

increased significantly, the Dischargers are 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 included effluent limits for 4,4-DDE, dieldrin, heptachlor epoxide, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene; however, effluent limitations for these pollutants are not retained by this Order because these pollutants do not have Reasonable Potential. This elimination of these effluent limits is consistent with anti-backsliding requirements in accordance with State Water 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. 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 are discussed below.
- b. **Shallow Water Discharge.** Due to limited upstream freshwater flows, discharges from the Plant to the unnamed channel and to Matadero Creek via Renzel Marsh Pond are classified by the Regional Water Board as a shallow water discharge.
- c. **Dilution Credit.** The shallow receiving waters support biologically sensitive and critical habitats. Therefore, no dilution credit ($D=0$) was used to calculate WQBELs for most pollutants, with the exception of cyanide and ammonia, which are a non-persistent pollutants that readily degrade to a non-toxic state. See findings under "Development of WQBELs for Specific Pollutants" for a more detailed discussion on the dilution credit for ammonia.

Cyanide attenuates in receiving waters due to both degradation and dilution. The Basin Plan establishes dilution credits for cyanide for shallow water discharges. The dilution credit accounts for attenuation of cyanide in the receiving water. A dilution ratio of 3.25:1 ($D = 2.25$) has been applied in calculating effluent limitations for cyanide.

d. **Development of WQBELs for Specific Pollutants**

(1) **Copper**

- i. **Copper WQC.** The most stringent copper chronic and acute marine WQC of 6.9 and 10.8 $\mu\text{g/L}$ are the Basin Plan SSOs for South San Francisco Bay, expressed as dissolved metal. Regional Water Board staff converted these WQC to total recoverable metal using the Basin Plan site-specific translator of 0.53. The resulting chronic WQC of 13 $\mu\text{g/L}$ and acute WQC of 20 $\mu\text{g/L}$ were used in the RPA.
- ii. **RPA Results.** Copper historically has been a pollutant of concern in South San Francisco Bay. To ensure that ambient levels of copper in South San Francisco Bay do not increase as a result of POTW discharges, the Basin Plan requires

NPDES permits to include copper effluent limits for South San Francisco Bay dischargers.

- iii. *Copper WQBELs*. WQBELs for copper, calculated according to SIP procedures, with an effluent data coefficient of variation (CV) of 0.17, are an AMEL of 12 µg/L and an MDEL of 16 µg/L.
- iv. *Immediate Compliance Feasible*. Statistical analysis of effluent data for copper, collected over the period of January 2005 through December 2007, shows that the 95th percentile (11 µg/L) is less than the AMEL (12 µg/L); the 99th percentile (12 µg/L) is less than the MDEL (16 µg/L); and the mean (8.5 µg/L) is less than the LTA (11 µg/L) of the effluent data set after accounting for effluent variability. The Regional Water Board concludes, therefore, that immediate compliance with these WQBELs is feasible¹.
- v. *Antibacksliding*. The copper WQBELs are at least as stringent as those in the previous Order; therefore, antibacksliding requirements are met.

(2) Nickel

- i. *Nickel WQC*. The most stringent chronic and acute marine WQC of 11.9 µg/L and 62.4 µg/L are the Basin Plan SSOs for South San Francisco Bay, expressed as dissolved metal. Regional Water Board staff converted these WQC to total recoverable metal using the Basin Plan site-specific translator of 0.44. The resulting chronic WQC of 27 µg/L and acute WQC of 142 µg/L were used in the RPA.
- ii. *RPA Results*. Nickel has historically been a pollutant of concern in South San Francisco Bay. To ensure that ambient levels of nickel in South San Francisco Bay do not increase as a result of POTW discharges, the Basin Plan requires NPDES permits to include nickel effluent limits for South San Francisco Bay dischargers.
- iii. *Nickel WQBELs*. WQBELs for nickel, calculated according to SIP procedures, with an effluent CV of 0.13, are an AMEL of 26 µg/L and an MDEL of 31 µg/L.

¹The statistical feasibility analysis consisted of the following steps:

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

- iv. *Immediate Compliance Feasible.* Statistical analysis of the effluent data for nickel over the period of January 2005 – December 2007 shows that the 95th percentile (4.1 µg/L) is less than the AMEL (26 µg/L); the 99th percentile (4.5 µg/L) is less than the MDEL (31 µg/L); and the mean (3.4 µg/L) is less than the LTA (23 µg/L). The Regional Water Board concludes that immediate compliance with these WQBELs is feasible.
- v. *Antibacksliding.* Antibacksliding requirements are satisfied as limitations for nickel established by this Order are at least as stringent as the limitations established by the previous Order, which were an AMEL of 26 µg/L and an MDEL of 32 µg/L.

