# California Regional Water Quality Control Board
## San Francisco Bay Region

**Linda S. Adams**
*Secretary for*
*Environmental Protection*

1515 Clay Street, Suite 1400, Oakland, California 94612
(510) 622-2300 • Fax (510) 622-2460
http://www.waterboards.ca.gov/sanfranciscobay

**Arnold Schwarzenegger**
*Governor*


**TENTATIVE ORDER NO. R2-2010-XXXX**
**NPDES NO. CA0037702**

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

**Table 1. Discharger Information**

| | |
|---|---|
| **Discharger** | East Bay Municipal Utility District (EBMUD) |
| **Name of Facility** | Special District No. 1 Main Wastewater Treatment Plant and EBMUD's Interceptor Conveyance System |
| **Facility Address** | 2020 Wake Avenue |
| | Oakland, CA 94607 |
| | Alameda County |

The discharge by the facility, consisting of the East Bay Municipal Utility District Main Wastewater Treatment Plant and its interceptor conveyance system, from the discharge point identified below is subject to waste discharge requirements as set forth in this Order.

**Table 2. Discharge Location**

| Discharge Point | Effluent Description | Discharge Point Latitude | Discharge Point Longitude | Receiving Water |
|---|---|---|---|---|
| 001 | Secondary treated, chlorine disinfected effluent | 37º 49' 2" N | 122º 20' 55" W | Central San Francisco Bay |

**Table 3. Administrative Information**

| | |
|---|---|
| This Order was adopted by the Regional Water Board on: | **<adoption date>** |
| This Order shall become effective on: | **May 1, 2010** |
| This Order shall expire on: | **April 30, 2015** |
| The Discharger shall file a Report of Waste Discharge in accordance with Title 23, California Code of Regulations, as application for issuance of new waste discharge requirements no later than: | **180 days prior to the Order expiration date** |

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

_____
Bruce H. Wolfe**,** Executive Officer

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# I. FACILITY INFORMATION

The following Discharger is authorized to discharge in accordance with the conditions set forth in this Order:

**Table 4. Facility Information**

| | |
|---|---|
| **Discharger** | East Bay Municipal Utility District |
| **Name of Facility** | Special District No. 1 Main Wastewater Treatment Plant and EBMUD's Interceptor Conveyance System |
| **Facility Address** | 2020 Wake Avenue |
| | Oakland, CA 94607 |
| | Alameda County |
| **Facility Contact, Title, and Phone** | Kurt H. Haunschild, Manager of Wastewater Treatment, 510-287-1407 |
| **Mailing Address** | P.O. Box 24055, Oakland, CA 94623 |
| **Type of Facility** | Publicly Owned Treatment Works (POTW) |
| **Facility Design Flow** | 120 million gallons per day (MGD) – Average dry weather design flow capacity;<br>75 MGD – Average dry weather flow rate;<br>320 MGD – Wet weather design flow capacity; 152 MGD receives primary treatment and 168 MGD receives secondary treatment |

# II. FINDINGS

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

**A. Background.** The East Bay Municipal Utility District (hereinafter the Discharger), Special District No. 1 Main Wastewater Treatment Plant is currently discharging under Order No. 01-072, the amendments from Order No. R2-2003-0088, and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0037702. The Discharger submitted a Report of Waste Discharge, dated November 22, 2005 and applied for an NPDES permit renewal to discharge up to 120 million gallons per day (MGD) of treated wastewater from the WWTP. At the request of the Regional Water Board, supplemental application information was provided by the Discharger on December 2, 2005.

The Discharger's discharge is also currently regulated under Order No.R2-2007-0077 (NPDES Permit CA0038849), which superseded all requirements on mercury from wastewater discharges in the region. The mercury permit is unaffected by this Order. Additionally, the Discharger's three Wet Weather Facilities (WWFs) are regulated under Order No. R2-2009-0004 (NPDES Permit CA0038440). The permit for the WWFs is also unaffected by this Order.

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

**B. Facility Description**. The WWTP is a secondary wastewater treatment facility. The wastewater treatment process consists of odor control, grit removal, primary clarification, high purity oxygen activated sludge, secondary clarification, disinfection, dechlorination, and blending of primary and secondary effluent during periods of flows in excess of the secondary treatment capacity. Sludge is

currently thickened, anaerobically digested and dewatered before reuse by land application or alternative daily cover in an authorized sanitary landfill. The average dry weather design capacity is 120 MGD and the average dry weather flow rate is 75 MGD. Primary and secondary treatment capacities are 320 and 168 MGD, respectively. The Discharger owns and operates its interceptor conveyance system, which transports wastewater from seven satellite collection systems to the WWTP. The conveyance system includes the 29-mile long North and South Interceptor, the Adeline Interceptor, the South Foothill Interceptor, and the Alameda Interceptor. These interceptors have a combined hydraulic capacity of 760 MGD. The interceptor system also includes 15 pump stations, five (5) wet weather overflow structures, three (3) WWFs and a 1 million-gallon wet weather storage basin along the Alameda Interceptor. As noted in subsection A, the three WWFs are separately permitted; they are not part of this Order. The satellite collection systems (serving the cities of Alameda, Albany, Berkeley, Emeryville, Oakland, Piedmont, and the Stege Sanitary District) are separately owned and operated and are not a part of this Order.

During peak wet weather flow conditions, the WWTP can accept up to 425 MGD of influent via five 85 MGD influent pumps. Since primary treatment design capacity is 320 MGD, wet weather flows in excess of the primary treatment capacity is stored on-site in an 11 MG wet weather concrete storage basin and returned to the plant influent when flows subside. Primary effluent may also be diverted around secondary treatment, disinfected, and "blended" with 168 MGD of disinfected secondary effluent prior to discharge to Central San Francisco Bay through a deep water outfall. This diversion occurs only after fully using the maximum secondary treatment capacity.

The estimated average annual wet weather flow diversion discharge volume (i.e. diverted primary effluent) from the WWTP is 383 MG, which was developed by Talavera & Richardson based on actual plant influent hourly flow data from 1996 to 2004 and simulated hourly flow data from October 1948 to October 1996. The number of wet weather flow diversion events typically ranges from 10 to 25 per year. Most of these events are less than 10 hours in duration. During wet weather conditions, diverted primary effluent flow may compose between 0–48% of total effluent flow depending on the storm event magnitude.

The treated wastewater is discharged into Central San Francisco Bay, a Water of the United States. The wastewater is discharged through a submerged diffuser adjacent to the San Francisco-Oakland Bay Bridge about 5,700 feet off shore at a depth of 45 feet below mean lower low water through Discharge Point No. 001 (see table on cover page). Based on a study conducted by the Discharger in 2008, the outfall achieves a worst case initial dilution greater than 25:1 and a typical initial dilution of 341:1.

The Discharger's Resource Recovery Program manages the disposal of permitted trucked waste to the Discharger's WWTP. Types of waste typically hauled to the WWTP include septage; food industry waste including winery, dairy, and high total dissolved solids (TDS) waste; animal processing waste; food grade fats, oils, and greases; municipal water and wastewater sludge; municipal food waste and groundwater, storm water and food scraps. The delivered food scraps (also referred to as food waste) are processed upon receipt at the Discharger's WWTP (including slurrying, grinding and separation steps) and are then anaerobically digested in the Discharger's WWTP anaerobic digesters. The Resource Recovery program diverts organic wastes that would go to landfill disposal to utilize available excess capacity and increase the WWTP's methane gas production that is used for renewable power generation.

A facility map is included as Attachment B. A facility flow schematic is included as Attachment C.

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

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

**E. California Environmental Quality Act (CEQA).** This action to adopt an NPDES permit is exempt from the provisions stated in Chapter 3 of CEQA, in accordance with California Water Code Section 13389.

**F. Technology-based Effluent Limitations.** CWA Section 301(b) and NPDES regulations at Title 40 of the Code of Federal Regulations (40 CFR) section 122.44 require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Secondary Treatment Standards at 40 CFR 133 and/or Best Professional Judgment (BPJ) pursuant to 40 CFR 125.3. A detailed discussion of development of the technology-based effluent limitations is included in the Fact Sheet (Attachment F).

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

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 the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, WQBELs must be established using: (1) USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion (WQC), 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 Regional Water Board adopted the *Water Quality Control Plan for the San Francisco Bay Basin* (Basin Plan) that designates beneficial uses, establishes WQOs, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Beneficial uses applicable to Central San Francisco Bay are as follows.

**Table 5. Basin Plan Beneficial Uses of Central San Francisco Bay**

| Discharge Point | Receiving Water Name | Beneficial Uses |
|---|---|---|
| 001 | Central San Francisco Bay | Ocean, Commercial, and Sport Fishing (COMM)<br>Estuarine Habitat (EST)<br>Industrial Service Supply (IND)<br>Industrial Process Supply (PROC)<br>Fish Migration (MIGR)<br>Fish Spawning (SPAWN)<br>Navigation (NAV)<br>Preservation of Rare and Endangered Species (RARE)<br>Water Contact Recreation (REC-1)<br>Noncontact Water Recreation (REC-2)<br>Shellfish Harvesting (SHELL)<br>Wildlife Habitat (WILD) |

Requirements of this Order specifically implement the Basin 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 forty criteria in the NTR applied in California. On May 18, 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the State. The CTR was amended on February 13, 2001. These rules contain WQC for priority pollutants.

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

K. **Compliance Schedules and Interim Requirements.** Section 2.1 of the SIP provides that, based on a discharger's request and demonstration that it is infeasible for an existing discharger to achieve immediate compliance with an effluent limitation derived from a CTR criterion, compliance schedules may be allowed in an NPDES permit. Unless an exception has been granted under section 5.3 of the SIP, a compliance schedule may not exceed 5 years from the date that the permit is issued or reissued, nor may it extend beyond 10 years from the effective date of the SIP (or May 18, 2010) to establish and comply with CTR criterion-based effluent limitations. Where a compliance schedule for a final effluent limitation exceeds 1 year, the Order must include interim numeric limitations for that constituent or parameter. The Basin Plan allows compliance schedules and interim effluent limitations or discharge specifications to allow time to implement a new or revised WQO.

The State Water Board adopted Resolution No. 2008-0025 on April 15, 2008, titled "Policy for Compliance Schedules in National Pollutant Discharge Elimination System Permits", which includes compliance schedule policies for pollutants that are not addressed by the SIP. This policy has been approved by USEPA and OAL, and became effective on August 27, 2008, superseding the Basin Plan's compliance schedule policy. This Order does not include compliance schedules for any pollutant.

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

**M. Stringency of Requirements for Individual Pollutants.** This Order contains both technology-based and WQBELs for individual pollutants. The technology-based effluent limitations consist of restrictions on oil and grease, pH, total suspended solids (TSS), carbonaceous biochemical oxygen demand (CBOD), and residual chlorine. Derivation of these technology-based limitations is discussed in the Fact Sheet (Attachment F). This Order's technology-based pollutant restrictions implement the minimum applicable federal technology-based requirements. In addition, this Order contains effluent limitations more stringent than the minimum federal technology-based requirements that are necessary to meet water quality standards.

WQBELs have been derived to implement WQOs that protect beneficial uses. Both the beneficial uses and the WQOs have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant WQBELs were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR 131.38. The procedures for calculating the individual WQBELs for priority pollutants are based on the SIP, which was approved by USEPA on May 18, 2000. All beneficial uses and WQOs contained in the Basin Plan were approved under State law and submitted to USEPA prior to May 30, 2000. Any WQOs and beneficial uses submitted to USEPA prior to May 30, 2000, but not approved by USEPA before that date, are nonetheless "applicable water quality standards for 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.

**N. 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 in 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 implements, and incorporates by reference, both the State and federal antidegradation policies. As discussed in detail in the Fact Sheet, the permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16.

**O. Anti-Backsliding Requirements.** CWA sections 402(o)(2) and 303(d)(4) and NPDES regulations at 40 CFR122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit,

with some exceptions where limitations may be relaxed. As discussed in detail in the Fact Sheet, the permitted discharge is consistent with anti-backsliding requirements.

**P. 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.

**Q. Monitoring and Reporting Program (MRP, Attachment E).** NPDES regulations at 40 CFR 122.48 require that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorize the Regional Water Board to require technical and monitoring reports. The MRP establishes monitoring and reporting requirements to implement federal and State requirements. This MRP is provided in Attachment E.

**R. Standard and Special Provisions.** Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR 122.42, are provided in Attachment D. The Discharger must comply with all standard provisions and with those additional conditions that are applicable under 40 CFR 122.42. The Regional Water Board has also included in this Order special provisions applicable to the Discharger. A rationale for the special provisions contained in this Order is provided in the attached Fact Sheet (Attachment F).

**S. 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 that are available for NPDES violations.

**T. 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 their written comments and recommendations. Details of this notification are provided in the Fact Sheet (Attachment F).

**U. Consideration of Public Comment.** The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet (Attachment F).

IT IS HEREBY ORDERED that this Order supersedes Order Nos. 01-072 and R2-2003-0088, except for enforcement purposes, and in order to meet the provisions contained in Division 7 of the California Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act (CWA) and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

## III. DISCHARGE PROHIBITIONS

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

**B.** Discharge of treated wastewater at any point where it does not receive an initial dilution of at least 25:1 is prohibited.

**C.** The bypass of untreated or partially treated wastewater to waters of the United States is prohibited, except as provided for in the conditions stated in Section I.G.2 and I.G.4 of Attachment D of this Order.

Blended wastewater is biologically treated wastewater blended with primary treated wastewater that has been diverted around biological treatment units or advanced treatment units. Such discharges are approved under the bypass conditions when the Discharger's peak wet weather influent flow volumes exceed the capacity of the secondary treatment unit(s), which is nominally 168 MGD, subject to process and operational conditions, (2) when the discharge complies with the effluent and receiving water limitations contained in this Order, and (3) provided the Discharger satisfies Provisions VI.C.5. Furthermore, the Discharger shall operate its facility as designed and in accordance with the Operation & Maintenance Manual developed for the facility. This means that it shall optimize storage and use of equalization units, and shall fully utilize the biological treatment units and advanced treatment units, if applicable. The Discharger shall report incidents of the anticipated blended effluent discharges in routine monitoring reports, and shall conduct monitoring of this discharge as specified in the attached MRP (Attachment E).

**D**. The average dry weather flow, as measured at station INF-001 described in the attached MRP (Attachment E), shall not exceed 120 million gallons per day. Actual average dry weather flow shall be determined for compliance with this prohibition over three consecutive dry weather months each year.

**E**. Any sanitary sewer overflow that results in a discharge of untreated or partially treated wastewater to waters of the United States is prohibited.

# IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

## A. Effluent Limitations – Discharge Point No. 001

### 1. Final Effluent Limitations for Conventional Pollutants

The discharge of secondary treated wastewater to Central San Francisco Bay shall maintain compliance with the following limitations at Discharge Point No. 001 with compliance measured at Monitoring Location EFF-001 as described in the attached MRP (Attachment E).

a. **Conventional pollutant limitations in Table 6:**

**Table 6. Effluent Limitations for Conventional Pollutants**

| Parameter | Units | Effluent Limitations | | | | |
|---|---|---|---|---|---|---|
| | | Average Monthly (AMEL) | Average Weekly (AWEL) | Maximum Daily (MDEL) | Instantaneous Minimum | Instantaneous Maximum |
| Carbonaceous Biochemical Oxygen Demand, 5-day @ 20 Deg. C ($CBOD_5$) | mg/L | 25 | 40 | -- | -- | -- |
| Percent Removal of $CBOD_5$ | % | 85 | -- | -- | -- | -- |
| Total Suspended Solids (TSS) | mg/L | 30 | 45 | -- | -- | -- |
| Percent Removal of TSS | % | 85 | -- | -- | -- | -- |
| pH[1] | Standard units | -- | -- | -- | 6.0 | 9.0 |
| Total Chlorine Residual[2] | mg/L | -- | -- | -- | -- | 0.0 |
| Oil and Grease | mg/L | 10 | -- | 20 | -- | -- |

Footnotes for Table 6:

[1] If the Discharger monitors pH continuously, pursuant to 40 CFR §401.17, the Discharger shall be in compliance with the pH limitation specified herein, provided that both of the following conditions are satisfied: (i) the total time during which the pH values are outside the required range of pH values shall not exceed 7 hours and 26 minutes in any calendar month; and (ii) no individual excursion from the range of pH values shall exceed 60 minutes.

[2] The Discharger may elect to use a continuous on-line monitoring system(s) for measuring flow, chlorine residual and sodium bisulfite (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.

b. **$CBOD_5$ and TSS 85 Percent Removal:** The average monthly percent removal of $CBOD_5$ and TSS values, by concentration, compared to Monitoring Location INF-001 as described in the attached MRP (Attachment E) shall not be less than 85 percent.

c. **Fecal Coliform Bacteria:**

(1) The 5-day geometric mean fecal coliform density shall not exceed a Most Probable Number (MPN) of fecal coliform bacteria of 500 MPN/100 mL; and

(2) The 90th percentile value of the last ten values shall not exceed 1,100 MPN/100 mL.

d. **Enterococci Bacteria:** The monthly geometric mean shall not exceed 35 colonies per 100 mL of effluent sample.

e. **Toxics Pollutants in Table 7:**

**Table 7. Effluent Limitations for Toxic Pollutants** [(1)]

| Parameter | Units | Water Quality –Based Effluent Limits (WQBELs) | |
|---|---|---|---|
| | | Average Monthly (AMEL) | Maximum Daily (MDEL) |
| Copper | µg/L | 47 | 85 |
| Zinc | µg/L | 460 | 590 |
| Cyanide | µg/L | 22 | 39 |
| Dioxin-TEQ | µg/L | $1.4 \times 10^{-8}$ | $2.8 \times 10^{-8}$ |
| Tetrachloroethylene | µg/L | 84 | 250 |
| Total Ammonia (as N) | mg/L | 84 | 110 |

Footnotes for Table 7:

(1) (a) All analysis shall be performed using current USEPA approved methods or equivalent methods approved in writing by the Executive Officer and meet the minimum levels required by the Regional Standard Provisions (Attachment G).

(b) Limitations apply to the average concentration of all samples collected during the averaging period (daily = 24-hour period; monthly = calendar month).

(c) All metals limitations are expressed as total recoverable metal.

f. **Acute Toxicity**

(1) Representative samples of the discharge shall meet the following limits for acute toxicity. Bioassays shall be conducted in compliance with Section V.A of the Monitoring and Reporting Program (MRP, Attachment E).

The survival of organisms in undiluted combined effluent shall be an eleven (11) sample median value of not less than 90 percent survival, and an eleven (11) sample 90 percentile value of not less than 70 percent survival.

(2) These acute toxicity limitations are further defined as follows.

**11 sample median:** Any bioassay test showing survival of 90 percent or greater is not a violation of this limit. 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.

**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 most sensitive species as specified in writing by the Executive Officer based on the most recent screening test results. Bioassays shall be conducted in compliance with "Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms," currently 5th Edition (EPA-821-R-02-012), with

exceptions granted to the Discharger by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP) upon the Discharger's request with justification.

(4) The Discharger is authorized to pH adjust its flow-through bioassay tests to minimize interference by artifactual toxicity from un-ionized ammonia resulting from pH increases during its tests.

g. **Chronic Toxicity**

(1) Compliance with the Basin Plan narrative chronic toxicity objective shall be demonstrated according to the following tiered requirements based on results from representative samples of the discharge, as measured at EFF-001, meeting test acceptability criteria and Section V.B of the MRP (Attachment E). Failure to conduct the required toxicity tests or a TRE within a designated period shall result in the establishment of effluent limitations for chronic toxicity.

(a) Conduct routine monitoring.

(b) Accelerate monitoring after exceeding a three sample median value of 10 chronic toxicity units (TUc) or a single sample maximum of 20 TUc or greater. Accelerated monitoring shall consist of monthly monitoring.

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

(d) If accelerated monitoring confirms consistent toxicity above either "trigger" in (2), above, initiate toxicity identification evaluation/toxicity reduction evaluation (TIE/TRE) in accordance with a work plan submitted in accordance with Section V.B of the MRP (Attachment E), and that incorporates any and all comments from the Executive Officer;

(e) Return to routine monitoring after appropriate elements of TRE work plan are implemented and either the toxicity drops below "trigger" levels in (2), above, or, based on the results of the TRE, the Executive Officer authorizes a return to routine monitoring.

(2) Test Species and Methods

The Discharger shall conduct routine monitoring using test species and protocols specified in Section V.B of the MRP (Attachment E). The Discharger shall also perform Chronic Toxicity Screening Phase monitoring as described in the Appendix E-1 of the MRP (Attachment E). Chronic Toxicity Monitoring Screening Phase Requirements, Critical Life Stage Toxicity Tests and definitions of terms used in the chronic toxicity monitoring are identified in Appendices E-1 and E-2 of the MRP (Attachment E).

## B. Water Recycling Specifications

Not Applicable

# V. RECEIVING WATER LIMITATIONS

## A. Surface Water Limitations

1. Receiving water limitations are based on WQOs contained in the Basin Plan and are a required part of this Order. The discharges shall not cause the following in Central San Francisco Bay:

   a. Floating, suspended, or deposited macroscopic particulate matter or foams;

   b. Bottom deposits or aquatic growths to the extent that such deposits or growths cause nuisance or adversely affect beneficial uses;

   c. Alteration of temperature, turbidity, or apparent color beyond present natural background levels;

   d. Visible, floating, suspended, or deposited oil and other products of petroleum origin; and

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

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

   a. 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.

   b. Dissolved Sulfide — Natural background levels

   c. pH — Within 6.5 and 8.5

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

## B. Groundwater Limitations

Not Applicable

# VI. PROVISIONS

## A. Standard Provisions

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

2. **Regional Water Board 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).

## B. Monitoring and Reporting Program (MRP) Requirements

The Discharger shall comply with the MRP, and future revisions thereto, in Attachment E of this Order. The Discharger shall also comply with applicable sampling and reporting requirements in the two Standard Provisions listed in 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 discharge(s) governed by this Order will or have a reasonable potential to cause or contribute to, or will cease to, have adverse impacts on water quality and/or beneficial uses of the receiving waters.

b. If new or revised WQOs or 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 will be modified as necessary to reflect updated WQOs and WLOs in TMDLs. Adoption of effluent limitations contained in this Order is not intended to restrict in any way future modifications based on legally adopted WQOs, TMDLs, or as otherwise permitted under Federal regulations governing NPDES permit modifications.

c. If translator, water quality studies, or mixing zone study provide a basis for determining that a permit condition(s) should be modified.

d. If administrative or judicial decision on a separate NPDES permit or WDR that addresses requirements similar to this discharge.

e. Or as otherwise authorized by law.

The Discharger may request permit modification based on b, c, d and e above. The Discharger shall include in any such request an antidegradation and antibacksliding analysis.

