₃)
Downstream (Napa River downstream of Town of Yountville)	02/25/02	110
	04/25/02	150
	07/18/02	190
	10/14/02	150
	10/15/03	232
	11/19/03	206
	12/17/03	103
	01/21/04	128
	05/03/07	140
	04/24/08	180
	02/13/09	110

The minimum hardness for this data set is 103 mg/L as CaCO₃, as was used in the Town of Yountville's permit.

The suggested changes to the Tentative Order are presented below:

Receiving Water Hardness IV.C.2.f. (page F-17)

Ambient hardness values are used to calculate freshwater WQOs that are hardness dependent. In determining WQOs for this Order, Regional Water Board staff used a hardness of ~~84~~ 103 mg/L as CaCO₃, which is the ~~adjusted geometric mean of twelve lowest hardness of eleven~~ adjusted geometric mean of twelve lowest hardness of eleven samples collected from February 2002 to February 2009 as part of the Napa River Collaborative Receiving Water Study ~~upstream~~ downstream of the discharge. The lowest hardness was selected to be conservative since relatively few hardness data were available.

Copper IV.C.4.c.(1) (page F-23/24)

- (a) **Copper WQOs.** The most stringent WQOs for copper are the Basin Plan freshwater aquatic life criteria of ~~7.8~~ 9.8 and ~~12~~ 15 micrograms per liter (µg/L), chronic and acute, respectively, expressed as total metal, based on a hardness of ~~84~~ 103 mg/L as CaCO₃.
- (b) **RPA Results.** This Order establishes effluent limitations for copper because the MEC of 12 µg/L exceeds the governing WQO for copper, demonstrating Reasonable Potential by Trigger 1.

- (c) **Copper WQBELs.** Effluent limitations for copper, calculated according to SIP procedures with a default CV of 0.41 and D=1 ~~D=1.8~~, are an AMEL of 14 µg/L and an MDEL of 24 µg/L.

Using the hardness of 103 mg/L, all references to the dilution used for copper should be D=1 rather than D=1.8, as that is all that is required.

Edits should also be made to Tables F-10 and F-11 to incorporate a hardness of 103 mg/L when determining hardness-based water quality criteria.

4. **The City feels it is important to note that most of the effluent quality data collected from 2006 to 2010 were obtained from treated wastewater that was discharged to Pond 5, as opposed to effluent actually discharged to the Napa River.**

IV.C.3.b (page F-18)

- b. **Effluent Data.** The Regional Water Board analyzed the Discharger's data for priority pollutants and the nature of the discharge to determine if the discharge has Reasonable Potential. The RPA was based on effluent monitoring data collected by the Discharger from ~~February 2007~~ January 2006 to April 2010 for most inorganic pollutants, and from ~~February 2007~~ January 2006 to March 2007 for most organic pollutants. Effluent was only discharged to the Napa River during periods in January 2006, March 2006, April 2006, and April 2010. All other effluent data represent samples collected from Pond 5.
5. **The City is classified as a "Minor Discharger," and as such, is not required to submit DMRs at this time. The City understands that when electronic reporting is implemented statewide, SMRs and DMRS may become the same report. Until that time, the City is only required to submit SMRs. The following changes are requested for the Monitoring and Reporting Program (Attachment E) to reflect the current requirements.**

Attachment E, IX.C. Discharge Monitoring Reports (page E-10)

1. As described in Section X.B.1 above, at any time during the term of this Order, the State or Regional Water Board may notify the Discharger to electronically submit SMRs that will satisfy federal requirements for submittal of DMRs. Until such notification is given, the Discharger is not required to ~~shall~~ submit DMRs in accordance with the requirements described below.
6. **Initially, the Napa River Collaborative Monitoring Program included five participants: Napa Sanitation District, City of American Canyon, City of Calistoga, Town of Yountville, and City of St. Helena. Monitoring efforts conducted in 2002 and 2003 established that the Napa River is delineated into tidal and non-tidal stretches, with the farthest reach of saltwater**