(3) Cyanide

- i. *Cyanide WQC.* The most stringent applicable WQC for cyanide are the Basin Plan SSOs for marine waters, which are 2.9 µg/L as a four-day average (chronic objective), and 9.4 µg/L as a one-hour average (acute objective).
- ii. *RPA Results.* This Order finds reasonable potential and thus establishes effluent limitations for cyanide because the MEC of 5.8 µg/L exceeds the governing WQC of 2.9 µg/L, demonstrating Reasonable Potential by Trigger 1.
- iii. *Cyanide WQBELs.* Final WQBELs for cyanide, calculated according to SIP procedures with an effluent CV of 0.6 and a dilution credit of 2.25, are an AMEL of 7.1 µg/L and an MDEL of 14 µg/L.
- iv. *Immediate Compliance Feasible.* Statistical analysis of the effluent data for cyanide over the period of January 2005 – December 2007 shows that the 95th percentile (4.4 µg/L) is less than the AMEL (7.1 µg/L); the 99th percentile (5.8 µg/L) is less than the MDEL (14 µg/L); and the mean (2.3 µg/L) is less than the LTA (4.6 µg/L). The Regional Water Board concludes that immediate compliance with these WQBELs is feasible.
- v. *Antibacksliding.* Antibacksliding requirements are satisfied because the previous Order did not include final effluent limitations for cyanide. The new WQBELs are also more stringent than the interim effluent limit in the previous Order (32 µg/L).

(4) Dioxin-TEQ

- i. *Dioxin-TEQ WQC.* The Basin Plan narrative WQO for bioaccumulative substances states “[M]any 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 is applicable 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 the South

San Francisco Bay as impaired by dioxin and furan compounds in the current 303(d) listing of receiving waters where WQOs 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 1.4×10^{-8} $\mu\text{g/L}$ 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 toxicity equivalencies (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. The CTR criterion is used as a criterion for dioxin-TEQ because dioxin-TEQ represents a toxicity weighted concentration equivalent to 2,3,7,8-TCDD, thus translating the narrative bioaccumulation objective into a numeric criterion appropriate for the RPA.

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

- ii. *RPA Results.* This Order establishes WQBELs for dioxin-TEQ because the MEC (4.1×10^{-8} $\mu\text{g/L}$) exceeds the applicable WQC (1.4×10^{-8} $\mu\text{g/L}$), demonstrating Reasonable Potential by Trigger 1.
- iii. *Dioxin-TEQ WQBELs.* WQBELs for dioxin-TEQ, calculated using SIP procedures as guidance, with a SIP default CV of 0.6 (for a data set with fewer than 10 data points), are an AMEL of 1.4×10^{-8} $\mu\text{g/L}$ and an MDEL of 2.8×10^{-8} $\mu\text{g/L}$.
- iv. *Immediate Compliance Infeasible.* The Discharger's Infeasibility Study dated July 2, 2008, asserts that the facility cannot immediately comply with WQBELs for dioxin-TEQ. With insufficient effluent data to determine the distribution of the effluent data set or to calculate a mean and standard deviation, feasibility to comply with final effluent limitations is determined by comparing the MEC (4.1×10^{-8} $\mu\text{g/L}$) to the AMEL (1.4×10^{-8} $\mu\text{g/L}$) and the MDEL (2.8×10^{-8} $\mu\text{g/L}$). The Regional Water Board concurs with the Discharger's assertion of infeasibility to comply because the MEC exceeds the AMEL.

- v. *Need for a Compliance Schedule.* This Order contains a compliance schedule based on the Basin Plan and State Water Board Resolution No. 2008-0025 (Compliance Schedule Policy) to allow time for the Discharger to comply with these effluent limits, which are based on a new interpretation of a narrative objective. The Compliance Schedule Policy applies to pollutants that are not addressed by the SIP and requires that compliance schedules include interim limits. The final WQBELs will become effective on June 1, 2019. The Regional Water Board may amend these limits based on new information or a TMDL for dioxin-TEQ.
- vi. *Interim Effluent Limit.* Since it is infeasible for the Discharger to comply with the final WQBELs for dioxin-TEQ, and there are not enough data to calculate a performance-based interim limit statistically, this Order establishes an interim limit based on the MLs of all congeners and their TEFs. The sum of the each congener's ML times its TEF is 6.3×10^{-5} $\mu\text{g/L}$. This interim limit is established as a monthly average limit, and it will remain in effect until May 31, 2019.
- vii. *Antibacksliding.* Antibacksliding requirements are satisfied because the previous Order did not include an effluent limitation for dioxin-TEQ.

