ORDER No. R2-2012-0084
NPDES No. CA0005240

The following discharger and discharge points are subject to waste discharge requirements set forth in this Order.

Table 1. Discharger Information

Discharger	C&H Sugar Company, Inc.,and Crockett Community Services District
Name of Facility	C&H Sugar Company Refinery, Joint Use C&H Sugar Company-Crockett Community Services District Philip F. Meads Water Treatment Plant, and Crockett Community Services District collection system
Facility Address	830 Loring Avenue, Crockett, CA 94525, Contra Costa County
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Quality Control Board have classified this discharge as a major discharge.	

Table 2. Discharge Locations

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Approximately 22.5 million gallons per day (MGD) of once-through barometric condenser cooling water from Carquinez Strait, condensed vapors from vacuum pans, once-through cooling water from evaporators and a steam turbine, and roof drains. The point of discharge is a deep-water diffuser that extends approximately 200 feet offshore into Carquinez Strait to a depth ot 47 feet	38º 03′ 27″ N	122º 13′ 06″ W	Carquinez Strait
002	Approximately 0.93 MGD of secondary treated effluent (secondary treatment of process wastewater from the Refinery and pretreated wastewater from Crockett Community Services District). The point of discharge is a deep-water multi-port diffuser located directly below the Carquinez Bridge, 637 feet west of the refinery plant.	38º 03′ 30″ N	122º 13′ 28″ W	Carquinez Strait
003	Stormwater from small yard area: estimated flow is less than 1,000 gallons per day (gpd).	38º 03 ´ 27″ N	122º 13 ´ 03″ W	Carquinez Strait
005	Stormwater from refinery yard and community streets: estimated flow is 15,000 gpd.	38º 03 ´ 27″ N	122º 13 ´ 11″ W	Carquinez Strait
006	Stormwater from community streets and truck parking areas: estimated flow is 1,000 gpd.	38º 03 ´ 27″ N	122º 13 ´ 31″ W	Carquinez Strait
008	Stormwater from Refinery yard: estimated flow is 3,000 gpd.	38º 03 ´ 27″ N	122º 13 ´ 11″ W	Carquinez Strait
009	Stormwater from dock and nearby areas: estimated flow is less than 100 gpd.	38º 03 ´ 26″ N	122º 12 ´ 46″ W	Carquinez Strait

011	Stormwater from area north of Herreshoff Kiln: estimated flow is 15,000 gpd.	38º 03 ´ 27″ N	122º 13 ´ 11″ W	Carquinez Strait
012	Stormwater from canopied products and material storage area in Refinery yard and roof tops: estimated flow is less than 500 gpd.	38º 03 ´ 27″ N	122º 13 ´ 11″ W	Carquinez Strait
013	Stormwater from western side of Refinery south of Warehouse No. 1: estimated flow is 4,500 gpd.	38º 03 ´ 27″ N	122º 13 ´ 15″ W	Carquinez Strait
014	Stormwater from area adjacent to C&H Sugar Company's primary wastewater treatment plant: estimated flow is 15,000 gpd	38º 03 ´ 22″ N	122º 13 ´ 15″ W	Carquinez Strait
016	Stormwater from undeveloped areas in secondary treatment plant: estimated flow is less than 100 gpd.	38º 03 ´ 19″ N	122º 13 ´ 36″ W	Carquinez Strait

Table 3. Administrative Information

This Order was adopted by the Regional Water Quality Control Board on:	November 14, 2012
This Order shall become effective on:	January 1, 2013
This Order shall expire on:	December 31, 2017
CIWQS Regulatory Measure Number:	323851
The Discharger shall file a Report of Waste Discharge in accordance with Title 23, California Code of Regulations, as application for re-issuance of waste discharge requirements no later than:	July 3, 2017

I, Bruce H. Wolfe, Executive Officer, do hereby certify on the date indicated above 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 the date indicated above.

Digitally signed by Bruce H. Wolfe
Date: 2012.11.27 15:58:04 -08'00'

Bruce H. Wolfe, Executive Officer

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I. FACILITY INFORMATION

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

Table 4. Facility Information

Discharger	C&H Sugar Company, Inc., and Crockett Community Services District
CIWQS Discharger ID	6755
Name of Facility	C&H Sugar Company Refinery, Joint Use C&H Sugar Company-Crockett Community Services District Philip F. Meads Water Treatment Plant, and Crockett Community Services District collection system
Facility Address	830 Loring Avenue, Crockett, CA 94525 Contra Costa County
CIWQS Place ID	212212
Facility Contact, Title, Email, Phone	Tanya Akkerman, Environmental Manager, C&H Sugar Company, Tanya.akkerman@chsugar.com , 510-787-4352 Dale McDonald, General Manager, Crockett Community Services District, manager@town.crockett.ca.us , 510-787-2992
CIWQS Contact Party ID	521474
Mailing Address	C&H Sugar Company - 830 Loring Avenue, Crockett, CA 94525 Crockett Community Services District – P.O. Box 578, Crockett, CA 94525
Type of Facility	Cane Sugar Refining Privately-owned wastewater treatment plant and associated Crockett Community Services District collection system.
Facility Design Flow	35 million gallons per day (MGD) for once-through cooling water discharged through Outfall 001 1.8 MGD for secondary treated wastewater discharged through Outfall 002

II. FINDINGS

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

A. Background. C&H Sugar Company, Inc., and the Crockett Community Services District, collectively the Discharger, are currently discharging under Order No. R2-2007-0032 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0005240. The Discharger submitted a Report of Waste Discharge, dated December 9, 2011, and applied for an NPDES permit reissuance to discharge once-through cooling water and treated wastewater from the C&H Sugar Company refinery and Joint C&H Sugar Company-Crockett Community Services District Philip F. Meads Water Treatment Plant. Both C&H Sugar Company and Crockett Community Services District signed a Joint-Use Agreement on November 9, 1976, such that the C&H Sugar Company refinery wastewater and municipal sewage from the Crockett area are treated at the Joint C&H Sugar Company-Crockett Community Services District Philip F. Meads Water Treatment Plant (hereinafter the Joint Treatment Plant). C&H Sugar Company, Inc., and the Crockett Community Services District jointly use the Plant, and C&H Sugar Company is the owner and operator.

The discharge is currently regulated under Order No. R2-2007-0077 (NPDES Permit CA0038849), as amended by Order R2-2011-0012, which supersedes all requirements on mercury and polychlorinated biphenyls (PCBs) from wastewater discharges in the region. This Order does not affect the mercury and PCBs requirements in that permit.

B. Facility Description and Discharge Location. C&H Sugar Company owns and operates a sugar refinery for refining raw cane sugar (hereinafter the Refinery) at 830 Loring Avenue, Crockett, Contra Costa County. The Refinery processes raw cane sugar at an average melt rate of 3,300 tons per day over approximately 260 operating days per year. Crystalline and liquid refined sugars are delivered to clients by both trucks and rail cars. The Refinery currently operates on a 7-day cycle with 5 days on and 2 days down.

The Refinery discharges once-through cooling water and condensed vapor (without treatment) through a deep water Discharge Point 001 back into Carquinez Strait within San Francisco Bay, a water of the United States. The annual average discharge flow rates through Discharge Point 001 during 2007 through 2011 ranged from 13.5 million gallons per day (MGD) to 28.3 MGD. Sugar refining process wastewater that includes char washings, scum filter aid slurries, refinery equipment wash water, railcar washings, truck washings, and contaminated stormwater from process areas is processed through a primary wastewater treatment plant at the Refinery before being pumped to the Joint Treatment Plant. The annual average flow rate for this waste stream is 0.45 MGD. Solids separated at the primary treatment units are dewatered on a belt filter and loaded on a truck for off-site disposal as a soil amendment.

The Crocket Community Services District (hereinafter, the District) collects municipal sewage from the community of Crockett and comminutes and degrits it. Crockett is a small community with no industrial activity except for the Refinery. Municipal sewage, collected by the District, mainly consists of wastewater from residential and commercial sources, and inflow and infiltration. After this preliminary treatment, the wastewater is pumped to the Joint Treatment Plant for secondary treatment and disinfection before it is discharged to Carquinez Strait. All the grit removed is hauled to a permitted Class III disposal site.

The Joint Treatment Plant is an activated sludge wastewater treatment facility that treats primary- treated sugar refining wastewater and pretreated (comminuted and de-gritted) domestic wastewater from the District. The Refinery's sanitary wastes and tank truck washings, which account for less than 0.04 MGD, are combined with the pretreated sewage from the District. The average dry weather design flow from the District to the Joint Treatment Plant is 0.3 MGD. As necessary, during wet weather, the peak wet weather flow may increase to 3.3 MGD. Excess sewage, which is due to stormwater inflow and infiltration, is temporarily stored in the District's stormwater surge tanks prior to returning it to the Joint Treatment Plant. During wet weather, peak flows are stored in the stormwater surge tanks before processing. The secondary-treated wastewater is discharged through a deep water Discharge Point 002 to the Carquinez Strait.

Waste biosolids from the dissolved air clarifiers at the Joint Treatment Plant are dewatered by belt presses, mixed with lime if stabilization is necessary, and trucked for off-site disposal. Process water removed from the belt-presses is combined with washings, waste samples, drips, stormwater, and other process waters are returned to the treatment process.

As described in Table 2 and in the Fact Sheet (Attachment F), there are several stormwater discharge outfalls at the Refinery.

Attachment B provides a location map showing the location of the Refinery. Attachment C provides flow schematics.

C. Legal Authorities. This Order is issued pursuant to Clean Water Act (CWA) section 402 and implementing regulations adopted by USEPA and California Water Code (CWC) Chapter 5.5, Division 7 (commencing with section 13370). It serves as an NPDES permit for point source discharges from the facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to CWC Article 4, Chapter 4, Division 7 (commencing with section 13260).

D. Background and Rationale for Requirements. The Regional Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for requirements of the Order, is hereby incorporated into this Order and constitutes part of the findings for this Order. Attachments A through E, and G, are also incorporated into this Order.

E. California Environmental Quality Act (CEQA). Under 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 Title 40 of the Code of Federal Regulations section 122.44 (40 CFR 122.44) require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet the technology-based requirements USEPA established at 40 CFR 409, Subpart B, Effluent Limitations Guidelines for the Sugar Processing Point Source Category (Crystalline Cane Sugar Refining Subcategory), as well as the technology-based requirements established using Best Professional Judgment (BPJ) pursuant to 40 CFR 125.3. A detailed discussion of the development of the technology-based effluent limitations in this Order is included in the Fact Sheet .

G. Water Quality-Based Effluent Limitations. CWA section 301(b) and 40 CFR 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards. NPDES regulations at 40 CFR 122.44(d)(1)(i) mandate that permits include effluent limitations for all pollutants that are or may be discharged at levels that have a 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 groundwater. 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, as required. Requirements of this Order implement the Basin Plan.

The Basin Plan implements State Water Board Resolution No. 88-63, which establishes State policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply (MUN). Because of marine influence on Carquinez Strait, total dissolved solids levels exceed 3,000 mg/L and thereby meet an exception to Resolution No. 88-63. The MUN designation therefore does not apply to Carquinez Strait. The table below lists Basin Plan beneficial uses of Carquinez Strait (within Suisun Basin).

Table 5. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Uses
001 & 002	Carquinez Strait	Industrial Service Supply (IND) Ocean, Commercial, and Sport Fishing (COMM) Estuarine Habitat (EST) Fish Migration (MIGR) Preservation of Rare and Endangered Species (RARE) Fish Spawning (SPWN) Wildlife Habitat (WILD) Water Contact Recreation (REC-1) Non-Contact Water Recreation (REC-2) Navigation (NAV)

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.

The State Water Board adopted the *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California* (hereinafter Thermal Plan) on May 18, 1972, and amended this plan on September 18, 1975. This plan contains temperature objectives for surface waters. Requirements of this Order implement the Thermal Plan.

I. National Toxics Rule (NTR) and California Toxics Rule (CTR). USEPA adopted the NTR on December 22, 1992, and later amended it on May 4, 1995, and November 9, 1999. About 40 criteria in the NTR apply in California. On May 18, 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that applied in the State. USEPA amended the CTR 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. 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.

L. Stringency of Requirements for Individual Pollutants. This Order contains both technology-based and WQBELs for individual pollutants. Derivation of these technology-based limitations is discussed in the Fact Sheet. 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 are derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR 131.38. The procedures for calculating individual WQBELs for priority pollutants are based on the SIP, which USEPA approved on May 18, 2000. Most 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.

M. Antidegradation Policy. NPDES regulations at 40 CFR 131.12 require that 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 quality of waters be maintained unless degradation is justified based on specific findings. The Basin Plan incorporates by reference both the State and federal antidegradation policies. As discussed in the Fact Sheet, the permitted discharge is consistent with these antidegradation provisions.

N. 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 effluent limitations in a reissued permit to be as stringent as those in the previous order, with some exceptions where limitations may be relaxed. As discussed in the Fact Sheet, the permitted discharge is consistent with these anti-backsliding requirements.

O. 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.

P. 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 (MRP) in Attachment E establishes monitoring and reporting requirements to implement federal and State requirements.

Q. Standard and Special Provisions. Attachment D contains standard provisions that apply to all NPDES permits in accordance with 40 CFR 122.41 and additional conditions that apply to specified categories of permits in accordance with 40 CFR 122.42. The Discharger must comply with all standard provisions and with those additional conditions that apply under 40 CFR 122.42. The Discharger must also comply with the Regional Standard Provisions provided in Attachment G. The Fact Sheet (Attachment F) provides rationale for the special provisions.

R. Provisions and Requirements Implementing State Law. No provisions or requirements in this Order are included to implement State law only. All provisions and requirements are required or authorized under the federal CWA; consequently, violations of these provisions and requirements are subject to the enforcement remedies available for NPDES violations.

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

T. 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 public hearing details.

IT IS HEREBY ORDERED, that this Order supersedes Order No. R2-2007-0032, except for enforcement purposes, and, in order to meet the provisions contained in CWC Division 7 (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal 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. The discharge of once-through cooling water from Discharge Point 001 and treated wastewater from Discharge Point 002 to Carquinez Strait at any point at which the wastewater does not receive a minimum initial dilution of at least 10:1 is prohibited. Compliance shall be achieved by proper operation and maintenance of the discharge outfalls to ensure that they (or their replacements, in whole or in part) are in good working order and are consistent with, or can achieve better mixing than, that described in the Fact Sheet . The Discharger shall address measures taken to ensure this in its application for permit reissuance.

C. The bypass of untreated or partially treated wastewater to waters of the United States is prohibited, except as provided for in section I.G of Attachment D of this Order.

D. Any sanitary sewer overflow that results in a discharge of untreated or partially-treated wastewater to waters of the United States is prohibited. Sanitary sewer overflows upstream of the Joint Treatment Plant, if any, are the responsibility of the District

E. The use of algaecides or anti-fouling additives in the barometric condenser cooling water system, discharged at Discharge Point 001, is prohibited.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

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

Discharges at Discharge Point 001 shall comply with the following effluent limitations, with compliance measured at Monitoring Location EFF-001 as described in the MRP.

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

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Biochemical Oxygen Demand (5-day @ 20°C) (BOD) [1]	lbs/day	2,200 [2]	6, 700 [3]	---	---
pH [4]	Standard units.	---	---	6.0	9.0

Footnotes:

[1] In accordance with 40 CFR 409.22 compliance shall be based on the increase of BOD_5 measured in the outfall at EFF-001 over the BOD_5 measured in the intake at INF-001.

[2] Compliance with the average monthly effluent limitation for BOD_5 shall be determined by averaging all daily values (lbs/day) as determined above in each calendar month.

[3] The mass (lbs/day) of BOD_5 discharged shall be determined in accordance with the following equation:

lbs/day BOD_5 = BOD_5 effluent concentration (mg/L) x effluent flow (MGD) at Discharge Point 001 x 8.34

Where 8.34 is a conversion factor in [(L•lb)/(gallon•kg)] = 3.7854 L/gallon x 2.2 lbs/kg

[4] 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.

B. Effluent Limitations for Toxic Pollutants – Discharge Point 001

Discharges at Discharge Point 001 shall comply with the following effluent limitations, with compliance measured at Monitoring Location EFF-001 as described in the MRP. Compliance at Discharge Point 001 shall be the responsibility of C&H Sugar Company, Inc.

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

Parameter	Units	Effluent Limitations[1]	
		Average Monthly Effluent Limit (AMEL)	Maximum Daily Effluent Limit (MDEL)
Arsenic[2]	µg/L	24	67
Copper	µg/L	54	120
Lead	µg/L	3.0	8.2
Nickel[2]	µg/L	23	54
Selenium[2]	µg/L	17	59
Zinc	µg/L	250	590
Cyanide[2]	µg/L	2.0	5.0
Dioxin-TEQ	µg/L	1.4×10^{-8}	2.8×10^{-8}
Bis(2-Ethylhexyl)Phthalate	µg/L	54	110

Footnotes:

[1] All metals limitations are expressed as total recoverable metal.

[2] Effluent arsenic, nickel, selenium, and cyanide concentrations measured at Monitoring Location EFF-001 shall only be subject to these limitations if they also exceed the following intake water concentrations (see Provision VII.B for details):

arsenic: 68 µg/L
nickel: 50 µg/L
selenium: 59 µg/L
cyanide: 5.5 µg/L

Effluent concentrations above these values are statistically greater than intake water concentrations, demonstrating that the Discharger has added or contributed the pollutant to the intake water, and thus does not qualify for "intake water credits" and shall be subject to the WQBELs in this Table.

C. Effluent Limitations for Conventional and Non-Conventional Pollutants – Discharge Point 002

1. Discharges at Discharge Point 002 shall comply with the following effluent limitations, with compliance measured at Monitoring Location EFF-002 as described in the MRP. The District and C&H Sugar Company, Inc., share responsibility for compliance with these limitations.

Table 8. Conventional and Non-Conventional Effluent Limitations – Discharge Point 002

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Biochemical Oxygen Demand (5-day @ 20°C) (BOD) [1][2]	lbs/day	730	2000	---	---
Total Suspended Solids (TSS) [1]	lbs/day	730	2600	---	---
pH[3]	Standard units.	---	---	6.0	9.0
Oil and Grease	mg/L	10	20	---	---
Total Residual Chlorine[4]	mg/L	---	---	---	0.0
Settleable Matter	mL/L/hour	0.1	0.2	---	---

Footnotes:

[1] Compliance with the average monthly effluent limitation for BOD_5 and TSS shall be determined by averaging all daily values (lbs/day) in each calendar month.

[2] The mass (lbs/day) of BOD_5 and TSS discharged shall be determined in accordance with the following equations:

lbs/day BOD_5 = BOD_5 effluent concentration (mg/L) x effluent flow (MGD) at Discharge Point 002 x 8.34
lbs/day TSS = TSS effluent concentration (mg/L) x effluent flow (MGD) at Discharge Point 002 x 8.34
Where 8.34 is a conversion factor in [(L•lb)/(gallon•kg)] = 3.7854 L/gallon x 2.2 lbs/kg

[3] If the Discharger monitors pH continuously, it 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.

[4] The chlorine residual requirement is defined as below the limit of detection by standard methods of analysis, as defined in Standard Methods for the Examination of Water and Wastewater. See the MRP for the reporting limit. The Discharger may elect to use a continuous on-line monitoring system(s) for measuring flows, chlorine residual and sodium bisulfate (or other dechlorinating chemical) dosage (including a safety factor) and concentration to prove that chlorine residual exceedances are false positives. If convincing evidence is provided, Regional Water Board staff may conclude that these false positive chlorine residual exceedances are not violations of this permit limitation.

2. **Total Coliform Bacteria**. Within each calendar month, the median concentration of total coliform bacteria in all discharge samples from Discharge Point 002 shall not exceed 240 MPN/100 mL. The daily maximum shall not exceed 10,000 MPN/100 mL. Compliance shall be measured at Monitoring Location EFF-002 as described in the MRP.

3. **Enterococcus Bacteria**. The geometric mean enterococci bacteria concentration of all samples of the discharge at Discharge Point 002 in a calendar month shall not exceed 35 colonies per 100 mL. Compliance shall be measured at Monitoring Location EFF-002 as described in the MRP.

D. Effluent Limitations for Toxic Pollutants – Discharge Point 002

Discharges at Discharge Point 002 shall comply with the following effluent limitations, with compliance measured at Monitoring Location EFF-002 as described in the MRP.

Table 9. Effluent Limitations for Toxic Pollutants – Discharge Point 002

Parameter	Units	Effluent Limitations[1]	
		Average Monthly Effluent Limit (AMEL)	Maximum Daily Effluent Limit (MDEL)
Copper	µg/L	55	120
Lead	µg/L	23	67
Zinc	µg/L	300	600
Cyanide	µg/L	19	46
Dioxin-TEQ[2]	µg/L	1.4×10^{-8}	2.8×10^{-8}
Chlorodibromomethane	µg/L	340	680
Dichlorobromomethane	µg/L	460	920
Bis(2-Ethylhexyl)Phthalate	µg/L	54	110
Dibenzo(a,h)Anthracene	µg/L	0.48	1.0
Ammonia as N	mg/L	17	55

Footnote:

[1] All metals limitations are expressed as total recoverable metal.

E. Whole Effluent Acute Toxicity – Discharge Point 002

1. Representative samples of the effluent at Discharge Point 002, with compliance measured at EFF-002 as described in the MRP, shall meet the following limits for acute toxicity. Bioassays shall be conducted in compliance with MRP section V.A.

   The survival of organisms in undiluted effluent shall be:

   a. An eleven (11)-sample median value of not less than 90 percent survival; and

b. An eleven (11)-sample 90th percentile value of not less than 70 percent survival.

2. These acute toxicity limitations are further defined as follows:

a. 11-sample median. A bioassay test showing survival of less than 90 percent represents a violation of this effluent limit, if five or more of the past ten or fewer bioassay tests show less than 90 percent survival.

b. 11-sample 90th percentile. A bioassay test showing survival of less than 70 percent represents a violation of this effluent limit, if one or more of the past ten or fewer bioassay tests show less than 70 percent survival.

3. Bioassays shall be performed using the most up-to-date USEPA protocol and the requirements described in MRP section V.A. 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).

4. If the Discharger can demonstrate to the Executive Officer's satisfaction that toxicity exceeding the levels cited above is caused by ammonia and that the ammonia in the discharge complies with effluent limitations in this Order, then such toxicity shall not constitute a violation of this effluent limitation.

F. Whole Effluent Chronic Toxicity – Discharge Point 002

The discharge shall not contain chronic toxicity at a level that would cause or contribute to toxicity in the receiving water. Chronic toxicity is a detrimental biological effect on growth rate, reproduction, fertilization success, larval development, or any other relevant measure of the health of an organism population or community. Compliance with this limitation shall be determined by analysis of indicator organisms and toxicity tests. This limitation applies to Discharge Point No. 002 and compliance shall be measured at Monitoring Location EFF-002 as described in MRP section V.B.

G. Stormwater Limitations – Discharge Points 003 through 016

The discharge of stormwater runoff from Discharge Point 003 through and including Discharge Point 016 outside the pH range or containing constituents in excess of the following limits is prohibited:

Constituent	Units	Limitation
pH	Standard Units	6.0 to 9.0
Visible Oil	---	none observed
Visible Color	---	none observed

C&H Sugar Company, Inc., is responsible for compliance with these limitations.

V. RECEIVING WATER LIMITATIONS

The discharge shall not cause the following in the receiving water:

A. Temperature shall be limited as follows:

1. Discharges, either individually or combined with other discharges, shall not create a zone, defined by water temperatures of more than 1ºF above natural receiving water temperature, that exceeds 25 percent of the cross sectional area of Carquinez Strait at any point.

2. Discharges shall not cause a surface temperature rise greater than 4ºF above the natural temperature of the receiving water at any time or place.

B. The discharge shall not cause the following conditions to exist at any place:

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 or other products of petroleum origin; and

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.

C. The discharge of waste shall not cause the following limits to be exceeded within 1 foot of the water surface:

1.	Dissolved Oxygen	5.0 mg/L, minimum The median dissolved oxygen concentration for any three consecutive months shall not be less than 80 percent 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	Natural background levels
3.	pH	The pH shall not be depressed below 6.0 or raised above 9.0. 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.

D. The discharge shall not cause a violation of any particular water quality standard for receiving waters adopted by the Regional Water Board or the State Water Board as required by the CWA and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to CWA section 303, or amendments thereto, the Regional

Water Board may revise and modify this Order in accordance with such more stringent standards.

VI. PROVISIONS

A. Standard Provisions

1. **Federal Standard Provisions.** The Discharger shall comply with the 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). Although the Joint Treatment Plant is privately owned, all provisions in Attachment G applicable to publicly-owned treatment works shall also apply to the Joint Treatment Plant.

B. MRP 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 section VI.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 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 water quality objectives 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 water quality objectives and wasteload 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 water quality objectives, based on TMDLs, or as otherwise permitted under federal regulations governing NPDES permit modifications.

c. If translator, dilution, or other water quality studies provide a basis for determining that a permit condition should be modified.

d. If an administrative or judicial decision on a separate NPDES permit or WDRs addresses requirements similar to those applicable to this discharge.

e. Or as otherwise authorized by law.

The Discharger may request permit modification based on any of the circumstances described above. In any such request, the Discharger shall include an antidegradation and anti-backsliding analysis.

2. Special Studies and Additional Monitoring Requirements

a. Effluent Characterization Study and Report—Discharge Point No. 001 and Discharge Point 002

(1) Study Elements

The Discharger shall continue to characterize and evaluate discharge from the following discharge points to verify that the "no" or "cannot determine" reasonable potential analysis conclusions of this Order remain valid and to inform the next permit reissuance. The Discharger shall collect representative samples of the discharges as set forth below, with locations as defined in the MRP:

Discharge Point	Monitoring Station	Minimum Frequency
001	EFF-001	Once per calendar year
002	EFF-002	Once per calendar year

The samples shall be analyzed for the priority pollutants listed in Table C of the Regional Standard Provisions , except for those priority pollutants with effluent limitations where the MRP already requires monitoring. Compliance with this requirement shall be achieved in accordance with the specifications of Regional Standard Provisions sections III.A.1 and III.A.2.

The Discharger shall evaluate on an annual basis if concentrations of any of these priority pollutants increase over past performance. The Discharger shall investigate the cause of any increase. The investigation may include, but need not be limited to, an increase in monitoring frequency, monitoring of internal process streams, and monitoring of influent sources. The Discharger shall establish remedial measures addressing any increase resulting in Reasonable Potential to cause or contribute to an excursion above applicable water quality objectives. This requirement may be satisfied through identification of the constituent as a "pollutant of concern" in the Discharger's Pollutant Minimization Program, described in Provision VI.C.3.

(2) Reporting Requirements

(a) Routine Reporting

The Discharger shall, within 30 days after the end of each calendar month, report in the transmittal letter for the appropriate monthly self-monitoring report:

(i) Indication that a sample or samples for this characterization study was or were collected; and

(ii) Identity of priority pollutants detected at or above applicable water quality criteria (see Fact Sheet Table F-18 and Table F-19 for the criteria), together with the detected concentrations of those pollutants.

(b) Annual Reporting

The Discharger shall provide a summary of the annual data evaluation and source investigation in the annual self-monitoring report.

(c) Final Report

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

b. 316(b) Requirements

The Discharger shall continue meeting, or improving upon, the impingement and entrainment standards described in the *December 2009 Cooling Water Intake Report*, namely an intake velocity of not more than 38 cm per second and a mesh size opening of not more than 0.38 inch.

3. Best Management Practices and Pollutant 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 Joint 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:

(1) *Brief description of the Joint Treatment Plant, processes and service area.*

(2) *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 for choosing the pollutants.

(3) *Identification of sources for the pollutants of concern*. This discussion shall include how the Discharger intends to estimate and identify sources of the pollutants of concern. 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.

(4) *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 by itself 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.

(5) *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.

(6) *Continuation of Public Outreach Program.* The District 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 on a web site. Information shall be specific to the target audiences. The Discharger shall coordinate with other agencies as appropriate.

(7) *Discussion of criteria used to measure Pollutant Minimization Program and task effectiveness*. The Discharger shall establish criteria to evaluate the effectiveness of its Pollutant Minimization Program. This shall also include a discussion of the specific criteria used to measure the effectiveness of each of the tasks in sections VI.C.3.b(3-6), above.

(8) *Documentation of efforts and progress.* This discussion shall detail all of the Discharger's activities in the Pollutant Minimization Program during the reporting year.

(9) *Evaluation of Pollutant Minimization Program and task effectiveness.* The Discharger shall use the criteria established in section VI.C.3.b(7), above, to evaluate the Program's and tasks' effectiveness.

(10) *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 Joint 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 Detected, but not Quantified (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:

(1) A sample result is reported as DNQ and the effluent limitation is less than the RL; or

(2) 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 section VI.C.3.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:

(1) 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;

(2) Quarterly monitoring for the reportable priority pollutants in the influent to the wastewater treatment system, or alternative measures approved by the Executive Officer, when it is demonstrated that influent monitoring is unlikely to produce useful analytical data;

(3) 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;

(4) Implementation of appropriate cost-effective control measures for the reportable priority pollutants, consistent with the control strategy; and

(5) Annual report required by section VI.C.3.b, above, shall specifically address the following items:

(a) All Pollutant Minimization Program monitoring results for the previous year;

(b) List of potential sources of the reportable priority pollutants;

(c) Summary of all actions undertaken pursuant to the control strategy; and

(d) Description of actions to be taken in the following year.

4. Stormwater Pollution Prevention Plan and Best Management Practices Plan

a. C&H Sugar Company, Inc., shall submit an updated Stormwater Pollution Prevention Plan (SWPPP) and Best Management Practices Plan (BMPP) either annually or, if there is a change in the operation of the Refinery that could substantially affect the quality of the stormwater discharged, C&H Sugar Company, Inc., shall submit an updated plan more frequently. Annual updates shall be submitted by July 1 of each year. If there is no change to either plan, the annual updates may be a letter indicating that the plan is unchanged. C&H Sugar Company Inc., shall implement the SWPPP and BMPP, and the SWPPP shall comply with the requirements contained in the Regional Standard Provisions In any update of the SWPPP and BMPP, C&H Sugar Company, Inc., shall (1) include at least an up-to-date drainage map for the facility; (2) identify on a map the areas that contribute runoff to the permitted discharge points; (3) describe the activities in each area and the potential for contamination of stormwater runoff and discharge of hazardous material; and (4) address the feasibility for containment and/or treatment of the stormwater.