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

### a. Effluent Characterization for Selected Constituents

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

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

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

### b. Regional Monitoring Program

On April 15, 1992, the Regional Water Board adopted Resolution No. 92-043 directing the Executive Officer to implement the Regional Monitoring Program (RMP) for the San Francisco Bay. Subsequent to a public hearing and various meetings, Regional Water Board staff requested major permit holders in this region, under authority of Section 13267 of California Water Code, to report on the water quality of the Estuary. These permit holders, including the Discharger and collectively known as the Bay Area Clean Water Agencies (BACWA), responded to this request by initiating a collaborative effort, through the San Francisco Estuary Institute (formerly the Aquatic Habitat Institute) - the San Francisco Bay Regional Monitoring Program for Trace Substances (RMP). The RMP involves collection of data for pollutants and toxicity in water, sediment, and biota of the Estuary.

The Discharger shall monitor ambient receiving water for the priority, toxic pollutants or continue to participate in the RMP to provide on-going characterization of water quality in the Bay. Conventional water quality parameters (pH, salinity, and hardness) shall also be sufficiently and simultaneously characterized in the receiving water at a point after the discharge has mixed with receiving water. This permit may be reopened, as appropriate, to incorporate effluent limits or other requirements based on Regional Water Board review of these data.

The Discharger shall submit, or cause to have submitted on its behalf, a final summary report that presents all such receiving water data to the Regional Water Board 180 days prior to expiration of this Order. This final report shall be submitted with the application for permit reissuance.

**c. Optional Mass Offset Plan**

If the Discharger can demonstrate that further net reductions of the total mass loadings of 303(d)-listed pollutants to the receiving water cannot be achieved through economically feasible measures such as aggressive source control, wastewater reuse, and treatment plant optimization, but only through a mass offset program, the Discharger may submit to the Regional Water Board for approval a mass offset plan to reduce 303(d)-listed pollutants to the same watershed or drainage basin. The Regional Water Board may modify this Order to allow an approved mass offset program.

**3. Best Management Practices and Pollution Minimization Program**

**a. Pollution Minimization Program**

The Discharger shall continue to improve, in a manner acceptable to the Executive Officer, its existing Pollutant Minimization Program to promote minimization of pollutant loadings to the treatment plant and therefore to the receiving waters.

**b. Annual Pollution Minimization Report**

The Discharger shall submit an annual report, acceptable to the Executive Officer, no later than February 28th of each calendar year. The annual report shall cover January through December of the preceding year. Each annual report shall include at least the following information:

(1) *A brief description of its treatment plant, treatment plant processes and service area.*

(2) *A discussion of the current pollutants of concern.* Periodically, the Discharger shall analyze its own situation to determine which pollutants are currently a problem and/or which pollutants may be potential future problems. This discussion shall include the reasons why the pollutants were chosen.

(3) *Identification of sources for the pollutants of concern.* This discussion shall include how the Discharger intends to estimate and identify sources of pollutants. The Discharger should 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 the tasks themselves or participate in group, regional, or national tasks that will address its pollutants of concern. The Discharger is strongly encouraged to participate in group, regional or national tasks that will address pollutants of concerns. A time line shall be included for the implementation of each task.

(5) *Outreach to employees.* The Discharger shall inform its employees about the pollutants of concern, potential sources, and how they might be able to help reduce

the discharge of these pollutants of concern in the treatment facilities. The Discharger may provide a forum for employees to provide input to the program.

(6) *Continuation of Public Outreach Program.* The Discharger shall prepare a public outreach program to communicate pollution minimization measures to its service area. Outreach should include, but not be necessarily limited to, participation in existing community events such as county fairs, initiating new community events such as displays and contests during Pollution Prevention Week, conducting school outreach programs, conducting plant tours, and providing public information in newspaper articles or advertisements, radio or television stories or spots, newsletters, utility bill inserts and web site. Information shall be specific to target audiences. The Discharger shall coordinate with other agencies and with non-governmental organizations, as appropriate.

(7) *Discussion of criteria used to measure Program's and tasks' effectiveness.* The Discharger shall establish criteria to evaluate the effectiveness of its Pollution Minimization Program. This shall also include a discussion of the specific criteria used to measure the effectiveness of each of the tasks in item b(3), b(4), b(5), and b(6).

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

(9) *Evaluation of Program's and tasks' effectiveness.* The Discharger shall use the criteria established in (7) 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 to more effectively reduce the amount of pollutants to the treatment plant and subsequently its effluent.

**c. Pollutant Minimization Program for Pollutants with Effluent Limitations**

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

**d. Requirements**

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

(1) An annual review and semi-annual monitoring of potential sources of the reportable priority pollutant(s), 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 pollutant(s) 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 pollutant(s) in the effluent at or below the effluent limitation;

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

(5) The annual report required by 3.b. above, shall specifically address the following items:

(a) All PMP monitoring results for the previous year;

(b) A list of potential sources of the reportable priority pollutant(s);

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

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

**4. Special Provisions for Municipal Facilities (POTWs Only)**

**a. Pretreatment Program Requirements**

(1) Pretreatment Program: The Discharger shall implement and enforce its approved pretreatment program in accordance with Federal Pretreatment Regulations (40 CFR §403); pretreatment standards promulgated under CWA Sections 307 (b), 307 (c), and 307 (d); pretreatment requirements specified at 40 CFR §122.44 (j); and the requirements in Attachment H, "Pretreatment Requirements". The Discharger's responsibilities include, but are not limited to:

(a) Enforcement of National Pretreatment Standards established at 40 CFR §403.5 and §403.6;

(b) Implementation of its pretreatment program in accordance with legal authorities, policies, procedures, and financial provisions described in the General Pretreatment regulations at 40 CFR §403 and its approved pretreatment program;

(c) Submission of reports to USEPA, the State Water Board, and the Regional Water Board, as described in Attachment H "Pretreatment Requirements".

(d) Evaluate the need to revise local limits pursuant to 40 CFR §403.5 (c)(1); and within 180 days after the effective date of this Order, submit a report describing a plan and schedule for implementation.

(2) The Discharger shall implement its approved pretreatment program and the program shall be an enforceable condition of this Order. If the Discharger fails to perform the pretreatment functions, the Regional Water Board, the State Water Board, or the USEPA may take enforcement actions against the Discharger as authorized by the Clean Water Act.

**b. Sludge Management Practices Requirements**

(1) All sludge generated by the Discharger must be disposed of in a municipal solid waste landfill, reused by land application or landfill alternative daily cover, or disposed of in a sludge-only landfill in accordance with 40 CFR §503. If the Discharger desires to dispose of sludge by a different method, a request for permit modification must be submitted to USEPA 180 days before start-up of the alternative disposal practice. All the requirements in 40 CFR §503 are enforceable by USEPA whether or not they are stated in an NPDES permit or other permit issued to the Discharger. The Regional Water Board should be copied on relevant correspondence and reports forwarded to USEPA regarding sludge management practices.

(2) Sludge treatment, storage and disposal or reuse shall not create a nuisance, such as objectionable odors or flies, or result in groundwater contamination.

(3) The Discharger shall take all reasonable steps to prevent or minimize any sludge use or disposal which has a likelihood of adversely affecting human health or the environment.

(4) Sludge at the Discharger's facility shall not cause waste material to be in a position where it is or can be carried from the facility and deposited in waters of the State.

(5) The sludge treatment and storage site shall have facilities adequate to divert surface runoff from adjacent areas, to protect boundaries of the site from erosion, and to prevent any conditions that would cause drainage from the materials in the temporary storage site. Adequate protection is defined as protection from at least a 100-year storm and protection from the highest possible tidal stage that may occur.

(6) For sludge that is applied to the land, placed on a surface disposal site, or fired in a sludge incinerator as defined in 40 CFR §503, the Discharger shall submit an annual report to USEPA and the Regional Water Board containing monitoring results and pathogen and vector attraction reduction requirements as specified by 40 CFR §503, postmarked February 15 of each year, for the period covering the previous calendar year.

(7) Sludge that are disposed of in a municipal solid waste landfill must meet the requirements of 40 CFR §Part 258. In the annual self-monitoring report, the Discharger shall include the amount of sludge disposed of and the landfill(s) to which it was sent.

(8) Permanent on-site sludge storage or disposal activities are not authorized by this Order. A report of Waste Discharge shall be filed and the site brought into compliance with all applicable regulations prior to commencement of any such activity by the Discharger.

(9) Sludge Monitoring and Reporting Provisions of this Regional Water Board's Standard Provisions (Attachment G), apply to sludge handling, disposal and reporting practices.

(10) The Regional Water Board may amend this Order prior to expiration if changes occur in applicable state and federal sludge regulations.

**c. Sanitary Sewer Overflows and Sewer System Management Plan**

The Discharger's interceptor conveyance system, except for the 3 WWFs, is part of the facility that is subject to this Order. As such, the Discharger shall properly operate and maintain its conveyance system (Attachment D, Standard Provisions - Permit Compliance, subsection I.D). The Discharger shall report any noncompliance (Attachment D, Standard Provision - Reporting, subsections V.E.1 and V.E.2) and mitigate any discharge from the Discharger's conveyance system in violation of this Order (Attachment D, Standard Provisions - Permit Compliance, subsection I.C).

The General Waste Discharge Requirements for Collection System Agencies (Order No. 2006-0003 DWQ) has requirements for operation and maintenance of collection systems and for reporting and mitigating sanitary sewer overflows. While the Discharger must comply with both the General Waste Discharge Requirements for Collection System Agencies (General Collection System WDRs) and this Order, the General Collection System WDRs more clearly and specifically stipulates requirements for operation and maintenance and for reporting and mitigating sanitary sewer overflows.

Implementation of the General Collection System WDRs requirements for proper operation and maintenance and mitigation of spills will satisfy the corresponding federal NPDES requirements specified in this Order. Following notification and reporting requirements in the General Collection System WDRs and the Regional Water Board's May 1, 2008, letter will satisfy NPDES reporting requirements for sewage spills from the Discharger's collection system.

**5. Corrective Measures to Minimize Blending Events**

The Discharger shall comply with the following tasks and deadlines to further minimize blending.

**Table 8. Requirements to Minimize Blending Events**

| Tasks | Compliance Deadline |
|---|---|
| 1. *Report Annual Status of Storage Basin Standard Operation Procedure (SOP).* The Discharger shall analyze and report on the effectiveness of the new storage basin SOP identified in its report, dated February 13, 2007. The Discharger shall provide a description of all blending events over the course of the year and how they were managed. Specifically, this description shall include, for each blending event, the volume of wastewater that received secondary and primary treatment, and how the Discharger managed its storage basin to minimize the duration and magnitude of blending events (this evaluation shall also include blending events that were avoided because of the new storage basin SOP). Finally, the Discharger shall evaluate further enhancements to its operation of the storage basin SOP to maximize stored flow volume, and therefore, reduce the need to blend during wet weather. | February 1st of each year with the Annual Self-Monitoring Report required pursuant to Attachment E, Section XI.B.2 |
| 2. *I/I Reduction Improvements in Regional Collection Systems.* The Discharger shall submit an annual status report documenting progress of all the projects required per the Federal Stipulated Order (SO), including upper lateral replacement programs, to reduce I/I flows, and the work of flow monitoring, modeling, and capacity flow limit development. Additionally, the Discharger shall provide an update on its efforts to identify particularly high I/I areas through flow monitoring. The Discharger shall also submit annual reports on the status of Interceptor Asset Management program and the Satellite system Asset Management template – both required per the SO. Finally, the Discharger shall evaluate the effectiveness of the above projects at reducing blending volume and frequency. | August 1st of each year. To comply with this reporting requirement, the Discharger may cross-reference SO submittals |
| 3. *Utility Analysis and Implementation Schedule for Wet Weather Bypass of Secondary Treatment.* The Discharger shall complete a utility analysis if it seeks to continue to bypass peak wet weather flows around its secondary treatment units. The utility analysis must satisfy 40 CFR §122.4 (m)(4)(i)(A)-(C), and any applicable policy or guidance such as the process set forth in Part 1 of USEPA's Peak Wet Weather Policy's No Feasible Alternatives Analysis Process (available at *http://cfpub.epa.gov/npdes/wetweather.cfm*) once it is finalized. | 180 days prior to the Order expiration date |

## 6. Action Plan for Cyanide

The Discharger shall implement monitoring and surveillance, pretreatment, source control and pollution prevention for cyanide in accordance with the following tasks and time schedule.

**Table 9. Cyanide Action Plan**

| Task | Compliance Date |
|---|---|
| **(1) Review Potential Cyanide Contributors**<br><br>The Discharger shall submit an inventory of potential contributors of cyanide to the wastewater treatment plant (e.g., metal plating operations, hazardous waste recycling, etc.). If no contributors of cyanide are identified, Tasks 2 and 3 are not required, unless the Discharger receives a request to discharge detectable levels of cyanide to the sanitary sewer. If so, the Discharger shall notify the Executive Officer and implement Tasks (2) and (3). | July 1, 2010 |
| **(2) Implement Cyanide Control Program**<br><br>The Discharger shall submit a plan for, and begin implementation of, a program to minimize cyanide discharges to the sanitary sewer system consisting, at a minimum, of the following elements:<br><br>i. Inspect each potential contributor to assess the need to include that contributing source in the control program.<br><br>i. 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).<br><br>ii. Develop and distribute educational materials to contributing sources and potential contributing sources regarding the need to prevent cyanide discharges.<br><br>iv. Prepare an emergency monitoring and response plan to be implemented if a significant cyanide discharge occurs. | February 28, 2011, with 2010 Annual P2 Report. |
| **(3) Implement Additional Measures**<br><br>If the Discharger is notified by the Regional Water Board that ambient monitoring shows cyanide concentrations of 1.0 µg/L or higher in the main body of San Francisco Bay, then within 90 days of the notification, the Discharger shall begin taking actions to identify and abate cyanide sources responsible for the elevated ambient concentrations and report annually on these actions. | Report in Annual P2 Report starting with the report due after the notification |
| **(4) Report Status of Cyanide Control Program**<br><br>Submit a report to the Regional Water Board documenting implementation of the cyanide control program. | Annually with P2 Reports due February 28 |

### 7. Action Plan for Copper

The Discharger shall implement pretreatment, source control, and pollution prevention for copper in accordance with the following tasks and time schedule.

**Table 10. Copper Action Plan**

| Task | Compliance Date |
|---|---|
| **(1) Review Potential Copper Sources**<br><br>The Discharger shall submit an inventory of potential copper sources to the wastewater treatment plant. | July 1, 2010 |
| **(2) Implement Copper Control Program**<br><br>The Discharger shall submit a plan for and begin implementation of a program to reduce copper discharges identified in Task (1) consisting, at a minimum, of the following elements:<br><br>i. Provide education and outreach to the public (e.g., focus on proper pool and spa maintenance and plumbers' roles in reducing corrosion).<br><br>ii. 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.<br><br>iii. Educate plumbers, designers, and maintenance contractors for pools and spas to encourage best management practices that minimize copper discharges. | February 28, 2011, with 2010 Annual P2 Report. |
| **(3) Implement Additional Measures**<br><br>If the Regional Water Board notifies the Discharger that the three-year rolling mean dissolved copper concentration of Central San Francisco Bay exceeds 2.2 µg/L, then the Discharge shall evaluate the effluent copper concentration trend. If the trend is increasing, within 90-days of the notification, the Discharger shall develop and begin implementation of additional measures to control copper discharges, and shall report annually on the progress and effectiveness of measures taken together with a schedule for measures to be taken in the next 12 months. | Report in Annual P2 Report starting with the report due after the notification |
| **(4) Studies to Reduce Copper Pollutant Impact Uncertainties**<br><br>The Discharger shall conduct or cause to be conducted studies to investigate possible copper sediment toxicity and 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 P2 Report due February 28, 2011 |
| **(5) Report Status of Copper Control Program**<br><br>Submit a report to the Regional Water Board documenting implementation of the copper control program**.** | Annually with P2 report due February 28 |

## VII. COMPLIANCE DETERMINATION

Compliance with the effluent limitations contained in Section IV of this Order will be determined as specified below:

### A. General

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

## ATTACHMENT A – DEFINITIONS

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

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

where:
$\Sigma x$ is the sum of the measured ambient water concentrations, and
$n$ is the number of samples.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

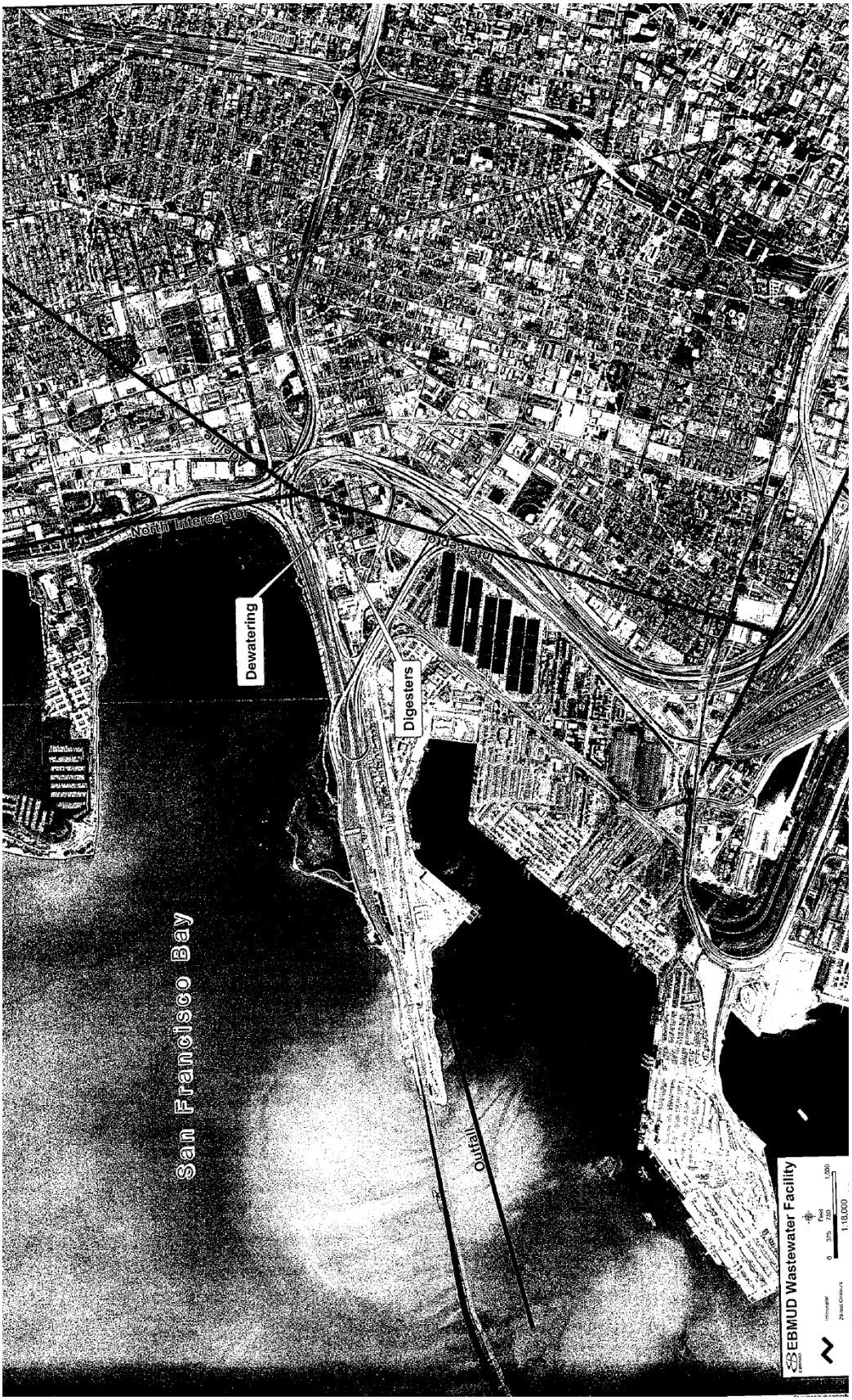
**Standard Deviation (σ)** is a measure of variability that is calculated as follows:

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

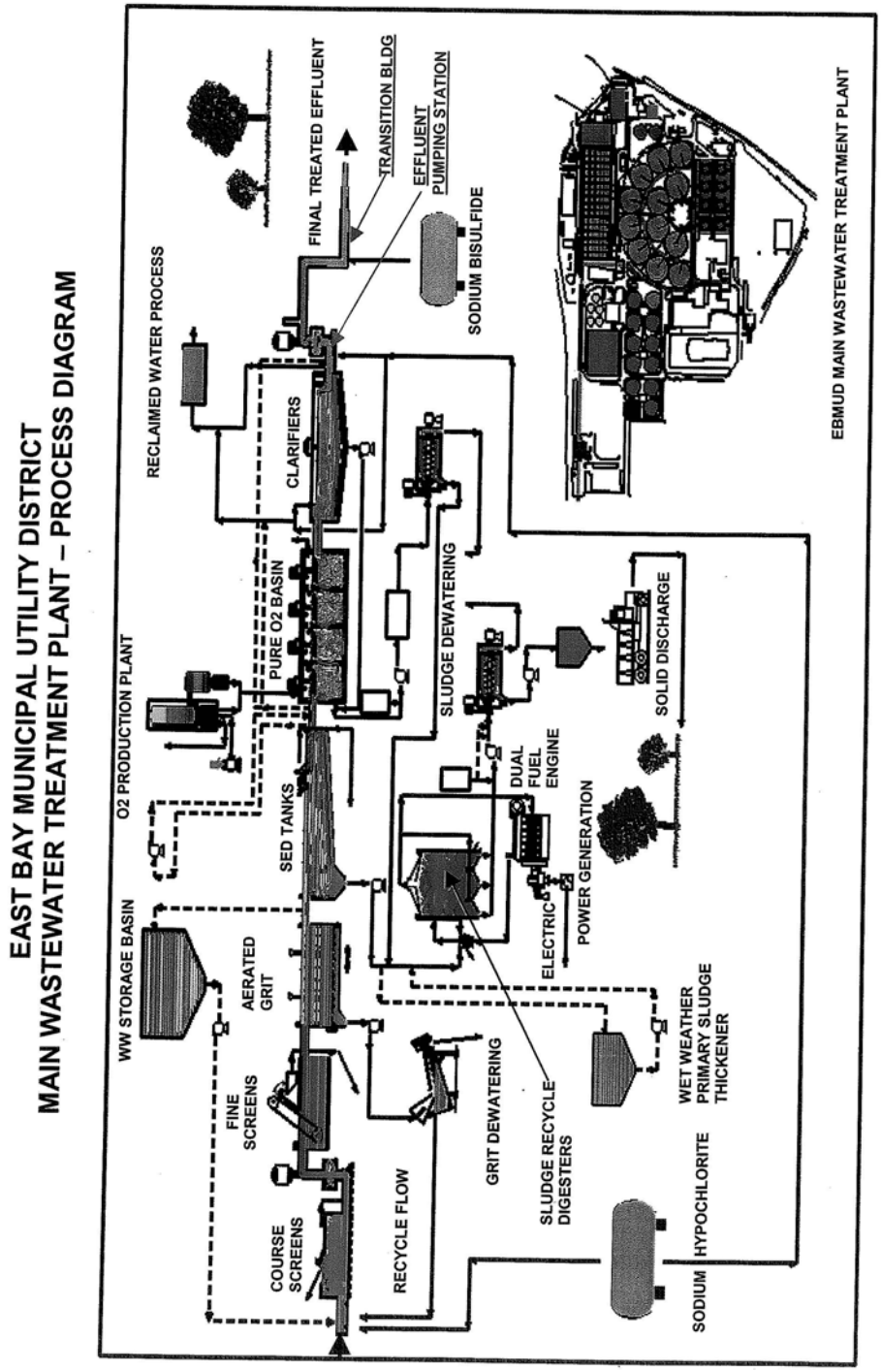
where:
x is the observed value;
μ is the arithmetic mean of the observed values; and
n is the number of samples.