(5) Chlorodibromomethane

- i. *Chlorodibromomethane WQC.* The most stringent applicable WQC for chlorodibromomethane is the CTR criterion for protection of human health of $34 \mu\text{g/L}$.
- ii. *RPA Results.* This Order finds reasonable potential and thus establishes effluent limitations for chlorodibromomethane because the MEC ($56 \mu\text{g/L}$) exceeds the most stringent applicable criterion ($34 \mu\text{g/L}$), demonstrating reasonable potential by Trigger 1.
- iii. *Chlorodibromomethane WQBELs.* WQBELs for chlorodibromomethane, calculated according to SIP procedures, with a CV of 0.49, are an AMEL of $34 \mu\text{g/L}$ and an MDEL of $62 \mu\text{g/L}$.
- iv. *Immediate Compliance Feasible.* The Discharger believes that it can comply with these WQBELs for chlorodibromomethane. The Discharger has replaced chlorine disinfection with chloramination disinfection during the term of the previous Order, which reduces the formation of halomethanes during disinfection, and the Discharger has since reported lower chlorodibromomethane effluent concentrations.
- v. *Antibacksliding.* Antibacksliding requirements are satisfied because the previous Order did not include an effluent limit for chlorodibromomethane.

(6) Total Ammonia

- i. *Ammonia WQC.* The Basin Plan contains WQOs for un-ionized ammonia of 0.025 milligrams per liter (mg/L) as an annual median and 0.4 mg/L as a maximum for South San Francisco Bay. Regional Water Board staff translated these WQOs from un-ionized ammonia concentrations to equivalent total ammonia concentrations (as nitrogen) since (1) sampling and laboratory methods

are not available to analyze for un-ionized ammonia; and (2) the fraction of total ammonia that exists in the toxic un-ionized form depends on the pH, salinity, and temperature of the receiving water. To translate the Basin Plan un-ionized ammonia objective, Regional Water Board staff used pH, salinity, and temperature data from 1994 through 2002 from the nearest RMP station to the outfall, the South Bay RMP station (BA20). Regional Water Board staff used the following equations to determine the fraction of total ammonia that would exist in the toxic un-ionized form in the estuarine receiving water. [*Ambient Water Quality Criteria for Ammonia* (saltwater) – 1989, EPA Publication 440/5-88-004, USEPA, 1989]:

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

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 the South Bay monitoring station was used. To convert the Basin Plan's acute un-ionized ammonia WQO to an equivalent total ammonia concentration, the 90th percentile un-ionized ammonia fraction at the South Bay RMP station was used. Using the 90th percentile and median to express the acute and chronic un-ionized ammonia WQOs as equivalent total ammonia concentrations is consistent with USEPA guidance, as expressed by USEPA in *The Metals Translator: Guidance for Calculating a Total Recoverable Limit from a Dissolved Criterion* (EPA Publication Number 823-B-96-007, 1996). The equivalent total ammonia acute and chronic WQOs are 10.2 mg/L and 1.21 mg/L, respectively.

- ii. *RPA Results*. This Order finds reasonable potential and thus establishes effluent limitations for ammonia because the MEC (4.4 mg/L) exceeds the most stringent applicable criterion (1.21 mg/L), demonstrating reasonable potential by Trigger 1.
- iii. *Dilution Credit*. In calculating the ammonia WQBELs, Regional Water Board staff used a dilution credit of D=1 or 2:1. The granting of this dilution credit is based on the following considerations: (1) applying the dilution credit is conservative in that it reflects the physical and chemical processes within the receiving water; and (2) the dilution credit is consistent with Basin Plan section 4.6.1.2 and SIP section 1.4.2.
 - (a) Most Conservative Dilution Based on Competing Chemical and Physical Processes. The dilution credit and revised effluent limits are based on Regional Water Board staff's assessment of where the highest unionized or toxic ammonia concentration could exist in the receiving water. This point is

somewhere between the point of discharge and far away from the point of discharge. This is because the unionized ammonia concentration reflects two competing processes in the receiving water: dilution, which lowers ammonia, and pH rise, which increases the toxic form of ammonia. As effluent leaves the Plant's outfall, its total ammonia concentration becomes more dilute as ambient water mixes with the effluent the further away it is from the outfall. At the same time, the pH of the effluent increases as the effluent moves farther from the outfall and mixes with receiving water because the effluent pH is lower than that of the receiving water. As the pH rises, the fraction of ammonia in the acutely toxic form, the unionized form, increases. This increase continues until the pH in the receiving water levels off to ambient. The effects of dilution continue, however.