(1) The SWPPP shall describe site-specific management practices for minimizing contamination of stormwater runoff, and for preventing contaminated stormwater discharging directly to waters of the State. It shall include pollution prevention measures to further reduce and control sources of total organic carbon and total suspended solids.

(2) The BMPP shall entail site-specific plans and procedures that can be implemented to prevent hazardous material from being discharged to waters of the State. The updated BMPP shall be consistent with the requirements of 40 CFR 125, Subpart K, and the general guidance contained in the "NPDES Best Management Guidance Document," USEPA Report No. 600i9-79-045, December 1979 (revised June 1981). In particular, the Discharger shall perform a risk assessment of each area it identifies to determine the potential for hazardous material discharge to surface waters.

b. C&H Sugar Company, Inc., shall submit an annual stormwater report by July 1 of each year, incorporating data for the previous wet weather season for discharge points EFF-003 through EFF-016. The annual stormwater report shall, at a minimum, include the following: (a) a tabulated summary of all sampling results and a summary of visual observations taken during inspections; (b) a comprehensive discussion of the compliance record and any corrective actions taken or planned to ensure compliance with this Order; and (c) a comprehensive discussion of source identification and control programs for constituents that do not have effluent limitations (for example, total suspended solids.)

5. Special Provisions

a. Sludge Management Practices

(1) This Order does not authorize the permanent biosolids disposal at the Joint Treatment Plant.

(2) The treatment, disposal, storage, or processing of biosolids shall not result in deposit of any biosolids, by any means, in waters of the State.

(3) The biosolids treatment, storage, and handling site shall have structures 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 to surface waters. Adequate protection is defined as protection from at least the 100-year storm and from the highest possible tidal stage that may occur.

b. Sanitary Sewer Overflows and Sewer System Management Plan

The District's collection system is part of the facility subject to this Order. As such, the District, shall properly operate and maintain its collection system (Attachment D, Federal Standard Provisions—Permit Compliance, subsection I.D). The District shall report any noncompliance (Attachment D, Federal Standard Provision—Reporting, subsections V.E.1 and V.E.2) and mitigate any discharge from the District's collection system in violation of this Order (Attachment D, Federal Standard Provisions—Permit Compliance, subsection I.C). Sanitary sewer overflows associated with the collection system upstream of the Joint Treatment Plant, if any, are the responsibility of the District.

The General Waste Discharge Requirements for Collection System Agencies (General Collection System WDRs), Order No. 2006-0003 DWQ, has requirements for operation and maintenance of collection systems and for reporting and mitigating sanitary sewer overflows. While the District must comply with both the General Collection System WDRs and this Order, the General Collection 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 sanitary sewer overflows 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 sanitary sewer overflows from the collection system upstream of the Joint Treatment Plant's boundaries. Attachments D and G of this Order specify reporting requirements for unauthorized discharges from anywhere within the Plant downstream of the Plant boundaries.

6. Other Special Provisions

a. Copper Action Plan for Discharge Point 002

The discharger shall continue to implement source control, and pollution prevention for copper in Discharge Point 002 in accordance with the following tasks and time schedule:

Table 10. Copper Action Plan

Task	Compliance Date
1. Review Potential Copper Sources The Discharger shall submit an inventory of potential copper sources to the Joint Treatment Plant	Completed May 26, 2009
2. Implement Copper Control Program The Discharger shall continue to investigate sources of copper and reduce any identified sources. For the Joint Treatment Plant, the program shall consist, at a minimum, of the following elements: a. Provide education and outreach to the public (e.g., focus on proper pool and spa maintenance and plumbers' roles in reducing corrosion). b. If corrosion is determined to be a significant copper source, work cooperatively with local water purveyors to reduce and control water corrosivity, as appropriate, and ensure that local plumbing contractors implement best management practices to reduce corrosion in pipes. c. Educate plumbers, designers, and maintenance contractors for pools and spas to encourage best management practices that minimize copper discharges.	With annual pollution prevention report due February 28
3. Implement Additional Measures If the Regional Water Board notifies the Discharger that the three-year rolling mean dissolved copper concentration of the receiving water exceeds 3.0 µg/L, then within 90 days of the notification, the Discharger shall evaluate its effluent copper concentration trend, and if it is increasing, develop and begin implementation of additional measures to control copper discharges. The Discharger shall report on the progress and effectiveness of actions taken, together with a schedule for actions to be taken in the next 12 months.	With annual pollution prevention report due February 28 following 90 days after notification
4. Undertake Studies to Reduce Copper Pollutant Impact Uncertainties The Discharger shall submit an updated study plan and schedule to conduct, or cause to be conducted, technical studies to investigate possible copper sediment toxicity and technical studies to investigate sublethal effects on salmonids. Specifically, the Discharger shall include the manner in which the above will be accomplished and describe the studies to be performed with an implementation schedule. To satisfy this requirement, dischargers may collaborate and conduct these studies as a group.	With annual pollution prevention report due February 28
5. Report Status of Copper Control Program The Discharger shall submit an annual report documenting copper control program implementation and addressing the effectiveness of the actions taken, including any additional copper controls required by Task 3, above, together with a schedule for actions to be taken in the next 12 months. Additionally, the Discharger shall report the findings and results of the studies completed, planned, or in progress under Task 4. Regarding the Task 4 studies, dischargers may collaborate and provide this information in a single report to satisfy this requirement for an entire group.	With annual pollution prevention report due February 28 each year

b. Cyanide Action Plan for Discharge Point 002

The Discharger shall continue to implement monitoring and surveillance, source control, and pollution prevention for cyanide in Discharge Point 002 in accordance with the following tasks and time schedule:

Table 11. Cyanide Action Plan

Task	Compliance Date
1. Review Potential Cyanide Sources The Discharger shall submit an updated inventory of potential cyanide	June 1, 2013

Task	Compliance Date
sources to the Joint Treatment Plant (e.g., metal plating operations, hazardous waste recycling, etc.). If no cyanide sources are identified, Tasks 2 and 3 are not required, unless the Discharger receives a request to discharge detectable levels of cyanide to the sewer. If so, the Discharger shall notify the Executive Officer and implement Tasks 2 and 3.	
2. Implement Cyanide Control Program The Discharger shall submit a plan and begin implementation of a program to minimize cyanide discharges to its treatment plant consisting, at a minimum, of the following elements: a. Inspect each potential source to assess the need to include that contributing source in the control program. b. Inspect contributing sources included in the control program annually. Inspection elements may be based on USEPA guidance, such as Industrial User Inspection and Sampling Manual for POTWs (EPA 831-B-94-01). c. Develop and distribute educational materials to contributing sources and potential contributing sources regarding the need to prevent cyanide discharges. d. Prepare an emergency monitoring and response plan to be implemented if a significant cyanide discharge occurs. For purposes of this Order, a "significant cyanide discharge" is occurring if the Plant's influent cyanide concentration from the Refinery or the Crockett community exceeds 40 µg/L.	With annual pollution prevention report due February 28
3. Implement Additional Cyanide Control Measures If the Regional Water Board notifies the Discharger that ambient monitoring shows cyanide concentrations are 1.0 µg/L or higher in the main body of San Francisco Bay, then within 90 days of the notification, the Discharger shall commence actions to identify and abate cyanide sources responsible for the elevated ambient concentrations, and shall report on the progress and effectiveness of actions taken, together with a schedule for actions to be taken in the next 12 months.	With next annual pollution prevention report due February 28 (at least 90 days following notification)
4. Report Status of Cyanide Control Program The Discharger shall submit an annual report documenting cyanide control program implementation and addressing the effectiveness of actions taken, including any additional cyanide controls required by Task 3, above, together with a schedule for actions to be taken in the next 12 months.	With annual pollution prevention report due February 28 each year

c. Analytical Data Evaluation Study

The Discharger shall undertake a study to ensure the quality and reliability of its monitoring data in accordance with the following tasks and time schedule:

Table 12. Analytical Data Evaluation Study

Task	Compliance Date
1. Submit Study Workplan Submit a workplan for a study that includes the following elements: a. Review sample collection and handling procedures (e.g., consider sources of contamination during sample collection and handling). Review consistency for times and process operations when samples are collected. b. Review laboratory analysis procedures (e.g., discuss quality control concerns with laboratory manager and analyze duplicate and split samples using the same laboratory and a separate laboratory). c. Review protocols for resampling or reanalyzing samples if results indicate exceedance of a limit or water quality objective (see Table F-13).	March 31, 2013

Task	Compliance Date
2. Submit Study Report Submit a report that describes the study and details its findings. The report shall list and describe any changes to be made to sampling collection, handling, or analysis procedures.	January 31, 2014

VII. COMPLIANCE DETERMINATION

A. Compliance with effluent limitations for priority pollutants shall be determined using sample reporting protocols defined in Attachment A—Definitions, the MRP , Fact Sheet section VI, and the Regional Standard Provisions. 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).

B. Compliance with arsenic, nickel, selenium, and cyanide effluent limitations at Discharge Point 001, as set forth in Table 7, shall be as follows. Consistent with Attachment A, Definitions, "daily effluent concentrations" shall be the daily discharge of a pollutant over a calendar day (or 24-hour period) and shall be calculated as the arithmetic mean of the pollutant over the day. "Average monthly effluent concentrations" shall be the 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. If a daily effluent concentration or average monthly effluent concentration for a pollutant does not exceed the intake water concentration in Table 7, footnote 2, the corresponding effluent limitation in Table 7 shall not apply. Daily effluent concentrations or average monthly effluent concentrations above these values are statistically greater than intake water concentrations, demonstrating that the Discharger has added or contributed the pollutant to the intake water and thus does not qualify for "intake water credits."

ATTACHMENT A – DEFINITIONS

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

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

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

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

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

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

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

Daily Discharge
Daily Discharge is defined as either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in 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)
DNQ are those sample results less than the RL, but greater than or equal to the laboratory's MDL.

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

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

Enclosed Bays
Enclosed Bays means indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of 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
The estimated chemical concentration that results from the confirmed detection of the substance by the analytical method below the ML value.

Estuaries
Estuaries means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater. Estuarine waters 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
All surface waters of the State that do not include the ocean, enclosed bays, or estuaries.

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

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

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

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

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

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

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

Not Detected (ND)
Sample results less than the laboratory's MDL.

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

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

Pollutant Minimization Program (PMP)
PMP means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce all potential sources of a priority pollutant(s) through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The 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
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)
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
The portion, if any, of a sanitary sewer system owned or operated by a different public agency than the agency that owns and operates the wastewater treatment facility that a sanitary sewer system is tributary to.

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

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

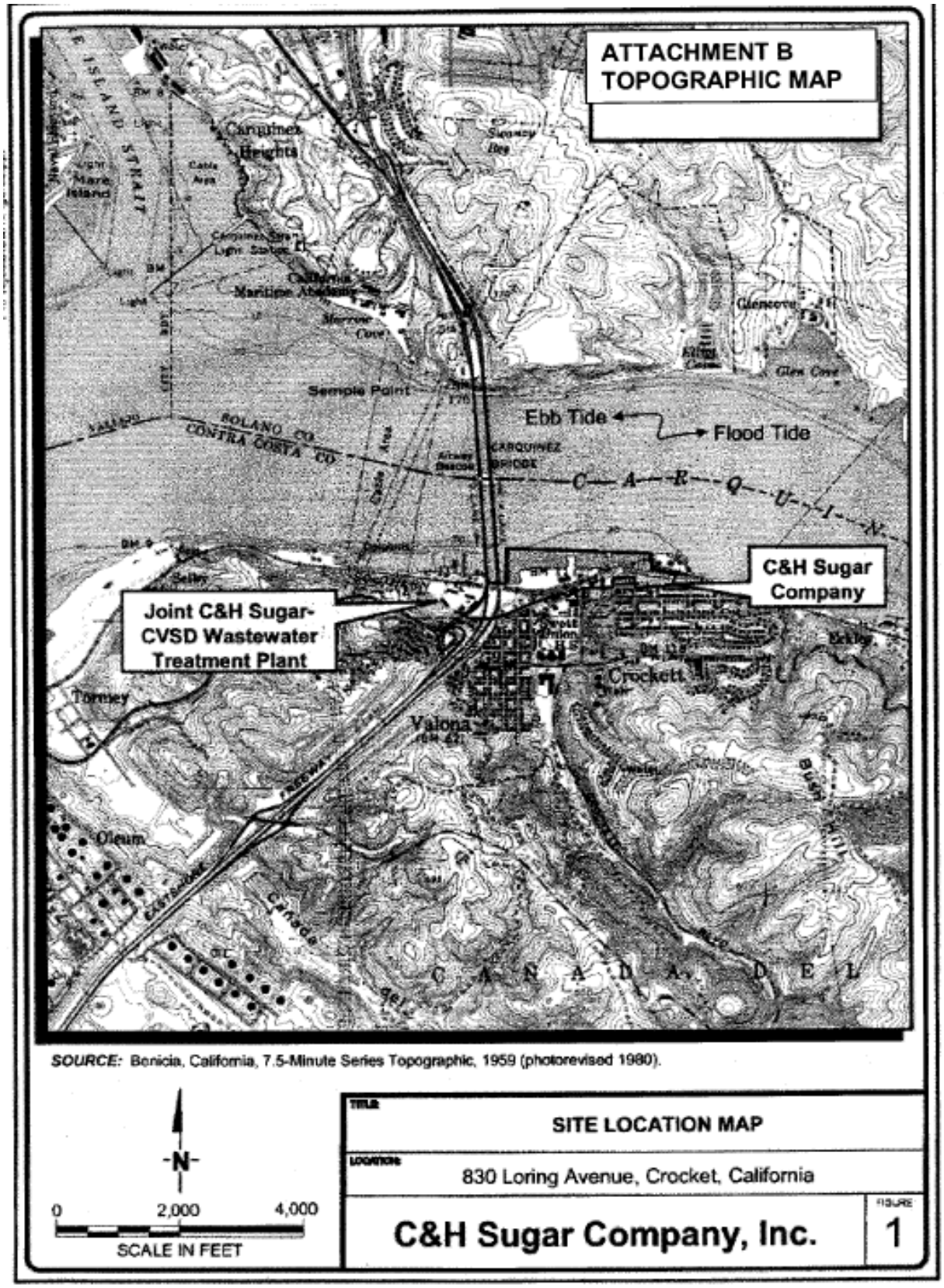
$$\sigma = (\sum[(x - \mu)^2]/(n - 1))^{0.5}$$

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

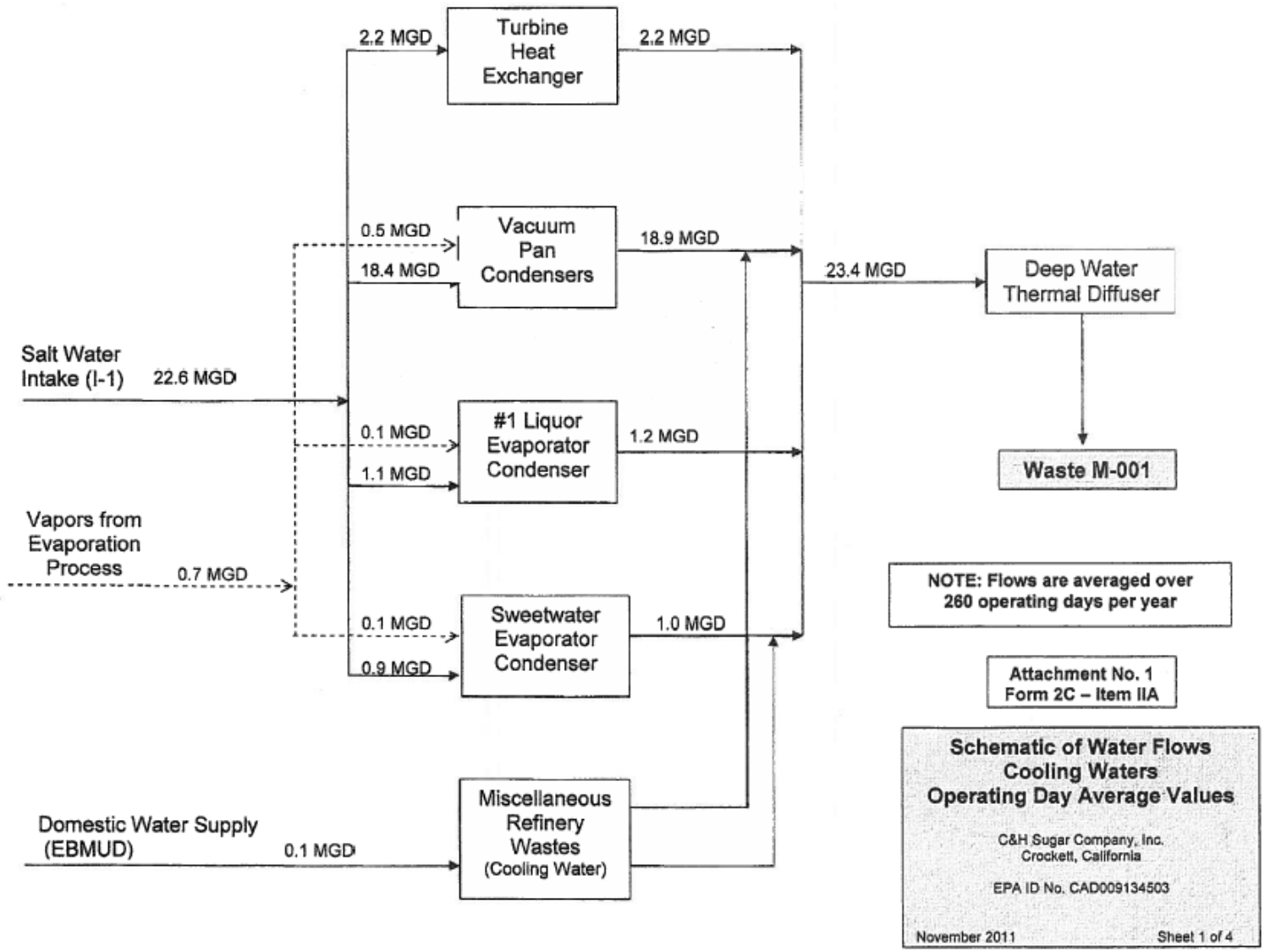
Toxicity Reduction Evaluation (TRE)
TRE is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first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

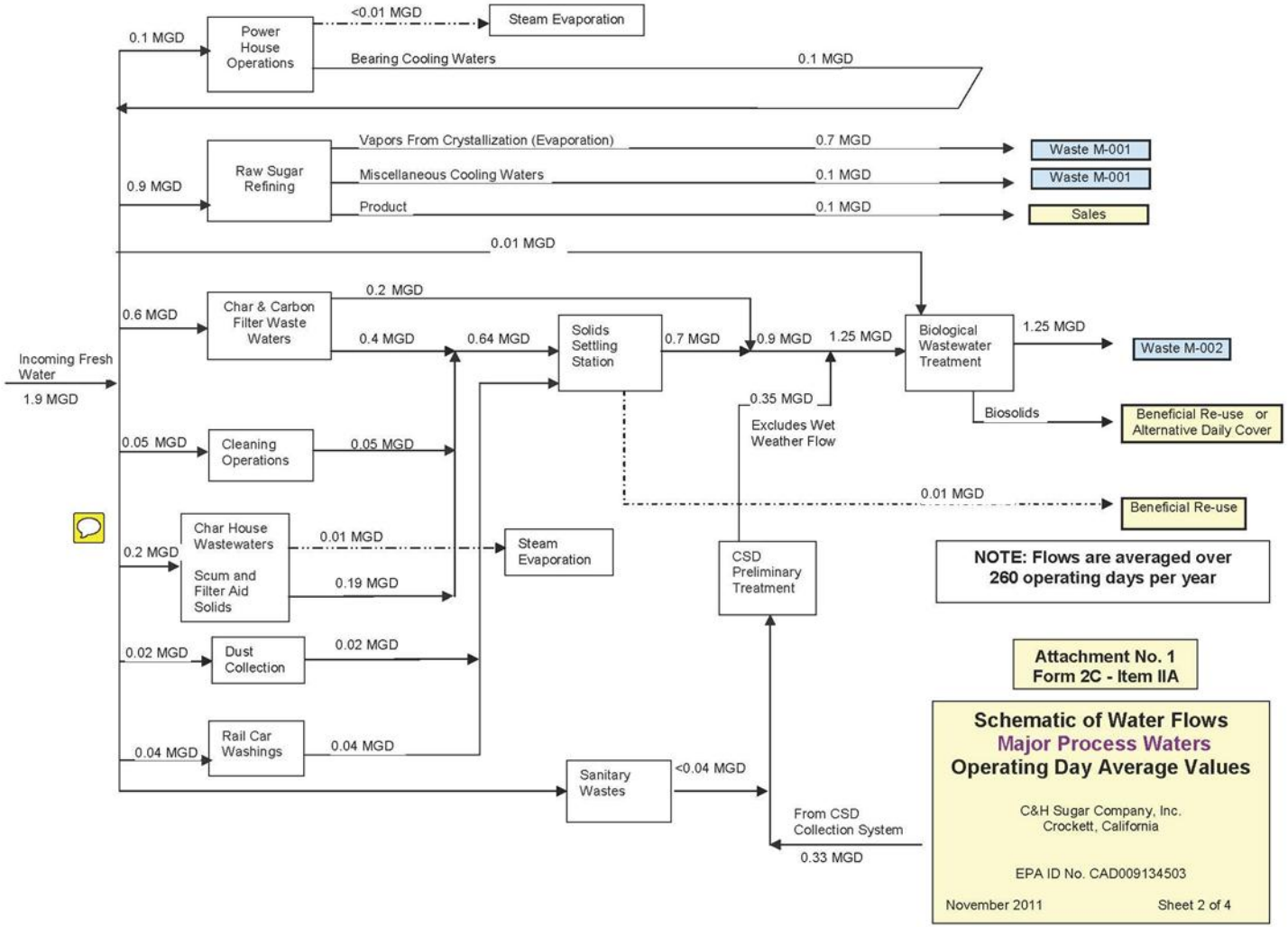
chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.)

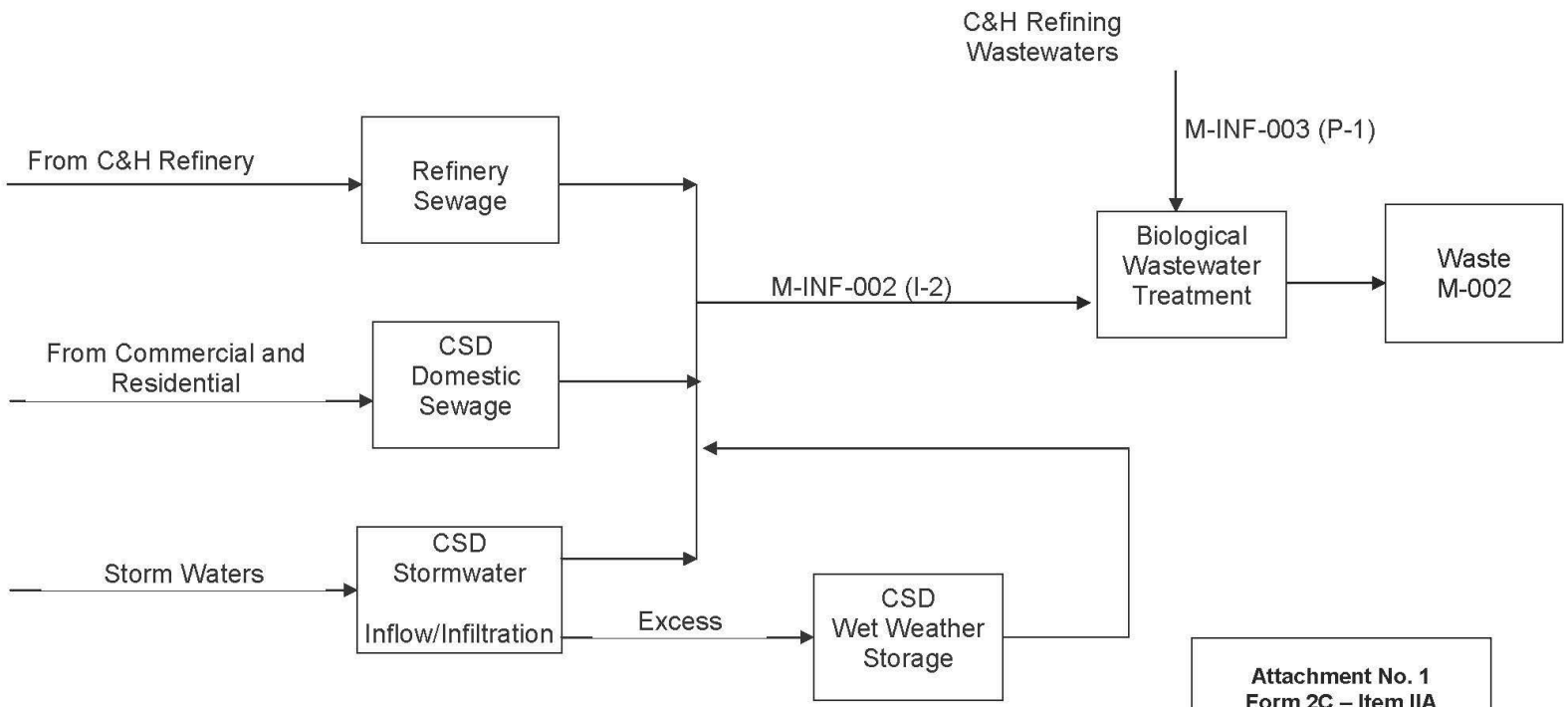
ATTACHMENT B – FACILITY LOCATION MAP



ATTACHMENT C – PROCESS FLOW DIAGRAMS




0.1 MGD
Power House Operations
<0.01 MGD
Steam Evaporation
Bearing Cooling Waters
0.1 MGD
0.9 MGD
Raw Sugar Refining
Vapors From Crystallization (Evaporation)
0.7 MGD
Waste M-001
Miscellaneous Cooling Waters
0.1 MGD
Waste M-001
Product
0.1 MGD
Sales
0.01 MGD
0.6 MGD
Char & Carbon Filter Waste Waters
0.2 MGD
0.4 MGD
0.64 MGD
Solids Settling Station
0.7 MGD
0.9 MGD
1.25 MGD
Biological Wastewater Treatment
1.25 MGD
Waste M-002
Incoming Fresh Water
1.9 MGD
0.35 MGD
Excludes Wet Weather Flow
Biosolids
Beneficial Re-use or Alternative Daily Cover
0.05 MGD
Cleaning Operations
0.05 MGD
0.01 MGD
Beneficial Re-use
0.2 MGD
Char House Wastewaters
Scum and Filter Aid Solids
0.01 MGD
0.19 MGD
Steam Evaporation
CSD Preliminary Treatment
NOTE: Flows are averaged over 260 operating days per year
0.02 MGD
Dust Collection
0.02 MGD
Attachment No. 1
Form 2C - Item IIA
0.04 MGD
Rail Car Washings
0.04 MGD
Sanitary Wastes
<0.04 MGD
Schematic of Water Flows
Major Process Waters
Operating Day Average Values
From CSD Collection System
0.33 MGD
C&H Sugar Company, Inc.
Crockett, California
EPA ID No. CAD009134503
November 2011
Sheet 2 of 4



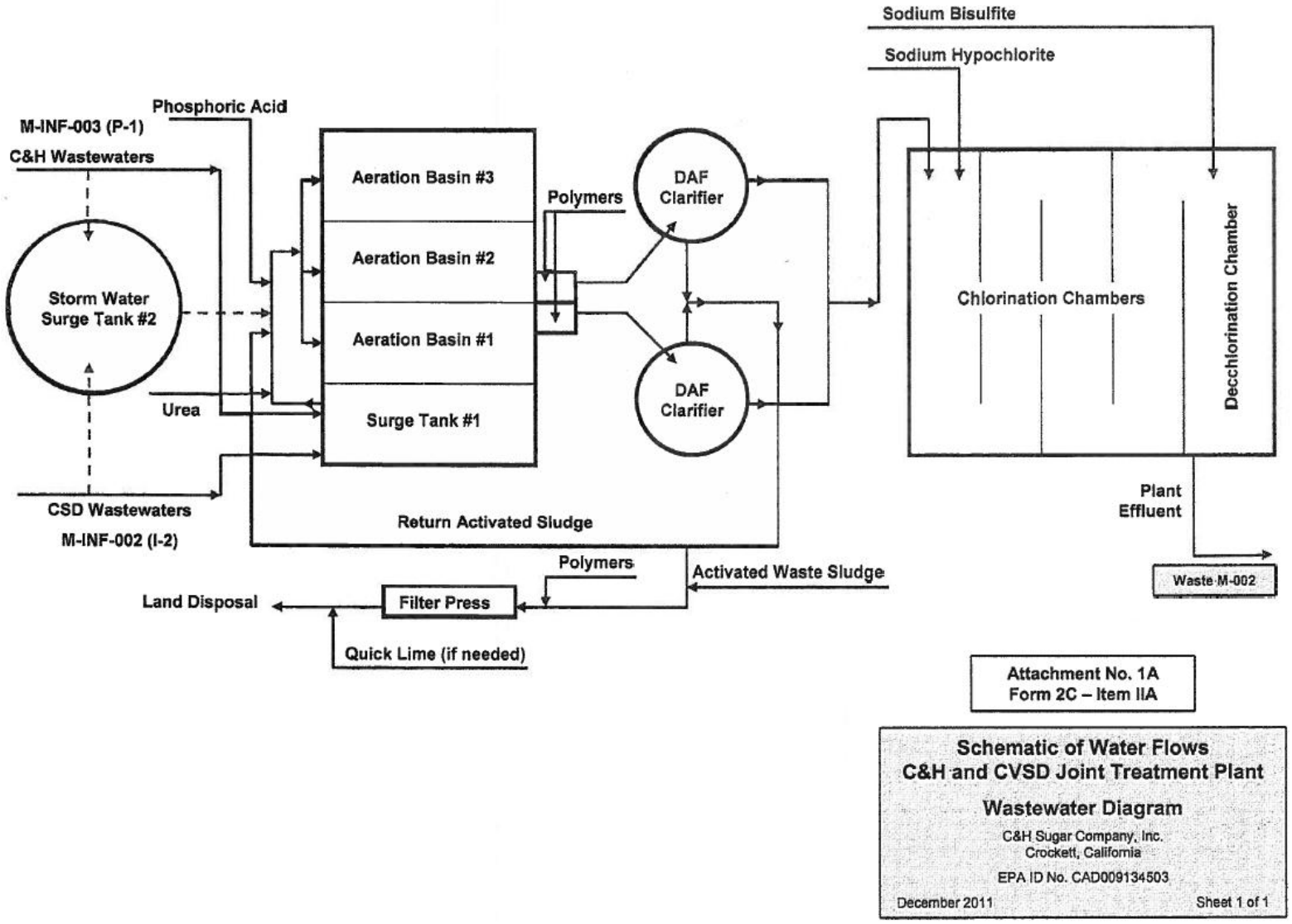
Note: Excess wastewater and stormwater inflow and infiltration during storm events can be diverted to wet weather storage.