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

# ATTACHMENT B - MAP



# ATTACHMENT C – EBMUD MAIN WASTEWATER TREATMENT PLANT, FLOW SCHEMATIC



# ATTACHMENT D –STANDARD PROVISIONS

## I. STANDARD PROVISIONS – PERMIT COMPLIANCE

### A. Duty to Comply

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

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

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

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

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

## D. Compliance Schedules

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

# ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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# ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

40 CFR 122.48 requires 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 California regulations.

## I. GENERAL MONITORING PROVISIONS

**A.** The Discharger shall comply with the MRP for this Order as adopted by the Regional Water Board, and with all of the requirements contained in the Regional Standard Provisions (Attachment G). The MRP may be amended by the Executive Officer pursuant to 40 CFR 122.62, 122.63, and 124.5. If any discrepancies exist between the MRP and the Regional Standard Provisions, the MRP prevails.

**B.** All analyses shall be conducted using current USEPA methods, or methods that have been approved by the USEPA Regional Administrator pursuant to 40 CFR 136.4 and 40 CFR 136.5, or equivalent methods that are commercially and reasonably available and that provide quantification of sampling parameters and constituents sufficient to evaluate compliance with applicable effluent limits and to perform reasonable potential analysis. Equivalent methods must be more sensitive than those specified in 40 CFR 136, must be specified in the permit, and must be approved for use by the Executive Officer, following consultation with the State Water Board's Quality Assurance Program.

**C.** Sampling and analysis of additional constituents is required pursuant to the Regional Standard Provisions (Attachment G).

**D.** Laboratories analyzing monitoring samples shall be certified by the Department of Public Health, in accordance with CWC section 13176, and must include quality assurance/quality control data with their reports.

## II. MONITORING LOCATIONS

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

**Table E-1. Monitoring Station Locations**

| Type of Sampling Location | Monitoring Location Name | Monitoring Location Description |
|---|---|---|
| Influent Station | INF-001 | Formerly Sampling Station A-001, at any point in the treatment facilities' headworks at which all waste tributary to the treatment system is present, and preceding any phase of treatment, and exclusive of any return flows or process side streams that would significantly impact the quantity or quality of the influent. |
| Effluent Station | EFF-001 | Formerly Sampling Station E-001, at any point in the outfall from the treatment facilities between the point of discharge and the point at which all waste tributary to that outfall is present (may be the same as EFF-001-D). |
| Effluent Station | EFF-001D | Formerly Sampling Station E-001-D, at any point in the disinfection facilities for Waste EFF-001, at which point adequate contact with the disinfectant is assured. |
| Overflows and Bypass Station | OV-1 thru OV-n | Bypass or overflows from treatment facility, manholes, pump stations, and interceptors under the discharger's control. |

# III. INFLUENT MONITORING REQUIREMENTS

## A. Monitoring Location INF-001

1. The Discharger shall monitor influent to the facility at INF-001 as follows.

**Table E-2. Influent Monitoring**

| Parameter | Units | Minimum Sampling Frequency | Sample Type |
|---|---|---|---|
| Flow rate [1] | MGD | Cont/D | meter |
| Carbonaceous Biochemical Oxygen Demand, 5-day @ 20 Deg. C ($CBOD_5$) | mg/L | 2/W | C-24 |
| Total Suspended Solids (TSS) | mg/L | 2/W | C-24 |
| Cyanide | µg/L | 1/Month | G |

Footnotes for Table E-2:

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

Daily: Total Daily Flow Volume (MG)
Daily: Daily Average Flow (MGD)
Monthly: Monthly Average Flow (MGD)
Monthly: Maximum Daily Flow (MGD)
Monthly: Minimum Daily Flow (MGD)
Monthly: Total Flow Volume (MG)

# IV. EFFLUENT MONITORING REQUIREMENTS

## A. Monitoring Location EFF-001

1. The Discharger shall monitor treated effluent from the facility at EFF-001 as follows.

**Table E-3. Effluent Monitoring – Monitoring Location EFF-001**

| Parameter | Units | Minimum Sampling Frequency | | | Required Analytical Test Method |
|---|---|---|---|---|---|
| | | Continuous | C-24 | G | |
| Flow[2] | MGD | Cont/D | | | meter |
| pH | Standard units | | | 2/W | [1] |
| $CBOD_5$ [3] | mg/L | | 2/W | | [1] |
| TSS [3] | mg/L | | 4/W | | [1] |
| Oil and Grease[4] | mg/L | | | Q | [1] |
| Ammonia Nitrogen | mg/L | | 2/M | | [1] |
| Acute Toxicity[5] | % Survival | | M | | [1] |
| Chronic Toxicity[6] | TUc | | 2/Y | | [1] |
| Copper | µg/L | | M | | [1] |
| Zinc | µg/L | | M | | [1] |
| Cyanide[7] | µg/L | | | M | [1] |
| Dioxin (TEQ)[8] | µg/L | | | 2/Y | [1] |
| Tetrachloroethylene | µg/L | | | 2/Y | [1] |
| CTR Priority Pollutants except | µg/L | 1/Y and in accordance with Regional | | | [1] |

| Parameter | Units | Minimum Sampling Frequency | | | Required Analytical Test Method |
|---|---|---|---|---|---|
| | | Continuous | C-24 | G | |
| those listed above [9] | | Standard Provisions | | | |

Footnotes for Table E-3:

(1) Pollutants shall be analyzed using the analytical methods described in 40 CFR §136. For priority pollutants, the methods must meet the lowest minimum levels (MLs) specified in Attachment 4 of the SIP. Where no methods are specified for a given pollutant, the methods must be approved by this Regional Water Board or the State Board.

(2) Flow Monitoring:

For effluent flows, the following information shall also be reported monthly:

Daily: Total Daily Flow Volume (MG)
Daily: Daily Average Flow (MGD)
Monthly: Monthly Average Flow (MGD)
Monthly: Maximum Daily Flow (MGD)
Monthly: Minimum Daily Flow (MGD)
Monthly: Total Flow Volume (MG)

(3) The percent removal for $CBOD_5$ and TSS shall be reported for each calendar month.

(4) Each oil and grease sample shall consist of a composite sample comprised of three grab samples taken at equal intervals during the sampling date, with each grab sample being collected in a glass container. The grab samples shall be mixed in proportion to the instantaneous flow rates occurring at the time of each grab sample, within the accuracy of plus or minus 5%. Each glass container used for sample collection or mixing shall be thoroughly rinsed with solvent rinsings as soon as possible after use, and the solvent rinsings shall be added to the composite sample for extraction or analysis.

(5) Acute bioassay tests shall be performed in accordance with Section V.A of this MRP.

(6) Critical Life Stage Toxicity Test shall be performed and reported in accordance with the Chronic Toxicity Requirements specified in Sections V.B of the MRP.

(7) The Discharger may analyze for cyanide as Weak Acid Dissociable Cyanide using protocols specified in Standard Methods Part 4500-CN-I, USEPA Method OI 1677, or an equivalent alternative as specified in the latest edition of Standard Methods for Analysis of Water and Wastewater. Alternative methods of analysis must be approved by the Executive Officer.

(8) The Discharger shall use USEPA Method 1613 for analysis using MLs shown in the Regional Standard Provisions. Analysis results showing below the MLs are considered zero for use in the calculation for compliance determination with the effluent limit. However, all estimated concentrations from the laboratory, which are above detection but below the lowest calibration standard, shall be reported in the Self-Monitoring Reports.

(9) Those pollutants identified as Compound Nos. 1 – 126 by the California Toxics Rule at 40 CFR §131.38 (b)(1).

## B. Monitoring Location EFF-001D

1. The Discharger shall monitor effluent at EFF-001D as follows.

### Table E-4. Effluent Monitoring – Monitoring Location EFF-001D

| Parameter | Units | Minimum Sampling Frequency | | | Required Analytical Test Method |
|---|---|---|---|---|---|
| | | Continuous | C-24 | G | |
| Chlorine Residual[2] | mg/L | Cont. or 1/H | | | [1] |
| Fecal Coliform Bacteria | MPN/100 ml | | | 2/W | [1] |
| Enterococci Bacteria[3] | CFU/100 ml | | | 2/M | [1] |

Footnotes for Table E-4:

(1) Pollutants shall be analyzed using the analytical methods described in 40 CFR §136, except for USEPA's Test Method 1106.1 which is excluded from the acceptable test procedures for the testing of enterococci bacteria in wastewater.

(2) Effluent chlorine concentrations shall be monitored continuously. Chlorine residual concentrations shall be monitored and reported for sampling points both before and after dechlorination. The Discharger shall report the

maximum residual chlorine concentration observed following dechlorination on a daily basis. Total chlorine dosage (kg/day) shall be recorded on a daily basis.

Alternatively, the Discharger may evaluate compliance with this requirement by recording discrete readings from the continuous monitoring every hour on the hour, or by collecting grab samples every hour, for a total of 24 readings or samples per day if the following conditions are met: (a) The Discharger shall retain continuous monitoring readings for at least three years; (b) The Discharger shall acknowledge in writing that the Regional Water Board reserves the right to use all other continuous monitoring data for discretionary enforcement; (c) The Discharger must provide in writing the brand name(s), model number(s), and serial number(s) of the equipment used to continuously monitor dechlorinated final effluent chlorine residual. If the identified equipment is replaced, the Discharger shall provide the Regional Water Board in writing, within 72 hours of the successful startup of the new equipment, the new equipment's brand name, model number, and serial number. The written notification identified in items (a) through (c) shall be in the form of a letter addressed to the Regional Water Board's Executive Officer with a certification statement as listed in the October 19, 2004, Regional Water Board letter re: *Chlorine Compliance Strategy for Dischargers Using Continuous Monitoring Devices.*

(3) The units are defined as the of number of enterococci colonies per 100 mL (CFU/100mL).

## V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

The Discharger shall monitor acute and chronic toxicity at Monitoring Location EFF-001 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.

2. Test organisms shall be rainbow trout (*Oncorhynchus mykiss*).

3. All bioassays shall be performed according to the most up-to-date protocols in 40 CFR §136, currently in "Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms,"5th Edition.

4. The Discharger is authorized to adjust the effluent pH in order to suppress the level of unionized (free) ammonia. This adjustment shall be achieved by continuously monitoring test tank pH and automatic addition of analytical grade acid as needed, using a combination of continuous pH-sensor/analyzer and pump. If other specific identifiable substances in the discharge can be demonstrated by the Discharger as being 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.

5. Effluent used for fish bioassays must be dechlorinated prior to testing. If biological growth in the dechlorinated effluent sample line is a potential problem, chlorinated effluent that is dechlorinated separately from the plant dechlorination process may be used for the bioassay test. Monitoring of the bioassay water shall include, on a daily basis, the following parameters: pH, dissolved oxygen, ammonia (if toxicity is observed), temperature, hardness, and alkalinity. These results shall be reported. If a violation of acute toxicity requirements occurs, the bioassay test shall be repeated with new fish as soon as practical and shall be repeated until a test fish survival rate of 90 percent or greater is observed. If the control fish survival rate is less than 90 percent, the bioassay test shall be restarted with new fish and shall continue as soon as practical until an acceptable test is completed (i.e., control fish survival rate is 90 percent or greater).

## B. Whole Effluent Chronic Toxicity

### 1. Chronic Toxicity Monitoring Requirements

a. *Sampling*. The Discharger shall collect 24-hour composite samples of the effluent at the compliance point station specified in a table above, for critical life stage toxicity testing as indicated below. For toxicity tests requiring renewals, 24-hour composite samples collected on consecutive days are required. If biological growth in the dechlorinated effluent sample line is a potential problem, chlorinated effluent that is dechlorinated separately from the plant dechlorination process may be used for the bioassay test.

b. *Test Species*. Mussel (*Mytilus sp*.)

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. These are "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 Organisms," currently fourth Edition (EPA-821-R-02-013), with exceptions granted the Discharger by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP).

d. *Dilution Series.* The Discharger shall conduct tests at 50%, 25%, 10%, 5% and 2.5%. The "%" represents percent effluent as discharged. The Discharger may use a buffer only after obtaining written approval from the Executive Officer.

### 2. Chronic Toxicity Reporting Requirements

a. *Routine Reporting*. Toxicity test results for the current reporting period shall include, at a minimum, for each test:

(1) Sample date(s)

(2) Test initiation date

(3) Test species

(4) End point values for each dilution (e.g., percent normal)

(5) NOEC value(s) in percent effluent

(6) IC15, IC25, IC40, and IC50 values (or EC15, EC25 ... etc.) as percent effluent

(7) TUc values (100/NOEC, 100/IC25, or 100/EC25)

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

(9) NOEC and LOEC values for reference toxicant test(s)

(10) IC50 or EC50 value(s) for reference toxicant test(s)

(11) Available water quality measurements for each test (pH, D.O., temperature, conductivity, hardness, salinity, ammonia)

b. *Compliance Summary*. The results of the chronic toxicity testing shall be provided in the self-monitoring report and shall include a summary table of chronic toxicity data from at least eleven of the most recent samples. The information in the table shall include items listed above under 2.a, specifically item numbers (1), (3), (5), (6) (IC25 or EC25), (7), and (8).

**3. Chronic Toxicity Reduction Evaluation (TRE)**

a. *Prepare Generic TRE Work Plan.* To be ready to respond to toxicity events, the Discharger shall prepare a generic TRE work plan within 90 days of the effective date of this Order. The Discharger shall review and update the work plan as necessary to remain current and applicable to the discharge and discharge facilities.

b. *Submit Specific TRE Work Plan.* Within 30 days of exceeding either trigger for accelerated monitoring, the Discharge shall submit to the Regional Water Board a TRE work plan, which should be the generic work plan revised as appropriate for this toxicity event after consideration of available discharge data.

c. *Initiate TRE.* Within 30 days of the date of completion of the accelerated monitoring tests observed to exceed 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 prepared 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, and 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 requirements of Section IV.A.1.g of this Order).

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 source(s) 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 storm water control programs. TRE efforts should be coordinated with such efforts. To prevent duplication of efforts, evidence of complying with requirements 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. Consideration of enforcement action by the Regional Water Board will be based in part on the Discharger's actions and efforts to identify and control or reduce sources of consistent toxicity.

## VI. LAND DISCHARGE MONITORING REQUIREMENTS

Not Applicable

## VII. RECLAMATION MONITORING REQUIREMENTS

Not Applicable

## VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER AND GROUNDWATER

### A. Regional Monitoring Program

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

## IX. LEGEND FOR MRP TABLES

Types of Samples

| | | |
|---|---|---|
| C-24 | = | composite sample, 24 hours (includes continuous sampling, such as for flows) |
| C-X | = | composite sample, X hours |
| G | = | grab sample |

Frequency of Sampling

| | | |
|---|---|---|
| Cont. | = | Continuous |
| Cont/D | = | Continuous monitoring & daily reporting |
| H | = | once each hour (at about hourly intervals) |

| | | |
|---|---|---|
| W | = | once each week |
| 2/W | = | Twice each week |
| 4/W | = | four times each week |
| M | = | once each month |
| Q | = | once each calendar quarter (at about three month intervals) |
| 1/Y | = | once each calendar year |
| 2/Y | = | twice each calendar year (at about 6 months intervals, once during dry season, once during wet season) |

Parameter and Unit Abbreviations

| | | |
|---|---|---|
| CBOD | = | Carbonaceous Biochemical Oxygen Demand |
| D.O. | = | Dissolved Oxygen |
| Est V | = | Estimated Volume (gallons) |
| Metals | = | multiple metals; See SMP Section VI.G. |
| PAHs | = | Polycyclic Aromatic Hydrocarbons; See SMP Section VI.H. |
| TSS | = | Total Suspended Solids |
| MGD | = | million gallons per day |
| mg/L | = | milligrams per liter |
| ml/l-hr | = | milliliters per liter, per hour |
| µg/L | = | micrograms per liter |
| µmhos/cm | = | micromhos per centimeter |
| kg/d | = | kilograms per day |
| kg/mo | = | kilograms per month |
| MPN/100 ml | = | Most Probable Number per 100 milliliters |

## X. OTHER MONITORING REQUIREMENTS

### A. Pretreatment Monitoring Requirements

The Discharger shall comply with the pretreatment requirements as specified in Table E-6 for influent, effluent and biosolids.

**Table E-5. Pretreatment Program Monitoring Requirements**

| Parameter | Minimum Sampling Frequency | | | Required Analytical Test Method |
|---|---|---|---|---|
| | Influent | Effluent | Biosolids | |
| VOC (1) | 2/Y | 2/Y | 2/Y | 624 |
| BNA (1) | 2/Y | 2/Y | 2/Y | 625 |
| Hexavalent Chromium (2) | M | M | 2/Y | Standard Methods 3500 |
| Metals (3) | M | M | 2/Y | GFAA, ICP, ICP-MS |
| Mercury (4) | M | M | 2/Y | EPA 245, 1631 |
| Cyanide (4) | M | M | 2/Y | Standard Methods 4500-$CN^-$ C or I |

Legend:

| | |
|---|---|
| x = | A through F |
| M = | once each month |
| Q = | once each quarter |
| 2/Y= | each calendar year (at about 6 month intervals, once in the dry season, once in the wet season) |
| VOC = | volatile organic compounds |
| BNA = | base/neutrals and acids extractable organic compounds |

Footnotes for Table E-5:

(1) GC/MS methods used must be able to quantify to an equivalent level as applicable GC methods (EPA 601, 602, 603, 604, 606).
(2) Total chromium may be substituted for hexavalent chromium at the Discharger's discretion.

(3) The parameters are arsenic, cadmium, selenium, copper, lead, mercury, nickel, silver, zinc, and total chromium (if the Discharger elects to substitute total chromium for hexavalent chromium).
(4) Influent and effluent monitoring conducted per Tables E-3, E-4, and E-5 can be used to satisfy these pretreatment program sampling requirements and vice versa.

### B. Sludge Monitoring

The Discharger shall continue to analyze sludge on a semiannual basis for disposal of priority pollutants and organics. See above pretreatment monitoring for specific monitoring requirements.

## XI. REPORTING REQUIRMENTS

### A. General Monitoring and Reporting Requirements

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

### B. Self Monitoring Reports (SMRs)

1. At any time during the term of this Order, the State or Regional Water Board may notify the Discharger to electronically submit Self-Monitoring Reports (SMRs) using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (http://www.waterboards.ca.gov/ciwqs/index.html). Until such notification is given, the Discharger shall SMRs in accordance with the requirements described herein. The State Water Board will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.

2. The Discharger shall report in the SMR the results for all monitoring specified in this MRP. The Discharger shall submit monthly and annual SMRs including the results of all required monitoring using USEPA-approved test methods or other test methods specified in this Order. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR.

3. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

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

| Sampling Frequency | Monitoring Period Begins On… | Monitoring Period | SMR Due Date |
|---|---|---|---|
| Continuous | Effective date of permit | All | 30 days after end of each calendar month |
| 2/Week | Effective date of permit | Sunday through Saturday | 30 days after end of each calendar month |
| 1/Month | Effective date of permit | 1st day of calendar month through last day of calendar month | 30 days after end of each calendar month |
| 2/Month | Effective date of permit | 1st day of calendar month through last day of calendar month | 30 days after end of each calendar month |

| Sampling Frequency | Monitoring Period Begins On… | Monitoring Period | SMR Due Date |
|---|---|---|---|
| 1/Quarter | Effective date of permit | January 1 through March 31<br>April 1 through June 30<br>July 1 through September 30<br>October 1 through December 31 | 30 days after end of each calendar month during which sampling occurs |
| 2/Year | Effective date of permit | January 1 through June 30<br>July 1 through December 31 | 30 days after end of each calendar month during which sampling occurs |
| 1/Year | Effective date of permit | January 1 through December 31 | 30 days after end of each calendar month during which sampling occurs |

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

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

   a. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

   b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

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

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

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

5. The Discharger shall submit SMRs in accordance with the following requirements:

   a. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with

interim and/or final effluent limitations. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.

b. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the WDRs; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.

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

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

d. Until CIWQS becomes the primary system for electronic reporting, I Discharger has the option to submit all monitoring reports in electronic format approved by the Executive Officer. The Electronic Reporting System (ERS) format includes, but is not limited to, a transmittal letter, summary of violation details and corrective actions and transmittal receipt. If there are any discrepancies between the ERS requirements and the "hard copy" requirements listed in the MRP, then the approved ERS requirements supersede the "hard copy" requirements.

## C. Discharge Monitoring Reports (DMRs)

1. As described in Section XI.B.1 above, at any time during the term of this Order, the State or Regional Water Board may notify the Discharger to electronically submit SMRs that will satisfy federal requirements for submittal of Discharge Monitoring Reports (DMRs). Until such notification is given, the Discharger shall submit DMRs in accordance with the requirements described below.

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

| Standard Mail | FedEx/UPS/Other Private Carriers |
|---|---|
| State Water Resources Control Board<br>Division of Water Quality<br>c/o DMR Processing Center<br>PO Box 100<br>Sacramento, CA 95812-1000 | State Water Resources Control Board<br>Division of Water Quality<br>c/o DMR Processing Center<br>1001 I Street, 15th Floor<br>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 or modified cannot be accepted.

## D. Other Reports

1. Annually, by February 1st of each year, the Discharger shall report the results of any special studies, monitoring, and reporting required by Section VI.C.2 (Special Studies, Technical Reports, and Additional Monitoring Requirements) of this Order.

# 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. Design of the screening phase 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 100%, 50%, 25%, 10%, 5%, 2.5% 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 Discharge shall commence with screening phase monitoring.