At first, the pH rise has a greater effect on the unionized or toxic ammonia concentration than dilution. In other words, as the effluent moves away from the outfall and the pH rises, the concentration of unionized ammonia increases more than the effects from dilution. At some point, however, when the pH levels off, dilution then has a greater effect. From this point, as the effluent continues to travel away from the outfall, the unionized ammonia concentration declines with dilution. Based on the Discharger's memo dated January 15, 2009, the worst-case unionized ammonia concentration most likely occurs where $D=1$. Limits based on a dilution credit of $D=1$ would ensure that the receiving water meets the Basin Plan objectives at the point where $D=1$. Moreover, because this point represents the highest unionized ammonia concentration, the receiving water will also meet the objectives at all other locations.

The Discharger based its analysis on limited laboratory tests and theory. It is conservative in that it does not consider the breakdown of ammonia in the receiving water. Nevertheless, the permit at Provision VI.C.2.d would require a field study to confirm the Discharger's analysis. During the next permit term, the ammonia effluent limits may be reconsidered based on new information that may be available at that time.

(b) Basin Plan Section 4.6.1.2. Basin Plan section 4.6.1.2 (dilution ratios for shallow water discharges) allows a dilution credit in effluent limit calculations. Using $D=1$ is consistent with Basin Plan section 4.6.1.2 for the following reasons:

- The Basin Plan requires "that an aggressive pretreatment and source control program is in place." The City will continue to implement its program in accordance with the order's proposed pollutant minimization program requirements, and will optimize ammonia use in its chloramination system in accordance with requirements for proper operation and maintenance. A source control program specifically targeting ammonia is impracticable, however, because, unlike many other pollutants found in wastewater, ammonia is primarily a byproduct of human waste (i.e., urine) and its capture and disposal is a fundamental purpose of the wastewater treatment enterprise.

- The Basin Plan requires that proposed limits result in compliance with WQOs be based on worst-case conditions. As discussed above, the effluent limits based on D=1 reflect worst-case condition and ensure that WQOs are met at all locations within the receiving water.
 - The Basin Plan requires an evaluation of the effects of mass loading. Since ammonia degrades relatively quickly and does not persist in receiving water, there is no enduring effect of mass ammonia loading.
 - Effluent limits based on dilution credits are not to impair the basis upon which the Regional Water Board grants an exception to Basin Plan Prohibition 1. The basis for granting this discharge an exception is explained in Fact Sheet section VI.B. Because the ammonia limits ensure that ammonia WQOs are met at all locations in the receiving water, they do not undermine this basis for the exception.
- (c) State Implementation Policy (SIP) Section 1.4.2. Consistent with SIP section 1.4.2.2, the dilution credit used to calculate the ammonia WQBELs reflects the size of the mixing zone. This mixing zone is as small as practicable. It stretches from the outfall to just beyond the unnamed channel in South San Francisco Bay, an area of roughly 3.4 acres. This mixing zone is based on the Discharger's dilution study titled *Dilution Analysis and Water Quality Impacts of the Palo Alto Regional Water Quality Control Plant on South San Francisco Bay (December 1997)* and an analysis titled *Palo Alto Regional Water Quality Control Plant Total Ammonia Effluent Limits: Analysis and Recommendations*, dated January 15, 2009. It also meets the conditions of SIP section 1.4.2.2:
- (1) The mixing zone does not compromise the integrity of the receiving water. The unnamed channel is a narrow inlet of South San Francisco Bay. Since the mixing zone is mostly confined to this channel, it does not compromise the integrity of greater South San Francisco Bay.
 - (2) The mixing zone does not cause acutely toxic conditions to aquatic life passing through the mixing zone. The mixing zone was selected such that its edge is estimated to be the location with the highest unionized ammonia concentrations. The WQBELs will not allow acutely toxic conditions at this location, and no other location will experience greater acute toxicity. Moreover, the calculation of ammonia WQBELs is strongly influenced by the Basin Plan's chronic ammonia objective. WQBELs based solely on the acute objective would be far less stringent.
 - (3) Because the mixing zone is mostly within the unnamed channel, it does not restrict the passage of aquatic life throughout South San Francisco Bay. Moreover, the unnamed channel is a "dead end" channel, so the mixing zone does not restrict passage through the channel.