Attachment No. 1
Form 2C – Item IIA

Schematic of Water Flow
Sewage System (I2)

CSD/C&H Sugar Company, Inc.
Crockett, California

December 2011 Sheet 3 of 4


Sodium Bisulfite
Sodium Hypochlorite
Phosphoric Acid
M-INF-003 (P-1)
C&H Wastewaters
Aeration Basin #3
Aeration Basin #2
Aeration Basin #1
Surge Tank #1
Polymers
DAF Clarifier
DAF Clarifier
Storm Water Surge Tank #2
Urea
CSD Wastewaters
M-INF-002 (I-2)
Chlorination Chambers
Decchlorination Chamber
Plant Effluent
Waste M-002
Return Activated Sludge
Polymers
Activated Waste Sludge
Land Disposal
Filter Press
Quick Lime (if needed)
Attachment No. 1A
Form 2C – Item IIA
Schematic of Water Flows
C&H and CVSD Joint Treatment Plant
Wastewater Diagram
C&H Sugar Company, Inc.
Crockett, California
EPA ID No. CAD009134503
December 2011
Sheet 1 of 1

ATTACHMENT D –STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (40 CFR 122.41(a)).

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

B. Need to Halt or Reduce Activity Not a Defense

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

C. Duty to Mitigate

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

D. Proper Operation and Maintenance

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

E. Property Rights

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

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

F. Inspection and Entry

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

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

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

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

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

G. Bypass

1. Definitions

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

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

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

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

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

   b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent

a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 CFR 122.41(m)(4)(i)(B)); and

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

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

5. Notice

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

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

H. Upset

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

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 CFR 122.41(n)(2).).

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

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

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

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

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

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

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

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

B. Duty to Reapply

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

C. Transfers

This Order is not transferable to any person except after notice to the Regional Water Board. The Regional Water Board may require modification or revocation and reissuance of 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 CFR 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 CFR 122.41(j)(1).)

B. Monitoring results must be conducted according to test procedures under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503 unless other test procedures have been specified in this Order. (40 CFR 122.41(j)(4); 122.44(i)(1)(iv).)

IV. STANDARD PROVISIONS – RECORDS

A. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least 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 CFR 122.41(j)(2).)

B. Records of monitoring information shall include:

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

2. The individual(s) who performed the sampling or measurements (40 CFR 122.41(j)(3)(ii));

3. The date(s) analyses were performed (40 CFR 122.41(j)(3)(iii));

4. The individual(s) who performed the analyses (40 CFR 122.41(j)(3)(iv));

5. The analytical techniques or methods used (40 CFR 122.41(j)(3)(v)); and

6. The results of such analyses. (40 CFR 122.41(j)(3)(vi).)

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

1. The name and address of any permit applicant or Discharger (40 CFR 122.7(b)(1)); and

2. Permit applications and attachments, permits and effluent data. (40 CFR 122.7(b)(2).)

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

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

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or USEPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below. (40 CFR 122.41(k).)

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

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

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

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

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

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

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

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

C. Monitoring Reports

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

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

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Water Board. (40 CFR 122.41(l)(4)(ii).)

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

D. Compliance Schedules

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

E. Twenty-Four Hour Reporting

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

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

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

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

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

F. Planned Changes

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

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

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

3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 CFR 122.41(l)(1)(iii).)

G. Anticipated Noncompliance

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

H. Other Noncompliance

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

I. Other Information

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

VI. STANDARD PROVISIONS – ENFORCEMENT

A. The Regional Water Board is authorized to enforce the terms of this 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 CFR 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 CFR 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 CFR 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 CFR 122.42(b)(3).)

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Table E-7. Monitoring Periods and Reporting Schedule E-11

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 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 (Attachment G), this MRP prevails.

B. The Discharger shall conduct all monitoring in accordance with Federal Standard Provisions (Attachment D) section III, as supplemented by the Regional Standard Provisions of this Order. Equivalent test methods must be more sensitive than those specified in 40 CFR 136 and must be specified in the permit.

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. No monitoring is currently required at Monitoring Locations RSW-001, RSW-002, RSW-003, and RSW-004.

Table E-1. Monitoring Station Locations

Type of Sampling Location	Discharge Point Number	Monitoring Location Name	Monitoring Location Description
Intake Water	--	INF-001	At any point in the water intake system that delivers water from Carquinez Strait to the Refinery, prior to any treatment or being used for cooling or processing. (Previously identified as monitoring location I-1.)
Influent	--	INF-002	At any point in the wastewater conveyance system from the District to the Joint Treatment Plant where flow measurements are representative of wastewater flows from the District. (Previously identified as monitoring location I-2.)
Influent	--	INF-003	At any point in the wastewater treatment system beyond the primary waste treatment plant at the Refinery and before the surge tank at the Joint Treatment Plant. (Previously identified as monitoring location P-1.)
Effluent	001	EFF-001	At any point leading to Discharge Point 001 between the point of discharge and the point where all waste tributary thereto is present such that the sample is representative of the effluent. (Previously identified as monitoring location M-001.)
Effluent	002	EFF-002	At any point leading to Discharge Point 002 between the point of discharge and the point where all waste tributary thereto is present such that the sample is representative of the effluent. (Previously identified as monitoring location M-002.)
Effluent	---	EFF-002D	At any point in the disinfection facilities at which adequate contact with the disinfectant has been achieved. (Previously identified as monitoring location M-002-D.)

Type of Sampling Location	Discharge Point Number	Monitoring Location Name	Monitoring Location Description
Stormwater	003	EFF-003	At any point in the outfall for stormwater Discharge Point 003 between the point of discharge and the point at which all waste tributary thereto is present. (Previously identified as monitoring location M-003.)
Stormwater	005	EFF-005	At any point in the outfall for stormwater Discharge Point 005 between the point of discharge and the point at which all waste tributary thereto is present. (Previously identified as monitoring location M-005.)
Stormwater	006	EFF-006	At any point in the outfall for stormwater Discharge Point 006 between the point of discharge and the point at which all waste tributary thereto is present. (Previously identified as monitoring location M-006.)
Stormwater	008	EFF-008	At any point in the outfall for stormwater Discharge Point 008 between the point of discharge and the point at which all waste tributary thereto is present. (Previously identified as monitoring location M-008.)
Stormwater	009	EFF-009	At any point in the outfall for stormwater Discharge Point 009 between the point of discharge and the point at which all waste tributary thereto is present. (Previously identified as monitoring location M-009.)
Stormwater	011	EFF-011	At any point in the outfall for stormwater Discharge Point 011 between the point of discharge and the point at which all waste tributary thereto is present. (Previously identified as monitoring location M-011.)
Stormwater	012	EFF-012	At any point in the outfall for stormwater Discharge Point 012 between the point of discharge and the point at which all waste tributary thereto is present. (Previously identified as monitoring location M-012.)
Stormwater	013	EFF-013	At any point in the outfall for stormwater Discharge Point 013 between the point of discharge and the point at which all waste tributary thereto is present. (Previously identified as monitoring location M-013.)
Stormwater	014	EFF-014	At any point in the outfall for stormwater Discharge Point 014 between the point of discharge and the point at which all waste tributary thereto is present. (Previously identified as monitoring location M-014.)
Stormwater	016	EFF-016	At any point in the outfall for stormwater Discharge Point 016 between the point of discharge and the point at which all waste tributary thereto is present. (Previously identified as monitoring location M-016.)
Receiving Water	---	RSW-001	At a point in Carquinez Strait, located in the boil caused by effluent discharge from Discharge Point 001. (Previously identified as monitoring location R-001 [C-1].)
Receiving Water	---	RSW-002	At a point in Carquinez Strait, located in the vicinity of the diffusers for Discharge Point 002. (Previously identified as monitoring location R-002 [C-2].)
Receiving Water	---	RSW-003	At a point in Carquinez Strait, located at the edge of the wharf at its easterly end. (Previously identified as monitoring location R-003 [C-RE].)
Receiving Water	---	RSW-004	At a point in Carquinez Strait, located at the edge of the wharf at its westerly end. (Previously identified as monitoring location R-004 [C-RW].)

III. INFLUENT MONITORING REQUIREMENTS

The Discharger shall monitor influent and intake water at Monitoring Locations -INF-001; INF-002 and INF-003 as follows:

Table E-2. Intake and Influent Water Monitoring –INF-001, INF-002, and INF-003

Parameter	Units	Sampling method	Minimum Sampling Frequency		
			INF-001 Intake	INF-002 Influent	INF-003 Influent
Flow[1]	MGD	Continuous	Continuous	Continuous	Continuous
Arsenic	µg/L	24-hour composite			
Copper	µg/L	24-hour composite	2/Year		
Cyanide	µg/L	Grab	1/Month	4/Year	4/Year
Nickel	µg/L	24-hour composite	2/Year		
Selenium	µg/L	24-hour composite	2/Year		
Zinc	µg/L	24-hour composite	2/Year		
BOD_5	mg/L, lbs/day	24 hour composite	1/Week		

Footnotes:

[1] For influent flow, the following information shall be reported monthly:
- Daily average flow, million gallons per day (MGD)
- Monthly average flow (MGD)
- Maximum and minimum daily average flow (MGD)

[2] The Discharger may report in-house COD data instead of using a State-certified laboratory or USEPA-approved method because these data are not used for compliance monitoring.

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001 (formerly M-001)

The Discharger shall monitor effluent at Monitoring Location EFF-001 as follows:

Table E-3. Effluent Monitoring – EFF-001

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow [1]	MGD	Continuous	Continuous
BOD_5	mg/L	24 hour composite	1/Week
	lbs/day		1/Week
pH [2]	standard units	Grab	1/Day[4]
Temperature	ºC	Grab	1/Day[4]
Conductivity	µmhos/cm	24 hour composite	1/Month
Arsenic	µg/L	24 hour composite	2/Year
Copper	µg/L	24 hour composite	2/Year
Lead	µg/L	24 hour composite	2/Year
Nickel	µg/L	24 hour composite	2/Year
Selenium	µg/L	24 hour composite	2/Year
Zinc	µg/L	24 hour composite	2/Year
Cyanide [3]	µg/L	Grab	2/Year
Dioxin-TEQ	µg/L	Grab	2/Year
Bis(2-ethylhexyl)phthalate	µg/L	24 hour composite	2/Year

Footnotes:

[1] Flow shall be monitored continuously, and the following information shall be reported in self-monitoring reports for each month:
- Daily: Daily average flow, million gallons per day (MGD)

- Monthly: Monthly average flow (MGD)
- Daily: Maximum daily flow (MGD)
- Daily: Minimum daily flow (MGD)

[2] If pH is monitored continuously, the minimum and maximum pH values for each day shall be reported in monthly Self-Monitoring Reports.
[3] Compliance may be demonstrated by measurement of weak acid dissociable cyanide.
[4] Monitoring is required only when the Refinery is operating.

B. Monitoring Location EFF-002 (formerly M-002)

The Discharger shall monitor effluent at Monitoring Location EFF-002 (or, for enterococcus and total coliform bacteria, at EFF-002D) as follows:

Table E-4. Effluent Monitoring – EFF-002

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow [1]	MGD	Continuous	Continuous
BOD_5 [2]	mg/L	24 hour composite	1/Week
	lbs/day		1/Week
Total Suspended Solids (TSS) [2]	mg/L	24 hour composite	1/Week
	lbs/day		1/Week
Settleable Matter [3]	mL/L/hr.	Grab	1/Month
Oil and Grease [4]	mg/L	Grab	1/Week
pH [5]	standard units	Grab	1/Day
Dissolved Oxygen (DO)	mg/L	Grab	1/Month
Total Residual Chlorine [6]	mg/L	Continuous	Continuous
Total Coliform [7]	Most Probable Number/100 mL	Grab	3/Week
Enterococcus Bacteria [7]	Colonies/100 mL	Grab	5/Month[12]
Temperature	^oC	Grab	1/Day
Copper	µg/L	24 hour composite	1/Month
Lead	µg/L	24 hour composite	1/Month
Zinc	µg/L	24 hour composite	1/Month
Cyanide [8]	µg/L	Grab	1/Month
Dioxin-TEQ	µg/L	Grab	2/Year
Chlorodibromomethane	µg/L	Grab	2/Year
Dichlorobromomethane	µg/L	Grab	2/Year
Bis(2-ethylhexyl)phthalate	µg/L	24 hour composite	2/Year
Dibenzo(a,h)anthracene	µg/L	Grab	2/Year
Ammonia as N [9]	mg/L	Grab	1/Month
Chronic Toxicity [10]	TUc	24 hour composite	1/Year
Acute Toxicity [11]	% Survival	Flow through or static renewal	1/Month

Footnotes:
Abbreviations:
TUc = chronic toxicity units, equal to 100/NOEL, where NOEL = IC_{25}, EC_{25}, or NOEC as discussed in the MRP (Appendix E-1)

Notes:

[1] Flow shall be monitored continuously and reported in self-monitoring reports for each month.

[2] Sampling of BOD and TSS is required once every week when there is Refinery process wastewater discharging into the Joint Treatment Plant.

[3] Monitoring is required when there is Refinery process wastewater discharging into the Joint Treatment Plant.

[4] Each oil and grease sampling and analysis event shall be conducted in accordance with USEPA Method 1664.

[5] If pH is monitored continuously, the minimum and maximum pH values for each day shall be reported in monthly Self-Monitoring Reports.

[6] Effluent chlorine residual shall be monitored continuously or, at a minimum, every hour. The Discharger shall report for each day the maximum residual chlorine concentration observed following dechlorination. However, if monitoring continuously, the Discharger shall report for each day the maximum residual chlorine concentration based only on discrete readings from the continuous monitoring taken The Discharger shall retain continuous monitoring readings for at least three years. The Regional Water Board reserves the right to use all other continuous monitoring data for discretionary enforcement.

[7] The total coliform bacteria and enterococcus bacteria sampling location used for monitoring compliance is EFF-002.

[8] Compliance may be demonstrated by measurement of weak acid dissociable cyanide.

[9] Monitoring of total ammonia shall occur concurrently with monitoring for temperature and pH in order to provide for determination of the un-ionized ammonia fraction. Ammonia shall be measured as Total Ammonia (as N); the unionized fraction shall be calculated based on the total ammonia, pH, total dissolved solids or salinity, and temperature.

[10] Critical life stage toxicity tests shall be performed and reported in accordance with the Chronic Toxicity Requirements of specified in section V.B of this MRP.

[11] Acute bioassay tests shall be performed in accordance with section V.A of this MRP.

[12] If after three months the Discharger has demonstrated full compliance with this enterococcus effluent limitation, the minimum monitoring frequency shall be reduced to twice per year. The two samples shall be collected in different calendar months.

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

The Discharger shall monitor whole effluent acute toxicity at Monitoring Location EFF-002 as follows:

A. Whole Effluent Acute Toxicity

1. Compliance with the acute toxicity effluent limitations of this Order shall be evaluated by measuring survival of test organisms exposed to 96-hour continuous flow-through bioassays or static renewals.

2. Test organisms shall be rainbow trout (*Oncorhynchus mykiss*) unless the Executive Officer specifies otherwise in writing.

3. All bioassays shall be performed using rainbow trout (*Oncorhynchus mykiss*) in accordance with 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. If the Discharger can demonstrate that specific identifiable substances in the discharge are rapidly rendered harmless upon discharge to the receiving water, compliance with the acute toxicity limit may be determined after the test samples are adjusted to remove the influence of those substances. The Discharger must obtain written approval from the Executive Officer to authorize such an adjustment.

5. The sample may be taken from secondary treated effluent after 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 in the monthly Self-Monitoring Reports.

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).

B. Whole Effluent Chronic Toxicity

1. Chronic Toxicity Monitoring Requirements

a. Frequency. The frequency of routine and accelerated chronic toxicity monitoring shall be as specified below:

(1) Routinely once per year, collect 24-hour composite samples of the effluent at monitoring location EFF-002 for critical life stage toxicity testing as indicated below. For toxicity tests requiring renewals, 24-hour composite samples collected on consecutive days are required.

(2) Accelerate monitoring to monthly after exceeding a three-sample median of 1 TU_c[1] or a single sample maximum of 2 TU_c. The Executive Officer may specify a different frequency for accelerated monitoring based on the TU_c results.

(3) Return to routine monitoring if accelerated monitoring does not exceed either "trigger" in (2), above.

(4) If accelerated monitoring confirms consistent toxicity in excess of either "trigger" in (2), above, continue accelerated monitoring and initiate toxicity reduction evaluation (TRE) procedures in accordance with section B.3, below.

(5) Return to routine monitoring after implementing appropriate elements of the TRE, and either the toxicity drops below both "triggers" in (2), above, or, based on the TRE results, the Executive Officer authorizes a return to routine monitoring.

Monitoring conducted pursuant to a TRE effort shall satisfy the requirements for routine and accelerated monitoring while the TRE investigation is underway.

b. Test Species. The test species shall be the giant kelp (*Macrocystis pyrifera*). The Executive Officer may change the test species if data suggest that another test species is more sensitive to the discharge. The Discharger shall conduct a screening chronic toxicity test as described in Appendix E-1 following any significant change in the nature of the effluent or prior to application for permit reissuance. The most sensitive species shall be used thereafter for routine chronic toxicity monitoring.

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[1] A TU_c equals 100 divided by the no observable effect level (NOEL). The NOEL is determined from IC_{25}, EC_{25}, or NOEC values. These terms, their usage, and other chronic toxicity monitoring program requirements are defined in the MRP.

c. Methodology. Sample collection, handling, and preservation shall be in accordance with USEPA protocols. In addition, bioassays shall be conducted in compliance with the most recently promulgated test methods, as shown in Appendix E-1, and *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms*, currently third edition (EPA-821-R-02-014), and *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organism*s, currently fourth edition (EPA-821-R-02-013), with exceptions granted the Discharger in writing by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP).

If specific identifiable substances in the discharge can be demonstrated by the Discharger as being rapidly rendered harmless upon discharge to the receiving waters, chronic toxicity may be evaluated after the test samples are adjusted to remove the influence of those substances. Written approval from the Executive Officer shall be obtained to authorize such an adjustment.

d. Dilution Series. The Discharger shall conduct tests at 100%, 75%, 50%, 25%, 10%, 5%, and 2.5%. The "%" represents percent effluent as discharged. The Discharger may use the biological buffer MOPS (3-(N-morpholino)propanesulfonic acid) to control pH drift and ammonia toxicity caused by increasing pH during the test.

2. Chronic Toxicity Reporting Requirements

a. Toxicity test results for the current reporting period shall be provided in the self-monitoring report and shall include, at a minimum, for each test:

(1) Sample dates

(2) Test initiation date

(3) Test species

(4) End point values for each dilution (e.g., number of young, growth rate, percent survival)

(5) No Observable Effect Level (NOEL) values in percent effluent. The NOEL shall be equal to the IC_{25} or EC_{25} (Appendix E-1). If the IC_{25} or EC_{25} cannot be statistically determined, the NOEL shall be equal to the No Observable Effect Concentration (NOEC) derived using hypothesis testing. The NOEC is the maximum percent effluent concentration that causes no observable effect on test organisms based on critical life stage toxicity test.

(6) IC_{15}, IC_{25}, IC_{40}, and IC_{50} values (or EC_{15}, EC_{25} ... etc.) as percent effluent

(7) TUc values (100/NOEL, where NOEL = IC_{25}, EC_{25} or NOEC as discussed in Appendix E-1)

(8) Mean percent mortality (±s.d.) after 96 hours in 100% effluent (if applicable)

(9) IC_{50} or EC_{50} values for reference toxicant tests

(10) Available water quality measurements for each test (pH, dissolved oxygen, temperature, conductivity, hardness, salinity, ammonia)

b. The results of the most recent three chronic toxicity tests and the 3-sample median shall be provided, as attached data sheets, in the self-monitoring report as TUc's. The information in the table shall include items listed above under 2.a, specifically item numbers (1), (3), (5), (6) (IC_{25} or EC_{25}), (7), and (8).

3. Chronic Toxicity Reduction Evaluation (TRE)

a. The Discharger shall prepare a generic TRE work plan within 90 days of the effective date of this Order in order to be ready to respond to toxicity events. The Discharger shall review and update the work plan as necessary to remain current and applicable to the discharge and discharge facilities.

b. Within 30 days of receiving results of an accelerated monitoring test that shows continued exceedance of either "trigger," the Discharger shall submit a specific TRE work plan to the Regional Water Board, which shall be the generic work plan revised as appropriate for this toxicity event after consideration of available discharge data.

c. Within 30 days of receiving results of the accelerated monitoring test that confirm consistent toxicity in excess of either "trigger," the Discharger shall initiate a TRE in accordance with a TRE work plan that incorporates any and all comments from the Executive Officer.

d. The TRE shall be specific to the discharge and be in accordance with current technical guidance and reference materials, including USEPA guidance materials. The TRE shall be conducted as a tiered evaluation process, such as summarized below:

(1) Tier 1 consists of basic data collection (routine and accelerated monitoring).

(2) Tier 2 consists of evaluation of optimization of the treatment process, including operation practices and in-plant process chemicals.

(3) Tier 3 consists of a toxicity identification evaluation (TIE).

(4) Tier 4 consists of evaluation of options for additional effluent treatment processes.

(5) Tier 5 consists of evaluation of options for modifications of in-plant treatment processes.

(6) Tier 6 consists of implementation of selected toxicity control measures, follow-up monitoring, and confirmation of implementation success.

e. The TRE may be ended at any stage if monitoring finds there is no longer consistent toxicity (complying with Effluent Limitation IV.D of this Order and not exceeding "triggers" in section V.B.1.a(2) of this MRP).

f. The objective of the TIE shall be to identify the substance or combination of substances causing the observed toxicity. All reasonable efforts using currently available TIE methodologies shall be employed.

g. As toxic substances are identified or characterized, the Discharger shall continue the TRE by determining the sources and evaluating alternative strategies for reducing or eliminating the substances from the discharge. All reasonable steps shall be taken to reduce toxicity to levels consistent with chronic toxicity evaluation parameters.

h. Many recommended TRE elements parallel required or recommended efforts of source control, pollution prevention, and stormwater control programs. TRE efforts shall be coordinated with such efforts. To prevent duplication of efforts, evidence of complying with required or recommended efforts of such programs may be acceptable to comply with TRE requirements.

i. The Regional Water Board recognizes that chronic toxicity may be episodic and identification of causes of and reduction of sources of chronic toxicity may not be successful in all cases. As such, the Regional Water Board's consideration of enforcement action will be based, in part, on the Discharger's actions and efforts to identify and control or reduce sources of consistent toxicity.

VI. RECEIVING WATER MONITORING REQUIREMENTS

The Discharger shall continue to participate in the RMP, which involves collection of data on pollutants and toxicity in water, sediment and biota of the San Francisco Bay. The Discharger's participation and support of the RMP is used in consideration of the level of receiving water monitoring required by this Order.

VII. STORMWATER MONITORING REQUIREMENTS

C&H Sugar Inc. shall monitor stormwater at Monitoring Locations EFF-003 through EFF-016 as follows:

Table E-5. Stormwater Monitoring at EFF-003, EFF-005, EFF-006, EFF-008, EFF-009, EFF-011, EFF-012, EFF-013, EFF-014, and EFF-016

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow [1], [2], [3], [4]	MGD	---	2/Year
pH	standard units	Grab	2/Year
Total Suspended Solids	mg/L	Grab	2/Year
Total Organic Carbon	mg/L	Grab	2/Year
Conductivity	µmhos/cm	Grab	2/Year
Standard Observations [5]	---	---	1/Month

Footnotes:

[1] Stormwater discharges shall be sampled during the first 30-minutes of the first daylight storm that occurs during scheduled operating periods and is preceded by at least 3 days of dry weather. If sampling during the first 30 minutes is impractical, samples may be taken during the first hour of discharge, and the Discharger shall explain in the monitoring report why grab samples could not be taken in the first 30 minutes.

[2] A storm is defined as a continuous or semi-continuous period of rain that produces significant stormwater discharge. Significant stormwater discharge is a continuous discharge of stormwater for approximately one hour or more.

[3] C&H Sugar may ask the Executive Officer to reduce the number of stormwater monitoring locations if the Discharger can establish and document that stormwater discharges from different locations are substantially identical.

[4] The flow shall be the estimated total volume of stormwater discharge from each station for the storm sampled. Estimates shall be determined from the amount of rainfall and the area of drainage multiplied by a drainage factor. The areas and drainage factors shall be identified in the stormwater pollution prevention plan.

[5] Standard Observations are specified in the Regional Standard Provisions. Stormwater observations during the dry period, May 1 through September 30, may be limited to two, if they occur, during this five-month period.

VIII. 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, with modifications shown in section VIII.D below. C&H Sugar Company, Inc., as operator of the Joint Treatment Plant, is responsible for submitting all reports.

B. Self Monitoring Reports (SMRs)

1. **SMR Format.** The Discharger shall 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). The CIWQS website will provide additional directions for SMR submittal in the event of a service interruption for electronic submittal.

2. **SMR Due Dates and Contents.** The Discharger shall submit SMRs by the due dates, and with the contents, specified below:

   a. **Monthly SMRs —** Monthly SMRs shall be due 30 days after the end of each calendar month, covering that calendar month. The monthly SMR shall contain the applicable items described in sections V.B and V.C of both Attachments D and G of this Order. See Provision VI.C.2.a (Effluent Characterization Study and Report) of this Order for information that must also be reported with the monthly SMRs.

   b. **Annual SMR —** Annual SMRs shall be due February 1 each year, covering the previous calendar year. The annual SMR shall contain the items described in section V.C.1.f of the Regional Standard Provisions. See also Provisions VI.C.2.a (Effluent Characterization Study and Report), VI.C.4.b (Biosolids Management Practices), and VI.C.4.d (Cyanide Action Plan) of the Order for requirements to submit reports with the annual SMR.

   c. **Additional Specifications for Submitting SMRs to CIWQS —** If the Discharger submits SMRs to CIWQS, it shall submit analytical results and other information using one of the following methods:

Table E-6. SMR Reporting for CIWQS

Parameter	Method of Reporting	
	EDF/CDF data upload or manual entry	**Attached File**
All parameters identified in influent, effluent, and receiving water monitoring tables (except	Required for All Results	

Parameter	Method of Reporting	
	EDF/CDF data upload or manual entry	**Attached File**
Temperature)		
Temperature	Required for Monthly Maximum and Minimum Results Only [1]	Discharger may use this method for all results or keep records
Cyanide Arsenic Cadmium Chromium Copper Lead Mercury Nickel Selenium Silver Zinc Dioxins and Furans (by US EPA Method 1613)	Required for All Results [2]	
Antimony Beryllium Thallium Pollutants by US EPA methods 601, 602, 608, 610, 614, 624, and 625	Not Required (unless identified in influent, effluent, or receiving water monitoring tables), But Encouraged [1]	Discharger may use this method and submit results with application for permit reissuance, unless data submitted by CDF/EDF upload
Analytical Method	Not Required (Discharger may select "data unavailable") [1]	
Collection Time Analysis Time	Not Required (Discharger may select "0:00") [1]	

Footnotes:

[1] The Discharger shall continue to monitor at the minimum frequency specified in the monitoring tables, keep records of the measurements, and make the records available upon request.

[2] These parameters require EDF/CDF data upload or manual entry regardless of whether monitoring is required by this MRP or other provisions of this Order (except for biosolids, sludge, or ash provisions).

3. **Monitoring Periods.** Monitoring periods for all required monitoring shall be completed as set forth in the table below:

Table E-7. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period [1]
Continuous	Permit effective date	All
1/Day	Permit effective date	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.
1/Week 2/Week 3/Week 5/Week	Permit effective date	Sunday through Saturday
1/Every 2 Weeks	Permit effective date	Once during a two-week period.
1/Month	Permit effective date	First day of calendar month through last day of calendar month

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period [1]
1/Quarter	Permit effective date	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31
1/Year	Permit effective date	January 1through December 31
2/Year (once-through cooling water and wastewater discharge)	Permit effective date	Once during the wet season (typically November 1 – April 30) and once during the dry season (typically May 1 through October 31)
2/Year (stormwater)	Permit effective date	Two times during the wet season when it rains, with the first sampling on the first storm event of the season.
1/5 Years	Permit effective date	Once during the permit term within 12 months prior to applying for permit reissuance
Each Occurrence	Permit effective date	At a time when sampling can characterize the discharge event
[1] The monitoring period shall be during the timeframe in which Refinery process wastewater is being treated at the Joint Treatment Plant.		

4. **RL and MDL Reporting.** The Discharger shall report with each sample result the Reporting Level (RL) and 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 purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ. The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (+/- a percentage of the reported value), numerical ranges (low to high), or any other means the laboratory considers appropriate.

   c. Sample results less than the laboratory's MDL shall be reported as "Not Detected" or ND.

   d. The Discharger shall instruct laboratories to establish calibration standards so that the minimum level (ML) value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.

C. Discharge Monitoring Reports

1. As described in section VIII.B.1 above, at any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit SMRs that will

satisfy federal requirements for submittal of Discharge Monitoring Reports (DMRs). Until such notification is given, the Discharger shall submit DMRs in accordance with the requirements described below.

2. Once notified by the State or Regional Water Board, the Discharger shall submit hardcopy DMRs. DMRs must be signed and certified as required by the Standard Provisions. The Discharger 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, 15th Floor Sacramento, CA 95814

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

D. Modifications to Attachment G

1. Attachment G sections V.C.1.f and V.C.1.g are revised as follows, and section V.C.1.h. (Reporting data in electronic format) is deleted.

a. 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 (This summary table is not required if the Discharger has submitted the year's monitoring results to CIWQS in electronic reporting format by EDF/CDF upload or manual entry);

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 (This item is not required if the Discharger has submitted the year's monitoring results to CIWQS in electronic reporting format by EDF/CDF upload or manual entry);

4) List of approved analyses, including the following:

(i) List of analyses for which the Discharger is certified;

(ii) 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

(iii) 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 stormwater 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 addressed as follows, unless the Discharger submits SMRs electronically to CIWQS:

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 — *Deleted*

2. Attachment G sections V.E.2, V.E.2.a, and V.E.2.c are revised as follows, and sections V.E.2.b (24-hour Certification) and V.E.2.d (Communication Protocol) are deleted.