• **II. Findings. (page 2)**

2. Discharge Description. During the wet weather period of December 1 through April 30, secondary treated effluent is discharged intermittently to the Napa River, a water of the State and the United States, provided that the discharge receives a minimum of 50 to 1 river to wastewater dilution flow ratio (previous permit specified a minimum of 25 to 1 river to wastewater flow ratio). Treated wastewater is discharged to a non-tidal reach of the Napa River through Outfall 001. During the previous permit term (2005-2010), the Discharger only discharged 19 days in 2006 and one day in ~~2009~~ 2010 (this discharge event was for conducting a dye study), with an average daily discharge flow rate of 4.17 mgd, and a maximum daily discharge rate of 8.06 mgd (2006 discharge flows). During the remainder of the year, discharge to the Napa River is prohibited; wastewater is either stored in the ponds or disposed to land through spray irrigation of open grass fields at the City's 88-acre reclamation/disposal facility adjacent to and southeast of the ponds.

• **The footnotes to Table 7 are missing (page 10/11)**

Footnotes to Table 7:

^[1] a. Limitations for toxic pollutants apply to the average concentration of all samples collected during the averaging period (daily = 24-hour period; monthly = calendar month).

b. All metals limitations are expressed as total recoverable metal.

^[2] A daily maximum or average monthly value for a given constituent shall be considered noncompliant with the effluent limitations only if it exceeds the effluent limitation and the Reporting Level for that constituent. As outlined in Section 2.4.5 of the SIP, Table 8, below, indicates the Minimum Level (ML) for compliance determination purposes. An 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.

• **Attachment C – Process Flow Diagram (page C-1)**

The diagram needs to be edited to appropriately represent the flow schematic. An edited version is attached to this comment letter.

• **VIII. OTHER MONITORING REQUIREMENTS (page E-7)**

A. Biosolids Monitoring

The Discharger shall adhere to sludge monitoring requirements required by 40 CFR 503 (for land application) or 40 CFR 258 (for landfill disposal).

• **II. Facility Description (page F-5)**

Discharge Description. During the wet weather period of December 1 through April 30, secondary treated effluent is discharged intermittently to the Napa River, a water of the State and the United States, provided that the discharge receives a minimum of 25 to 1 river to wastewater flow ratio (under previous permit condition) and 50 to 1 river to wastewater flow ratio (this permit condition). ~~dilution~~. Treated wastewater is discharged to a non-tidal reach of the Napa River through Outfall 001. From 2005 – 2009, the Discharger only discharged 19 days in 2006 and one day in ~~2006~~ 2010 (this discharge was for conducting a dye study). The average daily discharge flow rate

from Outfall 001 was 4.17 mgd, with a maximum daily discharge flow rate of 8.06 mgd. During the remainder of the year, wastewater is either stored in the ponds or disposed to land through spray irrigation of open grass fields at the City's 88-acre reclamation/disposal facility adjacent to and southeast of the ponds. Recycled water discharges to land are regulated by Water Reclamation Requirements in Regional Water Board Order No. 87-090.