# APPENDIX E-2
# SUMMARY OF TOXICITY TEST SPECIES REQUIREMENTS

## Critical Life Stage Toxicity Tests for Estuarine Waters

| Species | (Scientific Name) | Effect | Test Duration | Reference |
|---|---|---|---|---|
| Alga | *(Skeletonema costatum)*<br>*(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<br>Mussel | *(Crassostrea gigas)*<br>*(Mytilus edulis)* | Abnormal shell development; percent survival | 48 hours | 2 |
| Echinoderms - Urchins<br>Sand dollar | *(Strongylocentrotus purpuratus, S. franciscanus)*<br>*(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.

## 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)* | Cell division rate | 4 days | 4 |

**Toxicity Test Reference:**

1. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, third edition. EPA/600/4-91/002. July 1994.

## Toxicity Test Requirements for Stage One Screening Phase

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

(1) The freshwater species may be substituted with marine species if:

(a) The salinity of the effluent is above 1 part per thousand (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.

(2) (a) Marine/Estuarine refers to receiving water salinities greater than 1 ppt at least 95 percent of the time during a normal water year.

(b) Fresh refers to receiving water with salinities less than 1 ppt at least 95 percent of the time during a normal water year.

# 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 facility.

**Table F-1. Facility Information**

| | |
|---|---|
| **WDID** | 2 019014001 |
| **CIWQS Place ID** | 222132 |
| **Discharger** | East Bay Municipal Utility District (EBMUD) |
| **Name of Facility** | Special District No. 1 Main Wastewater Treatment Plant and EBMUD's Interceptor Conveyance System |
| **Facility Address** | 2020 Wake Avenue<br>Oakland, CA 94607<br>Alameda County |
| **Facility Contact, Title, Phone** | Kurt H. Haunschild, Manager of Wastewater Treatment, 510-287-1407 |
| **Authorized Person to Sign and Submit Reports** | David R. Williams, Director of Wastewater, 510-287-1496 |
| **Mailing Address** | P.O. Box 24055, Oakland, CA 94623 |
| **Billing Address** | P.O Box 24055, MS #59, Oakland, CA 94623 |
| **Type of Facility** | Publicly Owned Treatment Works (POTW) |
| **Major or Minor Facility** | Major |
| **Threat to Water Quality** | 1 |
| **Complexity** | A |
| **Pretreatment Program** | Yes |
| **Mercury Discharge Requirements** | Yes, under Order No. R2-2007-0077 |
| **Reclamation Requirements** | N/A |
| **Facility Permitted Flow** | 120 million gallons per day (MGD) |
| **Facility Design Flow** | 120 MGD – Average dry weather design flow capacity;<br>78.5 MGD – Average annual daily flow;<br>325 MGD – Wet weather design flow capacity; 157 MGD receives primary treatment and 168 MGD receives secondary treatment |
| **Watershed** | San Francisco Bay |
| **Receiving Water** | Central San Francisco Bay |
| **Receiving Water Type** | Marine |
| **Service Areas** | Cities of Alameda, Albany, Berkeley, Emeryville, Oakland, Piedmont, and Stege Sanitary District (El Cerrito, Kensington and part of Richmond) |
| **Service Area Population** | 654,700 |

**A.** The East Bay Municipal Utility District is the owner and operator of the Special District No. 1 Main Wastewater Treatment Plant (WWTP).

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

**B.** The facility discharges treated wastewater into the Central San Francisco Bay, a water of the United States, and is currently regulated by Order No. 01-072 and NPDES Order No. CA0037702, which was adopted on June 20, 2001 and expires on May 31, 2006. On September 17, 2003, the Regional Water Board adopted Order No. R2-2003-0088, which amended Order No. 01-072. This amendment implemented the requirements contained in the State Water Board Order No. 2002-0012 (which remanded certain portions of Order No. 01-072). The Discharger's discharge is also currently regulated under Order No. 2007-0077 (NPDES Permit CA0038849), which superseded all requirements on mercury from wastewater discharges in the region. The mercury permit is unaffected by this Order. Additionally, the Discharger's three Wet Weather Facilities (WWFs) are regulated under Order No. R2-2009-0004 (NPDES Permit CA0038440). The permit for the WWFs is also unaffected by this Order.

**C.** The Discharger filed a Report of Waste Discharge and submitted an application for renewal of its Waste Discharge Requirements (WDRs) and NPDES Order on November 22, 2005. At the request of the Regional Water Board, supplemental application information was provided by the Discharger on December 2, 2005.

## II. FACILITY DESCRIPTION

The WWTP provides secondary treatment of wastewater from domestic, commercial and industrial sources from the cities of Alameda, Albany, Berkeley, Emeryville, Oakland, Piedmont, and the Stege Sanitary District (serving El Cerrito, Kensington, and part of Richmond). The Discharger's service area has a present population of about 654,700. Each of the cities and Stege Sanitary District owns and operates its own wastewater collection system, which delivers wastewater to the Discharger's interceptor. The interceptor transports wastewater to the WWTP. The Discharger owns and operates its interceptor system, which includes a 29-mile long North and South interceptor, Adeline Interceptor, South Foothill Interceptor, and Alameda Interceptor. These interceptors have a combined hydraulic capacity of 760 MGD. The interceptor system also includes 15 pump stations, five (5) wet weather overflow structures, three (3) WWFs and a 1 million-gallon wet weather storage basin along the Alameda Interceptor. Wet weather discharges from the interceptor system are regulated separately under Order No. R2-2009-0004. The Regional Water Board has also issued separate Orders to seven local agencies (Alameda, Albany, Berkeley, Emeryville, Oakland, Piedmont, and Stege Sanitary District) which specify requirements prohibiting the overflow of wastewater from each agency's collection systems, and specify tasks to address wet weather inflow and infiltration.

### A. Description of Wastewater and Biosolids Treatment or Controls

The Discharger owns and operates a secondary wastewater treatment facility. The wastewater treatment process consists of odor control, grit removal, primary clarification, high purity oxygen activated sludge, secondary clarification, disinfection, dechlorination, and blending of primary and secondary effluent during periods of flows in excess of the secondary treatment capacity. Sludge is currently thickened, anaerobically digested and dewatered before reuse by land application or alternative daily cover in an authorized sanitary landfill.

During peak wet weather flow conditions, the WWTP can accept up to 425 MGD of influent via five 85 MGD influent pumps. Since primary treatment design capacity is 320 MGD, wet weather flows in excess of the primary treatment capacity is stored on-site in an 11 MG wet weather concrete storage basin and returned to the plant influent when flows subside. Primary effluent may be diverted around secondary treatment, disinfected, and "blended" with 168 MGD of disinfected secondary effluent prior to discharge to Central San Francisco Bay through a deep water outfall. This discharge occurs only after fully using the maximum secondary treatment capacity of 168 MGD.

The estimated average annual wet weather flow diversion discharge volume (i.e. diverted primary effluent) from the WWTP is 383 MG, which was developed by Talavara & Richardson based on actual plant influent hourly flow data from 1996 to 2004 and simulated hourly flow data from October 1948 to October 1996. The number of wet weather flow diversion events typically ranges from 10 to 25 per year. Most of these events are less than 10 hours in duration. During wet weather conditions, diverted primary effluent flow may compose between 0–48% of total effluent flow depending on the storm event magnitude.

The Discharger's Resource Recovery Program manages the disposal of permitted trucked waste to the Discharger's WWTP. Types of waste typically hauled to the WWTP include septage; food industry waste including winery, dairy, and high total dissolved solids (TDS) waste; animal processing waste; food grade fats, oils, and greases; municipal water and wastewater sludge; municipal food waste and groundwater, storm water and food scraps. The delivered food scraps (also referred to as food waste) are processed upon receipt at the Discharger's WWTP (including slurrying, grinding and separation steps) and are then digested in Discharger's WWTP anaerobic digesters. The Resource Recovery program diverts organic wastes that would go to landfill disposal to utilize available excess capacity and increase the WWTP's methane gas production that is used for renewable power generation.

## B. Discharge Points and Receiving Waters

1. **Discharge Point 001**. The discharge point, authorized by this Order, and the receiving water, are shown in Table F-2 below. The treated wastewater is discharged into Central San Francisco Bay, a Water of the United States. The Central San Francisco Bay is located in the Central Basin watershed management area. The wastewater is discharged through a submerged diffuser adjacent to the San Francisco-Oakland Bay Bridge about 5,700 feet off shore at a depth of 45 feet below mean lower low water through Discharge Point No. 001. Based on a study conducted by the Discharger in 2008, the outfall achieves a worst case initial dilution greater than 25:1 and a typical (50$^{th}$ percentile) initial dilution of 341:1.

**Table F-2. Outfall Location**

| Discharge Point | Effluent Description | Discharge Point Latitude | Discharge Point Longitude | Receiving Water |
|---|---|---|---|---|
| 001 | Secondary treated, chlorine disinfected effluent | 37º 49' 2" N | 122º 20' 55" W | Central San Francisco Bay |

2. **Storm Water Discharge.** Federal regulations for storm water discharges were promulgated by USEPA on November 19, 1990. The regulations [40 Code of Federal Regulations (CFR)

Parts 122, 123, and 124] requires specific categories of industrial activities including Publicly Owned Treatment Works (POTWs) that discharge storm water associated with industrial activity (industrial storm water) to obtain an NPDES permit and to control pollutants in industrial storm water discharges.

POTWs are not required to obtain a separate NPDES permit if all storm water flows from the treatment facility are treated by the POTW. The storm water flows from the wastewater treatment facility process areas are directed to the WWTP head works and are treated along with the wastewater discharged to the treatment plant. These storm water flows constitute all industrial storm water at this facility and consequently this Order regulates all industrial storm water discharges at this facility. The Discharger is not required to seek coverage under the statewide general NPDES permit for storm water discharges associated with industrial activities (NPDES General Permit CAS000001.

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

Effluent limitations contained in the previous Order (Order No. 01-072) for discharges to the Central San Francisco Bay and representative monitoring data from the term of the previous Order for conventional and certain non-conventional pollutants are as follows:

**Table F-3. Historic Conventional and Parameter Effluent Limitations and Monitoring Data**

| Parameter | Units | Effluent Limitations | | | Monitoring Data (From 1/04 – 9/09) | | |
|---|---|---|---|---|---|---|---|
| | | Monthly Average | Weekly Average | Daily Maximum | Highest Monthly Average | Highest Weekly Average | Highest Daily Discharge |
| Carbonaceous Biochemical Oxygen Demand, 5-day @ 20°C ($CBOD_5$) | mg/L | 25 | 40 | -- | 20 | 39 | 56 |
| Percent Removal of $CBOD_5$ | % | 85/70(1) | -- | -- | 89(8) | NA | NA |
| Total Suspended Solids (TSS) | mg/L | 30 | 45 | -- | 42 | 92 | 240 |
| Percent Removal of TSS | % | 85/70(1) | -- | -- | 87(8) | NA | NA |
| Oil and Grease | mg/L | 10 | -- | 20 | 5.9 | NA | 5.9 |
| Settleable Matter | ml/l-hr | 0.1 | -- | 0.2 | ND | NA | ND |
| Total Chlorine Residual (TRC) | mg/L | -- | -- | (2) | NA | NA | ND |
| pH | Standard units | (3) | (3) | (3) | 6.0-7.2 | | |
| Fecal Coliform Bacteria | MPN/100 ml | (4) | (5) | -- | 128(9) | 220(10) | 160,000 |
| Acute Toxicity | % Survival | (6) | (6) | (6) | 75(11) | 95(12) | 15(13) |
| Chronic Toxicity | TUc | (7) | (7) | (7) | 8.4(14) | 7.7(15) | 8.4 |

Footnotes for Table F-3:
ND = Non-Detect
NR = Not Reported
NA = Not Applicable
(1) 85 percent removal required when influent flow is less than 120 MGD; 70 percent removal required when influent flows are greater than or equal to 120 MGD.

(2) For TRC, 0.0 mg/L was established as an instantaneous maximum effluent limitation.
(3) The pH shall not exceed 9.0 nor be less than 6.0.
(4) The 5-day log mean fecal coliform density shall not exceed 500 MPN/100 ml.
(5) The 90th percentile value of all samples in a given month shall not exceed 1,100 MPN/100 ml.
(6) An 11-sample median value of not less than 90 percent survival and an 11-sample 90th percentile value of not less than 70 percent survival.
(7) A chronic toxicity effluent limit was not included in the previous Order. An accelerated monitoring trigger was included after exceeding a three sample median value of 10 chronic toxicity (TUc) or a three sample maximum of 20 TUc or greater.
(8) Represents the lowest reported percent removal value.
(9) Represents the highest reported 5-day log mean fecal coliform density
(10) Represents the highest reported 90th percentile value of the last ten fecal coliform values.
(11) Represents the lowest reported 11-sample 90th percentile value.
(12) Represents the lowest reported 11 sample median.
(13) Represents the lowest reported percent survival.
(14) Represents the highest reported three-sample maximum.
(15) Represents the highest reported three-sample median.

**Table F-4. Historic Toxic Parameter Effluent Limitations and Monitoring Data**

| Parameter | Units | Water Quality-Based Effluent Limitations (WQBELs) | | Interim Limitations | | Monitoring Data (From 1/04 to 9/09) |
|---|---|---|---|---|---|---|
| | | Daily Maximum | Monthly Average | Daily Maximum | Monthly Average | Highest Daily Discharge |
| Chromium VI | µg/L | 110 | -- | -- | -- | 6.4 |
| Copper | µg/L | -- | -- | 37 | -- | 19.5 |
| Lead | µg/L | 53 | 37 | -- | -- | 6.1 |
| Mercury | ng/L | -- | -- | -- | 87 | 43 |
| Nickel | µg/L | 59 | 34 | -- | -- | 5.7 |
| Cyanide | µg/L | -- | -- | 10 | -- | 5.8 |
| Silver | µg/L | 23 | 12 | -- | -- | 1.1 |
| Zinc | µg/L | 589 | 460 | -- | -- | 118 |
| 4,4-DDE | ng/L | -- | -- | -- | 50 | ND |
| Dieldrin | ng/L | -- | -- | -- | 10 | ND |
| TCDD Equivalent | pg/L | -- | -- | -- | 0.14 | 0.83 (1) |

Footnotes for Table F-4:
ND = Non-Detect
(1) All individual dioxin and furan congeners were below the MLs and therefore, the Discharger was not out of compliance with effluent limits.

## D. Compliance Summary

1. **Compliance with Numeric Effluent Limitations.** From January 2004 through September 2009 the Discharger complied with all effluent limitations contained in Order No. 01-072 (as amended by Order No. R2-2003-0088) with the exception of TSS in November 2006 and September 2007.

2. **Compliance with Permit Provisions.** A list of special activities required in the provisions for Order No. 01-072, and the status of completion, is shown in the table below:

**Table F-5. Status of Special Activities in Provisions for Order 01-072 and R2-2003-0088**

| Provision | Requirement | Due Dates | Status of Completion |
|---|---|---|---|
| 3 | **Self Monitoring Program**<br>Monthly Reports<br>Annual Reports | Within 30 days<br>February 15th | <br>Yes<br>Yes |
| 5 | **Acute Toxicity Compliance**<br>96-hour continuous flow-through bioassays<br>Performed monthly and reported in the SMRs | Monthly | In compliance |
| 6 | **Whole Effluent Chronic Toxicity Requirements**<br>TRE Work Plan | Within 60 days of Order | Submitted August 20, 2001 |
| 7 | **Chronic Toxicity Screen Phase Study** | Prior to permit renewal | Submitted February 7, 2006 |
| 8 | **Optional Copper and Nickel Translator Study** | Within 2 Years of Order | Completed in 2005 as part of collaborative effort w/ BACWA |
| 9 | **Optional Mass Offset Mercury Study** | None | No |
| 10 | **Continued Participation in the RMP** | None | Yes |
| 11 | **Pretreatment Program**<br>Annual Reports | January 31st | Submitted 2001-2008 |
| 12 | **Pollution Prevention Program Reports:**<br>Annual Reports – combined with Pretreatment | February 28th | Submitted 2001-2008 |
| 13 | **Dioxin Special Study** | 3 months after completion of Dioxin Study Special | Submitted March 14, 2006 |
| 14 | **Mercury Mass Loading Reduction Study:**<br>Due if mass emission limit exceedance occurs | Within 1 year and 8 months of exceed | No exceedances |
| 15 | **Ambient Background Receiving Water Data Collection Study** | May 18, 2003 | Submitted May 16, 2003 |
| 16 | **Cyanide Data Collection Study for SSO and Ambient Background WQ Characterization:**<br>Annual Progress Reports | January 31st | Final Report Submitted June 25, 2003 |
| 17 | **SSO/TMDL Development Participation:**<br>Annual Reports – combined with Pretreatment<br>Through the BACWA Program | January 31st | Submitted 2001-2008 |

3. **Compliance with Submittal of Self-Monitoring Reports.** The Discharger submitted all Self-Monitoring Reports on or before the due date during the term of the previous Order.

### E. Planned Changes

The Discharger is planning to expand the Resource Recovery program with a focus on acceptance of high TDS waste streams from inland generators and on high strength waste, including expanding their food waste and glycerin acceptance programs, to create additional renewable energy.

## III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

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

### A. Legal Authorities

This Order is issued pursuant to Section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the USEPA and Chapter 5.5, Division 7 of the California Water Code (CWC) (commencing with Section 13370). It shall serve as an NPDES permit for point source discharges from 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)

This action to adopt an NPDES permit is exempt from the provisions stated in Chapter 3 of CEQA, in accordance with California Water Code Section 13389.

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

1. **Water Quality Control Plans.** The Regional Water Board adopted the *Water Quality Control Plan for the San Francisco Bay Basin* (Basin Plan) that designates beneficial uses, establishes WQOs, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Beneficial uses applicable to Central San Francisco Bay are as follows.

**Table F-6. Basin Plan Beneficial Uses of Central San Francisco Bay**

| Discharge Point | Receiving Water Name | Beneficial Use(s) |
|---|---|---|
| 001 | Central San Francisco Bay | Ocean, Commercial, and Sport Fishing (COMM)<br>Estuarine Habitat (EST)<br>Industrial Service Supply (IND)<br>Industrial Process Supply (PROC)<br>Fish Migration (MIGR)<br>Fish Spawning (SPAWN)<br>Navigation (NAV)<br>Preservation of Rare and Endangered Species (RARE)<br>Water Contact Recreation (REC-1)<br>Noncontact Water Recreation (REC-2)<br>Shellfish Harvesting (SHELL)<br>Wildlife Habitat (WILD) |

2. **Thermal Plan.** The State Water Board adopted a *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California* (Thermal Plan) on May 18, 1972, and amended this plan on September 18, 1975. This plan contains WQOs for coastal and interstate surface waters as well as enclosed bays and estuaries. Requirements of this Order implement the Thermal Plan.

3. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on December 22, 1992, which was amended on May 4, 1995 and November 9, 1999. About forty criteria in the NTR applied in California. On May 18, 2000, USEPA adopted the CTR, which established new water quality criteria for toxics in California and incorporated the previously adopted NTR criteria that were applicable in the State. The CTR was amended on February 13, 2001. These rules contain water quality criteria (WQC) for priority, toxic pollutants and are applicable to this discharge.

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

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

6. **Stringency of Requirements for Individual Pollutants.** This Order contains restrictions on individual pollutants that are no more stringent than required by the federal CWA. Individual pollutant restrictions consist of technology-based restrictions and water quality-based effluent limitations. The technology-based effluent limitations consist of restrictions on 5-day carbonaceous biochemical oxygen demand ($CBOD_5$), total suspended solids (TSS), pH, oil and grease, and chlorine residual. Restrictions on these pollutants are specified in federal regulations and have been in the Basin Plan since before May 30, 2000. WQBELs have been scientifically derived to implement WQOs that protect beneficial uses. Both the beneficial uses and the WQOs have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant WQBELs were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR §131.38. The scientific procedures for calculating the individual WQBELs are based on the CTR-SIP, which was approved by USEPA on May 18, 2000. Most beneficial uses and WQOs contained in the Basin Plan were approved under state law and submitted to and approved by USEPA prior to May 30, 2000. Any WQOs and beneficial uses submitted to USEPA prior to May 30, 2000, but not approved by USEPA

before that date, are nonetheless "applicable water quality standards for purposes of the CWA" pursuant to 40 CFR §131.21 (c)(1). The remaining WQOs and beneficial uses implemented by this Order were approved by USEPA on January 5, 2005, and are applicable water quality standards pursuant to 40 CFR §131.21 (c) (2). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the technology-based requirements of the CWA and the applicable water quality standards for purposes of the CWA.

7. **Antidegradation Policy.** 40 CFR 131.12 requires that State water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution 68-16. Resolution 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies.

   The permitted discharge is consistent with the antidegradation provision of 40 CFR 131.12 and State Water Board Resolution 68-16. This Order continues the status quo with respect to the level of discharge authorized in the previous permit and thus there will be no change in water quality beyond the level that was authorized in the last permit. The final limitations in this Order comply with antidegradation requirements and meet the requirements of the SIP because these limits hold the Discharger to performance levels that will neither cause nor contribute to water quality impairment, nor further water quality degradation. This is because this Order does not provide for an increase in the permitted design flow, allow for a reduction in the level of treatment, or increase effluent limitations with the exception of cyanide and copper.

   The standards-setting processes for copper and cyanide addressed antidegradation. The copper and cyanide limits in this Order are consistent with the antidegradation analyses prepared for these site-specific objectives. The Basin Plan requires that permits that contain limits based on the copper and cyanide site-specific objectives also require copper and cyanide action plans. This Order includes such plans (see Sections VI.C.6 and 7).

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

8. **Anti-Backsliding Requirements.** CWA Sections 402 (o) (2) and 303 (d) (4) and NPDES regulations at 40 CFR 122.44 (l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed. All limitations and requirements of the Order are consistent with anti-backsliding requirements of the CWA and NPDES regulations.

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

On June 28, 2007, the USEPA approved a revised list of impaired water bodies prepared by the State [hereinafter referred to as the 303(d) list], pursuant to provisions of CWA section 303(d)

requiring 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. Lower and Central San Francisco Bay are listed as impaired water bodies. The pollutants impairing these water bodies include chlordane, DDT, dieldrin, dioxin compounds, exotic species, furan compounds, mercury, PCBs, dioxin-like PCBs, and selenium. The SIP requires final effluent limitations for all 303(d)-listed pollutants to be based on total maximum daily loads (TMDLs) and associated waste load allocations (WLAs).

The Regional Water Board plans to adopt TMDLs for pollutants on the 303(d) list in Central San Francisco Bay within the next 10 years (a TMDL for mercury became effective on February 12, 2008).

TMDLs will establish WLAs for point sources and load allocations (LAs) for non-point sources, and will be established to achieve the WQS for impaired waterbodies. The discharge of mercury from the Plant is regulated by the Regional Water Board Order No. R2-2007-0077, which implements the mercury TMDL and contains monitoring and reporting requirements.

## 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 the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits.

There are two principal bases for effluent limitations: 1) 40 CFR §122.44(a) requires that permits include applicable technology-based limitations and standards; and 2) 40 CFR §122.44(d) requires that permits include WQBELs to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water.