1. Unauthorized Discharges from Municipal Wastewater Treatment Plants[2]

[2] 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.

The following requirements apply to municipal wastewater treatment plants that experience an unauthorized discharge at their treatment facilities and supersede requirements imposed on the Discharger by the Executive Officer by letter of May 1, 2008.

a. Two (2)-Hour Notification

For any unauthorized discharges that enter 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 California Emergency Management Agency (CalEMA, currently 800-852-7550), the local health officers or directors of environmental health with jurisdiction over the affected water bodies, and the Regional Water Board. Timely notification by the Discharger to CalEMA also satisfies notification to the Regional Water Board. Notification 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;

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 — *Deleted*

c. 5-day Written Report

Within five business days, the Discharge shall submit a written report 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 changes of future unauthorized discharges; and

7) Quantity and duration of the unauthorized discharge, and the amount recovered.

d. Communication Protocol — *Deleted*

3. Attachment G section III.A.2, is revised to read as follows:

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 chlorine residual, the Discharger may use any approved analytical method that has an ML less than or equal to 0.05 mg/L.

For priority pollutant monitoring, when there is more than on 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 the USEPA (such as the 1600 series) if authorized by the Regional Water Board Executive Officer. 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.

APPENDIX E-1
CHRONIC TOXICITY
DEFINITION OF TERMS AND SCREENING PHASE REQUIREMENTS

I. Definition of Terms

A. No observed effect level (NOEL) for compliance determination is equal to IC_{25} or EC_{25}. If the IC_{25} or EC_{25} cannot be statistically determined, the NOEL shall be equal to the NOEC derived using hypothesis testing.

B. Effective concentration (EC) is a point estimate of the toxicant concentration that would cause an adverse effect on a quantal, "all or nothing," response (such as death, immobilization, or serious incapacitation) in a given percent of the test organisms. If the effect is death or immobility, the term lethal concentration (LC) may be used. EC values may be calculated using point estimation techniques such as probit, logit, and Spearman-Karber. EC_{25} is the concentration of toxicant (in percent effluent) that causes a response in 25 percent of the test organisms.

C. Inhibition concentration (IC) is a point estimate of the toxicant concentration that would cause a given percent reduction in a nonlethal, nonquantal biological measurement, such as growth. For example, an IC_{25} is the estimated concentration of toxicant that would cause a 25 percent reduction in average young per female or growth. IC values may be calculated using a linear interpolation method such as USEPA's Bootstrap Procedure.

D. No observed effect concentration (NOEC) is the highest tested concentration of an effluent or a toxicant at which no adverse effects are observed on the aquatic test organisms at a specific time of observation. It is determined using hypothesis testing.

II. Chronic Toxicity Screening Phase Requirements

A. The Discharger shall perform screening phase monitoring:

1. Subsequent to any significant change in the nature of the effluent discharged through changes in sources or treatment, except those changes resulting from reductions in pollutant concentrations attributable to source control efforts, or

2. Prior to permit reissuance. Screening phase monitoring data shall be included in the NPDES permit application for reissuance. The information shall be as recent as possible, but may be based on screening phase monitoring conducted within 5 years before the permit expiration date.

B. Screening phase design shall, at a minimum, consist of the following elements:

1. Use of test species specified in Appendix E-2, attached, and use of the protocols referenced in those tables, or as approved by the Executive Officer.

2. Two stages:

a. Stage 1 shall consist of a minimum of one battery of tests conducted concurrently. Selection of the type of test species and minimum number of tests shall be based on Appendix E-2 (attached).

b. Stage 2 shall consist of a minimum of two test batteries conducted at a monthly frequency using the three most sensitive species based on the Stage 1 test results and as approved by the Executive Officer.

3. Appropriate controls.

4. Concurrent reference toxicant tests.

5. Dilution series of 100%, 50%, 25%, 12.5%, 6.25%, and 0 %, where "%" is percent effluent as discharged, or as otherwise approved the Executive Officer.

C. The Discharger shall submit a screening phase proposal acceptable to the Executive Officer. The proposal shall address each of the elements listed above. If within 30 days, the Executive Officer does not comment, the Discharger shall commence with screening phase monitoring.

APPENDIX E-2
SUMMARY OF TOXICITY TEST SPECIES REQUIREMENTS

Table AE-1. Critical Life Stage Toxicity Tests for Estuarine Waters

Species	(Scientific Name)	Effect	Test Duration	Reference
Alga	*(Skeletonema costatum)* *(Thalassiosira pseudonana)*	Growth rate	4 days	1
Red alga	*(Champia parvula)*	Number of cystocarps	7–9 days	3
Giant kelp	*(Macrocystis pyrifera)*	Percent germination; germ tube length	48 hours	2
Abalone	*(Haliotis rufescens)*	Abnormal shell development	48 hours	2
Oyster Mussel	*(Crassostrea gigas)* *(Mytilus edulis)*	Abnormal shell development; percent survival	48 hours	2
Echinoderms - Urchins Sand dollar	*(Strongylocentrotus purpuratus, S. franciscanus)* *(Dendraster excentricus)*	Percent fertilization	1 hour	2
Shrimp	*(Mysidopsis bahia)*	Percent survival; growth	7 days	3
Shrimp	*(Holmesimysis costata)*	Percent survival; growth	7 days	2
Topsmelt	*(Atherinops affinis)*	Percent survival; growth	7 days	2
Silversides	*(Menidia beryllina)*	Larval growth rate; percent survival	7 days	3

Toxicity Test References:

1. American Society for Testing Materials (ASTM). 1990. Standard Guide for Conducting Static 96-Hour Toxicity Tests with Microalgae. Procedure E 1218-90. ASTM, Philadelphia, PA.

2. Short-term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to West Coast Marine and Estuarine Organisms. EPA/600/R-95/136. August 1995.

3. Short-term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to Marine and Estuarine Organisms. EPA/600/4-90/003. July 1994.

Table AE-2. Critical Life Stage Toxicity Tests for Fresh Waters

Species	(Scientific Name)	Effect	Test Duration	Reference
Fathead minnow	*(Pimephales promelas)*	Survival; growth rate	7 days	4
Water flea	*(Ceriodaphnia dubia)*	Survival; number of young	7 days	4
Alga	*(Selenastrum capricornutum)*	Final cell density	4 days	4

Toxicity Test Reference:

4. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, fourth Edition Chronic manual (EPA-821-R-02-013, October 2002).

Table AE-3. Toxicity Test Requirements for Stage One Screening Phase

Requirements	Receiving Water Characteristics		
	Discharges to Coast	Discharges to San Francisco Bay[1]	
	Ocean	Marine/Estuarine	Freshwater
Taxonomic diversity	1 plant 1 invertebrate 1 fish	1 plant 1 invertebrate 1 fish	1 plant 1 invertebrate 1 fish
Number of tests of each salinity type: Freshwater[2] Marine/Estuarine	0 4	1 or 2 3 or 4	3 0
Total number of tests	4	5	3

[1] (a) Marine refers to receiving water salinities greater than 1 part per thousand (ppt) at least 95 percent of the time during a normal water year.
(b) Freshwater refers to receiving water with salinities less than 1 ppt at least 95 percent of the time during a normal water year.
(c) Estuarine refers to receiving water salinities that fall between those of marine and freshwater, as described above.

[2] The freshwater species may be substituted with marine species if:
(a) The salinity of the effluent is above 1 ppt greater than 95 percent of the time, or
(b) The ionic strength (TDS or conductivity) of the effluent at the test concentration used to determine compliance is documented to be toxic to the test species.

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.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the C&H Sugar Company refinery, Joint Use C&H Sugar Company-Crockett Services District Philip F. Mead Water Treatment Plant, and its collection system.

Table F-1 Facility Information

WDID	2 071006001
CIWQS Place ID	212212
Discharger	C&H Sugar Company, Inc. Crockett Community Services District
CIWQS Discharger Party ID	6755
Name of Facility	C&H Sugar Company Refinery, Joint Use C&H Sugar Company-Crockett Community Services District Philip F. Meads Water Treatment Plant, and the Crockett Community Services District collection system
Facility Address	830 Loring Avenue Crockett, CA 94525
	Contra Costa County
Facility Contact, Title, Email, Phone	Tanya Akkerman, Environmental Manager , C&H Sugar Company, Inc., Tanya.akkerman@chsugar.com, 510-787-4352 Dale McDonald, General Manager, Crockett Community Services District, manager@town.crockett.ca.us, 510-787-2992
CIWQS Party ID	521474
Authorized Person to Sign and Submit Reports	Tanya Akkerman, Environmental Manager , C&H Sugar Company, Inc. Tanya.akkerman@chsugar.com, 510-787-4352 Dale McDonald, General Manager, Crockett Community Services District, manager@town.crockett.ca.us, 510-787-2992
Mailing Address	C&H Sugar Company– 830 Loring Avenue, Crockett, CA 94525 Crockett Community Services District – P.O. Box 578, Crockett, CA 94525
Billing Address	830 Loring Avenue, Crockett, CA 94525
Type of Facility	Sugar Processing / Privately-owned wastewater treatment plant
Major or Minor Facility	Major
Threat to Water Quality	2
Complexity	A
Pretreatment Program	No
Reclamation Requirements	NA
Mercury and PCBs Discharge Requirements	Regional Water Board Order No. R2-2007-0077
Facility Design Flow [1]	35 MGD for once-through cooling water discharged through Outfall 001 1.8 MGD for treated wastewater discharged through Outfall 002
Watershed	Suisun Basin
Receiving Water	Carquinez Strait within Northern San Francisco Bay
Receiving Water Type	Estuarine

A. C&H Sugar Company, Inc., owns and operates the C&H Sugar Company refinery (Refinery). The Refinery discharges the following: untreated once-through cooling waters and condensed vapors at Discharge Point 001; treated wastewater consisting of sugar refining wastes and domestic waste from the Crockett Community Services District and its associated collection system at Discharge Point 002; and stormwater from Discharge Points 003 through 016. The Discharger (C&H Sugar Company and the Crockett Community Services District) is subject to a Joint Use Agreement, which allows the Crockett Community Services District to discharge to and make use of the wastewater treatment facility located on property leased to C&H Sugar Company. C&H Sugar Company and the Crockett Community Services District jointly use the treatment plant. C&H Sugar Company owns and operates the plant, which discharges through Discharge Point 002.

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

B. Discharge of treated wastewater from the plant to Carquinez Strait, a water of the State and the United States, is currently regulated by Order No. R2-2007-0032 (NPDES Permit No. CA0005240), which was adopted on April 11, 2007, became effective on June 1, 2007, and expired on May 31, 2012. The Discharger filed a Report of Waste Discharge and submitted an application for renewal of its waste discharge requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit on December 9, 2011. The terms of the previous order automatically continued after the expiration date.

II. FACILITY DESCRIPTION

C&H Sugar Company owns and operates a sugar refinery that processes raw cane sugar at an average melt rate of 3,300 tons per day over 260 operating days per year. The Refinery has an average melt rate capacity of 3,600 tons per day.

The Refinery processes approximately 800,000 tons of cane sugar annually, which includes packaged consumer sugar and liquid and bulk granulated industrial-use cane sugar. C&H Sugar Company's sugar cane refining process includes removing the molasses coating with an affination syrup in a mingler (u-shaped trough with mixing paddles). The sugar crystals are then separated from the syrup using a centrifuge; melting the raw sugar with diatomaceous earth, phosphoric acid and lime and removing insolubles from the sugar melt in a clarifier. The resulting liquid is processed through a bone charcoal filter to remove color and soluble impurities forming syrup. The syrup is pumped through a pressure filter and evaporated by passing it though a multiple-effect evaporator, which crystallizes the sugar in vacuum pans heating the liquid under partial vacuum. The crystallized sugar and the remaining syrup are mixed in a tank and the syrup separated from the sugar grains using a centrifuge. Finally, the centrifuged sugar is dried in a granulator and screened and packaged. The Refinery operations generate low-density "sweetwater" (i.e., dilute sugar solutions), which are reused within the processes. Steam is used as heat in the sugar refining processes and is provided to the Refinery by the neighboring Crockett Cogeneration facility. In the refining process, three process operations create waste heat: (1) the multiple-effect evaporator; (2) the crystallizing vacuum pans; and (3) the sweetwater evaporators. Waste heat is removed with barometric condensers using once-through cooling water pumped from the Carquinez Strait.

The Refinery typically operates on a 7-day operating cycle, with 5 days of operation followed by 2 days down. Both crystalline and liquid refined sugars are delivered from the Refinery by truck and

rail. The wastewater treatment plant is known as the Philip F. Meads Water Treatment Plant, or Joint Treatment Plant, as it is jointly used and subject to a joint use agreement between C&H Sugar Company and the Crockett Community Services District. C&H Sugar Company owns and operates the Plant.

A. Description of Wastewater and Wastewater Treatment

The Refinery discharges once-through cooling water and condensed vapor (without treatment) through a deep water Discharge Point 001 in Carquinez Strait within San Francisco Bay, a water of the United States. The annual average discharge flow rates through Discharge Point 001 during 2007 through 2011 ranged from 13.5 million gallons per day (MGD) to 28.3 MGD with an annual average, in 2011, of 18.5 MGD.

Sugar refining process wastewater that includes char washings, scum filter aid slurries, refinery equipment wash water, railcar washings, truck washings, and contaminated stormwater from process areas is processed through a primary wastewater treatment plant at the Refinery before being pumped to the Joint Treatment Plant. The annual average flow rate for this waste stream is 0.45 MGD. Solids separated at the Refinery's primary wastewater treatment plant are dewatered on a belt filter and loaded on a truck for off site disposal as a soil amendment.

The Crocket Community Services District (hereinafter, the District) collects municipal sewage from the community of Crockett and comminute and degrits it. Crockett is a small community with few industrial activities. Municipal sewage, collected by the District, mainly consists of wastewater from residential and commercial sources and inflow and infiltration. After this preliminary treatment, the wastewater is pumped to the Joint Treatment Plant for secondary treatment and disinfection before it is discharged to Carquinez Strait through Discharge Point 002. All the grit removed is hauled to a permitted Class III disposal site.

The Joint Treatment Plant is an activated sludge wastewater treatment facility that treats primary-treated sugar refining wastewater and pretreated (comminuted and de-gritted) domestic wastewater from the District. The Refinery's sanitary wastes and tank truck washings, which account for less than 0.04 MGD, are combined with the pretreated sewage from the District. Refinery process wastewaters combine with flow from the District at the Joint Treatment Plant in a surge basin that feeds three one-million-gallon capacity aeration basins. Wastewater from the aeration basins is clarified by two dissolved air flotation units. Treatment at the Plant consists of flow equalization, activated sludge aeration basins, clarification, chlorination, and dechlorination. As process wastes typically have high carbohydrate and low nutrient content, phosphoric acid and urea are added to enhance biological treatment. Clarified wastewater is disinfected using sodium hypochlorite and dechlorinated with sodium bisulfite before being discharged.

The average dry weather design flow from the District to the Joint Treatment Plant is 0.3 MGD. During wet weather, the peak wet weather flow may increase to 3.3 MGD. For 2011 the annual average discharge through Discharge Point 002 was 0.87 MGD. Excess sewage, which is due to stormwater inflow and infiltration, may be temporarily stored in the District's stormwater surge tanks prior to returning it to the Plant. As necessary, during wet weather, peak flows are stored in the Plant's stormwater surge tanks before processing. The secondary-treated wastewater is discharged through a deep water Discharge Point 002 to the Carquinez Strait.

Waste biosolids from the dissolved air clarifiers at the Joint Treatment Plant are dewatered by belt presses, and trucked for off site disposal. Process water removed from the belt presses is combined with washings, waste samples, drips, stormwater, and other process waters are returned to treatment process.

Discharge of stormwater from Discharge Points 003 through 016 into the Carquinez Strait is regulated under this Order.

B. Description of Intake Water Structure

C&H Sugar Company's December 2009 Cooling Water Intake Study, required by the previous Order No. R2-2007-0032, describes the background to, and the current operation of, the intake water system. Water withdrawn from the Carquinez Strait enters the cooling water intake structure through a 10-foot wide opening with 0.5 inch vertical steel bars spaced 4 inches apart and extending from the bottom to above the water line. Water is filtered through a single traveling screen with 0.38 inch square mesh opening and effective area at Mean Low Low Water (MLLW) of 111 feet. The screen was installed in 1993. Water passes through the intake screen at a maximum velocity of 38 centimeters per second (cm/sec) at MLLW. Water passes through the intake screen before reaching the 48-inch diameter pipe leading to the pump room. Organisms and debris impinged on the traveling screen, and any other impinged organism and debris if present, are carried by the traveling screen to a sluice trough where they are washed off and returned to the Carquinez Strait.

Water is withdrawn from the Carquinez Strait at approximately 22.5 MGD, depending on Refinery operations. Flow is reduced to between 0 and 1 MGD during two out of seven days, when operations are normally shut down. Intake flow rates at the Refinery have remained relatively constant since 1979.

C. Discharge Points and Receiving Waters

Once through cooling water is discharged through Discharge Point 001 into Carquinez Strait, a water of the United States, through a submerged deep water diffuser. The diffuser is 155 feet from the Refinery at a depth of 48 feet below mean lower low water. The diffuser is 42-inches in diameter and 155-feet long and has 30 six-inch diameter ports, with two ports located along each side of the diffuser every 10-feet.

Treated wastewater from the Joint Treatment Plant, consisting of Refinery process wastewater and municipal wastewater from the District, is discharged through Discharge Point 002 into Carquinez Strait through a submerged deep water multi-port diffuser. The diffuser is 2,000 feet west of Discharge Point 001 at a depth of 45-feet below mean lower low water. It is comprised of a 324-feet long, 20-inch diameter outfall with an 18-feet long, 20-inch diameter pipe, with eight 6-inch diameter ports spaced every 5-feet.

Refinery stormwater is discharged through Discharge Points 003 through 016.

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

The tables below present the effluent limitations applicable to Discharge Point 001 (Monitoring Location EFF-001 and previously identified as M-001) contained in the previous order (Order No. R2-2007-0032) and representative monitoring data from the term of the previous order:

Table F-2 Historic Effluent Limitations and Monitoring Data for Conventional and Non-Conventional Pollutants at Discharge Point 001

Parameter	Units	Effluent Limitations		Monitoring Data June 2007 to November 2011
		Monthly Average	Daily Maximum	Highest Daily Discharge
5-day Biochemical Oxygen Demand (BOD_5)	lbs/day	2,200	6,700	44,000 [1]
pH	standard units.	6.0 – 9.0 at all times		6.7 – 8.7 [2]

Footnotes:
[1] This does not factor in BOD_5 intake water credit.
[2] Instantaneous minimum and instantaneous maximum pH values, respectively.

Table F-3 Historic Effluent Limitations and Monitoring Data for Toxic Pollutants at Discharge Point 001

Parameter	Units	Effluent Limitations		Monitoring Data June 2007 to Nov 2011
		Monthly Average	Daily Maximum	Highest Daily
Arsenic	µg/L	290	510	66
Copper	µg/L	76	120	66
Lead	µg/L	3.7	8.3	8.1
Nickel	µg/L	200	480	51
Selenium	µg/L	3.9	8.7	61
Zinc	µg/L	250	590	71
Cyanide	µg/L	21	42	6.4
TCDD-TEQ	µg/L	1.4×10^{-8}	2.8×10^{-8}	3.7×10^{-9}
Bis(2-ethylhexyl)phthalate	µg/L	54	110	110

The tables below present the effluent limitations applicable to Discharge Point 002 (Monitoring Location EFF-002 and previously identified as M-002) contained in the previous order (Order No. R2-2007-0032) and representative monitoring data from the term of the previous order:

Table F-4 Historic Effluent Limitations and Monitoring Data for Conventional and Non-Conventional Pollutants at Discharge Point 002

Parameter	Units	Effluent Limitations			Monitoring Data January 2007 to July 2011
		Monthly Average	Daily Maximum	Instantaneous Maximum	Highest Measured Daily Discharge
5-day Biochemical Oxygen Demand (BOD_5)	lbs/day	730	2,000	---	250
Total Suspended Solids (TSS)	lbs/day	730	2,600	---	1,500
pH	standard units	6.0 – 9.0 at all times			6.3 – 8.8 [1]

Parameter	Units	Effluent Limitations			Monitoring Data January 2007 to July 2011
		Monthly Average	Daily Maximum	Instantaneous Maximum	Highest Measured Daily Discharge
Oil and Grease	mg/L	10	20	---	6.7
Total Residual Chlorine	mg/L	---	---	0.0	<0.01
Settleable Matter	mL/L/hr.	0.1	0.1	---	0.2
Total coliform	MPN/100 mL	240	---	10,000	1,100

Footnote:

[1] Instantaneous minimum and instantaneous maximum pH values, respectively.

Table F-5 Historic Effluent Limitations and Monitoring Data for Toxic Pollutants at Discharge Point 002

Parameter	Units	Effluent Limitations		Monitoring Data (June 2007 to Nov 2011)
		Monthly Average	Daily Maximum	Highest Daily
Copper	µg/L	70	120	20
Lead	µg/L	3.6	9.7	13
Cyanide	µg/L	20	44	23
TCDD-TEQ	pg/L	1.4×10^{-8}	2.8×10^{-8}	4.3×10^{-12}
Bis(2-ethylhexyl)phthalate	µg/L	54	110	25

E. Compliance Summary

Violations have resulted from leaky equipment, operator error, and ineffective equipment monitoring and repair. The Discharger violated its numeric effluent limitations 38 times during the previous order term, as listed below, and had one additional monitoring violation. Most of these violations occurred between 2007 and 2010 when sugar liquors at the Refinery became entrained in the cooling water resulting in exceedances of the BOD_5 limits at Discharge Point 001.

Table F-6 Numeric Effluent Limitation Violations

Date of Violation	Outfall	Exceeded Parameter	Units	Effluent Limitation	Reported Concentration
7/11/2007	001	Total BOD_5 Effluent Daily Maximum	lbs/day	6,700	44,000
7/18/2007	001	Total BOD_5 Effluent Daily Maximum	lbs/day	6,700	11,000
7/31/2007	001	Bis(2-ethylhexyl)Phthalate Monthly Average	µg/L	54	63
7/31/2007	001	Total BOD_5 Effluent Monthly Average	lbs/day	2,200	15,000
8/22/2007	001	Total BOD_5 Effluent Daily Maximum	lbs/day	6,700	42,000
8/31/2007	001	Total BOD_5 Effluent Monthly Average	lbs/day	2,200	8,400
9/5/2007	001	Total BOD_5 Effluent Daily Maximum	lbs/day	6,700	9,200
9/5/2007	001	Bis(2-ethylhexyl)Phthalate Monthly Average	µg/L	54	59
10/17/2007	001	Total BOD_5 Effluent Daily Maximum	lbs/day	6,700	13,000
10/24/2007	001	Total BOD_5 Effluent Daily Maximum	lbs/day	6,700	7,400
10/31/2007	001	Total BOD_5 Effluent Monthly Average	lbs/day	2,200	5,000
11/28/2007	001	Total BOD_5 Effluent Daily Maximum	lbs/day	6,700	18,000
11/30/2007	001	Total BOD_5 Effluent Monthly Average	lbs/day	2,200	7,000
1/3/2008	003	pH Instantaneous Minimum	Standard Units	6.5	6.0
1/4/2008	003	pH Instantaneous Minimum	Standard Units	6.5	6.0

1/31/2008	001	Total BOD_5 Effluent Monthly Average	lbs/day	2,200	2,600
3/6/2008	002	Total Coliform 5-sample median	MPN/100 ml	240	1,100
9/4/2008	002	Cyanide Monthly Average	µg/L	20	23
11/3/2008	003	pH Instantaneous Minimum	Standard Units	6.5	5.4
11/5/2008	001	Total BOD_5 Effluent Daily Maximum	lbs/day	6,700	9,800
12/2/2008	002	Total Coliform Maximum Daily	MPN/100 ml	10,000	16,000
1/5/2009	001	Total BOD_5 Effluent Daily Maximum	lbs/day	6,700	9,400
1/13/2009	001	Total BOD_5 Effluent Daily Maximum	lbs/day	6,700	11,000
1/31/2009	001	Total BOD_5 Effluent Monthly Average	lbs/day	2,200	3,500
1/31/2009	001	Mercury 12-month running average	kg/m	0.08 [1]	0.100
2/28/2009	001	Total BOD_5 Effluent Monthly Average	lbs/day	2,200	2,400
2/28/2009	001	Mercury 12-month running average	kg/m	0.08 [1]	0.09
10/16/2009	001	Unauthorized discharge of process waste water (sugar liquor) from Refinery	Pounds	---	35,000
10/16/2009	001	Total BOD_5 Effluent Daily Maximum	lbs/day	6,700	35,000
11/20/2009	005	pH Instantaneous Maximum	Standard Units	8.5	8.5
11/20/2009	006	pH Instantaneous Maximum	Standard Units	8.5	8.6
11/30/2009	002	Failure to monitor for Settleable Matter	mL/L/hr.	0.2	---
6/21/2010	001	Unauthorized discharge of process waste water (sugar liquor) from Refinery	Pounds	---	33,000
6/21/2010	001	Total BOD_5 Effluent Daily Maximum	lbs/day	6,700	33,000
12/20/2010	002	Lead Daily Maximum	µg/L	9.7	13
12/31/2010	002	Lead Monthly Average	µg/L	3.6	4.6
1/5/2011	002	Lead Daily Maximum	µg/L	9.7	11
2/19/2011	001	Unauthorized discharge of process waste water from Refinery resulting from a corroded pipe	Gallons	---	170,000 – 230,000
6/21/2011	002	Total Coliform Maximum Daily	MPN/100 ml	10,000	16,000

To address most of the above violations the Regional Water Board took the following enforcement actions:

- Administrative Civil Liability Order No. R2-2009-0058 assessed a penalty of $490,000 for violations that occurred from July 1, 2005, through August 27, 2009. Half this penalty was allocated to a Supplementary Environmental Project that involved contribution to purchase of land to be assigned as a nature preserve. C&H Sugar Company committed to replacing operating equipment and training of plant operators to prevent reoccurrences.

- Administrative Civil Liability Order No. R2-2011-0001, addressed two separate spills of sugar liquor to the cooling water discharge that occurred on October 16, 2009, and June 21, 2010. A fine of $200,000 was imposed.

- Administrative Civil Liability Order No. R2-2011-0053, addressed a release on February 19, 2011, of approximately 200,000 gallons of untreated process wastewater from a corroded pipe to Carquinez Strait. A fine of $379,200 was imposed.

- Administrative Civil Liability Order No. R2 2011-0077, addressed violations from December 20, 2010, through June 21, 2011, and imposed a fine of $9,000.

In response to these enforcement actions, C&H Sugar Company undertook improvements to prevent future violations, including installing automatic equipment, replacing manual valves with automatic valves, and programming process control equipment to interlock between process operations. Many of the problems had been caused by human error in opening and closing manual valves. C&H Sugar Company retrained its employees to ensure familiarity with the new automated procedures.

Although no similar large releases have occurred since February 2011, in June and September 2012, the Discharger reported smaller releases. In June, during piping repair work inside a building, an estimated 200 gallons of water, with about 10% sugar, flowed under a roll up door and into Carquinez Strait. In September, a similarly sized release of condensate water (with about 10% sugar) occurred at the powerhouse. The discharge flowed from a concrete apron to Carquinez Strait through a crack in the concrete. C&H Sugar Company revised its operating procedures and sealed the crack to prevent reoccurrences.

F. Planned Changes

Other than routine maintenance and equipment replacement activities, no significant capital improvement projects are planned.

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 federal Clean Water Act (CWA) section 402 and implementing regulations adopted by USEPA and California Water Code (CWC) Chapter 5.5, Division 7, (commencing with section 13370). It serves as an NPDES permit for point source discharges from this Facility 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 issue 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 and groundwater. It also includes implementation programs to achieve water quality objectives. The Basin Plan was duly adopted by the Regional Water Board and approved by the State Water Board, the Office of Administrative Law, and USEPA. Requirements of this Order implement the Basin Plan.

   The Basin Plan implements State Water Board Resolution No. 88-63, which establishes State policy that all waters, with certain exceptions, be considered suitable or potentially suitable

for municipal or domestic supply (MUN). Because of marine influence on Carquinez Strait, total dissolved solids levels exceed 3,000 mg/L and thereby meet an exception to State Water Board Resolution No. 88-63. The MUN designation therefore does not apply to Carquinez Strait. The table below lists the Basin Plan beneficial uses of Carquinez Strait.

Table F-7 Basin Plan Beneficial Uses

Discharge Points	Receiving Water Name	Beneficial Uses
001 and 002	Carquinez Strait	Industrial Service Supply (IND) Ocean Commercial and Sport Fishing (COMM) Estuarine Habitat (EST) Fish Migration (MIGR) Preservation of Rare and Endangered Species (RARE) Fish Spawning (SPWN) Wildlife Habitat (WILD) Water Contact Recreation (REC1) Non-contact water Recreation (REC2) Navigation (NAV)

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.

The State Water Board adopted the *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California* (hereinafter Thermal Plan) on May 18, 1972, and amended this plan on September 18, 1975. This plan contains temperature objectives for inland surface waters and establishes specific limitations for thermal wastes (cooling water and industrial process water used for the purpose of transporting waste heat) and elevated temperature wastes (liquid, solid, or gaseous material including thermal waste discharged at a temperature higher than the natural temperature of receiving water).

The Thermal Plan establishes that elevated temperature waste discharges, either individually or combined with other discharges, are not to create a zone, defined by water temperature of more than 1ºF above natural receiving water temperatures, which exceeds 25 percent of the cross sectional area of a main river channel at any point. In addition, no elevated temperature waste discharge is to cause a surface water temperature rise greater than 4ºF above the natural temperature of the receiving waters at any time or place. These requirements apply to Discharge Point 001. The Thermal Plan also establishes that elevated temperature waste discharges are not to exceed the natural receiving water temperature by more than 20ºF and that the maximum temperature of thermal waste discharges is not to exceed 86ºF. State Water Board Resolution No. 75-72, issued on July 17, 1975, and approved by US EPA on September 2, 1975, however states that discharges from Discharge Points 001 and 002 are exempt from these last two requirements.