- (4) The mixing zone does not adversely impact biologically sensitive or critical habitats because the unnamed channel is not an area of special biological significance as identified by Basin Plan Figure 2-1. In addition, because the edge of the mixing zone is the point with the highest unionized ammonia concentrations, basing the WQBELs calculations on this point protects all biologically sensitive and critical habitats.
 - (5) The ammonia within the mixing zone does not produce undesirable or nuisance aquatic life. All areas within the mixing zone will meet the ammonia water quality objectives.
 - (6) The ammonia within the mixing zone does not result in floating debris, oil, or scum.
 - (7) The ammonia within the mixing zone does not produce objectionable color, odor, taste, or turbidity (moreover, the receiving water is not used for drinking water supplies).
 - (8) The ammonia within the mixing zone does not cause objectionable bottom deposits.
 - (9) The ammonia within the mixing zone does not cause a nuisance. All areas within the mixing zone will meet the ammonia water quality objectives.
 - (10) The mixing zone does not dominate South San Francisco Bay or overlap a mixing zone from a different outfall. The Regional Water Board has not established any other mixing zones for nearby shallow water dischargers.
 - (11) The mixing zone is not located at or near a drinking water intake.
- iv. *WQBELs*. The Basin Plan (section 4.5.5.2) indicates that WQBELs for toxic pollutants shall be calculated according to the SIP. The Basin Plan (section 3.3.20) refers to ammonia as a toxic pollutant; therefore, it is consistent with the Basin Plan to use SIP methodology to determine and establish effluent limitations for ammonia. The total ammonia WQBELs, calculated according to SIP procedures (with an effluent CV of 0.94) are an AMEL of 2.7 mg/L and an MDEL of 9.5 mg/L. A dilution credit $D=1$ is included in the effluent limit calculation. These limits are considered more stringent than the previous effluent limits (monthly average limit of 3 mg/L and daily maximum of 8 mg/L) because the monthly average limit would limit the discharge to a lower monthly average level.

To calculate total ammonia effluent limits, some statistical adjustments were made because the Basin Plan's chronic WQO for un-ionized ammonia is based on an annual median, while chronic criteria are usually based on a 4-day average; also, the SIP assumes a monthly sampling frequency of 4 days per month to

calculate effluent limitations based on chronic criteria. To use SIP methodology to calculate effluent limits for a Basin Plan objective that is based on an annual median, an averaging period of 365 days and a monitoring frequency of 30 days per month (the maximum daily sampling frequency in a month since the averaging period for a chronic criterion is longer than 30 days) were used. These statistical adjustments are supported by USEPA's *Water Quality Criteria; Notice of Availability; 1999 Update of Ambient Water Quality Criteria for Ammonia*, published on December 22, 1999, in the Federal Register.

These effluent limits are based on the conditions in the South San Francisco Bay; however, the Regional Water Board believes that the same effluent limits will be protective of Matadero Creek. The discharge first goes to the Renzel Marsh Pond. The wastewater stays in the pond for an extended period; ammonia attenuates after this extended stay in the pond. In addition, this discharge is mainly for enhancing the salt marsh harvest mouse habitat in that area. The permit includes a special study to characterize Matadero Creek (Provision VI.C.2.d). The Regional Water Board will be able to determine the receiving water conditions using the data collected under this study. If necessary, the permit may be reopened to include additional ammonia effluent limits to protect Matadero Creek.

The receiving waters are not impacted by high pH water ebbed from wetlands at low tides, a phenomenon that is observed for highland marsh areas. Since effluent pH values are usually much lower than those of bay water, the highest pH values after mixing would be no greater than those of the bay water. In addition, when developing total ammonia effluent limits, conditions at RMP South Bay station were used, where in terms of pH, it reflects the bay water pH. Therefore, conservative background conditions are used in the development of total ammonia objectives and effluent limits.

- iv. *Immediate Compliance Feasible.* Based on a lognormal distribution, the 95th percentile is 2.6 mg/L and the 99th percentile is 5.1 mg/L. Both values are below the AMEL or MDEL. Therefore, it is expected that the Discharger can comply with the ammonia WQBELs.
 - v. *Antibacksliding.* Antibacksliding requirements are satisfied as the final effluent limitations for ammonia in this Order are more stringent than the effluent limitations in the previous Order.
- e. **Effluent Limit Calculations.** The following table shows the derivation of WQBELs for copper, nickel, cyanide, dioxin-TEQ, chlorodibromomethane, and total ammonia.