Where numeric water quality criteria objectives have not been established, three options exist to protect water quality: 1) 40 CFR §122.44(d) specifies that WQBELs may be established using USEPA criteria guidance under CWA Section 304(a); 2) proposed State criteria or a State policy interpreting narrative criterion supplemented with other relevant information may be used; or 3) an indicator parameter may be established.

### A. Discharge Prohibitions

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

1. **Discharge Prohibition III.A. (No discharge other than that described in this Order):** This prohibition is the same as in the previous Order. This prohibition is based on California Water Code Section 13260, which requires filing a Report of Waste Discharge (ROWD) before discharges can occur. Discharges not described in the ROWD, and subsequently in the Order, are prohibited.

2. **Discharge Prohibition III.B. (No discharges receiving less than 25:1 dilution):** This prohibition is similar to the previous permit. Because ammonia limits are based on an initial dilution of 25:1, it is necessary to require that the Discharger achieve this dilution. Further,

Table 4-1 of the Basin Plan prohibits discharges that do not receive a minimum initial dilution of 10:1.

3. **Discharge Prohibition III.C.** This prohibition is based on 40 CFR 122.41(m) (see Federal Standard Provisions, section G, Attachment D). This prohibition grants bypass of peak wet weather flows that exceed secondary treatment capacity that are recombined with secondary treatment flows and discharged at Discharge Point No. 001, because the Discharger has met the conditions at 40 CFR 122.41(m)(4)(i)(A)-(C).

**Background**
During significant storm events, high volumes of storm water can overwhelm certain parts of the wastewater treatment process and may cause damage or failure of the system. Operators of wastewater treatment plants must manage these high flows to both ensure the continued operation of the treatment process and to prevent backups and overflows of raw wastewater in basements or on city streets.

To address this situation, in December 2005, USEPA invited public comment on its proposed Peak Wet Weather Policy that provides interpretation that 40 CFR 122.41(m) applies to wet weather diversions that are recombined with flow from secondary treatment, and guidance by which NPDES permits may be approved. This draft policy proposed that discharges must still meet all the requirements of NPDES permits, and encouraged municipalities to make investments in ongoing maintenance and capital improvements to improve long-term performance. Though not finalized and not the basis of the requirements in this Order, the draft policy does provide relevant insight for Prohibition III.C.

**Criteria of 40 CFR 122.41(m) (4) (i) (A)-(C)**
If the criteria of 40 CFR 122.41(m)(4)(i)(A)-(C) are met, the Regional Water Board can approve peak wet weather diversions that are recombined with flow from the secondary treatment. The criteria of 40 CFR 122.41(m)(4)(i) (Federal Standard Provisions, Attachment D) are (A) bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; (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; and (C) the Discharger submitted notice to the Regional Water Board as required under Federal Standard Provision – Permit Compliance I.G.5.

On February 13, 2007, the Discharger submitted a no feasible alternatives analysis that addresses measures it has taken and plans to reduce bypasses during peak wet weather events so that such bypasses could be approved pursuant to 40 CFR122.41(m)(4).

According to the Discharger, during peak wet weather flow conditions, the WWTP can accept up to 425 MGD of influent via five 85 MGD influent pumps. Since primary treatment design capacity is 320 MGD, wet weather flows in excess of the primary treatment capacity is stored on-site in an 11 MG wet weather concrete storage basin and returned to the plant influent when flows subside. After primary treatment at maximum treatment capacity, 152 MGD of primary effluent is diverted around secondary treatment, disinfected, and "blended" with up to 168 MGD of disinfected secondary effluent prior to discharge to Central San Francisco Bay through a deep water outfall. This diversion occurs only after fully using the maximum secondary treatment capacity.

The estimated average annual wet weather flow diversion discharge volume (i.e. diverted primary effluent that is blended) from the WWTP is 383 MG, which was developed by Talavera & Richardson based on actual plant influent hourly flow data from 1996 to 2004 and simulated hourly flow data from October 1948 to October 1996. The number of wet weather flow diversion events typically ranges from 10 to 25 per year. Most of these events are less than 10 hours in duration. During wet weather conditions, diverted primary effluent flow may compose between 0–48% of total effluent flow depending on the storm event magnitude.

The existing secondary treatment process is hydraulically limited to a maximum capacity of 168 MGD, with all feed gates and valves wide open. During wet weather events, EBMUD targets maximizing flow to the secondary treatment process to minimize the amount of diverted primary effluent during a given storm event. Since EBMUD cannot process flows above a maximum of 168 MGD, without exceeding and damaging its treatment plant, there are no feasible alternatives to blending at this time.

The Discharger identified several actions in various reports/plans noted below that will be undertaken to minimize the discharge of blended wastewater from the WWTP:

a. Based on the results of a 2-year pilot evaluation (2004-2006), the Discharger has formalized and implemented a wet weather storage basin Standard Operating Procedure (SOP) during small-to-medium storm events. The SOP is documented in a report dated February 13, 2007, to support reissuance of the Discharger's permit. The SOP involves minimizing wet weather flow diversions by utilizing the existing, on-site 11-MG wet weather storage basin. The storage basin was originally designed for operation only when plant influent flows exceeded 320 MGD, in order to maximize flows received at the EBMUD WWTP and prevent overflows in the collection system during peak wet weather events. The SOP provides an operating strategy whereby wet weather flows generated during "small-to-medium" storm events, in excess of secondary treatment capacity, would be stored in the wet weather storage basin and returned to the plant influent when flows subside.

   The Discharger estimates that the expected, long-term annual average diverted flow volume reduction will be approximately 15 percent; however, this value may be highly variable due to unpredictable storm conditions (i.e., storm frequency, intensity, and duration) during a given wet weather season. Provision VI.C.5 of this Order requires the Discharger to evaluate further enhancements to the storage basin SOP to optimize basin operation and maximize stored flow volumes during small-to-medium storm events. This may include use of enhanced weather prediction and monitoring tools, such as Doppler radar, and improved integration of wet weather facility and WWTP facility operation during storm events.

b. The Regional Water Board issued Order No. 2005-0047 and the accompanying Time Schedule Order (TSO) Order No. 2005-0048 requiring the Discharger to evaluate treatment technologies, transport and storage improvements, and regulatory strategies for the Discharger's 3 WWFs. The State Board adopted Order No. WQ 2007-0004 remanding Order No. R2-2005-0047 with direction that the Regional Water Board revise it to require secondary treatment standards or cease discharge. The Regional Water

Board issued R2-2009-0004 in January 2009 prohibiting discharges from the WWF. To ensure that the EBMUD moves towards zero discharge at its WWFs, the Regional Water Board filed a lawsuit along with U.S. EPA and the State Water Board against EBMUD. This Stipulated Order for Preliminary Relief was entered by the U.S. District Court, Northern District of California on July 22, 2009**.** Specifically, the Stipulated Order requires EBMUD to conduct flow monitoring on satellite collection systems, adopt a regional private sewer lateral ordinance, implement an incentive program to encourage replacement of leaky private laterals, and develop an asset management template for managing collection systems. While these actions are necessary to help eliminate discharges from the EBMUD's WWFs, they will also significantly help minimize blending at EBMUD's Main Wastewater Treatment Plant.

c. The Discharger and the other contributing communities are required to develop Sanitary Sewer Management Plans (SSMPs) per the requirements of the Regional Water Board, as well as per the requirements of the State Water Board's General Waste Discharge Requirements for Sanitary Sewer Overflows. Through the development of these programs, there is a potential for communities to identify opportunities for improved I/I reductions. One potential avenue to achieve I/I reductions is through an aggressive upper lateral replacement program. The Discharger's report, dated February 13, 2007, in support of permit reissuance indicates that experts in the wastewater industry estimate that as much as 60% of I/I can be attributed to upper private laterals. At this time, the Cities of Alameda, Albany, Berkeley, and Stege Sanitary District (collectively represent about 40% of the upper laterals in EBMUD's service area) have ordinances that require inspection and replacement (if necessary) of leaky laterals prior to the transfer of title. The Cities of Oakland, Piedmont, and Emeryville currently do not have ordinances to address private laterals.

   As noted above, the Stipulated Order requires that the Discharger address leaky laterals by developing Regional Private Sewer Lateral Inspection and Repair or Replacement Program that would apply to EBMUD's entire service area. Under the Stipulated Order, the Regional Ordinance must, at a minimum, require the owner of a private sewer lateral to certify that the private sewer lateral in question complies with applicable standards (a) prior to transferring title to such structure, (b) prior to obtaining any permit or other approval needed for the construction or significant modification of any such structure and (c) prior to obtaining approval from EBMUD for an increase or decrease in size of the owner's water service, as defined by Section 17 of EBMUD's Regulations Governing Water Service to Customers. Additionally, the Stipulated Order requires that EBMUD develop a Private Lateral Incentive Program Work Plan to accelerate the testing and replacement of leaky laterals beyond that already required under the Regional Ordinance.

4. **Discharge Prohibition III.D. (Average dry weather flow not to exceed dry weather design capacity)**: This prohibition is based on the historic and tested reliable treatment capacity of the treatment plant. Exceedance of this design, average dry weather flow capacity may result in lowering the reliability of achieving compliance with water quality requirements.

5. **Discharge Prohibition III.E. (No sanitary sewer overflows (SSO) to waters of the United States):** The Discharge Prohibition No. 15 from Table 4-1 of the Basin Plan, and the Clean Water Act prohibits the discharge of wastewater to surface waters except as authorize under an

NPDES permit. POTWs must achieve secondary treatment, at a minimum, and any more stringent limitations that are necessary to achieve water quality standards. (33U.S.C. §1311(b)(1)(B) and (C).) Thus, an SSO that results in the discharge of raw sewage, or sewage not meeting secondary treatment, to surface waters is prohibited under the Clean Water Act and the Basin Plan.

## B. Technology-Based Effluent Limitations

### 1. Scope and Authority

The Code of Federal Regulations (CFR) at 40 CFR §122.44(a) requires that permits include applicable technology-based limitations and standards. This Order includes technology-based effluent limitations based on Secondary Treatment Standards at 40 CFR §133. Permit effluent limitations for conventional pollutants are technology-based. Technology-based effluent limitations are put in place to ensure full secondary treatment is achieved by the wastewater treatment facility, as required under 40 CFR §133.102. Effluent limitations for these conventional pollutants are defined by the Basin Plan, Table 4-2. Further, these conventional effluent limits are the same as those from the previous Order for the following constituents, except settleable solids, which is no longer required per the 2004 Basin Plan amendment:

- Carbonaceous biochemical oxygen demand (CBOD),
- CBOD percent removal,
- Total suspended solids (TSS),
- TSS percent removal,
- pH,
- Oil and grease, and
- Total chlorine residual.

### 2. Applicable Technology-Based Effluent Limitations

The Order is retaining the following technology-based effluent limitations, applicable to Discharge Point No. 001, from Order No. 01-072.

**Table F-7. Summary of Technology-Based Effluent Limitations**

| Parameter | Units | Effluent Limitations | | | | |
|---|---|---|---|---|---|---|
| | | Average Monthly (AMEL) | Average Weekly (AWEL) | Maximum Daily (MDEL) | Instantaneous Minimum | Instantaneous Maximum |
| Carbonaceous Biochemical Oxygen Demand, 5-day @ 20 Deg. C ($CBOD_5$) | mg/L | 25 | 40 | -- | -- | -- |
| Percent Removal of $CBOD_5$ | % | 85 | | | | |
| Total Suspended Solids (TSS) | mg/L | 30 | 45 | -- | -- | -- |
| Percent Removal of TSS | % | 85 | | | | |
| pH | Standard units | -- | -- | -- | 6.0 | 9.0 |
| Total Chlorine Residual | mg/L | -- | -- | -- | -- | 0.0 |
| Oil and Grease | mg/L | 10 | -- | 20 | -- | -- |

a. **CBOD and TSS.** In the previous Order, an exception to the percent removal requirements of the secondary treatment standards was provided. This exception allowed for a lower percent removal (70 percent) for $CBOD_5$ and TSS when WWTP influent flow was greater than 120 MGD. In an August 7, 2003 letter sent by the Regional Water Board to the Discharger, it was acknowledged that a technical error was made in granting the variance to the Discharger. In particular, evaluation of removal data showed that the Facility could achieve better than 85 percent removal on a monthly average basis.

   As a result of this performance, the condition for an exception to the percent removal at 40 CFR §133.103(d), that the percent removals cannot be met due to less concentrated influent wastewater, was not met. For this Order, compliance with the percent removals for $CBOD_5$, and TSS in the Secondary Treatment Regulations (the 30-day average percent removal shall not be less than 85 percent) will be required.

b. **pH.** The pH limitation is retained from the previous Order and is required by USEPA's Secondary Treatment Regulation at 40 CFR §133 and by the Basin Plan, Table 4-2, for deep water discharges. 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.

c. **Total Chlorine Residual.** The instantaneous maximum limitation for chlorine of 0.0 mg/L is being retained by this Order. This limitation is required by the Basin Plan, Table 4-2. This requirement is defined as below the limit of detection in standard test methods, as defined in the latest edition of *Standard Methods for the Examination of Water and Wastewater*. For total residual chlorine (TRC) detection levels, the Discharger shall use a method for analysis of TRC that is identified as approved by USEPA for analysis of wastewaters at 40 §CFR Part 136. The method of analysis shall achieve a method

detection limit (MDL) at least as low as that achieved by the Amperometric Titration Method (4500-Cl D from *Standard Methods for Examination of Water and Wastewater*, Edition 20). The State Water Board is considering a statewide policy on chlorine residual. This Order may be reopened in the future to reflect any changes relating to chlorine residual.

d. **Oil and Grease.** The limitations established for oil and grease are levels attainable by secondary treatment and are required by the Basin Plan (Table 4-2).

e. **Fecal Coliform Bacteria.** The treated wastewater shall meet the following limitations of bacteriological quality: (1) The 5-day log mean fecal coliform density shall not exceed 500 MPN/100mL; and (2) The 90$^{th}$ percentile value of the last 10 values shall not exceed 1,100 MPN/100 mL.

The Basin Plan, Table 4-2, establishes effluent limitations for total coliform bacteria for all discharges from wastewater treatment facilities to inland surface waters and enclosed bays and estuaries in the Region. Fecal coliform limitations may be substituted for the limitations of the Basin Plan "provided it can be conclusively demonstrated through a program approved by the Regional Water Board that such substitution will not result in unacceptable adverse impacts on the beneficial uses of the receiving water."

Following a study by the Discharger in 1997, the Regional Water Board amended the Discharger's NPDES permit Order No. 94-127 with Order No. 97-142. Order No. 97-142 substituted a 5-day log mean fecal coliform effluent limitation of 500 MPN/100mL and a 90$^{th}$ percentile value fecal coliform effluent limitation of 1,100 MPN/100 mL for the previous total coliform effluent limitations. The fecal coliform limitations are retained by this Order.

The Discharger submitted its report on the 1997 study, entitled *Chlorine Reduction/Fecal Coliform Study Report,* to the Regional Water Board dated July 28, 1997. The report showed that at the discharge levels of 500 and 1,100 MPL/100ml, receiving water fecal coliform concentrations at the outfall stations within the zone of initial dilution, remained below the shellfish harvesting objective of a median less than 14 MPN/100mL and a 90$^{th}$ percentile less than 43 MPN/100mL.

e. **Enterococci Bacteria.** This Order establishes a technology-based effluent limit for enterococci bacteria. This limit is based on the current level that is economically and technologically achievable by six other POTWs in the region. This limit is also consistent with Table 4-2, footnote d. of the Basin Plan and will ensure that there are no "unacceptable adverse impacts on the beneficial uses." Enterococci are more closely associated with gastrointestinal disease than fecal coliform bacteria for water contact.

The effluent limit in this Order, a monthly geometric mean enterococci bacteria density not exceeding 35 enterococci or CFU/100 mL, is equivalent to the marine water quality standard for water contact established for receiving water by USEPA on November 16, 2004, FR Vol 69, No. 220 (Beach Act). The USEPA in the 2004 Beach Act [40 CFR §133.41(e)(1)], indicates that the marine criteria apply to coastal waters of California, and defines coastal waters to include coastal estuaries, such as the receiving water for this discharge. Bacteria concentrations in the effluent are primarily a function of disinfection

application, so the Discharger can meet this limit with its existing technology. Because this technology-based limit does not account for dilution in the receiving waters, this limit is also likely conservative in terms of protecting beneficial uses and therefore consistent with Table 4-2, footnote d.

## C. Water Quality-Based Effluent Limitations

### 1. Scope and Authority

a. As specified at 40 CFR 122.44(d)(1)(i), permits are required to include WQBELs for pollutants (including toxicity) that are or may be discharged at levels that cause, have reasonable potential to cause, or contribute to an excursion above any state water quality standard (Reasonable Potential). WQBELs in this Order are revised and updated from the limitations in the previous Order, and their presence in this Order is based on an evaluation of the Discharger's data as described below under the Reasonable Potential Analysis (RPA).

   Numeric WQBELs are required for all constituents that have a Reasonable Potential to cause or contribute to an excursion above any State water quality standard. Reasonable Potential is determined and final WQBELs are developed using the methodology outlined in the SIP. If the Discharger demonstrates that the final limitations will be infeasible to meet and provide justification for a compliance schedule, then interim limitations are established, with a compliance schedule to achieve the final limits.

b. Maximum Daily Effluent Limitations (MDELs) are used in this Order to protect against acute water quality effects. It is impracticable to use weekly average limitations to guard against acute effects. Although weekly averages are effective for monitoring the performance of biological wastewater treatment plants, the MDELs are necessary for preventing fish kills or mortality to aquatic organisms, as further explained in SubSections c through e, below.

c. NPDES regulations, the SIP and USEPA's Technical Support Document (TSD) provide the basis to establish MDELs. 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:

   (1) Maximum daily and average monthly discharge limitations for all discharges other than publicly owned treatment works; and

   (2) Average weekly and average monthly discharge limitations for POTWs" (emphasis added).

d. The amended SIP (p. 8, Section 1.4) requires that WQBELs be expressed as MDELs and average monthly effluent limitations (AMELs). For aquatic life-based calculation (only), the amended SIP indicates MDELs are to be used in place of average weekly limitations for POTWs.

e. The TSD (p. 96) states that a maximum daily limitation is appropriate for two reasons: (1) The basis for the 7-day average for POTWs derived from the secondary treatment requirements. This basis is not related to the need for assuring achievement of water quality standards. (2) The 7-day average, which could be comprised of up to seven or more daily samples, could average out peak concentrations, and therefore the Discharger's potential for causing acute toxic effects would be missed. A maximum daily limitation would be toxicologically protective of acute toxicity impacts.

**2. Applicable Beneficial Uses and Water Quality Criteria and Objectives**

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

**a. Applicable Beneficial Uses.** Beneficial uses applicable to Lower San Francisco Bay are from the Basin Plan, Table F-6.

**b. Applicable WQOs/WQC.** The WQOs/WQC applicable to the receiving water of this discharge are from the Basin Plan, CTR and NTR.

**(1) Basin Plan.** The Basin Plan specifies numeric WQOs for 10 priority toxic pollutants, as well as narrative WQOs for toxicity and bioaccumulation in order to protect beneficial uses. The pollutants for which the Basin Plan specifies numeric objectives are arsenic, cadmium, chromium (VI), copper in freshwater, lead, mercury, nickel, total PAHs in marine water, silver, zinc, and cyanide. The narrative toxicity objective states in part that "[a]ll 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 that "[c]ontrollable 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 designed, based on available information, to implement these objectives.

**(2) 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 Tables 3-3 and 3-4 of the Basin Plan include numeric objectives for certain of these priority toxic pollutants, which supersede criteria of the CTR (except in the South Bay south of the Dumbarton Bridge).

**(3) 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 34 toxic organic pollutants for waters of San Francisco Bay upstream to, and including Suisun Bay and the Delta. These criteria of the NTR are applicable to Central San Francisco Bay, the receiving water for this Discharger.

c. **Narrative Objectives for Water Quality-Based Toxics Controls.** Where RP exists, but numeric objectives have not been established or updated in the Basin Plan, NPDES regulations at 40 CFR §122.44(d) require that WQBELs be established based on USEPA criteria, supplemented where necessary by other relevant information, to attain and maintain narrative WQOs to fully protect designated beneficial uses.

To determine the need for and establish WQBELs, when necessary, the Regional Water Board staff has followed the requirements of applicable NPDES regulations, including 40 CFR Parts 122 and 131, as well as guidance and requirements established by the Basin Plan; and the State Water Board's *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (the SIP, 2005).

d. **Basin Plan and CTR Receiving Water Salinity Policy.** The Basin Plan (like the CTR and the NTR) states that the salinity characteristics (i.e., freshwater vs. saltwater) of the receiving water shall be considered in determining the applicable WQC. Freshwater criteria shall apply to discharges to waters with salinities equal to or less than 1 part per thousand (ppt) at least 95 percent of the time. Saltwater criteria shall apply to discharges to waters with salinities equal to or greater than 10 ppt at least 95 percent of the time in a normal water year. For discharges to water with salinities in between these two categories, or tidally influenced freshwaters that support estuarine beneficial uses, the criteria shall be the lower of the salt or freshwater criteria (the latter calculated based on ambient hardness) for each substance.

The receiving water for this discharger, Central San Francisco Bay, is a salt water environment based on salinity data generated through the San Francisco Estuary Institute's Regional Monitoring Program (RMP) for Yuerba Buena (BC10) sampling station between 1993 and 1999. In that period, the receiving water's salinity was greater than 10 ppt 95 percent of the time. Therefore, the saltwater criteria from the Basin Plan, NTR, and CTR are applicable to this discharge.

e. **Site-Specific Metals Translators.** Because NPDES regulations at 40 CFR 122.45 (c) require effluent limitations for metals to be expressed as total recoverable metal, and applicable water quality criteria for the metals are typically expressed as dissolved metal, factors or translators must be used to convert metals concentrations from dissolved to total recoverable and vice versa. In the CTR, USEPA establishes default translators which are used in NPDES permitting activities; however, site-specific conditions such as water temperature, pH, suspended solids, and organic carbon greatly impact the form of metal (dissolved, filterable, or otherwise) which is present and therefore available in the water to cause toxicity. In general, the dissolved form of metals 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 WQOs.

For deep water discharges to Central San Francisco Bay, the Regional Water Board staff are using the following translators for copper and nickel, based on recommendations of the Clean Estuary Partnership's *North of Dumbarton Bridge Copper and Nickel Development and Selection of Final Translators* (2005). In determining the need for and calculating WQBELs for all other metals, the Regional Water Board staff has used

default translators established by the USEPA in the CTR at 40 CFR §131.38 (b)(2), Table 2.