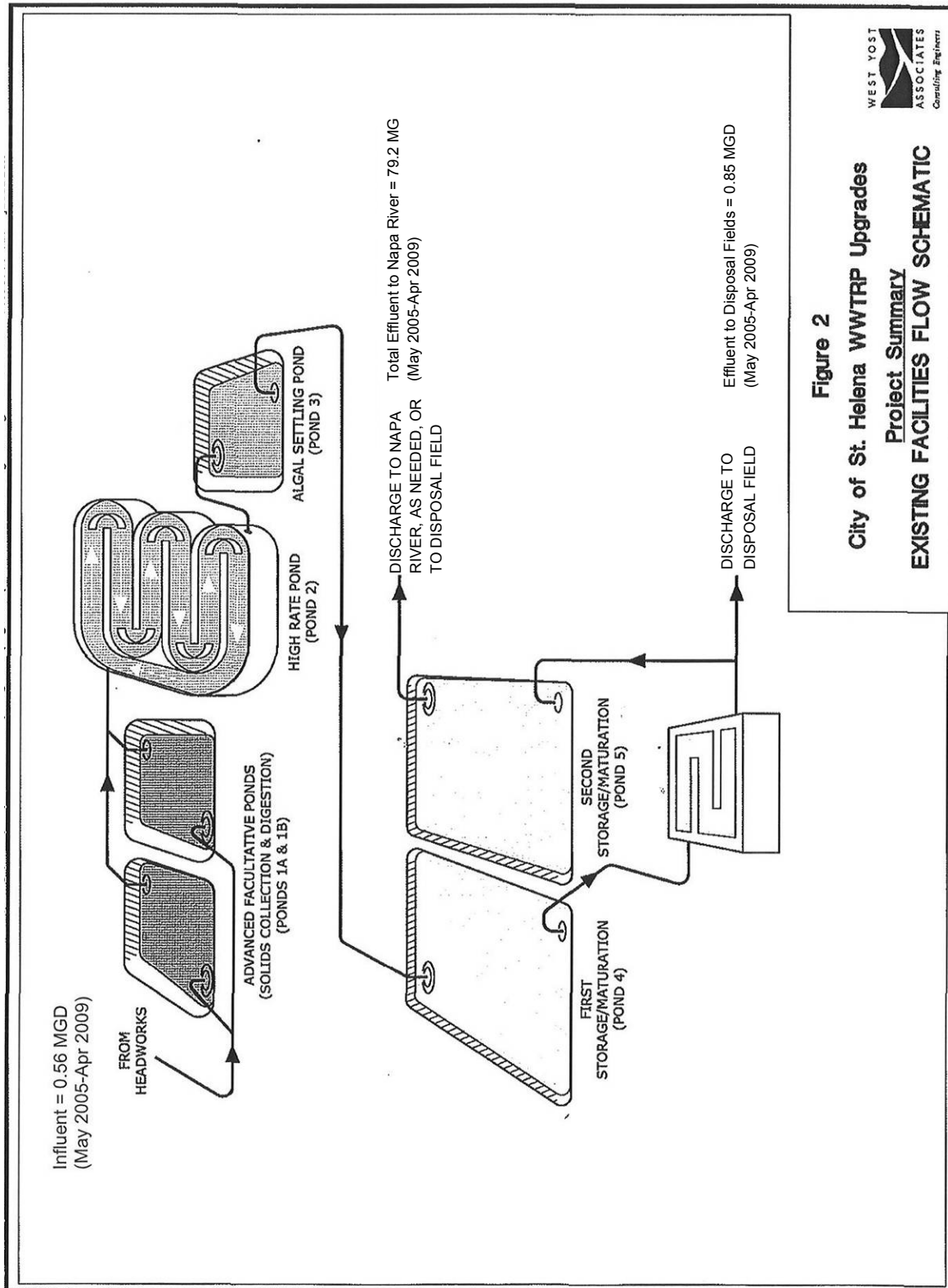
- **4. WQBEL Calculations; b. Dilution Credit (page F-23)**

The Discharger's June 2010 study found that a mixing zone extending about 225 feet downstream of Discharge Point 001 would correspond to a maximum dilution credit of D=20 when the minimum river-to-effluent flow ratio is 50:1. Such a mixing zone would comply with all the above conditions. On a pollutant-by-pollutant basis, therefore, the smallest practicable mixing zone can be no larger than one extending 225 feet from the outfall. Since this mixing zone meets the SIP criteria listed above, smaller mixing zones also meet these criteria.

- **Dioxin-TEQ IV.C.4.c.(3) (page F-25)**

To determine if the discharge of dioxin or dioxin-like compounds from the Facility has reasonable potential to cause or contribute to a violation of the Basin Plan's narrative bioaccumulation WQO, Regional Water Board staff used TEFs to express the measured concentrations of ~~16~~ 17 dioxin congeners in effluent and background samples as equivalent to 2,3,7,8-TCDD.

ATTACHMENT C – PROCESS FLOW DIAGRAM



APPENDIX C

RESPONSE TO COMMENTS

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

**Response to Written Comments
on July 2010 Draft NPDES Permit for
St. Helena Wastewater Treatment and Reclamation Plant and Collection System
St. Helena, Napa County**

The Regional Water Board received written comments on a tentative permit distributed for public comment from the City of St. Helena, dated July 27, 2010.