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 apply in California. On May 18, 2000, USEPA adopted the CTR. The

CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that applied in the State. USEPA amended the CTR on February 13, 2001. These rules contain water quality criteria for priority toxic pollutants.

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

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 order, with some exceptions in which limitations may be relaxed.

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

In October 2011, pursuant to CWA section 303(d), USEPA approved a revised list of impaired water bodies 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. Where it has not done so already, the Regional Water Board plans to adopt Total Maximum Daily Loads (TMDLs) for pollutants on the 303(d) list. TMDLs establish wasteload allocations for point sources and load allocations for non-point sources and are established to achieve the water quality standards for the impaired waters.

Carquinez Strait appears on the list for the following parameters: chlordane, DDT, dieldrin, dioxin compounds (including 2,3,7,8-TCDD), furan compounds, invasive species, mercury, PCBs, dioxin-like PCBs, and selenium. TMDLs have been established for mercury and PCBs. Facility mercury and PCB discharges are regulated by Regional Water Board Order No. R2-2007-0077, which implements the mercury and PCBs TMDLs.

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. Control of pollutants 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 to attain and maintain applicable numeric and narrative water quality objectives to protect receiving water beneficial uses.

Several specific factors affecting the development of limitations and requirements in this Order are discussed below:

A. Discharge Prohibitions

1. **Discharge Prohibition III.A (Discharge of wastewater at a location or in a manner different from that described in this Order is prohibited):** This prohibition is retained from the previous order and is based on 40 CFR 122.21(a), duty to apply, and CWC section 13260, which requires filing a Report of Waste Discharge before discharges can occur. Discharges not described in the permit application and Report of Waste Discharge, and subsequently in this Order, are prohibited.

2. **Discharge Prohibition III.B (Discharge of treated wastewater that does not receive a minimum initial dilution of 10:1 is prohibited):** This prohibition is retained from the previous order and is based on Discharge Prohibition No. 1 from Table 4-1 of the Basin Plan, which prohibits discharges that do not receive a minimum 10:1 initial dilution. Furthermore, this Order allows a 10:1 dilution credit in the calculation of one or more water quality-based effluent limitations, based on information of dilution achieved by the Discharger's outfalls. Therefore, this prohibition is necessary to ensure that the assumptions used to derive the dilution credit remain substantially the same so the limitations are protective of water quality.

3. **Discharge Prohibition III.C (No bypass or overflow of untreated or partially treated wastewaters, except as provided for in section I.G.2 of Attachment D):** This prohibition is based on 40 CFR 122.41(m) and has been retained from the previous order.

4. **Discharge Prohibition III.D (No sanitary sewer overflows):** This prohibition is retained from the previous order and is based on Basin Plan Discharge Prohibition No. 15 (Basin Plan Table 4-1) and the CWA, which prohibits the discharge of wastewater to waters of the U.S. except as authorized under an NPDES permit. Publicly-owned treatment works must achieve secondary treatment, at a minimum, and any more stringent limitations necessary to achieve water quality standards (33 U.S.C. § 1311[b][1][B and C]). Although the Joint Treatment Plant is privately owned, it serves public areas, and this Order requires the Discharger to

meet the secondary treatment standards for a publicly-owned treatment works. A sanitary sewer overflow that results in the discharge of raw sewage, or sewage not meeting effluent limitations required by this Order, to surface waters is prohibited under the CWA and the Basin Plan.

5. **Discharge Prohibition III.E (No algaecides or anti-fouling additives in barometric condenser cooling water system):** Algaecides and anti-fouling agents are, by their nature, toxic. This prohibition ensures that these toxic additives are not present in cooling water discharges. This prohibition is necessary because this Order does not contain effluent limitations for such substances and does not require toxicity testing of the cooling water discharges at Discharge Point 001.

B. Technology-Based Effluent Limitations

1. Scope and Authority

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

- Best practicable treatment control technology (BPT) represents the average of the best existing performance by well-operated facilities within an industrial category or subcategory. BPT standards apply to toxic, conventional, and non-conventional pollutants.

- Best available technology economically achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category or subcategory. BAT standards apply to toxic and nonconventional pollutants.

- Best conventional pollutant control technology (BCT) represents the control from existing industrial point sources of conventional pollutants including BOD, TSS, total coliform, pH, and oil and grease. The BCT standard is established after considering the relationship between the cost of attaining a reduction in effluent discharge and the benefits that would result, and also the cost effectiveness of additional industrial treatment beyond BPT.

- New source performance standards (NSPS) represent the best available demonstrated control technology standards. The intent of NSPS guidelines is to set limitations that represent state-of-the-art treatment technology for new sources.

The CWA requires USEPA to develop effluent limitations, guidelines, and standards (ELGs) representing application of BPT, BAT, BCT, and NSPS. CWA section 402(a)(1) and 40 CFR 125.3 authorize the use of Best Professional Judgment to derive technology-based effluent limitations on a case-by-case basis where ELGs are unavailable for certain industrial categories or pollutants of concern. Where Best Professional Judgment is used, specific factors outlined in 40 CFR 125.3 must be considered.

Pursuant to CWA section 306(b)(1)(B), US EPA established standards of performance (technology-based limitations and standards) for the crystalline cane sugar refining industry

at 40 CFR 409 Subpart B. These regulations apply to the Discharger's facility and were used to develop the limitations and requirements of this Order.

2. Applicable Technology-Based Effluent Guidelines

a. Effluent Limitation Guidelines for Crystalline Cane Sugar Refinery

The following specific standards of performance for existing facilities, representing BPT and BCT, as established at 40 CFR 409 Subpart B, apply to the C&H Sugar Company facility:

40 CFR 409.22(a), Barometric Condenser Cooling Water and Other Process Waters. Any crystalline cane sugar refinery discharging both barometric condenser cooling water and other process waters must meet the following limitations. The BOD_5 limitation is determined by adding the BOD_5 attributed to the barometric condenser cooling water to that amount of BOD_5 attributed to the process water. The TSS limitation is the amount of TSS attributed to the treated process water.

Table F-8 Technology-Based Requirements in 40 CFR 409.22(a)

Effluent Characteristic	Effluent Limitation	
	30-Day Average	Daily Maximum
BOD_5 (lbs/ton) [1]	0.86	2.38
TSS (lbs/ton) [1]	0.18	0.54
pH	6.0 – 9.0	

Footnote:
[1] Pounds BOD_5 or TSS per ton of melt (raw sugar contained within aqueous solution at the beginning of the process for production of refined cane sugar).

40 CFR 409.22 (b), Barometric Condenser Cooling Water Only. Any crystalline cane sugar refinery discharging barometric condenser cooling water only (for example, the cooling water from Discharge Point 001) is required to achieve the following net limitations.

Table F-9 Technology-Based Requirements in 40 CFR 409.22(b)

Effluent Characteristic	Effluent Limitation	
	30-Day Average	Daily Maximum
BOD_5 (lbs/ton) [1]	0.68	2.04

Footnote:
[1] Pounds BOD_5 per ton of melt (raw sugar contained within aqueous solution at the beginning of the process for production of refined cane sugar).

Process Water Only. Based on Best Professional Judgment, to derive technology-based standards for process water only, the standards in Table F-9 above are subtracted from those in Table F-8, as then shown in Table F-10.

Table F-10 Technology-Based Requirements for Process Wastewater

Effluent Characteristic	Effluent Limitation	
	30-Day Average	Daily Maximum
BOD_5 (lbs/ton) [1]	0.18	0.34
TSS (lbs/ton) [1]	0.18	0.54
pH	6.0 – 9.0	

Footnote:
[1] Pounds BOD5 or TSS per ton of melt (raw sugar contained within aqueous solution at the beginning of the process for production of refined cane sugar).

b. Technology-Based Effluent Limitations for Discharge Points 001 and 002

1) Discharge Point 001

The technology-based standards described above require the following effluent limitations for Discharge Point 001 (barometric cooling water only). The BOD_5 effluent limitations are based on an average melt rate of raw cane sugar of 3,300 tons per day (limits are rounded to two significant digits):

BOD_5 maximum daily limit (lbs/day) = 2.04 lbs/ton x 3,300 tons/day = 6,700 (lbs/day)

BOD_5 monthly average limit (lbs/day) = 0.68 lbs/ton x 3,300 tons/day = 2,200 (lbs/day)

Table F-11 Technology-Based Limitations for Discharge Point 001

Constituent	Units	Effluent Limitation[1]	
		30-Day Average	Daily Maximum
BOD_5	lbs/day	2,200	6,700
pH	Standard Units	6.0 – 9.0	

Footnote:
[1] In accordance with 40 CFR §402.22 (b), **c**ompliance is to be determined based on the net increase of BOD_5 above the intake measured at INF-001.[1]

2) Discharge Point 002

Discharge Point 002 contains both process wastewater from the Refinery and municipal wastewater from the District. The technology-based standards, specified in 40 CFR 409 (a and b), are interpreted to require BOD_5 and TSS mass load effluent limitations for Discharge Point 002 (discharging process wastewater only) as indicated in Table F-10 above. In addition, the Basin Plan provides technology-based effluent limits for wastewater treatment plants based on the secondary treatment standards.

i. **BOD_5 and TSS mass load effluent limits.** The BOD_5 and TSS mass load effluent limits are based on Best Professional Judgment pursuant to 40 CFR 125.3(c)(2). They are the sum of limits for the process wastewater and limits for the municipal wastewater. The technology-based standards for process wastewater, derived from

40 CFR 409(b and c), are shown in the Table F-10. The calculations are based on an average melt rate of raw cane sugar of 3,300 tons per day.

The BOD_5 and TSS daily maximum limits for municipal wastewater are based on the secondary treatment standards of 40 CFR 133.102, which calls for monthly average BOD_5 and TSS limits of 30 mg/L. Consistent with the previous order, daily maximum BOD_5 and TSS effluent limits are set at 60 mg/L, which is somewhat higher than the weekly maximum limit of 45 mg/L in 40 CFR 133.102. The adjustment reflects the different duration over which the limit is to be applied. The District's municipal wastewater maximum daily flow rate of 2.2 MGD and long term average flow rate of 0.86 MGD were used to calculate the municipal wastewater limits. The calculations below reflect a conversion factor of 8.34 L-lb/gallon-kg (i.e., 3.7854 L/gallon x 2.2 lbs/kg):

BOD_5 maximum daily limit (lbs/day) =
(0.34 lbs/ton x 3,300 tons/day) + (2.2 MGD x 60 mg/L) x 8.34 L-lb/gal-kg
= 2,200 (lbs/day)

BOD_5 monthly average limit (lbs/day) =
(0.18 lbs/ton x 3,300 tons/day) + (0.86 MGD x 30 mg/l) x 8.34 L-lb/gal-kg
= 810 (lbs/day)

TSS maximum daily limit (lbs/day) =
(0.54 lbs/ton x 3,300 tons/day) + (2.2 MGD x 60 mg/L) x 8.34 L-lb/gal-kg
= 2,900 (lbs/day)

TSS monthly average limit (lbs/day) =
(0.18 lbs/ton x 3,300 tons/day) + (0.86 MGD x 30 mg/L) x 8.34 L-lb/gal-kg
= 810 (lbs/day)

These limits represent Best Practicable Control Technology (BPT) and Best Conventional Pollution Control Technology (BCT). In calculating these limits, the factors specified in 40 CFR 125.3(d), as shown in the table below, were considered:

Table F-12 Factors Considered Pursuant to 40 CFR 125.3(d)

Factors	Considerations
Cost relative to benefits	The cost of imposing these limits is reasonable given that the Discharger can comply without modifying its existing process.
Comparison of cost and pollutant reductions from publicly owned treatment works to cost and pollutant reductions from sugar refineries	The facility provides secondary treatment of the District wastewater, therefore the cost of continuing its operations is comparable to the costs for comparable publicly-owned treatment works.
Age of equipment and facilities	The limits can be met with existing equipment and facilities which must be also maintained to comply with secondary treatment standards for municipal wastewater.
Process employed	The limits can be met with the existing process.
Engineering aspects for various controls	The existing controls are practicable and capable of meeting the limits.

Process changes	No process changes are necessary to meet the limits.
Non-water quality environmental impacts	Because no process changes are necessary, no non-water quality impacts are foreseeable.

These newly calculated daily limits (2,200 and 2,900) are higher than those in the previous order (2,000 and 2,600). Performance data collected between June 2007 and December 2011 show that the Discharger complied with the previous order limits. For example, the maximum BOD_5 loading was 250 lbs/day and the maximum monthly average was 130 lbs/day. For TSS, the corresponding loads were 1,500 and 440 lbs/day. Clearly the Discharger can comply with previous order limits. To avoid backsliding, the previous order limits are retained.

ii. **pH.** This effluent limitation is retained from the previous order and reflects Basin Plan Table 4-2.

iii. **Oil and Grease.** These effluent limitations are retained from the previous order and reflect Basin Plan Table 4-2.

iv. **Chlorine Residual.** This effluent limitation is retained from the previous order and reflects Basin Plan Table 4-2. An allowance is made for false positives that could be observed when using continuous monitoring devises; continuous monitoring instruments occasionally have anomalous spikes even when it is chemically improbable to have free chlorine present in the presence of sodium bisulfite.

v. **Settleable Matter.** These effluent limitations are retained from the previous order to maintain performance of the Refinery's primary pretreatment of process wastewater, and to control possibly higher levels of sediment the District's collection system and comminuter.

vi. **Total Coliform Bacteria.** These effluent limitations are retained from the previous order and reflect Basin Plan Table 4-2A and is intended to protect the shellfish beneficial use.

vii. **Enterococcus Bacteria.** The Enterococcus bacteria effluent limitation is new. It is based on Basin Plan Table 4-2A and is intended to protect the water contact recreation beneficial use.

C. Water Quality-Based Effluent Limitations (WQBELs)

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. The procedures for calculating individual WQBELs are based on the SIP and the Basin Plan. Most beneficial uses and Basin Plan water quality objectives were approved under State law and submitted to and approved by USEPA prior to May 30, 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to May 30, 2000, but not approved by USEPA before that date, are nonetheless "applicable water quality standards for purposes of the [Clean Water] Act"

pursuant to 40 CFR 131.21(c)(1). Collectively, this Order's restrictions on individual pollutants are no more stringent than those required by CWA water quality standards.

1. Scope and Authority

a. NPDES regulations at 40 CFR 122.44(d)(1)(i) mandate that permits include WQBELs for all pollutants that are or may be discharged at a level that causes, has reasonable potential to cause, or contributes to an exceedance of a water quality standard, including numeric and narrative objectives within a standard.

The process for determining "reasonable potential" and calculating WQBELs when necessary is intended (1) to protect the receiving water beneficial uses as specified in the Basin Plan, and (2) achieve applicable water quality objectives contained in the CTR, NTR, and Basin Plan.

b. NPDES regulations and the SIP provide the basis to establish Maximum Daily Effluent limitations (MDELs) and Average Monthly Effluent Limitations (AMELS):

(1) NPDES Regulations. NPDES regulations at 40 CFR 122.45(d) state, "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 that WQBELs be expressed as MDELs and AMELs.

c. MDELs are necessary in this Order to protect against acute water quality effects. The MDELs prevent fish kills or mortality to aquatic organisms.

2. Applicable Beneficial Uses and Water Quality Objectives

The water quality objectives that apply to the receiving water for these discharges 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 water quality objectives established by more than one of these sources.

a. Basin Plan. The Basin Plan specifies numeric water quality objectives for 10 priority toxic pollutants, as well as narrative water quality objectives 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, 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 and are designed to implement these water quality objectives.

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 the 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). Human health criteria are further identified as for "water and organisms" and for "organisms only." Because the receiving waters are not designated for the MUN beneficial use, the CTR criteria applicable to "organisms only" are used for this reasonable potential analysis (RPA).

c. NTR. The NTR establishes numeric aquatic life criteria for selenium, numeric aquatic life and human health criteria for cyanide, and numeric human health criteria for 33 other toxic organic pollutants for waters of San Francisco Bay upstream to, and including, Suisun Bay and the Sacramento River-San Joaquin River Delta. This includes Carquinez Strait, the receiving water for this discharge.

d. Sediment Quality Objectives. The *Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1, Sediment Quality* contains a narrative water quality objective, "Pollutants in sediments shall not be present in quantities that, alone or in combination, are toxic to benthic communities in bays and estuaries of California." This water quality objective is to be implemented by integrating three lines of evidence: sediment toxicity, benthic community condition, and sediment chemistry. The policy requires that if the Regional Water Board determines that a discharge has reasonable potential to cause or contribute to an exceedance of this water quality objective, it is to impose the water quality objective as a receiving water limit.

e. Basin Plan Receiving Water Salinity Policy. The Basin Plan and CTR state that the salinity characteristics (i.e., freshwater vs. saltwater) of the receiving water are to be considered in determining the applicable water quality objectives. Freshwater criteria 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 criteria 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 between these two categories, or tidally-influenced freshwaters that support estuarine beneficial uses, the criteria are the lower of the salt or freshwater criteria for each substance (the freshwater criteria for some metals are calculated based on ambient hardness).

The receiving water for Discharge Points No. 001 and 002, Carquinez Strait, is estuarine based on salinity data generated through the Regional Monitoring Program (RMP) at the Napa River (BD50) and Davis Point (BD40) sampling stations between March 1993 and August 2001, as well as random sampling within San Pablo Bay between July 2002 and August 2009. During that period, the receiving maximum salinity was 29 ppt, and its average salinity was 16.3 ppt. The salinity was less than 1 ppt in 4 percent of the samples and greater than 10 ppt in 72 percent of the samples, hence the waters of Carquinez Strait are classified as estuarine. The reasonable potential analysis and effluent limitations in this Order are therefore based on the more stringent of the fresh and saltwater water quality objectives.

f. Receiving Water Hardness. Ambient hardness data collected at the Napa River (BD50) and Davis Point (BD40) sampling stations between April 1995 and August 2001 were used to calculate freshwater water quality objectives that are hardness dependent. A hardness of 130 mg/L as $CaCO_3$ was used to determine the water quality objectives for this Order. This is the geometric mean of the 26 measurements taken at the Napa River and Davis Point stations, censored to remove 18 values above 400 mg/L. Values above 400 mg/L fall beyond the range in which hardness has been correlated with metals toxicity and generally represent marine conditions where marine water quality objectives, not freshwater objectives, apply. This approach represents a conservative compromise between not using the extremely conservative lowest hardness value ever observed and a value that could be higher than the hardness typical of freshwater salinity conditions.

g. Site-Specific Metals Translators. NPDES regulations at 40 CFR 122.45(c) require that effluent limitations for metals be expressed as total recoverable metal. Since applicable water quality objectives for metals are typically expressed in the dissolved form, translators must be used to convert metals concentrations from dissolved to total recoverable and vice versa. In the CTR, USEPA establishes default translators to be used in NPDES permits. However, site-specific conditions, such as water temperature, pH, suspended solids, and organic carbon, greatly affect the form of metal (dissolved, filterable, or otherwise) present in the water and therefore available to cause toxicity. In general, the dissolved form of the metal is more available and more toxic to aquatic life than filterable forms. Site-specific translators can be developed to account for site-specific conditions, thereby preventing exceedingly stringent or under protective water quality objectives.

Basin Plan Table 7.2.1-2 establishes site-specific metal translators for copper for deep water discharges north of the Dumbarton Bridge. Site-specific nickel translators are available for deep water discharges to San Francisco Bay (*Clean Estuary Project, North of Dumbarton Bridge Copper and Nickel Development and Selection of Final Translators March, 2005).* For copper, the chronic and acute translators are 0.38 and 0.66 respectively. For nickel, they are 0.27 and 0.57. For all other metals, default translators were used.

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:

a. Reasonable Potential Analysis (RPA)

For priority pollutants and most other toxic pollutants, the RPA identifies the observed maximum effluent concentration (MEC) for each pollutant based on effluent concentration data. There are three triggers in determining Reasonable Potential according to SIP section 1.3.

(1) The first trigger (Trigger 1) is activated if the MEC is greater than or equal to the lowest applicable water quality objective (MEC $\geq$ water quality objective), which has been adjusted, if appropriate, for pH, hardness, and translator data. If the MEC is

greater than or equal to the adjusted water quality objective, 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 water quality objective (B > water quality objective), and the pollutant is detected in any of the effluent samples.

(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 the MEC and B are less than the water quality objective.

b. Effluent Data

The Regional Water Board analyzed the Discharger's data for priority pollutants along with the nature of the discharge to determine if the discharge has Reasonable Potential. The RPA was based on effluent monitoring data the Discharger collected from June 2007 through November 2011.

c. Ambient Background Data

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. Ambient background concentrations are the observed maximum detected water column concentrations for aquatic life protection.

Ambient background values used in the RPA and the WQBELs calculations include (1) RMP data collected from 1994 through 2009 at the Yerba Buena Island RMP station (BC10) located in the Central Bay and (2) monitoring data the Bay Area Clean Water Agencies (BACWA), collected from 2002 through 2004 (*San Francisco Bay Ambient Water Monitoring Interim Report*, 2003; *Ambient Water Monitoring: Final CTR Sampling Update* report, June 15, 2004).

d. RPA Determination for Priority Pollutants

The MECs, most stringent applicable water quality objectives, and background concentrations used in the RPAs for Discharge Locations 001 and 002 are presented in the following tables, along with the RPA results (yes or no) for each pollutant analyzed. Reasonable Potential was not determined for all pollutants because there are not applicable water quality objectives for all pollutants, and monitoring data are unavailable for others.

For Discharge 001, the RPA determined that arsenic, copper, lead, nickel, selenium, zinc, cyanide, and bis(2-ethylhexyl)phthalate demonstrate Reasonable Potential by Trigger 1 and dioxin-TEQ by Trigger 2.

For Discharge 002, the RPA determined that copper, lead, zinc, cyanide, chlorodibromomethane, dichlorobromomethane, bis(2-ethylhexyl)phthalate,

dibenzo(a,h)anthracene, and total ammonia demonstrate Reasonable Potential by Trigger 1; and dioxin-TEQ demonstrates Reasonable Potential by Trigger 2.

Table F-13 Reasonable Potential Analysis Summary – Discharge 001

CTR #	Priority Pollutant	Governing Water Quality Objective (WQO) (µg/L)	MEC or Minimum DL [1] (µg/L)	Maximum Background or Minimum DL [1] (µg/L)	RPA Result [2]
1	Antimony	4,300	0.12	1.8	No
2	Arsenic	36	66	2.46	Yes
3	Beryllium	No Criteria	<0.041	0.22	Uo – No Criteria
4	Cadmium	0.64	0.14	0.13	No
5a	Chromium (III)	113	22	4.4	No
5b	Chromium (VI)	11	1.0	4.4	No
6	Copper	5.9	66	2.5	Yes [3]
7	Lead	4.4	8.1	0.8	Yes
8	Mercury (303(d) listed) [4]	---	---	---	---
9	Nickel	30	51	3.7	Yes
10	Selenium (303(d) listed)	5.0	61	0.39	Yes
11	Silver	1.1	<0.04	0.052	No
12	Thallium	6.3	<0.1	0.21	No
13	Zinc	64	71	5.1	Yes
14	Cyanide	2.9	6.4	<0.4	Yes
15	Asbestos	No Criteria	NA	NA	Uo – No Criteria
16	2,3,7,8-TCDD (303(d) listed)	$1.4x10^{-8}$	$4.6\ x10^{-7}$[5]	$8.2x10^{-9}$	No
	Dioxin TEQ (303(d) listed)	$1.4x10^{-8}$	$3.7x10^{-9}$[5]	$7.1x10^{-8}$	Yes
17	Acrolein	780	<1.2	<0.5	No
18	Acrylonitrile	0.66	<0.58	0.03	No
19	Benzene	71	0.2	<0.05	No
20	Bromoform	360	1.2	<0.5	No
21	Carbon Tetrachloride	4.4	<0.06	0.06	No
22	Chlorobenzene	21,000	<2.5	<0.5	No
23	Chlorodibromomethane	34	1.5	<0.05	No
24	Chloroethane	No Criteria	<2.5	<0.5	Uo – No Criteria
25	2-Chloroethylvinyl ether	No Criteria	<5.0	<0.5	Uo – No Criteria
26	Chloroform	No Criteria	26	<0.5	Uo – No Criteria
27	Dichlorobromomethane	46	5.7	<0.05	No
28	1,1-Dichloroethane	No Criteria	<0.06	<0.05	Uo – No Criteria
29	1,2-Dichloroethane	99	<0.09	0.04	No
30	1,1-Dichloroethylene	3.2	<0.07	<0.5	No
31	1,2-Dichloropropane	39	<0.07	<0.05	No
32	1,3-Dichloropropylene	1,700	<0.08	<0.5	No
33	Ethylbenzene	29,000	<0.09	<0.5	No
34	Methyl Bromide	4,000	<0.06	<0.5	No
35	Methyl Chloride	No Criteria	<0.06	<0.5	Uo – No Criteria
36	Methylene Chloride	1,600	<0.06	22	No
37	1,1,2,2-Tetrachloroethane	11	<0.07	<0.05	No
38	Tetrachloroethylene	8.9	<0.12	<0.05	No
39	Toluene	200,000	<0.06	<0.3	No
40	1,2-Trans-Dichloroethylene	140,000	<0.07	<0.5	No
41	1,1,1-Trichloroethane	No Criteria	<0.11	<0.5	Uo – No Criteria
42	1,1,2-Trichloroethane	42	<0.06	<0.05	No

CTR #	Priority Pollutant	Governing Water Quality Objective (WQO) (µg/L)	MEC or Minimum DL [1] (µg/L)	Maximum Background or Minimum DL [1] (µg/L)	RPA Result [2]
43	Trichloroethylene	81	<0.07	<0.5	No
44	Vinyl Chloride	525	<0.14	<0.5	No
45	2-Chlorophenol	400	<0.7	<1.2	No
46	2,4-Dichlorophenol	790	<0.7	<1.3	No
47	2,4-Dimethylphenol	2,300	<0.8	<1.3	No
48	2-Methyl- 4,6-Dinitrophenol	765	<0.6	<1.2	No
49	2,4-Dinitrophenol	14,000	<0.6	<0.7	No
50	2-Nitrophenol	No Criteria	<0.6	<1.3	Uo – No Criteria
51	4-Nitrophenol	No Criteria	<0.7	<1.6	Uo – No Criteria
52	3-Methyl 4-Chlorophenol	No Criteria	<1.0	<1.1	Uo – No Criteria
53	Pentachlorophenol	7.9	<1.0	<1	No
54	Phenol	4,600,000	<1.0	<1.3	No
55	2,4,6-Trichlorophenol	6.5	<0.6	<1.3	No
56	Acenaphthene	2,700	<0.03	0.0019	No
57	Acenaphthylene	No Criteria	<0.02	0.0013	Uo – No Criteria
58	Anthracene	110,000	<0.02	0.00059	No
59	Benzidine	0.00054	<5	<0.0015	No[6]
60	Benzo(a)Anthracene	0.049	<0.02	0.0053	No
61	Benzo(a)Pyrene	0.049	<0.02	0.0033	No
62	Benzo(b)Fluoranthene	0.049	<0.02	0.0046	No
63	Benzo(ghi)Perylene	No Criteria	<0.02	0.0045	Uo – No Criteria
64	Benzo(k)Fluoranthene	0.049	<0.03	0.0018	No
65	Bis(2-Chloroethoxy)Methane	No Criteria	<0.7	<0.3	Uo – No Criteria
66	Bis(2-Chloroethyl)Ether	1.4	<0.9	<0.00015	No
67	Bis(2-Chloroisopropyl)Ether	170,000	<0.6	NA	No
68	Bis(2-Ethylhexyl)Phthalate	5.9	113	<0.5	Yes
69	4-Bromophenyl Phenyl Ether	No Criteria	<0.97	<0.23	Uo – No Criteria
70	Butylbenzyl Phthalate	5,200	<0.7	0.5	No
71	2-Chloronaphthalene	4,300	<0.98	<0.3	No
72	4-Chlorophenyl Phenyl Ether	No Criteria	<0.28	<0.3	Uo – No Criteria
73	Chrysene	0.049	<0.3	0.0024	No
74	Dibenzo(a,h)Anthracene	0.049	<0.1	0.00064	No
75	1,2-Dichlorobenzene	17,000	<0.11	<0.8	No
76	1,3-Dichlorobenzene	2,600	<0.11	<0.8	No
77	1,4-Dichlorobenzene	2,600	<0.11	<0.8	No
78	3,3 Dichlorobenzidine	0.077	<0.1	<0.001	No [6]
79	Diethyl Phthalate	120,000	<0.6	<0.27	No
80	Dimethyl Phthalate	2,900,000	<0.7	<0.29	No
81	Di-n-Butyl Phthalate	12,000	3.3	<0.38	No
82	2,4-Dinitrotoluene	9.1	<0.6	<0.27	No
83	2,6-Dinitrotoluene	No Criteria	<0.6	<0.29	Uo – No Criteria
84	Di-n-Octyl Phthalate	No Criteria	<1.0	<0.38	Uo – No Criteria
85	1,2-Diphenylhydrazine	0.54	<1.0	0.0037	No [6]
86	Fluoranthene	370	1.0	0.011	No
87	Fluorene	14,000	<0.02	0.0021	No
88	Hexachlorobenzene	0.00077	<1.0	0.00002	No [6]
89	Hexachlorobutadiene	50	<1.0	<0.3	No
90	Hexachlorocyclopentadiene	17,000	<1.0	<0.31	No
91	Hexachloroethane	8.9	<1.0	<0.2	No

CTR #	Priority Pollutant	Governing Water Quality Objective (WQO) (µg/L)	MEC or Minimum DL [1] (µg/L)	Maximum Background or Minimum DL [1] (µg/L)	RPA Result [2]
92	Indeno(1,2,3-cd)Pyrene	0.049	<0.05	0.004	No
93	Isophorone	600	0.93	<0.3	No
94	Naphthalene	No Criteria	<0.2	0.0023	Uo – No Criteria
95	Nitrobenzene	1,900	<0.7	<0.25	No
96	N-Nitrosodimethylamine	8.1	<0.8	<0.3	No
97	N-Nitrosodi-n-Propylamine	1.4	<0.6	<0.001	No
98	N-Nitrosodiphenylamine	16	<0.6	<0.001	No
99	Phenanthrene	No Criteria	0.7	0.0061	Uo – No Criteria
100	Pyrene	11,000	<0.05	0.0051	No
101	1,2,4-Trichlorobenzene	No Criteria	<0.98	<0.3	Uo – No Criteria
102	Aldrin	0.00014	<0.002	NA	No [6]
103	Alpha-BHC	0.013	<0.002	0.00050	No
104	Beta-BHC	0.046	<0.002	0.00041	No
105	Gamma-BHC	0.063	<0.02	0.00070	No
106	Delta-BHC	No Criteria	<0.005	0.000042	Uo – No Criteria
107	Chlordane (303(d) listed)	0.00059	<0.003	0.00018	No [6]
108	4,4'-DDT (303(d) listed)	0.00059	<0.003	0.000066	No [6]
109	4,4'-DDE (linked to DDT)	0.00059	<0.003	0.00069	No [6]
110	4,4'-DDD	0.00084	<0.003	0.00031	No [6]
111	Dieldrin (303d listed)	0.00014	<0.002	0.00026	No [6]
112	Alpha-Endosulfan	0.0087	<0.005	0.000031	No
113	beta-Endosulfan	0.0087	<0.005	0.000069	No
114	Endosulfan Sulfate	240	<0.005	0.000082	No
115	Endrin	0.0023	<0.003	0.000040	No [6]
116	Endrin Aldehyde	0.81	<0.005	NA	No
117	Heptachlor	0.00021	<0.01	0.000019	No [6]
118	Heptachlor Epoxide	0.00011	<0.01	0.000094	No [6]
119-125	PCBs sum (303(d) listed) [4]	---	---1	---	---
126	Toxaphene	0.0002	<0.05	NA	No [6]
	Chlorpyrifos	0.014	NA	NA	Cannot Determine
	Diazinon	0.82	NA	NA	Cannot Determine
	Tributyltin	0.0074	NA	0.0022	Cannot Determine
	Total PAHs	15	0.7	0.084	No
	Total Ammonia	NA	NA	NA	No Effluent Data

Footnotes:

[1] The Maximum Effluent Concentration (MEC) and maximum background concentration are the actual detected concentrations unless preceded by a "<" sign, in which case the value shown is the minimum detection level (DL). The MEC or maximum background concentration is "NA" when there are no monitoring data available for the constituent.