**Table F-8. Metal Translators**

| Copper and Nickel Translators for Deepwater Discharges to Central San Francisco Bay | Copper | | Nickel | |
|---|---|---|---|---|
| | **AMEL Translator** | **MDEL Translator** | **AMEL Translator** | **MDEL Translator** |
| | 0.73 | 0.87 | 0.65 | 0.85 |

### 3. Determining the Need for WQBELs

NPDES regulations at 40 CFR §122.44 (d)(1)(i) require permits to include WQBELs for all pollutants (non-priority or priority) "which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any narrative or numeric criteria within a State water quality standard" (have Reasonable Potential). Thus, assessing whether a pollutant has Reasonable Potential is the fundamental step in determining whether or not a WQBEL is required. For non-priority pollutants, Regional Water Board staff used available monitoring data, receiving water's designated uses, and/or previous permit pollutant limitations to determine Reasonable Potential as described in Sections 3.a. and 3.b. below. For priority pollutants, Regional Water Board staff used the methods prescribed in Section 1.3 of the SIP to determine if the discharge from the WWTP demonstrates Reasonable Potential as described below in subSections IV.C.4.g(1) through IV.C.4.g(6).

#### a. Reasonable Potential Analysis

Using the methods prescribed in Section 1.3 of the SIP, Regional Water Board staff analyzed the effluent data to determine if the discharge from the WWTP demonstrates Reasonable Potential. The Reasonable Potential Analysis (RPA) compares the effluent data with numeric and narrative WQOs in the Basin Plan and numeric WQC from the USEPA, the NTR, and the CTR.

#### b. Reasonable Potential Methodology

Using the methods and procedures prescribed in Section 1.3 of the SIP, Regional Water Board staff analyzed the effluent and background data and the nature of facility operations to determine if the discharge has Reasonable Potential to cause or contribute to exceedances of applicable site-specific objectives (SSOs) or WQC. The RPA requires the identification of a maximum effluent concentration (MEC) for each pollutant based on existing data, while accounting for a limited data set and effluent variability. There are three triggers in determining Reasonable Potential.

(1) The first trigger is activated if the MEC is greater than the lowest applicable WQO (MEC $\geq$ WQO), which has been adjusted, if appropriate, for pH, hardness, and translator data. If the MEC is greater than the adjusted WQO, then that pollutant has Reasonable Potential, and a WQBEL is required.

(2) The second trigger is activated if the observed maximum ambient background concentration (B) is greater than the adjusted WQO (B > WQO), and the pollutant is detected in any of the effluent samples.

(3) The third trigger is activated if a review of other information determines that a WQBEL is required to protect beneficial uses, even though both MEC and B are less than the WQO/WQC. A limitation may be required under certain circumstances to protect beneficial uses.

**c. Effluent Data**

The Regional Water Board's August 6, 2001, letter titled *Requirement for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy* (hereinafter referred to as the Regional Water Board's August 6, 2001, Letter) to all permittees, formally required the Discharger (pursuant to Section 13267 of the CWC) to initiate or continue to monitor for the priority pollutants using analytical methods that provide the best detection limits reasonably feasible.

Regional Water Board staff analyzed this effluent data and the nature of the WWTP to determine if the discharge has Reasonable Potential. The RPA was based on the effluent monitoring data collected by the Discharger during the term of the previous Order. For priority pollutants, data from the period January 2004 through September 2009 were used. Due to State Water Resources Control Board Remand Order WQ 2007-0004, monitoring data from January 2004 to September 2009 were used to analyze total ammonia.

**d. Ambient Background Data**

Ambient background values are used in the RPA and in the calculation of effluent limitations. For the RPA, ambient background concentrations are the observed maximum detected water column concentrations. The SIP states that for calculating WQBELs, ambient background concentrations are either the observed maximum ambient water column concentrations or, for criteria/objectives intended to protect human health from carcinogenic effects, the arithmetic mean of observed ambient water concentrations. The RMP station at Yerba Buena Island, located in the Central Bay, has been monitored for most of the inorganic (CTR constituent numbers 1–15) and some of the organic (CTR constituent numbers 16–126) toxic pollutants. Data from the RMP from March 1993 to August 2003 were used as background data in performing the RPA for this Discharger.

Not all the constituents listed in the CTR have been analyzed by the RMP. Data gaps are addressed by the Regional Water Board's August 6, 2001 Letter that formally requires Dischargers (pursuant to Section 13267 of the CWC) to conduct ambient background monitoring and effluent monitoring for those constituents not currently monitored by the RMP and to provide this technical information to the Regional Water Board.

On May 15, 2003, a group of several San Francisco Bay Region Dischargers (known as the Bay Area Clean Water Agencies, or BACWA) submitted a collaborative receiving water study, entitled the *San Francisco Bay Ambient Water Monitoring Interim Report*. This study includes monitoring results from sampling events in 2002 and 2003 for the

remaining priority pollutants not monitored by the RMP. The RPA was conducted and the WQBELs were calculated using RMP data from 1993 through 2003 for inorganics and organics at the Yerba Buena Island RMP station, and additional data from the BACWA *Ambient Water Monitoring: Final CTR Sampling Update Report* for the Yerba Buena Island RMP station.

### e. RPA Determination

The MECs, most stringent applicable WQOs/WQC, and background concentrations used in the RPA are presented in the following table, along with the RPA results (Yes or No) for each pollutant analyzed. Reasonable potential was not determined for all pollutants, as there are not applicable water quality objectives/criteria for all pollutants, and monitoring data was not available for others. RPA results are shown below. The pollutants that exhibit Reasonable Potential are copper, mercury, zinc, cyanide, dioxin-TEQ, tetrachloroethylene, and total ammonia.

**Table F-9. RPA Results for Discharge Point No. 001**

| CTR # | Priority Pollutants | MEC or Minimum DL (1)(2) (µg/L) | Governing WQO/WQC (µg/L) | Maximum Background or Minimum DL (1)(2) (µg/L) | RPA Results(3) |
|---|---|---|---|---|---|
| 1 | Antimony | 5.4 | 4,300 | 1.8 | No |
| 2 | Arsenic | 3.5 | 36 | 2.46 | No |
| 3 | Beryllium | <0.01 | No Criteria | 0.215 | Ud |
| 4 | Cadmium | 0.54 | 9.4 | 0.13 | No |
| 5a | Chromium (III) | 3.2 | No Criteria | Not Available | Ud |
| 5b | Chromium (VI) | 6.4 | 50 | 4.4 | No |
| 6 | Copper | 19.5 | 4.2 | 2.55 | **Yes** |
| 7 | Lead | 6.1 | 8.5 | 0.80 | No |
| 8 | Mercury (303d listed) | 0.0428 | 0.025 | 0.0086 | **Yes** |
| 9 | Nickel | 5.7 | 12.6 | 3.7 | No |
| 10 | Selenium (303d listed) | 0.79 | 5 | 0.39 | No |
| 11 | Silver | 1.1 | 2.2 | 0.052 | No |
| 12 | Thallium | 0.69 | 6.3 | 0.21 | No |
| 13 | Zinc | 118 | 86 | 5.1 | **Yes** |
| 14 | Cyanide | 5.8 | 1.0 | < 0.4 | **Yes** |
| 15 | Asbestos | No Data | No Criteria | Not Available | Ud |
| 16 | 2,3,7,8-TCDD (303d listed) | $<6.09E^{-07}$ | $1.4E^{-08}$ | Not Available | No |
| 16-TEQ | Dioxin-TEQ (303d listed) | $3.40E^{-09}$ | $1.4E^{-08}$(4) | $5.32E^{-08}$ | **Yes** |
| 17 | Acrolein | <2.1 | 780 | < 0.5 | No |
| 18 | Acrylonitrile | <1 | 0.66 | 0.03 | No |
| 19 | Benzene | <0.05 | 71 | < 0.05 | No |
| 20 | Bromoform | <0.1 | 360 | < 0.5 | No |
| 21 | Carbon Tetrachloride | <0.14 | 4.4 | 0.06 | No |
| 22 | Chlorobenzene | <0.05 | 21,000 | < 0.5 | No |
| 23 | Chlorodibromomethane | 0.23 | 34 | < 0.05 | No |
| 24 | Chloroethane | 2.3 | No Criteria | < 0.5 | Ud |
| 25 | 2-Chloroethylvinyl ether | 0.4 | No Criteria | < 0.5 | Ud |
| 26 | Chloroform | 12 | No Criteria | < 0.5 | Ud |
| 27 | Dichlorobromomethane | 1.5 | 46 | < 0.05 | No |
| 28 | 1,1-Dichloroethane | <0.07 | No Criteria | < 0.05 | Ud |

| CTR # | Priority Pollutants | MEC or Minimum DL (1)(2) (µg/L) | Governing WQO/WQC (µg/L) | Maximum Background or Minimum DL (1)(2) (µg/L) | RPA Results(3) |
|---|---|---|---|---|---|
| 29 | 1,2-Dichloroethane | <0.06 | 99 | 0.04 | No |
| 30 | 1,1-Dichloroethylene | 0.15 | 3.2 | < 0.5 | No |
| 31 | 1,2-Dichloropropane | <0.12 | 39 | < 0.05 | No |
| 32 | 1,3-Dichloropropylene | <0.02 | 1,700 | Not Available | No |
| 33 | Ethylbenzene | 0.4 | 29,000 | < 0.5 | No |
| 34 | Methyl Bromide | 1.4 | 4,000 | < 0.5 | No |
| 35 | Methyl Chloride | 8.2 | No Criteria | < 0.5 | Ud |
| 36 | Methylene Chloride | 4.2 | 1600 | 0.5 | No |
| 37 | 1,1,2,2-Tetrachloroethane | <0.11 | 11 | < 0.05 | No |
| 38 | Tetrachloroethylene | 11 | 8.85 | < 0.5 | **Yes** |
| 39 | Toluene | 17 | 200,000 | < 0.3 | No |
| 40 | 1,2-Trans-Dichloroethylene | <0.14 | 140,000 | < 0.5 | No |
| 41 | 1,1,1-Trichloroethane | 0.61 | No Criteria | < 0.5 | Ud |
| 42 | 1,1,2-Trichloroethane | <0.03 | 42 | < 0.05 | No |
| 43 | Trichloroethylene | 1.2 | 81 | < 0.5 | No |
| 44 | Vinyl Chloride | <0.07 | 525 | < 0.5 | No |
| 45 | 2-Chlorophenol | <0.19 | 400 | < 1.2 | No |
| 46 | 2,4-Dichlorophenol | <0.27 | 790 | < 1.3 | No |
| 47 | 2,4-Dimethylphenol | 0.32 | 2,300 | < 1.3 | No |
| 48 | 2-Methyl- 4,6-Dinitrophenol | <0.95 | 765 | < 1.2 | No |
| 49 | 2,4-Dinitrophenol | <0.95 | 14,000 | < 0.7 | No |
| 50 | 2-Nitrophenol | <0.095 | No Criteria | < 1.3 | Ud |
| 51 | 4-Nitrophenol | 1.5 | No Criteria | < 1.6 | Ud |
| 52 | 3-Methyl 4-Chlorophenol | <0.19 | No Criteria | < 1.1 | Ud |
| 53 | Pentachlorophenol | <0.94 | 7.9 | < 1.0 | No |
| 54 | Phenol | 0.35 | 4,600,000 | < 1.3 | No |
| 55 | 2,4,6-Trichlorophenol | 0.25 | 6.5 | < 1.3 | No |
| 56 | Acenaphthene | <0.046 | 2,700 | 0.0015 | No |
| 57 | Acenaphthylene | <0.031 | No Criteria | 0.00053 | Ud |
| 58 | Anthracene | <0.0034 | 110,000 | 0.0005 | No |
| 59 | Benzidine | <0.94 | 0.00054 | < 0.0015 | No |
| 60 | Benzo(a)Anthracene | <0.0058 | 0.049 | 0.0053 | No |
| 61 | Benzo(a)Pyrene | <0.0079 | 0.049 | 0.00029 | No |
| 62 | Benzo(b)Fluoranthene | <0.0079 | 0.049 | 0.0046 | No |
| 63 | Benzo(ghi)Perylene | <0.012 | No Criteria | 0.0027 | Ud |
| 64 | Benzo(k)Fluoranthene | <0.02 | 0.049 | 0.0015 | No |
| 65 | Bis(2-Chloroethoxy)Methane | <0.095 | No Criteria | < 0.3 | Ud |
| 66 | Bis(2-Chloroethyl)Ether | <0.19 | 1.4 | < 0.3 | No |
| 67 | Bis(2-Chloroisopropyl)Ether | 0.14 | 170,000 | Not Available | No |
| 68 | Bis(2-Ethylhexyl)Phthalate | 0.87 | 5.9 | < 0.5 | No |
| 69 | 4-Bromophenyl Phenyl Ether | <0.095 | No Criteria | < 0.23 | Ud |
| 70 | Butylbenzyl Phthalate | 0.88 | 5,200 | < 0.52 | No |
| 71 | 2-Chloronaphthalene | <0.19 | 4,300 | < 0.3 | No |
| 72 | 4-Chlorophenyl Phenyl Ether | <0.19 | No Criteria | < 0.3 | Ud |
| 73 | Chrysene | <0.0036 | 0.049 | 0.0024 | No |
| 74 | Dibenzo(a,h)Anthracene | <0.0054 | 0.049 | 0.00064 | No |
| 75 | 1,2-Dichlorobenzene | 0.22 | 17,000 | < 0.8 | No |
| 76 | 1,3-Dichlorobenzene | 3.1 | 2,600 | < 0.8 | No |

| CTR # | Priority Pollutants | MEC or Minimum DL (1)(2) (µg/L) | Governing WQO/WQC (µg/L) | Maximum Background or Minimum DL (1)(2) (µg/L) | RPA Results(3) |
|---|---|---|---|---|---|
| 77 | 1,4-Dichlorobenzene | 3.9 | 2,600 | < 0.8 | No |
| 78 | 3,3 Dichlorobenzidine | <0.095 | 0.077 | < 0.001 | No |
| 79 | Diethyl Phthalate | 0.24 | 120,000 | < 0.24 | No |
| 80 | Dimethyl Phthalate | <0.094 | 2,900,000 | < 0.24 | No |
| 81 | Di-n-Butyl Phthalate | 1.1 | 12,000 | < 0.5 | No |
| 82 | 2,4-Dinitrotoluene | <0.95 | 9.1 | < 0.27 | No |
| 83 | 2,6-Dinitrotoluene | 1.9 | No Criteria | < 0.29 | Ud |
| 84 | Di-n-Octyl Phthalate | 0.74 | No Criteria | < 0.38 | Ud |
| 85 | 1,2-Diphenylhydrazine | No Data | 0.54 | 0.0037 | No |
| 86 | Fluoranthene | <0.009 | 370 | 0.011 | No |
| 87 | Fluorene | <0.0073 | 14,000 | 0.00208 | No |
| 88 | Hexachlorobenzene | <0.0015 | 0.00077 | 0.0000202 | No |
| 89 | Hexachlorobutadiene | <0.12 | 50 | < 0.3 | No |
| 90 | Hexachlorocyclopentadiene | <0.94 | 17,000 | < 0.31 | No |
| 91 | Hexachloroethane | <0.22 | 8.9 | < 0.2 | No |
| 92 | Indeno(1,2,3-cd)Pyrene | <0.0045 | 0.049 | 0.004 | No |
| 93 | Isophorone | 0.44 | 600 | < 0.3 | No |
| 94 | Naphthalene | <0.033 | No Criteria | 0.0023 | Ud |
| 95 | Nitrobenzene | <0.095 | 1,900 | < 0.25 | No |
| 96 | N-Nitrosodimethylamine | <0.19 | 8.1 | < 0.3 | No |
| 97 | N-Nitrosodi-n-Propylamine | <0.095 | 1.4 | < 0.001 | No |
| 98 | N-Nitrosodiphenylamine | <0.095 | 16 | < 0.001 | No |
| 99 | Phenanthrene | <0.0063 | No Criteria | 0.0061 | Ud |
| 100 | Pyrene | <0.0027 | 11,000 | 0.0051 | No |
| 101 | 1,2,4-Trichlorobenzene | <0.11 | No Criteria | < 0.3 | Ud |
| 102 | Aldrin | <0.0014 | 0.00014 | Not Available | No |
| 103 | alpha-BHC | <0.00061 | 0.013 | 0.000496 | No |
| 104 | beta-BHC | <0.001 | 0.046 | 0.000413 | No |
| 105 | gamma-BHC | <0.0023 | 0.063 | 0.0007034 | No |
| 106 | delta-BHC | <0.00064 | No Criteria | 0.000042 | Ud |
| 107 | Chlordane (303d listed) | <0.014 | 0.00059 | 0.00018 | No |
| 108 | 4,4'-DDT (303d listed) | <0.0013 | 0.00059 | 0.000066 | No |
| 109 | 4,4'-DDE (linked to DDT) | <0.00097 | 0.00059 | 0.000693 | No |
| 110 | 4,4'-DDD | <0.00077 | 0.00084 | 0.000313 | No |
| 111 | Dieldrin (303d listed) | <0.00077 | 0.00014 | 0.000264 | No |
| 112 | alpha-Endosulfan | <0.00067 | 0.0087 | 0.000031 | No |
| 113 | beta-Endolsulfan | <0.00055 | 0.0087 | 0.000069 | No |
| 114 | Endosulfan Sulfate | <0.00079 | 240 | 0.0000819 | No |
| 115 | Endrin | <0.00063 | 0.0023 | 0.000036 | No |
| 116 | Endrin Aldehyde | <0.00042 | 0.81 | Not Available | No |
| 117 | Heptachlor | <0.00084 | 0.00021 | 0.000019 | No |
| 118 | Heptachlor Epoxide | <0.00117 | 0.00011 | 0.00002458 | No |
| 119-125 | PCBs sum (303d listed) | 0.02 | 0.00017 | Not Available | No |
| 126 | Toxaphene | <0.0691 | 0.0002 | Not Available | No |
| | Tributyltin | No Data | 0.01 | < 0.001 | No |
| | Total PAHs | No Data | 15 | 0.26 | No |
| | Total Ammonia(5) | 48.4 | 1.27 | 0.13(6) | **Yes** |

Footnotes for Table F-9:

(1) The Maximum Effluent Concentration (MEC) or maximum background concentration is the actual detected concentration unless there is a "<" sign before it, in which case the value shown is the minimum detection level.

(2) The MEC or maximum background concentration is "Not Available" when there are no monitoring data for the constituent.

(3) RPA Results = Yes, if MEC > WQO/WQC, or B > WQO/WQC and MEC is detected;
= No, if MEC and B are < WQO/WQC or all effluent data are undetected;
= Undetermined (Ud), if no criteria have been promulgated;
= Cannot determine if there are insufficient data.

(2) WQO translated from a narrative objective in the Basin Plan.

(3) The units for total ammonia are mg/L.

(4) For chronic criterion calculation, the median ambient background total ammonia concentration is used. This is because the Basin Plan's chronic un-ionized ammonia objective is an annual median.

**(1) Constituents with limited data.** The Discharger has performed sampling and analysis for the constituents listed in the CTR. This data set was used to perform the RPA. In some cases, Reasonable Potential cannot be determined because effluent data are limited, or ambient background concentrations are not available. The Discharger will continue to monitor for these constituents in the effluent using analytical methods that provide the best feasible detection limits. When additional data become available, further RPA will be conducted to determine whether to add numeric effluent limitations to this Order or to continue monitoring.

**(2) 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, the Discharger will be required to investigate the source(s) of the increase(s). Remedial measures are required if the increases pose a threat to water quality in the receiving water.

The previous Order (Order No. 01-072) included final WQBELs for chromium VI, lead, nickel, and silver, and interim effluent limitations for 4,4'-DDE and dieldrin. The RPA showed that discharges from the WWTP no longer demonstrate a Reasonable Potential to cause or contribute to exceedances of applicable water quality criteria for these pollutants. Therefore effluent limitations from the previous Order are not retained, and new limitations are not included in the Order for these pollutants. This is consistent with State Water Resources Control Board Order WQ 2001-16.

## 4. WQBEL Calculations

### a. Pollutants with Reasonable Potential

WQBELs were developed for the toxic and priority pollutants that were determined to have Reasonable Potential to cause or contribute to exceedances of the WQOs or WQC with the exception of mercury, which is regulated by Order No. R2-2007-0077. The WQBELs were calculated based on appropriate WQOs/WQC and the appropriate procedures specified in Section 1.4 of the SIP. The WQOs or WQC used for each pollutant with reasonable potential is discussed below.

**b. Dilution Credit**

In response to the State Water Board's Order No. 2001-06, the Regional Water Board has evaluated the assimilative capacity of the receiving water for 303(d)-listed pollutants for which the Discharger has Reasonable Potential to cause or contribute to an excursion above any State water quality standard in its discharge. The evaluation included a review of RMP data (local and Central Bay stations), effluent data, and WQOs/WQC. From this evaluation, it is determined that the assimilative capacity is highly variable because of the complex hydrology of the receiving water. Therefore, there is uncertainty associated with the representative nature of the appropriate ambient background data to conclusively quantify the assimilative capacity of the receiving water. Pursuant to Section 1.4.2.1 of the SIP, "dilution credit may be limited or denied on a pollutant-by-pollutant basis…."

(1) For certain bioaccumulative pollutants, based on BPJ, dilution credit is not included in calculating WQBELs. This determination is based on available data on concentrations of these pollutants in aquatic organisms, sediment, and the water column. Dioxin and furan compounds appear on the CWA Section 303(d) list for Central San Francisco Bay because they impair Central San Francisco Bay's beneficial uses. The following factors suggest insufficient assimilative capacity in San Francisco Bay for this pollutant.

San Francisco Bay fish tissue data show that dioxin and furan compounds exceed screening levels. The fish tissue data are contained in *Contaminant Concentrations in Fish from San Francisco Bay 1997* (May 1997). Denial of dilution credits for this pollutant is further justified by fish advisories to the San Francisco Bay. The Office of Environmental Health and Hazard Assessment (OEHHA) performed a preliminary review of the data from the 1994 San Francisco Bay pilot study, *Contaminated Levels in Fish Tissue from San Francisco Bay*. The results of the study showed elevated levels of chemical contaminants in the fish tissues. Based on these results, OEHHA issued an interim consumption advisory covering certain fish species from the Bay in December 1994. This interim consumption advice was issued and is still in effect owing to health concerns based on exposure to sport fish from the Bay contaminated with dioxins.

(2) In calculating WQBELs for total ammonia (a non-bioaccumulative and non-persistent pollutant), the actual initial dilution of 25:1 for the acute objective and 341:1 for the chronic objective was used. This dilution is based on a 2008 URS report that estimated a minimum initial dilution of 25:1 during ambient current speeds less than 0.1 m/s and when the water column was stratified, and an initial dilution of 341:1 for effluent flow rates of 0 to 282 MGD and conservative receiving water conditions (i.e., current speeds up to 0.7 m/s). Actual initial dilution is used because ammonia is not a persistent pollutant and the Basin Plan states, "In most instances, ammonia will be diluted or degraded to a nontoxic state fairly rapidly." As such, there is unlikely to be cumulative toxicity effects associated with discharges containing elevated concentrations of ammonia. Therefore, granting dilution credits based on actual initial dilution is protective of water quality.