This response to those comments summarizes each comment in *italics* (often quoted and sometimes paraphrased for brevity) followed by the Regional Water Board staff response. For the full context and content of each comment, refer to the comment letters.

City Comment No. 1. *The City submitted an antidegradation analysis for increasing dry weather treatment capacity from 0.5 mgd to 0.8 mgd on June 10, 2010. The analysis claimed that increasing treatment capacity will cause minor or negligible impacts to water quality in the Napa River and is consistent with antidegradation provisions. The City requested that language be added to the permit and Fact Sheet to recognize that the City submitted the antidegradation analysis and Regional Water Board staff approved it.*

Response to City Comment No. 1. We revised Tentative Order Provision VII.C.4.b, “Plant Upgrade and Capacity Increase Tasks and Schedule,” and Fact Sheet Section IV.E.6 (p. F-32), “Plant Capacity Increase,” to indicate that the City submitted the antidegradation analysis in June 2010. The antidegradation analysis was required as a part of the environmental impact assessment for the proposed capacity increase project. We did not revise Fact Sheet Section III.C.5 (Antidegradation Policy) as requested because the same information is already included in Section IV.E.6.

The capacity increase can only be approved after all the tasks specified in Provision VII.C.4.b are completed, and the approval will require a permit amendment or permit reissuance. Based on the schedule for the capacity increase project, a formal approval of the capacity increase will be completed with the next permit reissuance.

City Comment No. 2. *The Tentative Order includes Surface Receiving Water Limitations for temperature. In order to clarify that this limit applies outside the mixing zone, the City suggested the following underlined language to be included in the permit:*

V.B.5. Temperature (page 12):

Napa River near the discharge shall not be increased by more than 5°F above natural receiving water temperatures. Compliance with this limit shall be measured as the difference between receiving water monitoring locations RSW- 001 and RSW-004.

Response to City Comment No. 2. We revised the Tentative Order as requested. As a point of clarification, however, the mixing zone in the Tentative Order is pollutant-specific, and the Tentative

Order does not establish a mixing zone for temperature. Nevertheless, the proposed method to evaluate compliance is reasonable and provides helpful specificity to the requirement.

City Comment No. 3. *The Tentative Order includes effluent limits based on upstream hardness values only. The City believes this approach does not reflect actual impacts to the receiving water and deviates from Regional Water Board policy for determining the applicable hardness used to calculate water quality objectives for hardness-dependent metals. The City requested that the Regional Water Board incorporate the minimum downstream hardness, as was done for the Town of Yountville. This value is 103 mg/L instead of 81 mg/L as in the Tentative Order.*

Response to City Comment No. 3. We disagree. There is no established policy concerning selection of receiving water hardness, and the Yountville and St. Helena situations are different. The Yountville discharge is located downstream of the St. Helena outfall on the Napa River, and the downstream monitoring station the City wishes to consider is downstream of the Yountville discharge. A statistical analysis of the upstream and downstream station hardness data shows that hardness is significantly different at these two stations. The upstream values range from 58 to 124 mg/L, with an average value of 86 mg/L; the downstream values range from 103 mg/L to 232 mg/L, with an average value of 154 mg/L. Therefore, we cannot combine these two data sets within one statistical analysis to derive a representative hardness. Moreover, the downstream station is more representative of the receiving water near the Yountville discharge, but not near the St. Helena discharge. Using hardness data collected from this downstream station will not adequately protect the receiving water near the St. Helena discharge. However, the City may collect hardness data near its discharge, and the Regional Water Board could consider such data in the future.

City Comment No. 4. *The City requested that the permit note that most of the effluent quality data collected from 2006 to 2010 were obtained from treated wastewater discharged to Pond 5, as opposed to effluent actually discharged to the Napa River.*

IV.C.3.b (page F-18):

***b. Effluent Data.** The Regional Water Board analyzed the Discharger's data for priority pollutants and the nature of the discharge to determine if the discharge has Reasonable Potential. The RPA was based on effluent monitoring data collected by the Discharger from ~~February 2007~~ January 2006 to April 2010 for most inorganic pollutants, and from ~~February 2007~~ January 2006 to March 2007 for most organic pollutants. Effluent was only discharged to the Napa River during periods in January 2006, March 2006, April 2006, and April 2010. All other effluent data represent samples collected from Pond 5.*

Response to City Comment No. 4. We revised the Tentative Order as requested.