Table F-11. Effluent Limit Calculations

PRIORITY POLLUTANTS	Copper	Nickel	Cyanide	Dioxin-TEQ	Chlorodibromomethane	Total Ammonia (acute)	Total Ammonia (chronic)
Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L as Nitrogen	µg/L as N
Basis and Criteria type	BP SSO	BP SSO	BP SSOs	CTR HH	CTR HH	BP Aquatic Life	Basin Plan Aquatic Life
Criteria -Acute	10.8	62.4	9.4	----	----	----	----
Criteria -Chronic	6.9	11.9	2.9	----	----	----	----
Water Effects Ratio (WER)	1	1	1	1	1	1	1
Lowest WQO			2.9	1.4E-08	34	10200	1210
Site Specific Translator - MDEL	0.53	0.44	----	----	----	----	----
Site Specific Translator - AMEL	0.53	0.44	----	----	----	----	----
Dilution Factor (D) (if applicable)	0	0	2.25	0	0	1	1
No. of samples per month	4	4	4	4	4	4	30
Aquatic life criteria analysis required? (Y/N)	Y	Y	Y	N	N	Y	Y
HH criteria analysis required? (Y/N)	N	Y	Y	Y	Y	N	N
Applicable Acute WQO	20	142	9.4			10200	
Applicable Chronic WQO	13	27	2.9				1210
HH criteria		4,600	220000	1.4E-08	34		
Background (Maximum Conc for Aquatic Life calc)	8.6	16	0.4	2.6E-07	0.057	280	140
Background (Average Conc for Human Health calc)		5.8	0.4	1.1E-07	0.057		
Is the pollutant Bioaccumulative(Y/N)? (e.g., Hg)	N	N	N	Y	N	N	N
ECA acute	20	142	30			20120	No Acute WQO
ECA chronic	13	27	9			No Chronic WQO	2280
ECA HH		4600	714999	1.4E-08	34		
No. of data points <10 or at least 80% of data reported non detect? (Y/N)	N	N	N	Y	N	N	N
Avg of effluent data points	8.5	3.4	2.3		34	803	803
Std Dev of effluent data points	1.4	0.44	1.3		16	756	756
CV calculated	0.2	0.1	0.6	N/A	0.49	0.94	0.94
CV (Selected) - Final	0.2	0.1	0.6	0.60	0.49	0.94	0.94
ECA acute mult99	0.69	0.74	0.34			0.215	
ECA chronic mult99	0.83	0.86	0.54				0.893
LTA acute	14.1	105.5	10.0			4327	
LTA chronic	10.8	23.3	4.6				2035
minimum of LTAs	10.8	23.3	4.6			2035	2035
AMEL mult95	1.1	1.1	1.5	1.6	1.4	1.89	1.31
MDEL mult99	1.4	1.3	3.0	3.1	2.6	4.65	4.65
AMEL (aq life)	12.3	25.9	7.1			3846	2657

PRIORITY POLLUTANTS	Copper	Nickel	Cyanide	Dioxin-TEQ	Chlorodibromomethane	Total Ammonia (acute)	Total Ammonia (chronic)
MDEL (aq life)	15.6	31.3	13.8			9464	9464
MDEL/AMEL Multiplier	1.27	1.21	1.95	2.01	1.83	2.5	3.56
AMEL (human hlth)		4600	714999	1.4E-08	34.0		0
MDEL (human hlth)		5563	1396112	2.81E-08	62.2		0
minimum of AMEL for Aq. life vs HH	12.3	25.9	7.1	1.4E-08	34.0	3846	2657
minimum of MDEL for Aq. Life vs HH	15.6	31.3	14	2.81E-08	62.2	9464	9464
Current limit in permit (30-day average)	12	26	-----	-----	-----	3000	3000
Current limit in permit (daily Max.)	17	32	32 (Interim)	-----	86 (Interim)	8000	8000
Final limit - AMEL	12	26	7.1	1.4E-08	34	-----	2700
Final limit - MDEL	16	31	14	2.8E-08	62	-----	9500
Max Effl Conc (MEC)	11	4.5	5.8	4.1E-08	56	4400	4400

5. Whole Effluent Acute Toxicity

- a. **Permit Requirements.** This Order includes effluent limits for whole-effluent acute toxicity that are based on Basin Plan Table 4-3 and are unchanged from the previous Order. All bioassays are to 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."
- b. **Compliance History.** The Discharger's acute toxicity monitoring data show that all bioassay results from November 2003 – January 2008 were reported as 100% survival. There have been no acute toxicity effluent limit violations.
- c. **Ammonia Toxicity.** If the Discharger can demonstrate to the satisfaction of the Executive Officer that toxicity exceeding the limits in this Order is caused by ammonia and that the ammonia in the discharge does not exceed the effluent limitations, then such toxicity does not constitute a violation of the effluent limitations for whole effluent toxicity. If ammonia toxicity is verified by a Toxicity Identification Evaluation (TIE), the Discharger may use an adjustment protocol approved by the Executive Officer for the routine bioassay testing.