[2] RPA Results = Yes, if MEC > WQC, or B > WQC and MEC is detected, or Trigger 3;
= No, if MEC and B are < WQC or all effluent data are undetected;
= Undetermined (Uo), if no criteria have been promulgated;
= Cannot Determine, if there are insufficient data.

[3] Basin Plan section 7.2.1.2 requires that individual NPDES permits for municipal and industrial wastewater treatment facilities include copper WQBELs.

[4] SIP section 1.3 excludes from its RPA procedure priority pollutants for which a TMDL has been developed. TMDLs have been developed for mercury and PCBs in San Francisco Bay. Mercury and PCBs from wastewater discharges are regulated by NPDES Permit No. CA0038849 (currently Order No. R2-2007-0077), which implements the San Francisco Bay Mercury and PCB TMDLs.

[5] For 2,3,7,8-TCDD, this value is based on the minimum detection limit in the analytical procedures used. For Dioxin-TEQ this value is the maximum for one sampling event; it is the sum of detected congeners adjusted for TEF and BEF factors.

Table F-14 Reasonable Potential Analysis Summary – Discharge 002

CTR #	Priority Pollutant	Governing Water Quality Objective (WQO) (µg/L)	MEC or Minimum DL [1] (µg/L)	Maximum Background or Minimum DL [1] (µg/L)	RPA Result [2]
1	Antimony	4,300	0.7	1.8	No
2	Arsenic	36	1.5	2.46	No
3	Beryllium	No Criteria	<0.01	0.22	Uo – No Criteria
4	Cadmium	0.64	0.19	0.13	No
5a	Chromium (III)	113	0.9	4.4	No
5b	Chromium (VI)	11	<0.6	4.4	No
6	Copper	5.9	20	2.5	Yes [4]
7	Lead	4.4	13	0.8	Yes
8	Mercury (303(d) listed) [5]	---	---	---	---
9	Nickel	30	6.9	3.7	No
10	Selenium (303(d) listed)	5.0	1.3	0.39	No
11	Silver	1.1	0.009	0.052	No
12	Thallium	6.3	0.09	0.21	No
13	Zinc	64	77	5.1	Yes
14	Cyanide	2.9	23	<0.4	Yes
15	Asbestos	No Criteria	NA	NA	Uo – No Criteria
16	2,3,7,8-TCDD (303(d) listed)	$1.4x10^{-8}$	4.6×10^{-7} [5]	$8.2x10^{-9}$	No
	Dioxin TEQ (303(d) listed)	$1.4x10^{-8}$	4.3×10^{-12}[5]	$7.1x10^{-8}$	Yes
17	Acrolein	780	<1.2	<0.5	No
18	Acrylonitrile	0.66	<0.58	0.03	No
19	Benzene	71	<0.1	<0.05	No
20	Bromoform	360	13	<0.5	No
21	Carbon Tetrachloride	4.4	0.38	0.06	No
22	Chlorobenzene	21,000	<2.5	<0.5	No
23	Chlorodibromomethane	34	50	<0.05	Yes
24	Chloroethane	No Criteria	<2.5	<0.5	Uo – No Criteria
25	2-Chloroethylvinyl ether	No Criteria	<5.0	<0.5	Uo – No Criteria
26	Chloroform	No Criteria	280	<0.5	Uo – No Criteria
27	Dichlorobromomethane	46	53	<0.05	Yes
28	1,1-Dichloroethane	No Criteria	<0.06	<0.05	Uo – No Criteria
29	1,2-Dichloroethane	99	<0.09	0.04	No
30	1,1-Dichloroethylene	3.2	<0.07	<0.5	No
31	1,2-Dichloropropane	39	<0.07	<0.05	No
32	1,3-Dichloropropylene	1,700	<0.08	<0.5	No
33	Ethylbenzene	29,000	<0.09	<0.5	No
34	Methyl Bromide	4,000	0.7	<0.5	No
35	Methyl Chloride	No Criteria	0.5	<0.5	Uo – No Criteria
36	Methylene Chloride	1,600	0.3	22	No
37	1,1,2,2-Tetrachloroethane	11	<0.07	<0.05	No
38	Tetrachloroethylene	8.9	<0.12	<0.05	No
39	Toluene	200,000	<0.06	<0.3	No
40	1,2-Trans-Dichloroethylene	140,000	<0.07	<0.5	No
41	1,1,1-Trichloroethane	No Criteria	<0.11	<0.5	Uo – No Criteria
42	1,1,2-Trichloroethane	42	<0.06	<0.05	No
43	Trichloroethylene	81	<0.07	<0.5	No
44	Vinyl Chloride	525	<0.14	<0.5	No
45	2-Chlorophenol	400	<0.7	<1.2	No

CTR #	Priority Pollutant	Governing Water Quality Objective (WQO) (µg/L)	MEC or Minimum DL [1] (µg/L)	Maximum Background or Minimum DL [1] (µg/L)	RPA Result [2]
46	2,4-Dichlorophenol	790	<0.7	<1.3	No
47	2,4-Dimethylphenol	2,300	<0.8	<1.3	No
48	2-Methyl- 4,6-Dinitrophenol	765	<0.6	<1.2	No
49	2,4-Dinitrophenol	14,000	<0.6	<0.7	No
50	2-Nitrophenol	No Criteria	<0.6	<1.3	Uo – No Criteria
51	4-Nitrophenol	No Criteria	<0.7	<1.6	Uo – No Criteria
52	3-Methyl 4-Chlorophenol	No Criteria	<1.0	<1.1	Uo – No Criteria
53	Pentachlorophenol	7.9	<1.0	<1	No
54	Phenol	4,600,000	<1.0	<1.3	No
55	2,4,6-Trichlorophenol	6.5	<0.6	<1.3	No
56	Acenaphthene	2,700	<0.03	0.0019	No
57	Acenaphthylene	No Criteria	0.04	0.0013	Uo – No Criteria
58	Anthracene	110,000	0.03	0.00059	No
59	Benzidine	0.00054	<5	<0.0015	No [6]
60	Benzo(a)Anthracene	0.049	<0.02	0.0053	No
61	Benzo(a)Pyrene	0.049	<0.02	0.0033	No
62	Benzo(b)Fluoranthene	0.049	<0.02	0.0046	No
63	Benzo(ghi)Perylene	No Criteria	<0.02	0.0045	Uo – No Criteria
64	Benzo(k)Fluoranthene	0.049	<0.03	0.0018	No
65	Bis(2-Chloroethoxy)Methane	No Criteria	<0.7	<0.3	Uo – No Criteria
66	Bis(2-Chloroethyl)Ether	1.4	<0.9	<0.00015	No
67	Bis(2-Chloroisopropyl)Ether	170,000	<0.6	NA	No
68	Bis(2-Ethylhexyl)Phthalate	5.9	25.2	<0.5	Yes
69	4-Bromophenyl Phenyl Ether	No Criteria	<0.97	<0.23	Uo – No Criteria
70	Butylbenzyl Phthalate	5,200	1.6	0.5	No
71	2-Chloronaphthalene	4,300	<0.98	<0.3	No
72	4-Chlorophenyl Phenyl Ether	No Criteria	<0.28	<0.3	Uo – No Criteria
73	Chrysene	0.049	<0.3	0.0024	No [6]
74	Dibenzo(a,h)Anthracene	0.049	0.40	0.00064	Yes
75	1,2-Dichlorobenzene	17,000	<0.11	<0.8	No
76	1,3-Dichlorobenzene	2,600	<0.11	<0.8	No
77	1,4-Dichlorobenzene	2,600	<0.11	<0.8	No
78	3,3 Dichlorobenzidine	0.077	<0.1	<0.001	No [6]
79	Diethyl Phthalate	120,000	<0.6	<0.27	No
80	Dimethyl Phthalate	2,900,000	<0.7	<0.29	No
81	Di-n-Butyl Phthalate	12,000	<0.6	<0.38	No
82	2,4-Dinitrotoluene	9.1	<0.6	<0.27	No
83	2,6-Dinitrotoluene	No Criteria	<0.6	<0.29	Uo – No Criteria
84	Di-n-Octyl Phthalate	No Criteria	<1.0	<0.38	Uo – No Criteria
85	1,2-Diphenylhydrazine	0.54	<1.0	0.0037	No [6]
86	Fluoranthene	370	0.04	0.011	No
87	Fluorene	14,000	<0.02	0.0021	No
88	Hexachlorobenzene	0.00077	<1.0	0.00002	No [6]
89	Hexachlorobutadiene	50	<1.0	<0.3	No
90	Hexachlorocyclopentadiene	17,000	<1.0	<0.31	No
91	Hexachloroethane	8.9	<1.0	<0.2	No
92	Indeno(1,2,3-cd)Pyrene	0.049	<0.05	0.004	No [6]
93	Isophorone	600	<0.93	<0.3	No
94	Naphthalene	No Criteria	0.05	0.0023	Uo – No Criteria

CTR #	Priority Pollutant	Governing Water Quality Objective (WQO) (µg/L)	MEC or Minimum DL [1] (µg/L)	Maximum Background or Minimum DL [1] (µg/L)	RPA Result [2]
95	Nitrobenzene	1,900	<0.7	<0.25	No
96	N-Nitrosodimethylamine	8.1	<0.8	<0.3	No
97	N-Nitrosodi-n-Propylamine	1.4	<0.6	<0.001	No
98	N-Nitrosodiphenylamine	16	<0.6	<0.001	No
99	Phenanthrene	No Criteria	0.04	0.0061	Uo – No Criteria
100	Pyrene	11,000	0.03	0.0051	No
101	1,2,4-Trichlorobenzene	No Criteria	<0.98	<0.3	Uo – No Criteria
102	Aldrin	0.00014	<0.002	NA	No [6]
103	Alpha-BHC	0.013	<0.002	0.00050	No
104	Beta-BHC	0.046	<0.002	0.00041	No
105	Gamma-BHC	0.063	<0.02	0.00070	No
106	Delta-BHC	No Criteria	<0.005	0.000042	Uo – No Criteria
107	Chlordane (303(d) listed)	0.00059	<0.003	0.00018	No [6]
108	4,4'-DDT (303(d) listed)	0.00059	<0.003	0.000066	No [6]
109	4,4'-DDE (linked to DDT)	0.00059	<0.003	0.00069	No [6]
110	4,4'-DDD	0.00084	<0.003	0.00031	No [6]
111	Dieldrin (303d listed)	0.00014	<0.002	0.00026	No [6]
112	Alpha-Endosulfan	0.0087	<0.005	0.000031	No
113	beta-Endosulfan	0.0087	<0.005	0.000069	No
114	Endosulfan Sulfate	240	<0.005	0.000082	No
115	Endrin	0.0023	<0.003	0.000040	No
116	Endrin Aldehyde	0.81	<0.005	NA	No
117	Heptachlor	0.00021	<0.01	0.000019	No [6]
118	Heptachlor Epoxide	0.00011	<0.01	0.000094	No [6]
119-125	PCBs sum (303(d) listed)[5]	---	---	---	---
126	Toxaphene	0.0002	<0.05	NA	No [6]
	Chlorpyrifos	0.014	NA	NA	Cannot Determine
	Diazinon	0.82	NA	NA	Cannot Determine
	Tributyltin	0.0074	NA	0.0022	Cannot Determine
	Total PAHs	15	0.63	0.084	No
	Total Ammonia	1.55	24	0.16	Yes

Footnotes:

[1] The Maximum Effluent Concentration (MEC) and maximum background concentration are the actual detected concentrations unless preceded by a "<" sign, in which case the value shown is the minimum detection level (DL). The MEC or maximum background concentration is "NA" when there are no monitoring data available for the constituent.

[2] RPA Results = Yes, if MEC > WQC, or B > WQC and MEC is detected, or Trigger 3;
= No, if MEC and B are < WQC or all effluent data are undetected;
= Undetermined (Uo), if no criteria have been promulgated;
= Cannot Determine, if there are insufficient data.

[3] Basin Plan section 7.2.1.2 requires that individual NPDES permits for municipal and industrial wastewater treatment facilities include copper WQBELs.

[4] SIP section 1.3 excludes from its RPA procedure priority pollutants for which a TMDL has been developed. TMDLs have been developed for mercury and PCBs in San Francisco Bay. Mercury and PCBs from wastewater discharges are regulated by NPDES Permit No. CA0038849 (currently Order No. R2-2007-0077), which implements the San Francisco Bay Mercury and PCB TMDLs.

[5] For 2,3,7,8-TCDD this value is based on the minimum detection limit in the analytical procedures used. For Dioxin-TEQ this value is the maximum for one sampling event; it is the sum of detected congeners adjusted for TEF and BEF factors.

e. **Constituents with limited data.** In some cases, Reasonable Potential cannot be determined because effluent data are limited or ambient background concentrations are unavailable. Provision VI.C.2.a of this Order requires the Discharger to continue to

monitor effluent for these constituents 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 to this permit or to continue monitoring.

f. **Pollutants with No Reasonable Potential.** WQBELs are not included in this Order for constituents that do not demonstrate Reasonable Potential; however, monitoring for those pollutants is still required. If concentrations of these constituents are found to have increased significantly, this Order requires the Discharger to investigate the sources of the increases (see Provisions VI.C.2.a and VI.C.3.b(3) of this Order). This Order also requires the Discharger to implement remedial measures if the increases pose a threat to water quality in the receiving water (see Provision VI.C.3.b(3) of this Order).

g. **RPA Determination for Sediment Quality Objectives.** 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 discharges subject to this Order; therefore the Regional Water Board cannot draw a conclusion about Reasonable Potential for the discharges 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.

4. WQBEL Calculations

a. **Pollutants with Reasonable Potential.** WQBELs were developed for the pollutants determined to have Reasonable Potential to cause or contribute to exceedances of the water quality objectives. The WQBELs were calculated based on water quality objectives and the procedures specified in SIP section 1.4. The water quality objectives used for each pollutant with Reasonable Potential are discussed below.

b. **Dilution Credit.** The SIP allows dilution credits for completely-mixed discharges, and under certain circumstances for incompletely-mixed discharges. On February 4, 2011, the Discharger submitted *Dye Dilution Study for Crockett Cogeneration and C&H Sugar Outfall 001*. This study was performed to determine initial dilution in Carquinez Strait near slack tide. The study assumed a maximum flow of 37 MGD and an average flow of 22.7 MGD. The study showed that 10:1 dilution is achieved within 10 feet of the outfall, and dilution at the edge of the initial mixing zone varies between 37:1 and 44:1. On June 4, 2012, the Discharger subsequently submitted an analysis of the dilution of the Joint Treatment Plant effluent discharged at Outfall 002. The analysis assumed the mixing conditions at Discharge Point 002 were effectively the same as those at Discharge Point 001 since Discharge Point 002 is only 2,000 feet downstream and both outfalls extend similar distances into Carquinez Strait. The effluent flow at Discharge Point 002 is typically less than 5% of the flow at Discharge Point 001. The analysis concluded that dilution at Discharge Point 002 would be significantly greater than 10:1.

(1) Bioaccumulative Pollutants: For selenium, 2,3,7,8-TCDD, and dioxin TEQ, dilution credit is denied. These pollutants appear on the CWA section 303(d) list for Carquinez Strait because, based on available data on pollutant concentrations in aquatic organisms, sediment, and the water column, they impair beneficial uses. The following factors suggest insufficient assimilative capacity for these pollutants.

Tissue samples taken from fish in San Francisco Bay show the presence of these pollutants at concentrations greater than screening levels (*Contaminant Concentrations in Fish from San Francisco Bay*, May 1997). The results of a 1994 San Francisco Bay pilot study, presented in *Contaminated Levels in Fish Tissue from San Francisco Bay* (Regional Water Board, 1994), also showed elevated levels of chemical contaminants in fish tissues. The Office of Environmental Health and Hazard Assessment completed a preliminary review of the data in the 1994 report and in December 1994 issued an interim consumption advisory covering certain fish species in San Francisco Bay due to the levels of some of these pollutants. The Office of Environmental Health and Hazard Assessment updated this advisory by issuing its May 2011 report *Health Advisory and Safe Eating Guidelines for San Francisco Bay Fish and Shellfish*, which still suggests insufficient assimilative capacity in San Francisco Bay for 303(d)-listed pollutants. Therefore, dilution credits are denied for bioaccumulative pollutants on the 303(d) list for which data are lacking on sources and significant uncertainty about how different sources of these pollutants contribute to bioaccumulation.

(2) Non-Bioaccumulative Pollutants: For non-bioaccumulative pollutants, a dilution allowance of 10:1 (D = 9) has been assigned. This allowance is consistent with the previous order and is based, in part, on Basin Plan Prohibition 1 (Table 4-1), which prohibits discharges with less than 10:1 dilution. SIP section 1.4.2 allows for limiting the dilution credit. The dilution credit is limited for the following reasons:

(a) San Francisco Bay is a very complex estuarine system with highly variable and seasonal upstream freshwater inflows and diurnal tidal saltwater inputs. SIP section 1.4.3 allows background conditions to be determined on a discharge-by-discharge or water body-by-water body basis. A water body-by-water body basis approach is taken here due to inherent uncertainties in characterizing ambient background conditions in a complex estuarine system on a discharge-by-discharge basis. The Yerba Buena Island RMP monitoring station, relative to other RMP stations, fits SIP guidance criteria for establishing background conditions. The SIP requires that background water quality data be representative of the ambient receiving water that will mix with the discharge. Water quality data from the Yerba Buena Island monitoring station is representative of the water that will mix with the discharge.

(b) Because of the complex hydrology of San Francisco Bay, there are uncertainties in accurately determining an appropriate mixing zone. The models used to predict dilution do not consider the three dimensional nature of San Francisco Bay currents resulting from the interaction of tidal flushes and seasonal fresh water outflows. Being heavier and colder than fresh water, ocean salt water enters San Francisco Bay on a twice-daily tidal cycle, generally beneath the warmer fresh water that flows seaward. When these waters mix and interact, complex

circulation patterns occur due to the varying densities of the fresh and ocean waters. The complex patterns occur throughout San Francisco Bay, but are most prevalent in the San Pablo, Carquinez Strait, and Suisun Bay areas. The locations of this mixing and interaction change, depending on the strength of each tide. Additionally, sediment loads from the Central Valley change on a long-term basis, affecting the depth of different parts of San Francisco Bay, resulting in alteration of flow patterns, mixing, and dilution at the outfalls.

(3) Pollutants for Which Intake Water Credits Are Granted

No dilution credit is provided for pollutants at Discharge Point 001 for which intake water credits are granted. Intake water credits are granted when no pollutants are added to the once-through cooling water drawn from the intake structure. In these cases, the discharge quality from Discharge Point 001 is the same as that of the receiving water; no dilution takes place.

c. Development of WQBELs for Specific Pollutants – Discharge Point 001

(1) Arsenic

(a) Water Quality Objectives. The most stringent applicable water quality objectives for arsenic are the Basin Plan chronic and acute marine water quality objectives, 36 and 69 µg/L, respectively.

(b) RPA Results. This Order establishes effluent limitations for arsenic because the MEC (66 µg/L) exceeds the governing water quality objective (36 µg/L), demonstrating reasonable potential by Trigger 1.

(c) WQBELs. Data indicate that effluent arsenic concentrations are the same as intake arsenic concentrations; therefore, no dilution can occur at the outfall. WQBELs for arsenic, calculated according to SIP procedures using a coefficient of variation (CV) of 1.2 and no dilution credit are an AMEL of 24 µg/L and an MDEL of 67 µg/L.

(d) Feasibility of Compliance. Statistical analysis of arsenic data collected from the outfall from June 2007 through November 2011 shows that the 95th percentile (37 µg/L) is greater than the AMEL (24 µg/L) and the 99th percentile (66 µg/L) is close to the MDEL (67 µg/L). This suggests that the Discharger may have difficulty complying with these WQBELs. However, the intake water credit described below will ensure that compliance is feasible.

(e) Arsenic Intake Credit. SIP section 1.4.4 states that the Regional Water Board may establish effluent limitations that allow discharges to contain pollutant concentrations no greater than intake water concentrations when specific conditions are met. In other words, effluent sample concentrations at Discharge Point 001 that exceed the arsenic limitations in Table 7 can, nevertheless, be considered in compliance with those limitations if the effluent arsenic concentration is also no greater than the intake water arsenic concentration.

Arsenic data in the intake and in the outfall collected from June 2007 through November 2011 were subject to statistical analysis. Both sets of data were not normally distributed but, using the Mann-Whitney nonparametric analysis, it was determined, with 95% confidence, that the data belonged to the same data set. The data were then combined and the analysis showed that the 95th percentile was 36 µg/L, greater than the AMEL of 24 µg/L, and the 99th percentile (68 µg/L) greater than the MDEL of 67 µg/L.

As explained below, the discharge meets the conditions for an intake water credit set forth in SIP section 1.4.4. Each SIP requirement is followed by an evaluation in italics:

1. The observed maximum ambient background concentration and the intake water concentration of the pollutant must exceed the most stringent applicable WQO for that pollutant.

   The maximum ambient background concentration observed at the Yerba Buena RMP station (2.5 µg/L) was less than the most stringent applicable WQO (36 µg/L). However, the maximum background concentration observed at the intake (69 µg/L), better reflects nearby water quality.

2. The intake water credit must be consistent with any TMDL applicable to the discharge.

   No arsenic TMDL has been established for Carquinez Strait.

3. The intake water must be from the same water body as the receiving water body.

   The intake and discharge are both within Carquinez Strait. The discharge point is hydrologically connected to the intake source. All of the non-contact cooling water is from Carquinez Strait, and the intake structure is located approximately 500 feet upstream of Discharge Point 001.

4. The Facility must not alter the intake water pollutant chemically or physically in a manner that adversely affects water quality and beneficial uses.

   Arsenic is not used in any Facility process. The Discharger does not alter the intake water chemically or physically in a manner that would change the nickel in the intake water.

5. The timing and location of the discharge must not cause adverse effects on water quality and beneficial uses that would not occur if the intake water pollutant had been left in the receiving water body.

   C&H Sugar Company completed an analysis of the residence time of water in the barometric cooling system and determined this was between 0.60 and 1.3 minutes, and the outfall location is within 500 feet of the intake. Nothing suggests that the time and location of the discharge would adversely affect

water quality or beneficial uses since the arsenic would have been in the Carquinez Strait anyway.

For this Order, intake water concentrations are characterized statistically so effluent concentrations may be evaluated to determine whether they fall within or beyond the range expected for influent concentrations. If effluent concentrations exceed the range expected for influent concentrations, the Discharger does not qualify for the intake water credit and the effluent limits apply.

This permit uses the 99th percentile arsenic concentration (68µg/L) of the available data from both the intake and outfall monitoring locations. Both data sets were used because statistical analysis demonstrates that both represent the same population (there's no statistical difference between the intake and effluent concentrations). The 99th percentile represents the upper range of the variability of the arsenic concentrations due to sampling and analysis variability. It results in an intake credit that captures the variability between influent and effluent data, and prevents discharge of additional pollutant mass. A higher percentile might include extreme and possibly spurious values, which might mask a legitimate violation; a lower percentile might result in violations due to sample variability instead of addition of pollutants.

(f) Anti-backsliding. Anti-backsliding requirements are satisfied because the new arsenic limits are more stringent than the limits in the previous order.

(2) Copper

(a) Water Quality Objectives. The Basin Plan includes chronic and acute marine WQOs for copper of 6.0 and 9.4 µg/L, respectively, expressed as dissolved metal (site-specific objectives for San Francisco Bay). Converting these water quality objectives to total recoverable metal using site-specific translators of 0.38 (chronic) and 0.66 (acute) results in a chronic water quality criterion of 6.6 µg/L and an acute water quality criterion of 5.9 µg/L.

(b) RPA Results. This Order establishes effluent limitations for copper because the MEC (66 µg/L) exceeds the governing WQO (5.9 µg/L), demonstrating reasonable potential by Trigger 1. In addition, Basin Plan section 7.2.1.2 requires that individual NPDES permits for municipal and industrial wastewater treatment facilities include copper WQBELs.

(c) WQBELs. Data indicate that effluent copper concentrations are greater than intake concentrations; therefore, no intake water credits are allowed. WQBELs for copper, calculated according to SIP procedures using a CV of 0.72 and a dilution credit of 10:1 (D = 9), are an AMEL of 54 µg/L and an MDEL of 120 µg/L.

(d) Feasibility of Compliance. Statistical analysis of copper effluent data collected from June 2007 through November 2011 shows that the 95th percentile (28 µg/L) is less than the AMEL (54 µg/L) and the 99th percentile (54 µg/L) is less than the MDEL (120µg/L). Therefore, the Discharger should have no difficulty complying with these limits.

(e) Anti-backsliding. Anti-backsliding requirements are satisfied because the new effluent limitations are more stringent than the limits in the previous order.

(3) Lead

(a) Water Quality Objectives. The most stringent applicable water quality objectives for lead are the Basin Plan chronic and acute freshwater aquatic life objectives of 4.4 and 110 µg/L, respectively.

(b) RPA Results. This Order establishes effluent limitations for lead because the MEC (8.1 µg/L) exceeds the governing WQO (4.4 µg/L), demonstrating reasonable potential by Trigger 1.

(c) WQBELs. Data indicate that effluent lead concentrations are the same as intake lead concentrations; therefore, no dilution can occur at the outfall. WQBELs for lead, calculated according to SIP procedures using a CV of 1.3 and no dilution, are an AMEL of 3.0 µg/L and an MDEL of 8.2 µg/L.

(d) Feasibility of Compliance. Statistical analysis of lead data collected from the outfall from June 2007 through November 2011 shows that the 95th percentile (3.6 µg/L) is greater than the AMEL (3.0 µg/L) and the 99th percentile (8.1 µg/L) is less than the MDEL (8.2 µg/L). However, because data from the intake and the outfall were determined, with 95% confidence, to belong to the same data set, these data sets were combined for a more robust statistical analysis. The resulting 95th percentile was 2.9 µg/L, less than the AMEL of 3.0 µg/L, and the 99th percentile was 7.4 µg/L, less than the MDEL of 8.2 µg/L. Therefore, the Discharger is expected to be able to comply with these limits.

(e) Anti-backsliding. These limits are higher than those in the previous order. Although backsliding is generally prohibited, CWA sections 303(d)(4)(B), 402(o)(1), and 402(o)(2) allow exceptions under certain circumstances:

- CWA section 402(o)(2)(C) allows backsliding when a less stringent limit is necessary due to circumstances over which the permittee has no control and there is no reasonably available remedy. In this case, the Discharger cannot control the lead in its intake water.

- CWA sections 303(d)(4)(B) and 402(o)(1) allow backsliding provided that the receiving water is not impaired by the limited pollutant and that the less stringent limits comply with antidegradation policies. In this case, lead concentrations in Carquinez Strait do not exceed water quality standards and, as explained in section IV.C.7, below, the less stringent limits comply with antidegradation policies.

(4) Nickel

(a) Water Quality Objectives. The most stringent applicable water quality objectives for nickel are the Basin Plan chronic and acute water quality objectives, 8.2 and 74 µg/L, respectively, expressed as dissolved metal.

Converting these water quality objectives to total recoverable metal using site-specific translators of 0.27 (chronic) and 0.57 (acute) results in a chronic water quality criterion of 30 µg/L and an acute water quality criterion of 130 µg/L.

(b) RPA Results. This Order establishes effluent limitations for nickel because the MEC (51 µg/L) exceeds the governing WQO (30 µg/L), demonstrating reasonable potential by Trigger 1.

(c) WQBELs. Data indicate that effluent nickel concentrations are the same as intake nickel concentrations; therefore, no dilution can occur at the outfall. WQBELs for nickel, calculated according to SIP procedures using a CV of 0.81 and no dilution, are an AMEL of 23 µg/L and an MDEL of 54 µg/L.

(d) Feasibility of Compliance. Statistical analysis of nickel data collected from the outfall from June 2007 through November 2011 shows that the 95th percentile (30 µg/L) is greater than the AMEL (23 µg/L) and the 99th percentile (50 µg/L) is less than the MDEL (54 µg/L). This suggests that the Discharger may have difficulty complying with these WQBELs. However, the intake water credit described below will ensure that compliance is feasible.