City Comment No. 5. *The City is classified as a "Minor Discharger," and as such is not required to submit DMRs at this time. The City is only required to submit SMRs before electronic reporting is implemented statewide, when SMRs and DMRS may become the same report. The City requested the following changes for the Monitoring and Reporting Program (Attachment E) to reflect the current requirements.*

Attachment E, IX.C. Discharge Monitoring Reports (page E-10):

1. As described in Section X.B.1 above, at any time during the term of this Order, the State or Regional Water Board may notify the Discharger to electronically submit SMRs that will satisfy federal requirements for submittal of DMRs. Until such notification is given, the Discharger is not required to ~~shall~~ submit DMRs in accordance with the requirements described below.

Response to City Comment No. 5. We revised the Tentative Order as requested.

City Comment No. 6. *Initially, the Napa River Collaborative Monitoring Program included five participants: Napa Sanitation District, City of American Canyon, City of Calistoga, Town of Yountville, and City of St. Helena. Monitoring efforts conducted in 2002 and 2003 established that the Napa River is delineated into tidal and non-tidal stretches, with the farthest reach of saltwater influence measured at the City of Napa's northern boundary (just upstream of the Trancas Bridge). Freshwater objectives apply to discharges from the City of Calistoga, the City of St. Helena, and the Town of Yountville, while saltwater objectives apply to Napa Sanitation District and City of American Canyon. Subsequent collaborative monitoring efforts in the non-tidal reach of the Napa River were undertaken by only the three dischargers in this area (Calistoga, Yountville, and St. Helena). The City suggested including this history in the Fact Sheet, Attachment F, Section IV.C.3.c (page F-18).*

Response to City Comment No. 6. We revised the Tentative Order as requested.

City Comment No. 7. *The City suggested correction of typographical errors.*

Response to City Comment No. 7. In many cases, we revised the Tentative Order as requested. We disagree with three suggestions, as explained below, and did not revise the Tentative Order as requested.

City Comment No. 7(a). *Revise Table 4 facility information:*

Facility Address ~~1 Chaix/Thomann Lane~~ 1480 Main Street, St. Helena, CA 94574

Response to City Comment No. 7(a). We did not revise the facility address because the facility is, in fact, located at 1 Chaix/Thomann lane. However, we replaced the mailing address with this one. We also revised Table F-1 of the Fact Sheet (mailing address and billing address) in response to this comment.

City Comment No. 7(b). *Add Table 7 footnotes (pages 10-11):*

[1] a. Limitations for toxic pollutants apply to the average concentration of all samples collected during the averaging period (daily = 24-hour period; monthly = calendar month).

b. All metals limitations are expressed as total recoverable metal.

[2] A daily maximum or average monthly value for a given constituent shall be considered noncompliant with the effluent limitations only if it exceeds the effluent limitation and the Reporting Level for that constituent. As outlined in Section 2.4.5 of the SIP, Table 8, below, indicates the Minimum Level (ML) for compliance determination purposes. An 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.

Response to City Comment No. 7(b). We did not revise the Tentative Order because this information is already included in the Regional Standard Provisions, Attachment G.

City Comment No. 7(c). *Revise the number of dioxin congeners in Fact Sheet Section IV.C.4.c(3) (page F-25):*

To determine if the discharge of dioxin or dioxin-like compounds from the Facility has reasonable potential to cause or contribute to a violation of the Basin Plan's narrative bioaccumulation WQO, Regional Water Board staff used TEFs to express the measured concentrations of ~~16~~17 dioxin congeners in effluent and background samples as equivalent to 2,3,7,8-TCDD.

Response to City Comment No. 7(c). We did not revise the Tentative Order because the 16 congeners mentioned in the text do not include 2,3,7,8-TCDD.