6. Whole Effluent Chronic Toxicity

- a. **Permit Requirements.** This Order includes requirements for chronic toxicity monitoring based on the Basin Plan narrative toxicity objective. This permit includes the Basin Plan narrative toxicity objective as a monitoring "trigger," which, when exceeded, initiates accelerated monitoring requirements, including in some circumstances a chronic toxicity reduction evaluation (TRE). These permit requirements for chronic toxicity are consistent with the CTR and SIP requirements.

- b. **Chronic Toxicity Triggers.** This Order includes chronic toxicity triggers of 1.0 chronic toxicity unit (TUC) as a three sample median, and a single sample maximum of 2.0 TUC or greater. These triggers are based on Basin Plan Table 4-5.
- c. **Monitoring History.** The Discharger's chronic toxicity monitoring data from November 2003 – January 2008 show that there were 3 exceedances of the 3-sample median trigger, with a maximum 3-sample median result of 2.3 TUC reported. Monitoring data also show there were 4 exceedances of the single sample trigger, with a maximum reported single sample result of 16 TUC. The Discharge has not initiated any TIE study.
- d. **Screening Phase Study.** The screening phase study conducted during the term of the previous Order indicated the water flea, *Ceriodaphnia dubia*, as the most sensitive test species. The Discharger is required to conduct a chronic toxicity screening phase study, as described in Appendix E-1 of the MRP (Attachment E), prior to the next permit issuance.

7. Antibalancing/Antidegradation

Effluent limits in this Order that are less stringent than those in the previous Order or are not retained from the previous Order comply with antibalancing and antidegradation requirements for the reasons explained below:

- The single sample maximum effluent limit for enterococcus is not retained, as stated under Section C.2.f above. The removal of this limit complied with antibalancing requirement and is not expected to cause degradation of water quality because the Discharge will maintain its treatment at current levels and the 5-day geometric mean limit will hold the discharge at its current performance.
- Effluent limitations for settleable matter are not retained. The Plant provides advanced secondary treatment, and the settleable matter effluent limits of the previous Order were technology-based effluent limitations for primary treatment. Compliance with the requirements of 40 CFR 133 and Basin Plan Table 4-2 will ensure removal of settleable solids to acceptably low levels - below 0.1 ml/L/hr (30 day average) and 0.2 ml/L/hr (daily maximum). The Basin Plan was amended on January 21, 2004, in part, because it mistakenly applied these limits to secondary and advanced treatment plants, and therefore, not retaining limits for settleable solids is consistent with the exception to the antibalancing prohibition expressed at CWA section 402(o)(2)(B)(ii), when technical mistakes or mistaken interpretations of law were made in establishing the limitation in the previous permit. The removal of these limits is not expected to cause degradation of the receiving water because the Discharger will maintain its existing treatment performance. Limits for total suspended solids will also hold the Discharger at its current performance.
- The effluent limits for 4,4-DDE, dieldrin, heptachlor epoxide, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene are not retained in this Order because monitoring data during the past five years do not exhibit reasonable potential for these pollutants. The removal of these effluent limits is consistent with anti-balancing requirements in accordance with

State Water Board Order WQ 2001-16, and degradation is not expected because the Discharger will maintain its current performance.

E. Interim Effluent Limitations

1. Feasibility Evaluation and Interim Effluent Limits

The Discharger submitted an Infeasibility Analysis dated July 9, 2008, demonstrating that it cannot immediately comply with final WQBELs for dioxin-TEQ. As stated in the previous findings in Section IV.D.4.(d)(4), the Regional Water Board staff concurred with the Discharger's infeasibility assertion.

This Order establishes a compliance schedule and an interim limit for dioxin-TEQ that will remain in effect for ten years following the effective date of this Order. Since there are not enough data to calculate a performance-based interim limit for dioxin-TEQ statistically, this Order establishes an interim limit based on the MLs of all congeners and their TEFs. The sum of the each congener's ML times its TEF is 6.3×10^{-5} $\mu\text{g/L}$ and is established as a monthly average limit.