(e) Nickel Intake Credit. SIP section 1.4.4 states that the Regional Water Board may establish effluent limitations that allow discharges to contain pollutant concentrations no greater than intake water concentrations when specific conditions are met. In other words, effluent sample concentrations at Discharge Point 001 that exceed the nickel limitations in Table 7 can, nevertheless, be considered in compliance with those limitations if the effluent nickel concentration is also no greater than the intake water nickel concentration. As explained below, the discharge meets the conditions for an intake water credit set forth in SIP section 1.4.4. Each SIP requirement is followed by an evaluation in italics.

Nickel data in the intake and in the outfall collected from June 2007 through November 2011 were subject to statistical analysis. Both sets of data were transformed to a log-normal distribution and it was determined, with 95% confidence that the data belonged to the same data set. The data were combined and the analysis showed that the 95th percentile was 24 µg/L, greater than the AMEL of 23 µg/L, and the 99th percentile (50 µg/L) less than the MDEL of 54 µg/L.

1. The observed maximum ambient background concentration and the intake water concentration of the pollutant must exceed the most stringent applicable WQO for that pollutant.

   The maximum ambient background concentration observed at the Yerba Buena RMP station (3.7 µg/L) was less than the most stringent applicable WQO (30 µg/L). However, the maximum background concentration observed at the intake (30 µg/L), which better reflects nearby water quality, does not exceed the most stringent applicable WQO.

2. The intake water credit must be consistent with any TMDL applicable to the discharge.

   No nickel TMDL has been established for Carquinez Strait.

3. The intake water must be from the same water body as the receiving water body.

   The intake and discharge are both within Carquinez Strait. The discharge point is hydrologically connected to the intake source. All of the non-contact cooling water is from Carquinez Strait, and the intake structure is located approximately 500 feet upstream of Discharge Point 001.

4. The Facility must not alter the intake water pollutant chemically or physically in a manner that adversely affects water quality and beneficial uses.

   Nickel is not used in any Facility process. The Discharger does not alter the intake water chemically or physically in a manner that would change the nickel in the intake water.

5. The timing and location of the discharge must not cause adverse effects on water quality and beneficial uses that would not occur if the intake water pollutant had been left in the receiving water body.

   C&H Sugar Company completed an analysis of the residence time of water in the barometric cooling system and determined this was between 0.60 and 1.3 minutes and the outfall location is within 500 feet of the intake. Nothing suggests that the time and location of the discharge would adversely affect water quality or beneficial uses since the nickel would have been in the Carquinez Strait anyway.

For this Order, intake water concentrations are characterized statistically so effluent concentrations may be evaluated to determine whether they fall within or beyond the range expected for influent concentrations. If effluent concentrations exceed the range expected for influent concentrations, the Discharger does not qualify for the intake water credit and the effluent limits apply.

This permit uses the 99th percentile nickel concentration (50 µg/L) of the available data from both the intake and outfall monitoring locations. Both data sets were used because statistical analysis demonstrates that both represent the same population (there's no statistical difference between the intake and effluent concentrations). The 99th percentile represents the upper range of the variability of the nickel concentrations due to sampling and analysis variability. It results in an intake credit that captures the variability between influent and effluent data, and prevents discharge of additional pollutant mass. A higher percentile might include extreme and possibly spurious values, which might mask a legitimate violation; a lower percentile might result in violations due to sample variability instead of addition of pollutants.

(f) Anti-backsliding. Anti-backsliding requirements are satisfied because the new nickel limits are more stringent than the limits in the previous order.

(5) Selenium

(a) Water Quality Objectives. The most stringent applicable water quality objectives for selenium are the NTR chronic and acute water quality objectives, 5.0 and 20 µg/L, respectively.

(b) RPA Results. This Order establishes effluent limitations for selenium because the MEC (61 µg/L) exceeds the governing WQO (5.0 µg/L), demonstrating reasonable potential by Trigger 1.

(c) WQBELs. Data indicate that effluent selenium concentrations are the same as intake selenium concentrations; therefore, no dilution can occur at the outfall. WQBELs for selenium, calculated according to SIP procedures using a CV of 1.6 and no dilution credit, are an AMEL of 3.1 µg/L and an MDEL of 9.1 µg/L.

(d) Feasibility of Compliance. Statistical analysis of selenium data collected from the outfall from June 2007 through November 2011 shows that the 95th percentile (17 µg/L) is greater than the AMEL (3.1 µg/L) and the 99th percentile (61 µg/L) is greater than the MDEL (9.1 µg/L). This suggests that the Discharger may have difficulty complying with these WQBELs. However, the intake water credit described below will ensure that compliance is feasible.

(e) Selenium Intake Credit. SIP section 1.4.4 states that the Regional Water Board may establish effluent limitations that allow discharges to contain pollutant concentrations no greater than intake water concentrations when specific conditions are met. In other words, effluent sample concentrations at Discharge Point 001 that exceed the selenium limitations in Table 7 can, nevertheless, be considered in compliance with those limitations if the effluent selenium concentration is also no greater than the intake water selenium concentration. As explained below, the discharge meets the conditions for an intake water credit set forth in SIP section 1.4.4. Each SIP requirement is followed by an evaluation in italics.

Selenium data in the intake and in the outfall collected from June 2007 through November 2011 was subject to statistical analysis. Both sets of data were transformed to a log-normal distribution and it was determined, with 90% confidence that the data belonged to the same data set. The data were combined and the analysis showed that the 95th percentile was 17 µg/L, greater than the AMEL of 3.1 µg/L, and the 99th percentile (59 µg/L) greater than the MDEL of 9.1 µg/L.

1. The observed maximum ambient background concentration and the intake water concentration of the pollutant must exceed the most stringent applicable WQO for that pollutant.

The maximum ambient background concentration observed at the Yerba Buena RMP station (0.39 µg/L) was less than the most stringent applicable WQO (5.0 µg/L). However, the maximum background concentration observed at the intake (52 µg/L), which better reflects nearby water quality, is greater than the most stringent applicable WQO.

2. The intake water credit must be consistent with any TMDL applicable to the discharge.

   No selenium TMDL has been established for Carquinez Strait.

3. The intake water must be from the same water body as the receiving water body.

   The intake and discharge are both within Carquinez Strait. The discharge point is hydrologically connected to the intake source. All of the non-contact cooling water is from Carquinez Strait and the intake structure is located approximately 500 feet upstream of Discharge Point 001.

4. The Facility must not alter the intake water pollutant chemically or physically in a manner that adversely affects water quality and beneficial uses.

   Selenium is not used in any Facility process. The Discharger does not alter the intake water chemically or physically in a manner that would change the selenium in the intake water.

5. The timing and location of the discharge must not cause adverse effects on water quality and beneficial uses that would not occur if the intake water pollutant had been left in the receiving water body.

   C&H Sugar Company completed an analysis of the residence time of water in the barometric cooling system and determined this was between 0.60 and 1.3 minutes, and the outfall location is within 500 feet of the intake. Nothing suggests that the time and location of the discharge would adversely affect water quality or beneficial uses since the selenium would have been in the Carquinez Strait anyway.

For this Order, intake water concentrations are characterized statistically so effluent concentrations may be evaluated to determine whether they fall within or beyond the range expected for influent concentrations. If effluent concentrations exceed the range expected for influent concentrations, the Discharger does not qualify for the intake water credit and the effluent limits apply.

This permit uses the 99th percentile selenium concentration (59 µg/L) of the available data from both the intake and outfall monitoring locations. Both data sets were used because statistical analysis demonstrates that both represent the same population (there's no statistical difference between the intake and effluent concentrations). The 99th percentile represents the upper range of the variability of the selenium concentrations due to sampling and analysis variability. It results in

an intake credit that captures the variability between influent and effluent data, and prevents discharge of additional pollutant mass. A higher percentile might include extreme and possibly spurious values, which might mask a legitimate violation; a lower percentile might result in violations due to sample variability instead of addition of pollutants.

(f) Anti-backsliding. Anti-backsliding requirements are satisfied because the new selenium limits are more stringent than the limits in the previous order. The previous order included an AMEL of 3.9 µg/L and an MDEL of 8.7 µg/L. The new limits are more stringent because the lower AMEL would limit the discharge to a lower long-term average concentration. The revised limit is based on new monitoring information collected during the previous order term.

(6) Zinc

(a) Water Quality Objectives. The most stringent applicable water quality objectives for zinc are the Basin Plan chronic and acute freshwater aquatic life objectives, both of which are 64 µg/L.

(b) RPA Results. This Order establishes effluent limitations for zinc because the MEC (71 µg/L) exceeds the governing WQO (64 µg/L), demonstrating reasonable potential by Trigger 1.

(c) WQBELs. Data indicate that effluent zinc concentrations are greater than intake concentrations; therefore, no intake water credits are allowed. WQBELs for zinc, calculated according to SIP procedures using a CV of 0.76 and a dilution credit of 10:1 (D = 9), are an AMEL of 270 µg/L and an MDEL of 600 µg/L. The previous order included an AMEL of 250 µg/L and an MDEL of 590 µg/L. The limits in the previous order are retained to avoid backsliding. They are more stringent because the lower AMEL would limit the discharge to a lower long-term average concentration.

(d) Feasibility of Compliance. Statistical analysis of zinc effluent data collected from June 2007 through November 2011 shows that the 95th percentile (41 µg/L) is less than the AMEL (250 µg/L) and the 99th percentile (71 µg/L) is less than the MDEL (590 µg/L). Therefore, the Discharger should have no difficulty complying with these limits.

(e) Anti-backsliding. Anti-backsliding requirements are satisfied for zinc because the limits from the previous order are retained.

(7) Cyanide

(a) Water Quality Objectives. The most stringent applicable water quality objectives for cyanide are the Basin Plan site-specific chronic and acute marine water quality objectives, 2.9 µg/L and 9.4 µg/L, respectively.

(b) RPA Results. This Order establishes effluent limitations for cyanide because the MEC (6.4 µg/L) exceeds the governing water quality objective (2.9 µg/L), demonstrating reasonable potential by Trigger 1.

(c) WQBELs. Data indicate that effluent cyanide concentrations are the same as intake cyanide concentrations; therefore, no dilution can occur at the outfall. WQBELs for cyanide, calculated according to SIP procedures using a default CV of 0.60 and no dilution are an AMEL of 2.0 µg/L and an MDEL of 5.0 µg/L.

(d) Feasibility of Compliance. Statistical analysis of cyanide data collected from the outfall from June 2007 through November 2011 shows that the 95th percentile (0.69 µg/L) is less than the AMEL (2.0 µg/L) and the 99th percentile (6.4 µg/L) is greater than the MDEL (5.0 µg/L). This suggests that the Discharger may have difficulty complying with these WQBELs. However, the intake water credit described below will further ensure that compliance is feasible.

(e) Cyanide Intake Credit. SIP section 1.4.4 states that the Regional Water Board may establish effluent limitations that allow discharges to contain pollutant concentrations no greater than intake water concentrations when specific conditions are met. In other words, effluent sample concentrations at Discharge Point 001 that exceed the cyanide limitations in Table 7 can, nevertheless, be considered in compliance with those limitations if the effluent cyanide concentration is also no greater than the intake water cyanide concentration. As explained below, the discharge meets the conditions for an intake water credit set forth in SIP section 1.4.4. Each SIP requirement is followed by an evaluation in italics.

Cyanide data in the intake and in the outfall collected from June 2007 through November 2011 were subject to statistical analysis. Both sets of data were not normally distributed but, using the Mann-Whitney nonparametric analysis, it was determined, with 95% confidence that the data belonged to the same data set. The data were then combined and the analysis showed that the 95th percentile was 0.72 µg/L, less than the AMEL of 2.0 µg/L, and the 99th percentile (5.5 µg/L) greater than the MDEL of 5.0 µg/L.

1. The observed maximum ambient background concentration and the intake water concentration of the pollutant must exceed the most stringent applicable WQO for that pollutant.

   The maximum background concentration observed at the intake (1.6 µg/L), is an appropriate reflection of nearby water quality.

2. The intake water credit must be consistent with any TMDL applicable to the discharge.

   No cyanide TMDL has been established for Carquinez Strait.

3. The intake water must be from the same water body as the receiving water body.

   The intake and discharge are both within Carquinez Strait. The discharge point is hydrologically connected to the intake source. All of the non-contact cooling water is from Carquinez Strait, and the intake structure is located approximately 500 feet upstream of Discharge Point 001.

4. The Facility must not alter the intake water pollutant chemically or physically in a manner that adversely affects water quality and beneficial uses.

   Cyanide is not used in any Facility process. The Discharger does not alter the intake water chemically or physically in a manner that would change the cyanide in the intake water.

5. The timing and location of the discharge must not cause adverse effects on water quality and beneficial uses that would not occur if the intake water pollutant had been left in the receiving water body.

   C&H Sugar Company completed an analysis of the residence time of water in the barometric cooling system and determined this was between 0.60 and 1.3 minutes and the outfall location is within 500 feet of the intake. Nothing suggests that the time and location of the discharge would adversely affect water quality or beneficial uses since the cyanide would have been in the Carquinez Strait anyway.

For this Order, intake water concentrations are characterized statistically so effluent concentrations may be evaluated to determine whether they fall within or beyond the range expected for influent concentrations. If effluent concentrations exceed the range expected for influent concentrations, the Discharger does not qualify for the intake water credit and the effluent limits apply.

This permit uses the 99th percentile cyanide concentration (5.5 µg/L) of the available data from both the intake and outfall monitoring locations. Both data sets were used because statistical analysis demonstrates that both represent the same population (there's no statistical difference between the intake and effluent concentrations). The 99th percentile represents the upper range of the variability of the cyanide concentrations due to sampling and analysis variability. It results in an intake credit that captures the variability between influent and effluent data, and prevents discharge of additional pollutant mass. A higher percentile might include extreme and possibly spurious values, which might mask a legitimate violation; a lower percentile might result in violations due to sample variability instead of addition of pollutants.

(e) Anti-backsliding. Anti-backsliding requirements are satisfied because the effluent limitations in this Order are less than those in the previous order.

(8) Dioxin-TEQ

(a) Water Quality Objective. The Basin Plan narrative water quality objective 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 water quality objective applies to these pollutants. Elevated levels of dioxins and furans in San Francisco Bay fish tissue demonstrate that the narrative bioaccumulation water quality objective is not being met. USEPA therefore included San Francisco Bay as impaired by dioxins and furans in the CWA section 303(d) listing of receiving waters where water quality objectives are not being met after imposition of technology-based requirements.

The CTR establishes a numeric water quality objective for 2,3,7,8-tetrachlorinated dibenzo-p-dioxin (2,3,7,8 TCDD) of 1.4×10^{-8} µg/L to protect human health when aquatic organisms are 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 equivalents (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 water quality-based effluent limits 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 CFR 132, 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 water quality objective, 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} µg/L). Although the 1998 WHO scheme includes TEFs for dioxin-like PCBs, they are not included in this Order's TEQ scheme. The CTR contains a specific water quality standard for PCBs, and dioxin-like PCBs are included in the analysis of total PCBs.

(b) RPA Results. This Order establishes effluent limitations for dioxin-TEQ because the background concentration of 7.1×10^{-8} µg/L exceeds the narrative water quality objective translated as1.4×10^{-8} µg/L.

(c) WQBELs. WQBELs for dioxin-TEQ, calculated according to SIP procedures using a default CV of 0.6 and no dilution credit, are an AMEL of 1.4×10^{-8} µg/L and an MDEL of 2.8×10^{-8} µg/L.

(d) Feasibility of Compliance. During the term of the last permit samples were to be collected twice per year and analyzed for dioxin congeners. Samples were collected between June 2007 and January 2012 and analyzed for dioxin congeners. The corrected maximum effluent concentration of 3.7×10^{-9} is lower than the AMEL (1.4×10^{-8} µg/L) and the MDEL (2.8×10^{-8} µg/L). Therefore, the Discharger should have no difficulty complying with these limits.

(e) Anti-backsliding. Anti-backsliding requirements are satisfied because the effluent limitations in this Order are the same as those in the previous order.

(9) Bis(2-Ethylhexyl)Phthalate

(a) Water Quality Objective. The most stringent applicable water quality objective for bis(2-ethylhexyl)phthalate is the CTR human health water quality objective of 5.9 µg/L.

(b) RPA Results. This Order establishes effluent limitations for bis(2-ethylhexyl)phthalate because the MEC (110µg/L) exceeds the most stringent applicable water quality objective (5.9 µg/L), demonstrating reasonable potential by Trigger 1.

(c) WQBELs. Data indicate that effluent bis(2-ethylhexyl)phthalate concentrations are greater than intake concentrations; therefore, no intake water credits are allowed. WQBELs for bis(2-ethylhexyl)phthalate, calculated according to SIP procedures using a default CV of 0.60 and a dilution credit of 10:1 (D = 9), are an AMEL of 55 µg/L and an MDEL of 110 µg/L. The previous order included an AMEL of 54 µg/L and an MDEL of 110 µg/L. The limits in the previous order are retained to avoid backsliding.

(d) Feasibility of Compliance. Statistical analysis of bis(2-ethylhexyl)phthalate data collected from the outfall from June 2007 through November 2011 shows that the 95th and 99th percentiles (110 µg/L) are greater than the AMEL (55 µg/L) and the MDEL (110 µg/L). Therefore, the Discharger may have difficulty complying with these limits. However, bis(2-ethylhexyl)phthalate is a common laboratory contaminant. Provision VI.C.6.c of the Order requires a review of laboratory practices and is intended to ensure that bis(2-ethylhexyl)phthalate measurements are reliable.

(e) Anti-backsliding. Anti-backsliding requirements are satisfied for bis(2-ethylhexyl)phthalate because the limits from the previous order are retained.

d. Development of WQBELs for Specific Pollutants – Discharge Point 002

(1) Copper

(a) Water Quality Objectives. The Basin Plan includes chronic and acute marine WQOs for copper of 6.0 and 9.4 µg/L, respectively, expressed as dissolved metal (site-specific objectives for San Francisco Bay). Converting these water quality objectives to total recoverable metal using site-specific translators of 0.38

(chronic) and 0.66 (acute) results in a chronic water quality criterion of 6.6 µg/L and an acute water quality criterion of 5.9 µg/L.

(b) RPA Results. This Order establishes effluent limitations for copper because the MEC (20 µg/L) exceeds the governing WQO (5.9 µg/L), demonstrating reasonable potential by Trigger 1; additionally Basin Plan section 7.2.1.2 requires that individual NPDES permits for municipal and industrial wastewater treatment facilities include copper WQBELs.

(c) WQBELs. WQBELs for copper, calculated according to SIP procedures using a CV of 0.71 and a dilution credit of 10:1 (D = 9), are an AMEL of 55 µg/L and an MDEL of 120 µg/L.

(d) Anti-backsliding. Anti-backsliding requirements are satisfied because the new effluent limitations are more stringent than the limits in the previous order.

(2) Lead

(a) Water Quality Objectives. The most stringent applicable water quality objectives for lead are the Basin Plan chronic and acute freshwater aquatic life objectives of 4.4 µg/L and 110 µg/L, respectively.

(b) RPA Results. This Order establishes effluent limitations for lead because the MEC (13 µg/L) exceeds the governing WQO (4.4 µg/L), demonstrating reasonable potential by Trigger 1.

(c) WQBELs. WQBELs for lead, calculated according to SIP procedures using a CV of 1.7 and a dilution credit of 10:1 (D = 9), are an AMEL of 23 µg/L and an MDEL of 67 µg/L.

(d) Anti-backsliding. These limits are higher than those in the previous order. Although backsliding is generally prohibited, CWA sections 303(d)(4), 402(o)(1), and 402(o)(2) allow exceptions under certain circumstances:

- CWA section 402(o)(2)(E) allows backsliding when the permittee has installed the treatment facilities required to meet the effluent limitations in the previous order and has properly operated and maintained its facilities but has nevertheless been unable to achieve the previous effluent limitations. In this case, the Discharger has been unable to comply with the previous limitations despite providing and successfully operating and maintaining secondary treatment. Three lead effluent limit violations occurred during winter 2010-2011. CWA section 402(o)(2)(E) also requires that revised limits not be less stringent than required by effluent limitation guidelines. As discussed in section IV.B.2 of this Fact Sheet, no effluent limitation guidelines for lead apply to this discharge.

- CWA sections 303(d)(4) and 402(o)(1) allow backsliding provided that the receiving water is not impaired by the limited pollutant and

that the less stringent limits comply with antidegradation policies. In this case, lead concentrations in Carquinez Strait do not exceed water quality standards and, as explained in section IV.C.7, below, the less stringent limits comply with antidegradation policies.

(3) Zinc

(a) Water Quality Objectives. The most stringent applicable water quality objectives for zinc are the Basin Plan chronic and acute freshwater aquatic life objectives, both of which are of 64 µg/L.

(b) RPA Results. This Order establishes effluent limitations for zinc because the MEC (77 µg/L) exceeds the governing WQO (64 µg/L), demonstrating reasonable potential by Trigger 1.

(c) WQBELs. WQBELs for zinc, calculated according to SIP procedures using a default CV of 0.60 and a dilution credit of 10:1 (D = 9), are an AMEL of 300 µg/L and an MDEL of 600 µg/L.

(d) Anti-backsliding. Anti-backsliding requirements are satisfied for zinc because the previous order did not include zinc limits.

(4) Cyanide

(a) Water Quality Objectives. The most stringent applicable water quality objectives for cyanide are the Basin Plan site-specific chronic and acute marine water quality objectives, 2.9 µg/L and 9.4 µg/L, respectively.

(b) RPA Results. This Order establishes effluent limitations for cyanide because the MEC (23 µg/L) exceeds the most stringent applicable water quality objective (2.9 µg/L), demonstrating reasonable potential by Trigger 1.

(c) WQBELs. WQBELs for cyanide, calculated according to SIP procedures using a CV of 0.90 and a dilution credit of 10:1 (D = 9), are an AMEL of 19 µg/L and an MDEL of 46 µg/L.

(d) Anti-backsliding. Anti-backsliding requirements are satisfied because the new cyanide limits are more stringent than the limits in the previous order. The previous order included an AMEL of 20 µg/L and an MDEL of 44 µg/L. The new limits are more stringent because the lower AMEL would limit the discharge to a lower long-term average concentration.

(5) Dioxin-TEQ

(a) Water Quality Objective. For the reasons set forth in section IV.C.4.b(2)c(8)(a) above, the Basin Plan narrative water quality objective for bioaccumulative substances is translated for dioxins and furans is translated as 1.4×10^{-8} µg/L dioxin-TEQ.

(b) RPA Results. This Order establishes effluent limitations for dioxin-TEQ because the background concentration of 7.1 x 10^{-8} µg/L exceeds the narrative water quality objective translated as1.4 x 10^{-8} µg/L. Dioxin-TEQ was detected in the effluent, at a concentration of 4.3 x 10^{-12} µg/L.

(c) WQBELs. WQBELs for dioxin-TEQ, calculated according to SIP procedures using a default CV of 0.6 and no dilution credit, are an AMEL of 1.4 x 10^{-8} µg/L and an MDEL of 2.8 x 10^{-8} µg/L.

(d) Anti-backsliding. Anti-backsliding requirements are satisfied because the effluent limitations in this Order are the same as those in the previous order.

(6) Chlorodibromomethane

(a) Water Quality Objective. The most stringent applicable water quality objective for chlorodibromomethane is the CTR human health water quality objective of 34 µg/L.

(b) RPA Results. This Order establishes effluent limitations for chlorodibromomethane because the MEC (50µg/L) exceeds the most stringent applicable water quality objective (34 µg/L), demonstrating reasonable potential by Trigger 1.

(c) WQBELs. WQBELs for chlorodibromomethane, calculated according to SIP procedures using a default CV of 0.60 and a dilution credit of 10:1 (D = 9), are an AMEL of 340 µg/L and an MDEL of 680 µg/L.

(d) Anti-backsliding. Anti-backsliding requirements are satisfied because the previous order did not include limits for chlorodibromomethane.

(7) Dichlorobromomethane

(a) Water Quality Objective. The most stringent applicable water quality objective for dichlorobromomethane is the CTR human health water quality objective of 46 µg/L.

(b) RPA Results. This Order establishes effluent limitations for dichlorobromomethane because the MEC (53 µg/L) exceeds the most stringent applicable water quality objective (46 µg/L), demonstrating reasonable potential by Trigger 1.

(c) WQBELs. WQBELs for dichlorobromomethane, calculated according to SIP procedures using a default CV of 0.60 and a dilution credit of 10:1 (D = 9), are an AMEL of 460 µg/L and an MDEL of 920 µg/L.

(d) Anti-backsliding. Anti-backsliding requirements are satisfied because the previous order did not include limits for dichlorobromomethane.

(8) Bis(2-Ethylhexyl)Phthalate

(a) Water Quality Objective. The most stringent applicable water quality objective for bis(2-ethylhexyl)phthalate is the CTR human health water quality objective of 5.9 µg/L.

(b) RPA Results. This Order establishes effluent limitations for bis(2-ethylhexyl)phthalate because the MEC (25.2 µg/L) exceeds the most stringent applicable water quality objective (5.9 µg/L), demonstrating reasonable potential by Trigger 1.

(c) WQBELs. WQBELs for bis(2-ethylhexyl)phthalate, calculated according to SIP procedures using a default CV of 0.60 and a dilution credit of 10:1 (D = 9), are an AMEL of 55 µg/L and an MDEL of 110 µg/L. The previous order included an AMEL of 54 µg/L and an MDEL of 110 µg/L. The limits in the previous order are retained to avoid backsliding. They are more stringent because the lower AMEL would limit the discharge to a lower long-term average concentration. We retained these two limits in this Order.

(d) Anti-backsliding. Anti-backsliding requirements are satisfied for bis(2-ethylhexyl)phthalate because the more stringent limits from the previous order are retained.

(9) Dibenzo(a,h)Anthracene

(a) Water Quality Objective. The most stringent applicable water quality objective for dibenzo(a,h)anthracene is the CTR human health water quality objective of 0.049 µg/L.

(b) RPA Results. This Order establishes effluent limitations for dibenzo(a,h)anthracene because the MEC (0.40µg/L) exceeds the most stringent applicable water quality objective (0.049 µg/L), demonstrating reasonable potential by Trigger 1.

(c) WQBELs. WQBELs for dibenzo(a,h)anthracene, calculated according to SIP procedures using a default CV of 0.60 and a dilution credit of 10:1 (D = 9), are an AMEL of 0.48 µg/L and an MDEL of 1.0 µg/L.

(d) Anti-backsliding. Anti-backsliding requirements are satisfied because the previous order did not include limits for dibenzo(a,h)anthracene.

(10) Total Ammonia

(a) Water Quality Objective. The Basin Plan contains water quality objectives for un-ionized ammonia (as nitrogen) of 0.025 mg/L as an annual median and 0.16 mg/L as a maximum. These water quality objectives were translated from un-ionized ammonia concentrations 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, pH, salinity, and temperature data from 1993 through 2008 from the Davis Point RMP Station (BD40) were used. The following equations were used to determine the fraction of total ammonia that would exist in the toxic un-ionized form in the estuarine receiving water, where the various measurements were taken from 1993-2001 (USEPA, 1989, Ambient Water Quality Criteria for Ammonia (Saltwater)–1989, EPA Publication 440/5-88-004):

For salinity > 10 ppt: fraction of NH_3 = $\frac{1}{1+10^{(pK-pH)}}$

Where:

$$pK = 9.245 + 0.116(I) + 0.0324\,(298 - T) + \frac{0.0415(P)}{(T)}$$

$$I = \text{Molal ionic strength of saltwater} = \frac{19.9273(S)}{(1{,}000 - 1.005109(S))}$$

S = Salinity (parts per thousand)

T = Temperature in degrees Kelvin

P = Pressure (one atmosphere)

For salinity < 1 ppt: fraction of NH3 = $\frac{1}{1+10^{(pK-pH)}}$

Where:

$$pK = 0.09018 + 2729.92 / T$$

T = Temperature in degrees Kelvin

The 90th percentile and median un-ionized ammonia fractions from 1993 to 2008 were used to express the acute and chronic un-ionized ammonia water quality objectives as total ammonia concentrations for both high and low saline waters. The lowest resulting acute and chronic water quality objectives were used in this RPA. This approach is consistent with USEPA guidance on translating dissolved metal water quality objectives to total recoverable metal water quality objectives (USEPA, 1996, *The Metals Translator: Guidance for Calculating a Total Recoverable Limit from a Dissolved Criterion*, EPA Publication 823-B-96-007).

The equivalent total ammonia acute and chronic water quality criteria are 5.67 mg/L and 1.55 mg/L, respectively.

(b) RPA Results. Basin Plan section 4.5.5.2 indicates that WQBELs for toxic pollutants are to be calculated according to the SIP. Basin Plan section 3.3.20 refers to ammonia as a toxic pollutant. Therefore, the SIP methodology was used as guidance to perform the RPA and to calculate effluent limitations for ammonia. This Order establishes effluent limitations for total ammonia because the MEC (24 mg/L as nitrogen) exceeds the most stringent translated water quality objective for (5.7 mg/L as nitrogen), demonstrating Reasonable Potential by Trigger 1.

(c) WQBELs. Total ammonia WQBELs were calculated according to SIP procedures using both acute and chronic conditions, and the more stringent (acute) results were chosen. Using a CV of 3.5 and a dilution credit of 10:1 (D = 9), the calculated limits are an AMEL of 17 mg/L and an MDEL of 55 mg/L, as nitrogen. Statistical adjustments were made to the WQBEL calculations because of the following:

- The Basin Plan's chronic water quality objective for un-ionized ammonia is based on an annual median instead of the typical 4-day average;
- The SIP assumes a 4-day average concentration and monthly sampling frequency of 4 days per month to calculate effluent limitations based on chronic criteria, whereas a 365-day average and a monitoring frequency of 30 days per month, reflecting the actual basis of the water quality objective and actual sampling frequency, were used here.

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, the maximum ambient background total ammonia concentration was used to calculate effluent limitations based on the acute objective, and the median background total ammonia concentration was used 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) Anti-backsliding. Anti-backsliding requirements are satisfied because the previous order did not include effluent limitations for total ammonia.

(e) Growing Concern with Nutrients. As described above and in section IV.C.4.b, Dilution Credit, a translated Basin Plan un-ionized ammonia objective and a conservative estimate of actual initial dilution were used to calculate the total ammonia effluent limitations. In the future, the Regional Water Board may grant less dilution credit or change the ammonia limitations in other ways to address growing concerns about nutrients in the receiving water. Currently, a region-wide effort is underway to study and evaluate potential effects. This effort, which is referred to as the San Francisco Bay Nutrient Strategy, includes developing a nutrient assessment framework that can be used to calculate WQBELs for

nutrients. The Regional Water Board, through its Executive Officer, has also required wastewater dischargers, including this Discharger, to monitor nutrients, including ammonia, in their influent and effluent. This information will be used to compare nutrient loads from wastewater discharges to loads from other sources, to support modeling and evaluation of load reduction scenarios, and to determine the need for additional wastewater treatment to address nutrients.

e. Effluent Limit Calculations

The following tables show WQBEL calculations for Discharge Points No. 001 and 002.