(3) For cyanide, a non-persistent pollutant that quickly disperses and degrades like ammonia, a more conservative dilution rate of 10:1 was used to calculate the water

quality based effluent limits. Whereas the action initial dilution of 25:1 was granted for ammonia, less dilution is granted for cyanide because SIP Section 1.4.2.2 dictates that mixing zones be a small as practicable. Limiting dilution is equivalent to decreasing the size of the allowed mixing zone. The different approach for cyanide (versus ammonia) reflects the fact that cyanide has been regulated in permits for decades in this region. As a result of past conservative policies and changes in policies and standards, the process for deriving effluent limits for cyanide are more stringent than those for ammonia to comply with antidegradation. In other words, because past policies have resulted in very stringent limitations, to backslide from these limits, CWA 303(d)(4) provides that there must be compliance with antidegradation policies. Since the background documentation for the proposed cyanide site-specific objectives included an antidegradation analysis, which concluded that certain effluent limitations resulting from implementation of the site-specific objectives (assuming 10:1 dilution) would not degrade water quality, the dilution credit used here is the dilution credit that results in effluent limits no greater than those identified in the site-specific objectives documents for this Discharger. This resultant dilution credit for cyanide is also in compliance with the SIP, which requires the mixing zone be as small as practicable. Additionally, consistent with the site-specific objective conclusion on antidegradation, to further ensure that water quality is not degraded, this Order requires a cyanide action plan.

(4) For persistent non-bioaccumulative constituents, a conservative allowance of 10:1 dilution for discharges to the Bay has been assigned for protection of beneficial uses. Though this is less than the actual dilution achieved, limiting dilution credit for persistent non-bioaccumulative pollutants is based on SIP provisions, Section 1.4.2, that consider the following:

(a) The SIP allows background to be determined on a discharge-by-discharge or water body-by-water body basis (SIP 1.4.3). Consistent with the SIP, Regional Water Board is using a water body-by-water body basis because of the uncertainties inherent in accurately characterizing ambient background in a complex estuarine system on a discharge-by-discharge basis.

The Yerba Buena Island Station fits the guidance for ambient background in the SIP compared to other stations in the RMP. The SIP states that background data are applicable if they are "representative of the ambient receiving water column that will mix with the discharge." Water from this station is representative of water that will mix with the discharge from this Discharger. Although this station is located near the Golden Gate, it would represent the typical water flushing in and out of the Bay each tidal cycle. For most of the Bay, the waters represented by this station make up a large part of the receiving water that will mix with the discharge.

(b) Because of the complex hydrology of the San Francisco Bay, a mixing zone has not been established. There are uncertainties in accurately determining the mixing zones for each discharge. The models that have been used to predict dilution have not considered the three-dimensional nature of the currents in the estuary resulting from the interaction of tidal flushes and seasonal fresh water

outflows. Salt water is heavier than fresh water, colder saltwater from the ocean flushes in twice a day generally under the warmer fresh river waters that flow out annually. When these waters mix and interact, complex circulation patterns occur due to the different densities of these waters. These complex patterns occur throughout the estuary but are most prevalent in the San Pablo, Carquinez Strait, and Suisun Bay areas. The locations change depending on the strength of each tide and the variable rate of delta outflow. Additionally, sediment loads to the San Francisco Bay from the Central Valley also change on a longer-term basis. These changes can result in changes to the depths of different parts of the Bay making some areas more shallow and/or other areas more deep. These changes affect flow patterns that in turn can affect the initial dilution achieved by a diffuser.

(c) The SIP allows a limited mixing zone and dilution credit for persistent pollutants. Discharges to the bay are defined in the SIP as incompletely mixed discharges. Thus, dilution credit should be determined using site-specific information. Section 1.4.2.2 of the SIP specifies that the Regional Water Board "significantly limit a mixing zone and dilution credit as necessary… For example, in determining the extent of a mixing zone or dilution credit, the RWQCB shall consider the presence of pollutants in the discharge that are …persistent." The SIP defines persistent pollutants to be "substances for which degradation or decomposition in the environment is nonexistent or very slow." The pollutants at issue here are persistent pollutants (e.g. copper). The dilution studies that estimate actual dilution do not address the effects of these persistent pollutants in the Bay environment, such as their long-term effects on sediment concentrations. Though this concern would not apply to non-persistent pollutants like cyanide and some organic compounds, a conservative dilution credit is still appropriate because of the lack of near field receiving water data for these pollutants.

The main justification for using a 10:1 dilution credit is the uncertainty in accurately determining both ambient background and the mixing zone in a complex estuarine system with multiple wastewater discharges.

**c. Summary of Existing Water Quality-Based Effluent Limitations**

The following provides a summary of WQBELs from the previous Order term:

**Table F-10. Summary of Water Quality Based Effluent Limitations (WQBELs) for Toxic Pollutants from Previous Order**

| Parameter | Units | Water Quality Based Effluent Limitations | | | Interim Limitations | |
|---|---|---|---|---|---|---|
| | | Average Monthly | Average Weekly | Maximum Daily | Daily Maximum | Monthly Average |
| Chromium VI | µg/L | -- | -- | 110 | -- | -- |
| Copper | µg/L | -- | -- | -- | 37 | -- |
| Lead | µg/L | 37 | -- | 53 | -- | -- |
| Mercury[(1)] | ng/L | -- | -- | -- | -- | 87 |
| Nickel | µg/L | 34 | -- | 59 | -- | -- |
| Cyanide | µg/L | -- | -- | -- | 10 | -- |
| Silver | µg/L | 12 | -- | 23 | -- | -- |
| Zinc | µg/L | 460 | -- | 589 | -- | -- |
| 4,4-DDE | ng/L | -- | -- | -- | -- | 50 |
| Dieldrin | ng/L | -- | -- | -- | -- | 10 |
| TCDD Equivalent | pg/L | -- | -- | -- | -- | 0.14 |

Footnotes for Table F-10:

(1) In addition to the concentration-based effluent limitation, the previous Order required compliance with a mass emission limit for mercury of 1.0 kg/month.

### d. WQBEL Calculations

The following table summarizes the calculations for WQBELs for those parameters that exhibited Reasonable Potential in the effluent except for mercury, which is regulated by Order No. R2-2007-0077. These parameters include copper, zinc, cyanide, dioxin-TEQ, tetrachloroethylene, and total ammonia.

## Table F-11. Effluent Limit Calculations for Discharge Point No. 001

| PRIORITY POLLUTANTS | Copper | Zinc | Cyanide |
|---|---|---|---|
| Units | µg/L | µg/L | µg/L |
| Basis and Criteria type | BP SSOs | BP & CTR SW Aquatic Life | BP SSOs |
| CTR Criteria -Acute | 3.9 | 95 | 9.4 |
| CTR Criteria -Chronic | 2.5 | 86 | 2.9 |
| Water Effects ratio (WER) | 2.4 | -- | |
| Lowest WQO | | 86 | 2.9 |
| Site Specific Translator - MDEL | 0.87 | -- | |
| Site Specific Translator - AMEL | 0.73 | -- | |
| Dilution Factor (D) (if applicable) | 9 | 9 | 9 |
| No. of samples per month | 4 | 4 | 4 |
| Aquatic life criteria analysis required? (Y/N) | Y | Y | Y |
| HH criteria analysis required? (Y/N) | N | N | Y |
| Applicable Acute WQO | 11 | 95 | 9.4 |
| Applicable Chronic WQO | 8.2 | 86 | 2.9 |
| HH criteria | | -- | 220000 |
| Background (Maximum Conc. for Aquatic Life calc) | 2.55 | 5.1 | 0.4 |
| Background (Average Conc. for Human Health calc) | | -- | 0.4 |
| Is the pollutant Bioaccumulative(Y/N)? (e.g., Hg) | N | N | N |
| ECA acute | 85 | 905 | 90 |
| ECA chronic | 59 | 810 | 25 |
| ECA HH | | -- | 2199996 |
| No. of data points <10 or at least 80% of data reported non detect? (Y/N) | N | N | N |
| Average of effluent data points | 7.3 | 48 | 2.4 |
| Std Dev of effluent data points | 3.5 | 22 | 1.1 |
| CV calculated | 0.48 | 0.46 | 0.48 |
| CV (Selected) – Final | 0.48 | 0.46 | 0.48 |
| ECA acute mult99 | 0.38 | 0.40 | 0.38 |
| ECA chronic mult99 | 0.59 | 0.61 | 0.59 |
| LTA acute | 32.55 | 359.74 | 34.77 |
| LTA chronic | 35.13 | 490.35 | 15.06 |
| minimum of LTAs | 32.55 | 359.74 | 15.06 |
| AMEL mult95 | 1.44 | 1.42 | 1.44 |
| MDEL mult99 | 2.60 | 2.52 | 2.60 |
| AMEL (aquatic life) | 46.72 | 509 | 21.62 |
| MDEL(aquatic life) | 84.64 | 905 | 39.16 |
| MDEL/AMEL Multiplier | 1.81 | 1.94 | 1.81 |
| AMEL (human health) | | -- | 2199996 |
| MDEL (human health) | | -- | 3985388 |
| minimum of AMEL for Aquatic Life vs. HH | 47 | 466 | 22 |
| minimum of MDEL for Aquatic Life vs. HH | 85 | 905 | 39 |
| Current limit in permit (30-day average) | | 460 | |
| Current limit in permit (daily maximum) | 37 (interim) | 589 | 10 (interim) |
| Final limit – AMEL | 47 | 460 | 22 |
| Final limit – MDEL | 85 | 590 | 39 |
| Max Effluent Conc. (MEC) | 19.5 | 118 | 5.8 |

## Table F-11. Effluent Limit Calculations (Continued)

| PRIORITY POLLUTANTS | Dioxin TEQ | Tetrachloroethylene | Total Ammonia | |
|---|---|---|---|---|
| Units | µg/L | µg/L | mg/L | mg/L |
| Basis and Criteria type | Basin Plan HH | CTR HH | Basin Plan & CTR SW Aquatic Life | Basin Plan & CTR SW Aquatic Life |
| CTR Criteria -Acute | -- | -- | 4.93 | -- |
| CTR Criteria -Chronic | -- | -- | -- | 1.27 |
| SSO Criteria -Acute (December 2004) (Diss.) | -- | -- | -- | -- |
| SSO Criteria -Chronic (December 2004) (Diss.) | -- | -- | -- | -- |
| Water Effects ratio (WER) | -- | -- | 1 | 1 |
| Lowest WQO | 1.40E-08 | 8.9 | 4.93 | 1.27 |
| Site Specific Translator - MDEL | -- | -- | -- | -- |
| Site Specific Translator - AMEL | -- | -- | -- | -- |
| Dilution Factor (D) (if applicable) | 0 | 9 | 24 | 340 |
| No. of samples per month | 4 | 4 | 4 | 30 |
| Aquatic life criteria analysis required? (Y/N) | N | N | Y | Y |
| HH criteria analysis required? (Y/N) | Y | Y | N | N |
| Applicable Acute WQO | -- | -- | 4.93 | -- |
| Applicable Chronic WQO | -- | -- | -- | 1.27 |
| HH criteria | 1.40E-08 | 8.85 | N | N |
| Background (Maximum Conc. for Aquatic Life calc) | 5.32E-08 | | 0.43 | 0.13[1] |
| Background (Average Conc. for Human Health calc) | 2.00E-08 | 0.5 | -- | -- |
| Is the pollutant Bioaccumulative(Y/N)? (e.g., Hg) | Y | N | N | N |
| ECA acute | -- | -- | 113 | -- |
| ECA chronic | -- | -- | -- | 389 |
| ECA HH | 1.40E-08 | 84.00 | -- | -- |
| No. of data points <10 or at least 80% of data reported non detect? (Y/N) | Y | N | N | N |
| Average of effluent data points | -- | 1.5 | 33.8 | 33.8 |
| Std Dev of effluent data points | -- | 2.6 | 7.2 | 7.2 |
| CV calculated | N/A | 1.8 | 0.21 | 0.21 |
| CV (Selected) – Final | 0.60 | 1.8 | 0.21 | 0.21 |
| ECA acute mult99 | -- | -- | 0.626 | -- |
| ECA chronic mult99 | -- | -- | -- | 0.974 |
| LTA acute | -- | -- | 70.72 | -- |
| LTA chronic | -- | -- | -- | 378.93 |
| minimum of LTAs | -- | -- | 70.72 | 378.93 |
| AMEL mult95 | 1.55 | 2.61 | 1.2 | 1.1 |
| MDEL mult99 | 3.11 | 7.82 | 1.6 | 1.6 |
| AMEL (aquatic life) | -- | -- | 83.8 | 403.7 |
| MDEL(aquatic life) | -- | -- | 112.9 | 605.1 |
| MDEL/AMEL Multiplier | 2.01 | 3.00 | 1.3 | 1.5 |
| AMEL (human health) | 1.40E-08 | 84.00 | -- | -- |
| MDEL (human health) | 2.81E-08 | 251.89 | -- | -- |
| minimum of AMEL for Aquatic Life vs. HH | 1.40E-08 | 84 | 83.8 | 403.7 |
| minimum of MDEL for Aquatic Life vs. HH | 2.81E-08 | 252 | 112.9 | 605.1 |
| Current limit in permit (30-day average) | 1.4E-07 (Interim) | -- | -- | -- |
| Current limit in permit (daily maximum) | -- | -- | -- | -- |
| Final limit – AMEL | 1.4E-08 | 84 | 84 | 400 |
| Final limit – MDEL | 2.8E-08 | 250 | 110 | 610 |
| Max Effluent Conc. (MEC) | 3.4E-09 | 11 | 48.4 | 48.4 |

Footnotes for Table F-11:

(1) For the chronic aquatic life based calculation, the median ambient background total ammonia concentration is used because the Basin Plan expresses WQOs for unionized ammonia as an annual median.

### f. Summary of Numeric Effluent Limitations for Discharge Point No. 001

The following is a summary of the water quality-based effluent limitations established by this Order for Discharge Point No. 001.

**Table F-12. Summary of Water Quality Based Effluent Limitations (WQBELs) for Toxic Pollutants**

| Parameter | Units | Water Quality –Based Effluent Limits (WQBELs) | |
|---|---|---|---|
| | | Average Monthly (AMEL) | Maximum Daily (MDEL) |
| Copper | µg/L | 47 | 85 |
| Zinc | µg/L | 460 | 590 |
| Cyanide | µg/L | 22 | 39 |
| Dioxin-TEQ | µg/L | $1.4 \times 10^{-8}$ | $2.8 \times 10^{-8}$ |
| Tetrachloroethylene | µg/L | 84 | 250 |
| Total Ammonia | mg/L | 84 | 110 |

### g. Calculation of Pollutant Specific WQBELs

#### (1) Copper

(a) *Copper WQC*. *Copper WQC*. The most stringent copper chronic and acute marine WQC of 6.0 and 9.4 µg/L are the Basin Plan SSOs for Central San Francisco Bay, expressed as dissolved metal. Regional Water Board staff converted these WQC to total recoverable metal using the Basin Plan site-specific translators of 0.73 and 0.87. The resulting chronic WQC of 8.2 µg/L and acute WQC of 11 µg/L were used in the RPA.

(b) *RPA Results*. This Order establishes effluent limitations for copper, because the MEC of 19.5 µg/L exceeds the applicable water quality criteria for this pollutant, demonstrating reasonable potential by Trigger 1, as defined previously.

(c) *Copper WQBELs*. WQBELs for copper, calculated according to SIP procedures, with an effluent data coefficient of variation (CV) of 0.48 and a dilution credit of D=9, are an AMEL of 47 µg/L and an MDEL of 85 µg/L. Because the MDEL in the previous Order was an interim limitation, it is not being retained by this Order. The newly calculated limitations, based on CTR criteria are being established as final effluent limitations for copper.

(d) *Immediate Compliance Feasible*. Statistical analysis of effluent data for copper, collected over the period of January 2004 through September 2009, shows that the 95$^{th}$ percentile (14 µg/L) is less than the AMEL (47 µg/L); the 99$^{th}$ percentile (18 µg/L) is less than the MDEL (85 µg/L); and the mean (7.0 µg/L) is less than the long term average of the projected lognormal distribution of the effluent data set after accounting for effluent variability (33 µg/L). The reported effluent data indicates that the Discharger should be able to comply with the effluent

limitations based on the SSO for copper. The Regional Water Board concludes, therefore, that immediate compliance with final effluent limitations for copper is feasible, and final effluent limitations will become effective upon adoption of this Order.

(e) *Anti-backsliding*. Anti-backsliding requirements are satisfied because the previous permit did not include final effluent limitations for copper.

**(2) Zinc**

(a) *Zinc WQC.* The salt water, acute and chronic criteria from the Basin Plan and the CTR for zinc for protection of aquatic life are 95 µg/L and 86 µg/L, respectively.

(b) *RPA results.* This Order establishes effluent limitations for zinc, because the MEC of 118 µg/L exceeds the applicable water quality criteria for this pollutant, demonstrating reasonable potential by Trigger 1, as defined previously.

(c) *Zinc WQBELs.* WQBELs for zinc calculated according to SIP procedure using a CV of 0.46 and a dilution credit of D = 9 are an AMEL of 470 ug/L and an MDEL of 910 ug/L. The previous permit contained more stringent limits of an AMEL of 460 µg/L and an MDEL of 590 µg/L.

(d) *Immediate Compliance Feasible.* Statistical analysis of effluent data for zinc, collected over the period of January 2004 through September 2009 shows that the 95th percentile (87 µg/L) is less the AMEL in the previous permit (460 µg/L), and the 99th percentile (115 µg/L) is less than the MDEL in the previous permit (590 µg/L). The Regional Water Board therefore concludes that immediate compliance with the zinc effluent limitations in the previous permit is feasible.

*(e) Anti-backsliding.* This Order retains the more stringent WQBELs from the previous permit, thereby satisfying anti-backsliding requirements.

**(3) Cyanide**

(a) *Cyanide WQC*. The most stringent applicable WQOs for cyanide are the Basin Plan's site-specific chronic and acute marine WQOs, 2.9 and 9.4 µg/L, respectively, for protection of marine aquatic life in San Francisco Bay.

(b) *RPA Results*. This Order establishes effluent limitations for cyanide because the MEC of 5.8 µg/L exceeds the most stringent applicable WQO of 2.9 µg/L, demonstrating Reasonable Potential by Trigger 1.

(c) *Cyanide WQBELs*. WQBELs for cyanide calculated according to SIP procedure using a CV of 0.48 and a dilution credit of D = 9 are an AMEL of 22 ug/L and an MDEL of 39 ug/L.

(d) *Immediate Compliance Feasible*. Due to the high percentage of nondetects (60%), it is not possible to conduct a statistical analysis on cyanide effluent data. As such, Regional Water Board staff evaluated feasibility to comply by comparing

the MEC (5.8 µg/L) to the AMEL (22 µg/L). This indicates that the Discharger should be able to comply with final effluent limits based on the SSO for cyanide. The Regional Water Board concludes, therefore, that immediate compliance with final effluent limitations for cyanide is feasible, and final effluent limitations will become effective upon adoption of this Order.

(e) *Anti-backsliding*. Anti-backsliding requirements are satisfied because the previous permit did not include final effluent limitations for cyanide.

**(4) Dioxin-TEQ**

(a) *Dioxin-TEQ WQO*. The Basin Plan's narrative WQO for bioaccumulative substances states:

> *Many pollutants can accumulate on particulates, in sediments, or bioaccumulate in fish and other aquatic organisms. Controllable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered.*

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

The CTR establishes a numeric WQO for 2,3,7,8-tetrachlorinated dibenzo-p-dioxin (2,3,7,8-TCDD) of $1.4 \times 10^{-8}$ µg/L for the protection of 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 toxic equivalents (TEQs) in NPDES permits. For California waters, USEPA stated specifically, "if the discharge of dioxin or dioxin-like compounds has reasonable potential to cause or contribute to a violation of a narrative criterion, numeric WQBELs for dioxin or dioxin-like compounds should be included in NPDES permits and should be expressed using a TEQ scheme." [65 Fed. Reg. 31682, 31695 (2000)]. This procedure, developed by the World Health Organization (WHO) in 1998, uses a set of toxicity equivalency factors (TEFs) to convert the concentration of any congener of dioxin or furan into an equivalent concentration of 2,3,7,8-TCDD.

This Order uses the 1998 TEF scheme, and the CTR WQO for 2,3,7,8-TCDD to translate the Basin Plan's narrative bioaccumulation objective into a numeric criterion to use in the RPA and from which to derive effluent limits. This translation also incorporates bioaccumulation equivalency factors (BEFs) USEPA

developed for the Great Lakes System to account for differing bioaccumulation rates among dioxin congeners in the food web (40 CFR 132, Appendix F). USEPA supports the use of these BEFs beyond the Great Lakes System, stating, "…EPA believes that national bioaccumulation factors are broadly applicable to sites throughout the United States and can be applied to achieve an acceptable degree of accuracy when estimating bioaccumulation potential at most sites."

(b) *RPA Results*. To determine if Reasonable Potential exists for dioxin or dioxin-like compounds in this discharge, Regional Water Board staff used TEFs and BEFs 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 ($1.4 \times 10^{-8}$ µg/L).

This Order establishes effluent limitations for dioxin-TEQ because dioxin-TEQ was detected in the effluent ($3.40 \times 10^{-9}$ µg/L) and Central San Francisco Bay is impaired for dioxin and furan congeners, demonstrating Reasonable Potential by Triggers 2 and 3.

(c) *WQBELs*. WQBELs for dioxin–TEQ calculated using SIP procedures using the default CV of 0.6 and no dilution credit are an AMEL of $1.4 \times 10^{-8}$ and an MDEL of $2.8 \times 10^{-8}$ µg/L.

(d) *Immediate Compliance Feasible*. Since there is insufficient data to calculate a 95th or 99th percentile concentration, feasibility to comply is determined by comparing the MEC of $3.4 \times 10^{-9}$ µg/L to the AMEL ($1.4 \times 10^{-8}$ µg/L). This indicates that the Discharger should be able to comply with final effluent limits for dioxin-TEQ. The Regional Water Board concludes, therefore, that immediate compliance with final effluent limitations for dioxin-TEQ is feasible, and final effluent limitations will become effective upon adoption of this Order.

(e) *Anti-backsliding*. Anti-backsliding requirements are satisfied because the previous permit did not include final effluent limitations for dioxin-TEQ.

**(5) Tetrachloroethylene**

(a) *Tetrachloroethylene WQC.* The most stringent applicable water quality criterion for tetrachloroethylene is 8.85 µg/L, which is established from the CTR human health criteria for the consumption of organisms only.

(b) *RPA Results*. This Order establishes effluent limitations for tetrachloroethylene because the MEC of 11 µg/L exceeds the most stringent applicable WQO of 8.85 µg/L, demonstrating Reasonable Potential by Trigger 1.

(c) *WQBELs*. WQBELs for tetrachloroethylene calculated according to SIP procedure using a CV of 1.8 and a dilution credit of D = 9 are an AMEL of 84 ug/L and an MDEL of 250 ug/L .

(d) *Immediate Compliance Feasible*. Statistical analysis of effluent data for tetrachloroethylene, collected over the period of January 2004 through September 2009, shows using a reciprocal distribution, that the 95$^{th}$ percentile (4.2 µg/L) is less than the AMEL (84 µg/L). Because of the small size of the data set and the reciprocal distribution pattern, it was not possible to calculate a 99$^{th}$ percentile. However, since the MEC (11 µg/L) is well below the MDEL (250 µg/L), the Regional Water Board concludes that immediate compliance with final effluent limitations for tetrachloroethylene is feasible, and final effluent limitations will become effective upon adoption of this Order.

(e)*Anti-backsliding*. Anti-backsliding requirements are satisfied because the previous permit did not include final effluent limitations for tetrachloroethylene.

**(6) Total Ammonia**

(a) *Ammonia WQC*. The Basin Plan contains WQOs for un-ionized ammonia of 0.025 milligrams per liter (mg/L) as an annual median, 0.16 mg/L as a maximum north of the Golden Gate Channel, and 0.4 mg/L as a maximum south of the Golden Gate Channel. The WQOs are translated from un-ionized ammonia objectives to equivalent total ammonia concentrations (as nitrogen), since sampling and lab methods are not available to analyze for un-ionized ammonia and because the fraction of total ammonia that is converted to the toxic un-ionized form is dependent on pH, salinity and temperature of the receiving water.

To translate the Basin Plan's unionized ammonia objectives, pH, salinity and temperature data from March 1993 to August 2003 from the Yerba Buena Island Station, the closest Regional Monitoring Program (RMP) station to the outfall were used. The following equation for estuarine and marine waters was used to determine the percentage of total ammonia in a discharge that will be converted to the toxic un-ionized phase in receiving waters (U.S. EPA. 1989. *Ambient Water Quality Criteria for Ammonia (Saltwater)–1989*. EPA Publication No. 440/5-88-004).

$$\text{fraction of } NH_3 = 1/1+10^{(pk-pH)}$$

where:

pK = 9.245 + 0.116*(I) + 0.0324*(298-T) + 0.0415*(P)/(T)
I = the molal ionic strength of saltwater
= 19.9273*(S)/(1000-1.005109*S)
S = Salinity (parts per thousand)
T = temperature in Kelvin
P = Pressure (one atmosphere)

To convert the Basin Plan's chronic un-ionized ammonia WQO to an equivalent total ammonia concentration, the median un-ionized ammonia fraction at Yerba Buena station was used. To convert the Basin Plan's acute un-ionized ammonia WQO to an equivalent total ammonia concentration, the 90$^{th}$ percentile un-ionized ammonia fraction at Yerba Buena station was used. Using the median and 90$^{th}$

percentile to translate the chronic and acute un-ionized ammonia WQOs to equivalent total ammonia concentrations is consistent with US Environmental Protection Agency (U.S. EPA) Guidance on translating dissolved metal WQOs to total recoverable metal WQOs (U.S. EPA. 1996. *The Metals Translator: Guidance for Calculating a Total Recoverable Limit from a Dissolved Criterion*, EPA Publication Number 823-B-96-007). The equivalent total ammonia acute and chronic concentrations are 4.93 mg/L and 1.27 mg/L, respectively.

(b) *RPA Results*. The SIP methodology was used to perform the RPA and to calculate effluent limitations, because it is consistent with the methodology used to calculate WQBELs for other toxic pollutants. This Order establishes effluent limitations for total ammonia, because the MEC of 48 mg/L exceeds the applicable water quality criteria for this pollutant, demonstrating reasonable potential by Trigger 1, as defined previously.

(c) *Total Ammonia WQBELs*. To calculate limits, some statistical adjustments were made because the Basin Plan's chronic objective is based on an annual median instead of a 4-day average. For chronic criterion, the SIP assumes an averaging period of 4 days and a monthly sampling frequency of 4 days per month to calculate effluent limits. To use the SIP methodology to calculate effluent limits for a Basin Plan objective that is based on an annual median, an averaging period of 365 days and a monitoring frequency of 30 days per month (the maximum daily sampling frequency in a month since the averaging period for the chronic criteria is longer than 30 days) were used. These statistical adjustments are supported by U.S. EPA'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 SIP methodology as guidance, the maximum ambient background total ammonia concentration was used to calculate effluent limits based on the acute criterion. For the chronic criterion calculation, the median background total ammonia concentration was used because the Basin Plan's chronic un-ionized ammonia objective is an annual median. Since the time-scale of this objective is over such a long period, it is more representative to use the central tendency of ambient conditions than a daily maximum.

The newly calculated limitations take into account the deep water nature of the discharge and the non-persistent nature of ammonia and therefore, are based on actual initial dilution.

| **Effluent Limitations for Total Ammonia (as N)** | | |
|---|---|---|
| | **AMEL** | **MDEL** |
| Based on Basin Plan | 84 µg/L | 110 µg/L |

(d) *Immediate Compliance Feasible*. Statistical analysis of effluent data for ammonia, collected over the period of January 2004 through September 2009, shows that the 95$^{th}$ percentile (44 mg/L) is less than the AMEL (84 µg/L); the 99$^{th}$ percentile (47 mg/L) is less than the MDEL (110 mg/L); and the mean (35 mg/L)

is less than the long term average of the projected square distribution of the effluent data set after accounting for effluent variability (71 mg/L). The Regional Water Board concludes, therefore, that immediate compliance with final effluent limitations for total ammonia is feasible.

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

**5. Whole Effluent Acute Toxicity**

a. *Permit Requirements.* This Order includes effluent limitations for whole-effluent acute toxicity that are unchanged from the previous Order, and are based on the Basin Plan at Chapter 4, Page 9 (Acute Toxicity). All bioassays shall be performed according to the USEPA approved method in 40 CFR §136, currently "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, 5th Edition." The Discharger is required to use the 5th Edition method for compliance determination upon the effective date of this Order.

b. *Compliance History.* The Discharger's acute toxicity monitoring data from January 2004 through September 2009 show fish survival rates ranging between 15 and 100 percent. There were no reported exceedances of the 11-sample median of not less than 90 percent survival or the 90th percentile limits of not less than 70 percent survival.

c. *Ammonia Toxicity.* In a letter to the Regional Water Board dated November 30, 2006, the Discharger documented that low acute toxicity survival rates have been caused by un-ionized ammonia resulting from pH increases in its test. In a letter from the Regional Water Board dated December 7, 2006 to the Discharger, the use of pH adjusted acute flow-through bioassay tests by the Discharger was approved.

**6. Whole Effluent Chronic Toxicity**

a. *Permit Requirements.* This Order includes requirements for chronic toxicity monitoring that are unchanged from the previous Order, and are based on the Basin Plan narrative toxicity objective at Chapter 4, Page 9, and in accordance with USEPA and State Water Board Task Force guidance. This Order includes the Basin Plan narrative toxicity objective as the applicable effluent limit, implemented via monitoring with numeric values as "triggers" to initiate accelerated monitoring and to initiate a chronic toxicity reduction evaluation (TRE) as necessary. The permit requirements for chronic toxicity are also consistent with the CTR and SIP requirements.

b. *Chronic Toxicity Triggers.* This Order includes chronic toxicity triggers, which are a three sample median of 10 chronic toxicity (TUc) and a single sample maximum of 20 TUc based on Basin Plan Table 4-5 for dischargers to deepwater environments monitoring semi-annually. A TUc equals 100 divided by the no observable effect level (NOEL). The NOEL is determined from IC, EC, or NOEC values. Monitoring and TRE requirements may be modified by the Executive Officer in response to the degree of toxicity detected in the effluent or in ambient waters related to the discharge. Failure to conduct the required toxicity tests or a TRE within a designated period shall result in the establishment of effluent limitations for chronic toxicity.

c. *Monitoring History.* The Discharger's chronic toxicity monitoring data show that there were no exceedances of the triggers between January 2004 and September 2009.

d. *Screening Phase Study.* The Discharger has prepared a chronic toxicity screening phase study plan and the results of this study have been incorporated herein.

e. *Permit Reopener.* The Regional Water Board will consider amending this Order to include numeric toxicity limitations if the Discharger fails to aggressively implement all reasonable control measures included in its approved TRE work plan, following detection of consistent significant non-artifactual toxicity.

### F. Land Discharge Specifications

Not Applicable

### G. Reclamation Specifications

Not Applicable

## V. RATIONALE FOR RECEIVING WATER LIMITATIONS

### A. Surface Water Limitations

Receiving water limitations V.A.1 and V.A.2. (conditions to be avoided) are retained from the previous Order but edited to more closely reflect WQOs for the physical, chemical, and biological characteristics of receiving waters established in Chapter III of the Basin Plan. The receiving water limitations for un-ionized ammonia were removed and replaced with total ammonia effluent limits, in accordance with State Water Resources Control Board Remand Order WQ 2007-0004.

### B. Groundwater Limitations

Not Applicable

## VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

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

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

- Document compliance with waste discharge requirements and prohibitions established by the Regional Water Board,
- Facilitate self-policing by the discharger in the prevention and abatement of pollution arising from waste discharge,

- Develop or assist in the development of limitations, discharge prohibitions, national standards of performance, pretreatment and toxicity standards, and other standards, and to

- Prepare water and wastewater quality inventories.

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

**A. Influent Monitoring**

Influent monitoring requirements are unchanged and are retained from the previous Order, except for of TSS (four times per week) and new influent monitoring requirements for cyanide (monthly). Periodic monitoring (two times per week) of $CBOD_5$ in the influent and continuous monitoring of the influent flow, allows determination of compliance with this Order's 85 percent removal requirement. This Order retains the influent monitoring location, but will revise the naming convention to be consistent with State Water Board guidelines (A-001 is renamed INF-001).

**B. Effluent Monitoring**

The previous Order established two effluent monitoring locations, E-001 and E-001-D for discharges of treated wastewater. Monitoring location E-001 represents effluent from the WWTP after chlorination but prior to the point of discharge. Monitoring location E-001-D represents any point in the disinfection facilities where adequate contact with the disinfectant is assured. The previous Order required effluent monitoring for all constituents except chlorine residual and fecal coliform at location E-001; monitoring for residual chlorine and fecal coliform were required at monitoring location E-001-D. This Order retains the monitoring locations, but will revise the naming convention to be consistent with State Water Board guidelines (E-001 is renamed EFF-001; E-001-D is renamed EFF-001D).

The MRP retains effluent monitoring frequency and sample type requirements from the previous Order for flow rate (continuous), $CBOD_5$ (two times per week), ammonia nitrogen (two times per month), fecal coliform bacteria (two times per week), pH (twice per week), total residual chlorine (continuous), acute toxicity (monthly), and chronic toxicity (twice per year). The MRP changes effluent monitoring frequency from the previous Order for TSS (four times per week) and oil and grease (quarterly).

For pollutants for which effluent limitations have been established by the Order, the MRP requires monthly effluent monitoring for copper, cyanide, and zinc; and monitoring two times per year for tetrachloroethylene and dioxin-TEQ.

Routine monitoring for arsenic, cadmium, chromium, lead, nickel, selenium, silver, dieldrin, 4,4'-DDE, tributyltin, PCBs, and PAHs in the effluent is discontinued by this Order, as monitoring

during the term of the previous Order did not show these pollutants in the effluent at concentrations with a reasonable to cause or contribute to exceedances of applicable WQOs for the receiving water.

The following bulleted text highlights several other differences in monitoring requirements between the previous Order and this Order.

- Routine monitoring for compliance with effluent limitations for settleable solids, and copper loading (in kg/month) are no longer required as the effluent limitations for these pollutants have not been retained from the previous Order.

- Twice per month monitoring for enterococci bacteria using a grab sample has been added to monitor for compliance with the new effluent limitations.

- This Order requires routine monitoring only for those toxic pollutants that have effluent limitations established by this Order. The MRP establishes once per year monitoring requirements, alternate years during the wet season and next year during the dry season, for all other CTR toxic pollutants in accordance with the Regional Standard Provisions. This Order requires monitoring only for the CTR toxic pollutants in effluent. Pretreatment program monitoring requirements for volatile organic compounds (VOCs), base/neutral and acids (BNAs), and metals are not retained as these requirements were previously established pursuant to the Discharger's pretreatment program requirements. Compliance with the Discharger's approved pretreatment program is accomplished independently of the NPDES permit/Waste Discharge Requirements issued by the Regional Water Board. Monitoring from the CTR pollutants in effluent will allow the Regional Water Board to perform on-going assessments of Reasonable Potential for discharges to cause or contribute to violations of applicable water quality criteria.

- This Order requires monitoring for total residual chlorine with an EPA approved method that will "achieve a method detection limit (MDL) at least as low as that achieved by the Amperometric Titration Method (4500-Cl D from Standard Methods for Examination of Water and Wastewater, Edition 20)" The Regional Water Board considers this method to be the least sensitive to interferences from color, turbidity, iron, manganese, and nitrite nitrogen, and capable of consistently achieving an MDL of less than 0.1 mg/L.

The Discharger indicates that it may develop Data Quality Objectives for analysis required by this Order, in accordance with EPA QA/G-4 "Guidance for the Data Quality Objective Process". Such Data Quality Objectives will specify sampling procedures and frequencies, analytical methods and data quality review procedures to ensure that high-quality data is reported in Self-Monitoring Reports. Data Quality Objectives documents for analysis will be submitted to the Regional Water Board for review.

The Discharger indicates that the EBMUD laboratory uses a computerized Laboratory Information Management System to report and record results.

## C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Monthly 96-hour bioassay testing is required to demonstrate compliance with the effluent limitation for acute toxicity.

2. **Chronic Toxicity.** Chronic whole effluent toxicity testing is required two times per year in order to demonstrate compliance with the Basin Plan's narrative toxicity objective.

   The Discharger submitted a report on February 15, 2006, to the Regional Water Board regarding chronic toxicity screening study results. Results of three tier screening phase tests indicated that bivalve embryo development (Mussel, *Mytilus sp.*) exhibit higher chronic toxicity than fathead minnow growth (*Pimephales promelas*) and echinoderm fertilization (*Strongylocentrotus pupuratus*). No chronic toxicity effects from the WWTP effluent were observed in the algal test with *Macrocystis* or the larval fish tests performed with *Menidia*. Based on conclusions of the Discharger's study that bivalve embryo development is the most appropriate species for chronic toxicity monitoring, the Order is requiring the continued use of bivalve embryo development for routine chronic toxicity testing.

### D. Receiving Water Monitoring

#### 1. Regional Monitoring Program (RMP)

On April 15, 1992, the Regional Water Board adopted Resolution No. 92-043 directing the Executive Officer to implement the Regional Monitoring Program (RMP) for the San Francisco Bay. Subsequent to a public hearing and various meetings, Regional Water Board staff requested major permit holders in this region, under authority of Section 13267 of California Water Code, to report on the water quality of the estuary. These permit holders responded to this request by participating in a collaborative effort, through the San Francisco Estuary Institute. This effort has come to be known as the San Francisco Bay Regional Monitoring Program for Trace Substances. This Order specifies that 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 estuary.

### E. Other Monitoring Requirements

#### 1. Sludge Monitoring

The Discharger is required to adhere to sludge monitoring requirements required by 40 CFR §503.

## VII. RATIONALE FOR PROVISIONS

### A. Standard Provisions (Provision VI.A)

Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR §122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR §122.42, are provided in Attachment D. The Discharger must comply with all standard provisions and with those additional conditions that are applicable under 40 CFR §122.42.

40 CFR §122.41 (a) (1) and (b) - (n) establish conditions that apply to all State-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. 40 CFR §123.25 (a) (12) allows the state to omit or modify conditions to impose more stringent requirements. 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 enforcement authority under the California Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code Section 13387 (e).

## B. Monitoring and Reporting Requirements (Provision VI.B)

The Discharger is required to conduct monitoring of the permitted discharges in order to evaluate compliance with permit conditions. Monitoring requirements are contained in the MRP (Attachment E), and Regional Standard Provisions (Attachment G) of the Order. This provision requires compliance with these documents, and is based on 40 CFR §122.63. The Regional Standard Provisions is a standard requirements in almost all NPDES permits issued by the Regional Water Board, including this Order. They contain definitions of terms, specify general sampling and analytical protocols, and set out requirements for reporting of spills, violations, and routine monitoring data in accordance with NPDES regulations, the CWC, and Regional Water Board's policies. The MRP contains a sampling program specific for the facility. It defines the sampling stations and frequency, the pollutants to be monitored, and additional reporting requirements. Pollutants to be monitored include all parameters for which effluent limitations are specified. Monitoring for additional constituents, for which no effluent limitations are established, is also required to provide data for future completion of RPAs for them.

## C. Special Provisions (Provision VI.C)

### 1. Reopener Provisions

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

### 2. Special Studies and Additional Monitoring Requirements

a. Effluent Characterization for Selected Constituents. This Order does not include effluent limitations for the selected constituents 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 the MRP of this Order. If concentrations of these constituents increase significantly, the Discharger will be required to investigate the source of the increases and establish remedial measures, if the increases result in reasonable potential to cause or contribute to an excursion above the applicable WQO/WQC. This provision is based on the Basin Plan and the SIP.

b. Regional Monitoring Program. This provision is based on the previous Order to allow the Discharger to participate in the RMP for trace substances in the San Francisco Bay in lieu of more extensive effluent and receiving water self-monitoring requirements that may be imposed.

c. Optional Mass Offset Plan: This option is provided to encourage the Discharger to further implement aggressive reduction of mass loads to the Lower San Francisco Bay. If the Discharger wishes to pursue a mass offset program, a mass offset plan for reducing 303(d) listed pollutants to the same receiving water body needs to be submitted for

Regional Water Board approval. The Regional Water Board will consider any proposed mass offset plan and amend this Order accordingly.

**3. Best Management Practices and Pollution Minimization Program**

This provision is based on Chapter 4.13.12 of the Basin Plan and Section 2.4.5 of the SIP. It should be noted that the previous Order required development and implementation of a Pollution Prevention Program. This Order requires continued implementation of the Discharger's Pollution Prevention Program; however, the program is now referred to in this order as a Pollution Minimization Program to be consistent with the terminology used in the SIP.

**4. Special Provisions for Municipal Facilities (POTWs Only)**

a. Pretreatment Program Requirements: This provision requires the Discharger to implement and enforce its approved pretreatment program in accordance with Federal pretreatment regulations (40 CFR §403).

b. Sludge Management Practices Requirements: This provision is based on the Basin Plan (Chapter IV) and 40 CFR §257 and §503.

c. Sanitary Sewer Overflows and Sewer System Management Plan: This provision is to explain the Order's requirements as they relate to the Discharger's collection system, and to promote consistency with the State Water Board adopted Statewide General Waste Discharge Requirements for Sanitary Sewer Overflow (SSO WDRs) and a related Monitoring and Reporting Program (Order No. 2006-0003-DWQ). The bases for these requirements are described elsewhere in this Fact Sheet for those requirements.

   Although the Regional Water Board has issued a separate Order (Order No. R2-2009-0004) for wet weather discharges from the EBMUD collection system, the Order only regulates discharges from the three constructed WWFs that intermittently discharge. Therefore, this Order requires reporting for overflow discharges from the Discharger's collection system that are not regulated under Order No. R2-2009-0004.

**5. Corrective Measures to Minimize Blending Events**

This provision is based on 40 CFR 122.41(m). It requires that the Discharger implement feasible alternatives to reduce the need to blend during this permit cycle. The Discharger plans to continue implementing a wet weather storage basin standard operation procedure (SOP) and report on how it can modify its SOPs to minimize blending events. Additionally, this provision requires that the Discharger provide (a) progress reports on its work with satellite collection systems to reduce I/I and (b) updates on its flow monitoring efforts to identify high I/I areas.

The purpose of the utility analysis and implementation schedule for wet weather bypass is to more fully evaluate the extent to which the Discharger can maximizes its ability to reduce I/I throughout the entire collection system (i.e. not only the portions operated by the Discharger, but also portions operated by its member agencies), and potential improvements in the timing or quality of such efforts. The utility analysis must satisfy 40 CFR §122.4 (m)(4)(i)(A)-(C),

and any applicable policy or guidance such as the process set forth in Part 1 of USEPA's Peak Wet Weather Policy's No Feasible Alternatives Analysis Process (available at http://cfpub.epa.gov/npdes/wetweather.cfm) once it is finalized.

**6. Action Plan for Cyanide**

This provision is based on Basin Plan Table 3-3A, which contains site-specific objectives for cyanide for San Francisco Bay. The Basin Plan requires a cyanide action plan to ensure compliance with State and federal antidegradation policies when cyanide limits are based on the site-specific objectives.

**7. Action Plan for Copper**

This Order requires the Discharger to implement monitoring and surveillance, pretreatment, source control, and pollution prevention for copper in accordance with the Basin Plan. Basin Plan Table 3-3A contains site-specific objectives for copper in all segments of San Francisco Bay. The Basin Plan also requires implementation of an action plan to ensure no degradation of water quality.

## VIII. PUBLIC PARTICIPATION

The California Regional Water Quality Control Board, the San Francisco Bay Regional Water Board, is considering the issuance of waste discharge requirements (WDRs) that will serve as a National Pollutant Discharge Elimination System (NPDES) permit for the East Bay Municipal Utility District, Special District No. 1 Main Wastewater Treatment Plant. As a step in the WDR adoption process, the Regional Water Board staff has developed tentative WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

### A. Notification of Interested Parties

The Regional Water Board has notified the Dischargers and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through the following: the Alameda Times-Star published a notice that this item would appear before the Board on March 10, 2010.

### B. Written Comments

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

To be fully responded to by staff and considered by the Regional Water Board, written comments should be received at the Regional Water Board offices by 5:00 p.m. on **January 25, 2010.**

### C. Public Hearing

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

Date: March 10, 2010
Time: 9:00 AM
Location: Elihu Harris State Office Building
1515 Clay Street, 1st Floor Auditorium
Oakland, CA 94612

Contact: Robert Schlipf, 510-622-2478, email rschlipf@waterboards.ca.gov

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

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

## D. Waste Discharge Requirements Petitions

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

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

## E. Information and Copying

The Report of Waste Discharge (RWD), related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Regional Water Board by calling 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 Robert Schlipf at 510-622-2478 (email at rschlipf@waterboards.ca.gov).