Table F-15. WQBEL Calculations – Discharge Point 001

PRIORITY POLLUTANTS	Arsenic	Copper	Lead	Nickel	Selenium	Zinc	Cyanide	Dioxin-TEQ	Bis(2-Ethylhexyl) Phthalate
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Basis and Criteria type	Basin Plan SW Aquatic Life	Basin Plan SSO - Marine Suisun and San Pablo Bay	CTR Fresh Water Aquatic Life	Basin Plan SSO - Marine North Bay	NTR Criterion	CTR Fresh Water Aquatic Life	BP SSOs	Basin Plan Narrative	CTR HH
Criteria -Acute	69	-----	110	-----	20	95	-----	-----	-----
Criteria -Chronic	36	-----	4.4	-----	5	86	-----	-----	-----
SSO Criteria -Acute	-----	3.9	-----	74	-----	-----	9.4	-----	-----
SSO Criteria -Chronic	-----	2.5	-----	8.2	-----	-----	2.9	-----	-----
Water Effects ratio (WER)	1	2.4	1	1	1	1	1	1	1
Lowest WQO	36	5.9	4.4	30	5.0	86	2.9	1.4E-08	5.9
Site Specific Translator - MDEL	-----	0.66	-----	0.57	-----	-----	-----	-----	-----
Site Specific Translator - AMEL	-----	0.38	-----	0.27	-----	-----	-----	-----	-----
Dilution Factor (D) (if applicable)	0	9	0	0	0	9	0	0	9
No. of samples per month	4	4	4	4	4	4	4	4	4
Aquatic life criteria analysis required? (Y/N)	Y	Y	Y	Y	Y	Y	Y	N	N
HH criteria analysis required? (Y/N)	N	N	N	Y	N	N	Y	Y	Y
Applicable Acute WQO	69	14	110	130	20	95	9.4	-----	-----
Applicable Chronic WQO	36	16	4.4	30	5	86	2.9	-----	-----
HH criteria	-----	-----	-----		-----	-----	220000	1.4E-08	5.9
Background (Maximum Conc for Aquatic Life calc)	2.46	2.6	0.80	3.7	0.39	5	0.4		
Background (Average Conc for Human Health calc)	-----	-----	-----	2.17	-----	-----	0.4	7.1E-08	0.5
Is the pollutant on the 303d list (Y/N)?	N	N	N	Y	Y	N	N	Y	N
ECA acute	69	119	110	130	20	905	9.4		
ECA chronic	36	135	4.4	30	5	810	2.9		
ECA HH				4600			220000	1.4E-08	54.5
No. of data points <10 or at least 80% of data reported non detect? (Y/N)	N	N	N	N	N	N	Y	Y	Y
Avg of effluent data points	11	14.4	1.0	10.7	5.6	16			
Std Dev of effluent data points	14	10.4	1.3	8.7	9.1	12			
CV calculated	1.2	0.72	1.3	0.81	1.6	0.76	N/A	N/A	N/A
CV (Selected) - Final	1.2	0.72	1.3	0.81	1.6	0.76	0.60	0.60	0.60
ECA acute mult99	0.17	0.27	0.16	0.25	0.14	0.26	0.32		
ECA chronic mult99	0.31	0.47	0.30	0.44	0.25	0.46	0.53		
LTA acute	12	32	18	32	3	237	3.0		
LTA chronic	11	63	1.3	13	1	370	1.5		
minimum of LTAs	11	32	1.3	13	1.2	237	1.5		
AMEL mult95	2.17	1.67	2.2	1.76	2.50	1.71	1.6	1.6	1.55
MDEL mult99	5.90	3.66	6.2	4.05	7.37	3.82	3.1	3.1	3.11
AMEL (aq life)	24	54	3.0	23	3	405	2.4		
MDEL(aq life)	67	119	8.2	54	9	905	4.8		
MDEL/AMEL Multiplier	2.72	2.19	2.8	2.30	2.94	2.24	2.01	2.01	2.01
AMEL (human hlth)				4600			220000	0.0	54.50
MDEL (human hlth)				10591			441362	0.0	109.34
minimum of AMEL for Aq. life vs HH	24	54	3.0	23	3.1	405	2	1.4E-08	55
minimum of MDEL for Aq. Life vs HH	67	119	8.2	54	9.1	905	5	2.8E-08	109
Current limit in permit (30-day average)	290	76	3.7	200	3.9	250	21	1.4E-08	54
Current limit in permit (daily)	510	120	8.3	480	8.7	590	42	2.8E-08	110
Final limit - AMEL	24	54	3.0	23	3.1	250	2	1.4E-08	55
Final limit - MDEL	67	119	8.2	54	9.1	590	5	2.8E-08	109
Max Effl Conc (MEC)	66	66	8.1	51	61	71	6.4	-----	113

Table F-16. WQBEL Calculations – Discharge Point 002

PRIORITY POLLUTANTS	Copper	Lead	Zinc	Cyanide	Dioxin-TEQ	Chlorodibromomethane	Dichlorobromomethane	Bis(2-Ethylhexyl) Phthalate	Dibenzo(a,h) Anthracene	Total Ammonia (acute)	Total Ammonia (chronic)
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L N	mg/L N
Basis and Criteria type	Basin Plan SSO - Marine Suisun and San Pablo Bay	CTR Fresh Water Aquatic Life	CTR Fresh Water Aquatic Life	BP SSOs	Basin Plan Narrative	CTR HH	CTR HH	CTR HH	CTR HH	Basin Plan Aquatic Life	Basin Plan Aquatic Life
Criteria -Acute	-----	110	95	-----	-----	-----	-----	-----	-----	5.67	-----
Criteria -Chronic	-----	4.4	86	-----	-----	-----	-----	-----	-----	-----	1.55
SSO Criteria -Acute	3.9	-----	-----	9.4	-----	-----	-----	-----	-----	-----	-----
SSO Criteria -Chronic	2.5	-----	-----	2.9	-----	-----	-----	-----	-----	-----	-----
Water Effects ratio (WER)	2.4	1	1	1	1	1	1	1	1	1	1
Lowest WQO	5.9	4.4	86	2.9	1.4E-08	34	46	5.9	0.049	5.67	1.55
Site Specific Translator - MDEL	0.66	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Site Specific Translator - AMEL	0.38	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Dilution Factor (D) (if applicable)	9	9	9	9	0	9	9	9	9	9	9
No. of samples per month	4	4	4	4	4	4	4	4	4	4	30
Aquatic life criteria analysis required? (Y/N)	Y	Y	Y	Y	N	N	N	N	N	Y	Y
HH criteria analysis required? (Y/N)	N	N	N	Y	Y	Y	Y	Y	Y	N	N
Applicable Acute WQO	14	110	95	9.4	-----	-----	-----	-----	-----	5.67	
Applicable Chronic WQO	16	4.4	86	2.9	-----	-----	-----	-----	-----		1.55
HH criteria	-----	-----	-----	220000	1.4E-08	34	46	5.9	0.049	-----	-----
Background (Maximum Conc for Aquatic Life calc)	2.6	0.80	5	0.4						0.16	0.09
Background (Average Conc for Human Health calc)	-----	-----	-----	0.4	7.1E-08	0.05	0.05	0.5	0.00064	-----	-----
Is the pollutant on the 303d list (Y/N)?	N	N	N	N	Y	N	N	N	N	N	N
ECA acute	119	1133	905	90.4						55.26	
ECA chronic	135	37	810	25.4							14.69
ECA HH				2199996	1.4E-08	339.55	459.55	55	0.48424		
No. of data points <10 or at least 80% of data reported non detect? (Y/N)	N	N	Y	N	Y	Y	Y	Y	Y	N	N
Avg of effluent data points	5.0	1.6		6.1						0.49	0.49
Std Dev of effluent data points	3.5	2.6		5.5						1.7	1.7
CV calculated	0.71	1.7	N/A	0.90	N/A	N/A	N/A	N/A	N/A	3.5	3.5
CV (Selected) - Final	0.71	1.7	0.60	0.90	0.60	0.60	0.60	0.60	0.60	3.5	3.5
ECA acute mult99	0.28	0.13	0.32	0.22						0.09	
ECA chronic mult99	0.48	0.24	0.53	0.40							0.67
LTA acute	33	150	291	20.2						5	
LTA chronic	64	9.0	427	10.2							10
minimum of LTAs	33	9.0	291	10.2						5	10
AMEL mult95	1.66	2.5	1.55	1.9	1.6	1.55	1.55	1.55	1.55	3.5	2.2
MDEL mult99	3.59	7.5	3.11	4.5	3.1	3.11	3.11	3.11	3.11	11.5	11.5
AMEL (aq life)	55	23.0	451	18.9						17	22
MDEL(aq life)	119	67	905	45.8						55	113
MDEL/AMEL Multiplier	2.16	3.0	2.01	2.42	2.01	2.01	2.01	2.01	2.01	3.3	5.2
AMEL (human hlth)				2199996	0.0	339.55	459.55	54.50	0.48		
MDEL (human hlth)				5320423	0.0	681.20	921.94	109.34	0.97		
minimum of AMEL for Aq. life vs HH	55	23	451	19	1.4E-08	340	460	55	0.48	17	22
minimum of MDEL for Aq. Life vs HH	119	67	905	46	2.8E-08	681	922	109	1.0	55	113
Current limit in permit (30-day average)	70	3.6	-----	20	1.4E-08	-----	-----	54	-----	-----	-----
Current limit in permit (daily)	120	9.7	-----	44	2.8E-08	-----	-----	110	-----	-----	-----
Final limit - AMEL	55	23	451	19	1.4E-08	340	460	55	0.48	17	22
Final limit - MDEL	119	67	905	46	2.8E-08	681	922	109	1.0	55	113
Max Effl Conc (MEC)	20	13	77	23	4.3E-10	50	53	25.2	0.40	24	24

5. Whole Effluent Acute Toxicity

a. Discharge Point 001. This Order does not include whole effluent acute toxicity effluent limits for Discharge Point 001. Discharge from 001 is simply once through cooling water taken from Carquinez Strait.

b. Discharge Point 002. This Order retains from the previous order effluent limitations for whole effluent acute toxicity based on Basin Plan Table 4-3. Compliance is evaluated based on 96-hour continuous flow-through or static renewal bioassays. All bioassays are to be performed according to USEPA-approved methods in 40 CFR 136, *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, 5th Edition.

The ammonia WQBELs were derived to protect aquatic life. Therefore, if the Discharger can demonstrate to the satisfaction of the Executive Officer that ammonia causes acute toxicity in excess of the acute toxicity limitations in this Order, and that the ammonia in the discharge complies with the ammonia effluent limitations in this Order, then such toxicity will not constitute a violation of the effluent limitations for whole effluent acute toxicity. This is based on Basin Plan section 3.3.20.

6. Whole Effluent Chronic Toxicity

a. Discharge Point 001. This Order does not include whole effluent chronic toxicity effluent limits for Discharge Point 001. Discharge from 001 is simply once through cooling water taken from Carquinez Strait.

b. Discharge Point 002. This Order establishes a requirement for the Discharger to conduct chronic toxicity testing once a year to ensure the discharge has acceptable levels of chronic toxicity.

(1) Toxicity Objective. Basin Plan section 3.3.18 states, "There shall be no chronic toxicity in ambient waters. Chronic toxicity is a detrimental biological effect on growth rate, reproduction, fertilization success, larval development, population abundance, community composition, or any other relevant measure of the health of an organism, population, or community."

(2) Reasonable Potential Analysis. The Discharger conducted a chronic toxicity screening study with three rounds of tests in 2007 and 2008. The no observable effect concentration was 100% in all three rounds of tests. The previous order required no further tests. These low toxicity values indicate low reasonable potential for chronic toxicity so there is only a narrative chronic toxicity limit in this Order. A numeric limit is unwarranted at this time.

(3) Permit Requirements. Chronic toxicity requirements are based on the narrative Basin Plan toxicity objective and are unchanged from the previous order.

(4) Screening Phase Study and Monitoring Requirement. The Discharger was required to conduct a chronic toxicity screening phase study, as described in 2007 MRP Appendix E-1 prior to permit issuance. The Discharger's December 2008, chronic toxicity screening study summary indicated that the effluent was not toxic to *Macrocystis pyrifera (*giant kelp*)*, which was the most sensitive endpoint species identified in the study. In accordance with the previous order's requirements, the Discharger is not required to perform routine monitoring during the permit term.

7. Antidegradation

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

The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16. With the exception of lead discharges from Discharge Points 001 and 002 (discussed below), this Order continues the status quo with respect to the level of discharge authorized in the previous order, and thus there will be no change in water quality beyond the level authorized in the last permit. This Order holds 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 any effluent limitations (other than those for lead).

The revised lead limits are consistent with antidegradation policies because they would not result in any measureable degradation relative to the water quality baseline, which is the quality resulting from compliance with the previous order. The Discharger does not add any lead to the once-through cooling water collected from Carquinez Strait prior to discharge at Discharge Point 001. Therefore, there will be no change in discharge quality at Discharge Point 001, and no change in receiving water quality compared to conditions under the previous order's requirements. At Discharge Point 002, no increase in lead loading is likely because the Plant will continue to provide the same level of treatment, and because little growth is anticipated for the District's service area.

This Order does not retain mercury effluent limitations for Discharge Point 001 or Discharge Point 002 because the Discharger's mercury discharges are regulated by Order No. R2-2007-0077, which implements the San Francisco Bay Mercury TMDL and establishes wasteload allocations for industrial and municipal mercury discharges. Order No. R2-2007-0077 superseded the previous order and complied with antidegradation requirements.

Because there will be no lowering of water quality beyond the current level authorized in the previous order, which is the baseline by which to measure whether degradation will occur, further analysis in this permit is unnecessary. Findings authorizing degradation are thus unnecessary.

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

The receiving water limitations in sections V.A and V.B of the Order are based on the narrative and numeric water quality objectives in Basin Plan Chapter 3.

The receiving water limitation in section V.C of the Order is retained from the previous order and requires compliance with federal and State water quality standards.

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

The principal purposes of a monitoring program 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, including this Order. It contains definitions of terms and sets out requirements for reporting of routine monitoring data in accordance with NPDES regulations, the CWC, and State and Regional Water Board policies. The MRP also defines the sampling stations and frequencies, 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. Intake and Influent Monitoring

Flow monitoring requirements at INF-001 (intake water for non-contact cooling) and INF-002 (influent wastewater from the District) are retained from the previous order. Basin Plan section 4.7.2.2 requires influent cyanide monitoring for all dischargers with cyanide limits based on site-specific objectives; monitoring for cyanide has been established at Monitoring Location INF-001 and INF-002.

B. Effluent Monitoring

Discharge Point 001

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

- The MRP only retains routine monitoring for pollutants with effluent limitations: arsenic, copper, lead, nickel, selenium, zinc, cyanide, dioxin-TEQ, and bis(2-ethylhexyl)phthalate. Monitoring for all other priority toxic pollutants is required to characterize the discharge pursuant to the effluent characterization study required by Provision VI.C.2(a).
- Routine monitoring for mercury is not retained because it is now regulated under Order No. R2-2007-0077.
- A temperature monitoring frequency of “daily” is retained, but the sample type is now a “grab,” whereas the previous order required it to be “continuous.” More frequent sampling is unnecessary since the Carquinez Strait intake water temperature is not expected to vary much

within a day and since the Refinery has a fairly constant heat output when operating. Temperature and pH monitoring is required only when the Refinery is operating.

Discharge Point 002

The MRP retains most effluent monitoring requirements at Monitoring Location EFF-002 from the previous order. Changes in effluent monitoring are summarized as follows:

- Monitoring requirement for BOD_5 has been reduced to twice per month; the Joint Treatment Plant is not a significant source of BOD_5, and historical data indicate that the Discharger has had no trouble meeting its effluent limits over the previous order term.
- Monitoring requirement for acute toxicity has been reduced to monthly; this is consistent with monitoring requirements for similar wastewater treatment facilities.
- Routine monitoring for mercury is not retained because it is now regulated under Order No. R2-2007-0077.

Discharge Point 003 through Discharge Point 016

The MRP retains the effluent monitoring requirements from the previous order at EFF-003 through EFF-016 for stormwater discharges.

C. Whole Effluent Toxicity Testing Requirements

1. **Whole Effluent Acute Toxicity.** Monthly 96-hour flow-through or static renewal bioassay testing is required at Discharge Point 002 (Monitoring Location EFF-002) to demonstrate compliance with the effluent limitation for acute toxicity. Rainbow trout is the preferred bioassay test species.

2. **Whole Effluent Chronic Toxicity.** This Order requires the Discharger to conduct routine chronic toxicity annually at Discharge Point 002 (Monitoring Location EFF-002). Routine effluent monitoring for chronic toxicity is established to determine if the results trigger the implementation of a TRE work plan.

D. Regional Monitoring Program

On April 15, 1992, the Regional Water Board adopted Resolution No. 92-043, directing the Executive Officer to implement the San Francisco Bay Regional Monitoring Program for Trace Substances. Subsequently, the Executive Officer required major permit holders in the Region, under authority of CWC section 13267, to report on the water quality of the estuary. These permit holders responded by participating in a collaborative effort through the San Francisco Estuary Institute. This effort has come to be known as the Regional Monitoring Program (RMP). This Order specifies that the Discharger shall continue to participate in the RMP, which involves collection of data on pollutants and toxicity in the water, sediment, and biota of the estuary.

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions (Provision VI.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 Attachment D of this Order. NPDES regulations at 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. NPDES regulations at 40 CFR 123.25(a)(12) allow 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. MRP Requirements (Provision VI.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), Standard Provisions (Attachment D), and the Regional Standard Provisions (Attachment G). This provision requires compliance with these documents and is authorized by 40 CFR 122.41(h) and (j), and CWC sections 13267 and 13383.

The table below summarizes routine monitoring requirements. This table is for informational purposes only. Actual requirements are specified in the MRP and other applicable provisions of this Order.

Table F-17. Summary of Routine Monitoring Requirements

Parameter	Intake INF-001	Influent INF-002	Influent INF-003	Effluent EFF-001	Effluent EFF-002	Effluent EFF-003 through EFF-016	Receiving Water
Flow	Continuous	Continuous		Continuous	Continuous	2/Year	
BOD_5	1/Week			1/Week	1/Week		Support RMP
Chemical Oxygen Demand (COD)			1/Day				Support RMP
TSS					1/Week	2/Year	Support RMP
Total Organic Carbon						2/Year	Support RMP
Settleable Matter					1/ 2 Weeks		
Oil and Grease					1/Week		
pH				5/Week	1/Day	2/Year	Support RMP
Chlorine, Total Residual					Continuous		
Acute Toxicity					1/Month		
Chronic Toxicity					1/Year		
Total Coliform					3/Week		Support RMP
Enterococcus					5/Month		Support

Parameter	Intake INF-001	Influent INF-002	Influent INF-003	Effluent EFF-001	Effluent EFF-002	Effluent EFF-003 through EFF-016	Receiving Water
Bacteria							RMP
Sulfides					1/Month		
Dissolved Oxygen					1/Month		Support RMP
Conductivity				1/Month		2/Year	Support RMP
Temperature				5/Week	Continuous		Support RMP
Arsenic	1/Month			1/Month			Support RMP
Copper	1/Month			1/Month	1/Month		Support RMP
Lead				1/Month	1/Month		Support RMP
Nickel	1/Month			1/Month			Support RMP
Selenium	1/Month			1/Month			Support RMP
Zinc	1/Month			1/Month	1/Month		Support RMP
Cyanide	1/Month	2/Year		1/Month	1/Month		Support RMP
Bis(2-ethylhexyl) phthalate				1/Month			Support RMP
Chlorodibromo methane					2/Year		Support RMP
Dichlorobromo methane					2/Year		Support RMP
Dibenzo(a,h) anthracene					2/Year		Support RMP
Total Ammonia					1/Month		Support RMP
Dioxin-TEQ				2/Year	2/Year		Support RMP
All other priority pollutants				1/Year	1/Year		Support RMP
Metric tons per year					See Attach G §III.B.1		
Paint filter test					See Attach G §III.B.2		

C. Special Provisions (Provision VI.C)

1. Reopener Provisions

These provisions are based on 40 CFR 122.63 and allow modification of this Order and its effluent limitations as necessary in response to updated water quality objectives, regulations, or other new relevant information that may be established in the future and other circumstances allowed by law.

2. Special Studies and Additional Monitoring Requirements

a. Effluent Characterization Study

This Order does not include effluent limitations for priority pollutants that do not demonstrate Reasonable Potential, but this provision requires the Discharger to continue monitoring for these pollutants as described in the Regional Standard Provisions and as specified in the MRP. This requirement is authorized pursuant to CWC section 13267 and is necessary to inform the next permit reissuance and to ensure that the Discharger takes proper and timely steps in response to any changes in unanticipated effluent quality during the term of this Order.

b. CWA Section 316(b) Requirements

CWA section 316(b) addresses adverse environmental impacts caused by the intake of once-through cooling water. Such impacts are most commonly described to include impingement of aquatic life on cooling water intake structures and entrainment of aquatic life within cooling water flows where it is subject to thermal and physical stresses. CWA section 316 (b) requires that NPDES permits include requirements for the best technology available in the location, design, construction, and capacity of cooling water intake structures to minimize adverse environmental impacts. The Regional Water Board, like other permitting authorities, has been implementing Section 316 (b), using its best professional judgment on a case-by-case basis.

In 1979, Woodward-Clyde Consultants conducted a section 316(b) impingement and entrainment study for the Refinery's cooling water intake structure (Woodward-Clyde, 1980). The 1979 study evaluated the impingement of organisms too large to pass through the cooling water intake screen, which were trapped on the traveling screen. The entrainment of aquatic organisms, including phytoplankton and zooplankton, fish eggs and larvae, benthic organisms and fish species small enough to pass through the screen of the cooling water intake structure were also studied. The 1979 study generated data on the baseline species abundance in the Carquinez Strait and San Pablo Bay, species abundance near the cooling water intake structure, and species type and magnitude of losses due to the operation of the cooling water intake structure. The study indicated that the Discharger's cooling water intake structure reflected the best available technology at that time for minimizing environmental impacts.

To update the best technology available to minimize adverse environmental impacts, the Provision Vl.C.2.d of the previous order required the Discharger to submit a Cooling Water Intake Impingement and Entrainment Study. The resulting study, *Cooling Water Intake Report - C&H Sugar Company, Inc*., December 2009, included the following: information on the Refinery's cooling water intake structure; the physical conditions of the Carquinez Strait near the intake structure; baseline biological conditions in the area of influence of the Refinery's cooling water intake structure; and impingement and entrainment mortality attributed to the Refinery's cooling water intake structure. The report concluded that the existing system reflects the best available technology for small-scale operations. The Discharger uses only 0.13% of the volume of water passing by the site and very little entrainment has been observed.

In 2001, USEPA began to promulgate rules to implement section 316(b) in phases. Phase I applied to new facilities, and Phases II and III addressed existing plants and new off-shore facilities. The Phase I rule is in place, but the Phase II and III rules that were in place when the previous order was adopted have since been remanded. USEPA is currently under a consent agreement to publish a final rule for existing facilities by June 27, 2013. The former Phase II rule addressed existing power plants that use at least 50 MGD of non-contact cooling water. The Phase III rule focused on off-shore oil and gas facilities and certain other facilities. In lieu of any new rulings, this Order continues to rely on Best Professional Judgment to define the Best Technology Available.

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. Stormwater Pollution Prevention Plan and Best Management Practices Plan

This provision is retained from the previous Order. This provision requires ongoing implementation of the Stormwater Pollution Prevention Plan and Best Management Practices Plan to ensure compliance with federal stormwater pollution controls. The Stormwater Pollution Prevention Plan is based on the Regional Standard Provisions and Best Management Practices Plan on 40 CFR 125, Subpart K. These requirements aim to meet CWA's "best available technology economically achievable" and "best conventional pollutant control technology" requirements.

5. Special Provisions

a. Biosolids Management Practices Requirements. This provision is based on Basin Plan section 4.17 and 40 CFR Parts 257 and 503, and is retained from the previous order.

b. Sanitary Sewer 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 Board-adopted General Collection System WDRs (General Order, Order No. 2006-0003-DWQ). This provision is retained from the previous order.

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.4. 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, through 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 MRP and the Regional Standard Provisions contain the same notification and reporting requirements for spills from wastewater treatment facilities.

6. Other Special Provision

a. Copper Action Plan. This provision is based on Basin Plan section 7.2.1.2 and is necessary to ensure that use of copper site-specific objectives is consistent with antidegradation policies. Data from the San Francisco Estuary Institute compiled for 2008-2010 indicate no degradation of San Francisco Bay water quality with respect to copper (http:www.sfei.org/content/copper-site-specific-objective-3-year-rolling-averages). The Discharger completed and submitted an inventory of copper sources to the treatment plant.

b. Cyanide Action Plan. This provision is based on Basin Plan section 4.7.2.2 and is necessary to ensure that use of cyanide site-specific objectives is consistent with antidegradation policies. The trigger for the emergency monitoring and response plan is a rounded value based on the highest influent cyanide concentration from the Refinery or the Crockett community since 2009.

c. Analytical Data Evaluation Study. This provision calls for a special study to carefully evaluate sample collection, handling, and analysis procedures to ensure that data submitted pursuant to the Monitoring and Reporting Program requirements in Attachment E are accurate and reliable. During the term of the previous order, the Discharger certified that samples collected from the outfalls of the non-contact cooling water stream and the Joint Treatment Plant sometimes contained pollutants at levels high enough to establish reasonable potential. This Order contains effluent limitations and monitoring requirements for those pollutants. For some, however, such as bis(2-ethylhexyl)phthalate, dichlorodibromomethane, dichlorobromomethane, and dibenzo(a,h)anthracene, there is no obvious reason why they would be present at such high concentrations, and such results are unusual for discharges of this nature. This study will enhance confidence in the reasonable potential analysis results and may avoid unnecessary effluent limitations and monitoring requirements in future permits.

VIII. PUBLIC PARTICIPATION

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

A. Notification of Interested Parties

The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and has provided them with an opportunity to submit written comments and recommendations. Notification was provided through the Contra Costa Times on July 27, 2012.

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 **1515 Clay St., Suite 1400, Oakland, CA 94612** Attention: **Derek Whitworth**.

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 30, 2012**.

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:	**November 14, 2012**
Time:	9:00 a.m.
Location:	Elihu Harris State Office Building 1515 Clay Street, 1st Floor Auditorium Oakland, CA 94612
Contact:	**Derek Whitworth, (510) 622-2349**, email **DWhitworth@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. The Regional Water Board 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 through the Regional Water Board 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 this facility, and provide a name, address, and phone number.

G. Additional Information

Requests for additional information or questions regarding this Order should be directed to Derek Whitworth at (510) 622-2349 or e-mail at DWhitworth@waterboards.ca.gov.

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. Expeditious 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 Regional Water Board staff.

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

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

1. **Stormwater 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 stormwater discharges; and

   b. To identify, assign, and implement control measures and management practices to reduce pollutants in stormwater 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 stormwater discharges, or may result in non-stormwater 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 stormwater 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) Stormwater conveyance, drainage, and discharge structures;

    2) An outline of the stormwater drainage areas for each stormwater discharge point;

    3) Paved areas and buildings;

    4) Areas of actual or potential pollutant contact with stormwater or release to stormwater, 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 stormwater 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 stormwater discharges;

    3) Material storage, loading, unloading, and access areas;

    4) Existing structural and non-structural control measures (if any) to reduce pollutants in stormwater 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 stormwater discharges in significant quantities.

3. Stormwater Management Controls

The SWPP Plan shall describe the stormwater 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 stormwater management controls to be implemented shall include, as appropriate:

a. Stormwater 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 stormwater. 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 stormwater 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. Stormwater management practices

Stormwater 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 stormwater discharges in significant quantities, additional stormwater management practices to remove pollutants from stormwater discharges shall be implemented and design criteria shall be described.

f. Sediment and erosion control

Measures to minimize erosion around the stormwater drainage and discharge points, such as riprap, re-vegetation, 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 stormwater 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.

   i. 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

   ii. 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. Stormwater Monitoring

The requirements of this section only apply to facilities that are not covered by an NPDES permit for stormwater 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 stormwater) is directed to the headworks. For stormwater not directed to the headworks during the wet season (October 1 to April 30), the Discharger shall:

1) Conduct visual observations of the stormwater discharge locations during daylight hours at least once per month during a storm event that produces significant stormwater 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 stormwater discharge, collect grab samples of stormwater discharge from at least two storm events that produce significant stormwater 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-stormwater discharges shall be conducted no less than twice during the dry season (May 1 to September 30) at all stormwater 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 stormwater is discharged. Samples shall represent the quality and quantity of stormwater discharged from the facility. If a facility discharges stormwater at multiple locations, the Discharger may sample a reduced number of locations if it establishes and documents through the monitoring program that stormwater discharges from different locations are substantially identical.

5) Records of all stormwater 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 Regional Water Board staff. 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.

B. 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:

i. 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.

ii. 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:

$$\text{Dioxin-TEQ} = \Sigma\ (C_x \text{ x } TEF_x \text{ x } BEF_x)$$

where: C_x = measured or estimated concentration of congener *x*
TEF_x = toxicity equivalency factor for congener x
BEFx = 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:

   (i) List of analyses for which the Discharger is certified;

   (ii) 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

   (iii) 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 stormwater 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 Regional Water Board staff. 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 Plants[1]

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;

4) Estimated quantity and duration of the unauthorized discharge (to the extent known), and the estimated amount recovered;

[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.

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 Discharges[1] 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

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.

F. Planned Changes – Not supplemented

G. Anticipated Noncompliance – Not supplemented

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:

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

or

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

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 "Q_i" and "C_i" 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, "C_i" is the concentration measured in the composite sample and "Q_i" 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):

Removal Efficiency (%) = 100 × [1-(Effluent Concentration/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. Stormwater means stormwater 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										

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., USEPA 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, USEPA 600/R-94-134, June 1994.

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
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 Dichlorormethane	601	0.5	2										
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										

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
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										
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											

[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.