2. Compliance Schedule Requirements

The SIP and the Basin Plan authorize compliance schedules in a permit if an existing discharger cannot immediately comply with new and more stringent objectives. On April 15, 2008, the State Water Board adopted Resolution No. 2008-0025 (Compliance Schedule Policy), which includes compliance schedule policies for pollutants that are not addressed by the SIP. This Policy was approved by the USEPA on August 27, 2008. This Policy therefore supersedes the Basin Plan's compliance schedule policy. The compliance schedule for dioxin-TEQ is consistent with the Policy. The compliance schedule policy requires the following documentation to be submitted to the Regional Water Board to justify a compliance schedule:

- Descriptions of diligent efforts the Discharger has made to quantify pollutant levels in the discharge, sources of the pollutant in the waste stream, and the results of those efforts.
- Descriptions of source control and/or pollutant minimization efforts currently under way or completed.
- A proposed schedule for additional or future source control measures, pollutant minimization, or waste treatment.
- A demonstration that the proposed schedule is as short as practicable.

The Discharger's Infeasibility Analysis shows that it has fulfilled these requirements.

3. Compliance Schedules for Dioxin-TEQ

The compliance schedule for dioxin-TEQ, and the requirements to submit reports on further measures to reduce concentrations to ensure compliance with final limits are based on the above compliance schedule policies. As previously described, the Discharger submitted an Infeasibility Report, and the Regional Water Board staff confirmed its assertions. Based on

this, a compliance schedule is appropriate for dioxin-TEQ because the Discharger has made reasonable efforts towards characterizing the sources. However, time to allow additional efforts are necessary to achieve compliance.

Maximum allowable compliance schedules are granted to the Discharger for this pollutant because of the considerable uncertainty in determining effective measures (e.g., pollution prevention, treatment upgrades) that should be implemented to ensure compliance with final limits. It is appropriate to allow the Discharger sufficient time to first explore source control measures before requiring it to propose further actions, such as treatment plant upgrades, that are likely to be much more costly. This approach is supported by the Basin Plan section 4.13, which states; "In general, it is often more economical to reduce overall pollutant loadings into the treatment systems than to install complex and expensive technology at the Plant."

Dioxin-TEQ WQBELs are based on the Basin Plan narrative objective for bioaccumulation; therefore, the discharge qualifies for a 10-year compliance schedule from the date this Order becomes effective. Because of the ubiquitous nature of the sources of dioxin-TEQ, this provision allows the Discharger to address compliance with calculated WQBELs through other strategies such as mass offsets.

F. Land Discharge Specifications

Not Applicable.

G. Reclamation Specifications

Water reclamation requirements are regulated under Regional Water Board Order No. 93-160.

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

A. Surface Water

1. Receiving Water Limitations V.A.1 and V.A.2 are based on the narrative and numeric objectives contained in Chapter 3 of the Basin Plan. The receiving water limits for total ammonia are no longer required because there are effluent limits to ensure compliance with the receiving water limits.
2. Receiving Water Limitations V.A.3 is in the previous Order, requires compliance with Federal and state law, and is self-explanatory.

B. Groundwater

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. CWC sections 13267 and 13383 authorize the Regional Water Board to require technical and monitoring reports. The MRP, Attachment E, establishes monitoring and reporting requirements to implement federal and state requirements.

The principal purposes of a MRP 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 CWC, and the Regional Water Board's policies. The MRP also defines sampling stations and monitoring frequencies, the pollutants to be monitored, and additional reporting requirements. Pollutants to be monitored include all parameters for which effluent limitations are specified. Monitoring for additional constituents, for which no effluent limitations are established, is also required to provide data for future completion of RPAs.

The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this Facility.

A. Influent Monitoring

Influent monitoring requirements for flow, CBOD₅ and TSS are not changed from the previous Order and allow determination of compliance with this Order's 85 percent removal requirement. Influent monitoring for cyanide is required under the Basin Plan cyanide SSOs. However, the requirement is not new because the Discharger has been sampling cyanide according to its pretreatment requirements.

B. Effluent Monitoring

The MRP retains most effluent monitoring requirements from the previous Order. Changes in effluent monitoring are summarized as follows.

Monitoring for settleable matter is no longer required, as this Order does not retain the effluent limitation for this parameter.

Routine effluent monitoring is required for copper, nickel, cyanide, dioxin-TEQ, chlorodibromomethane, and ammonia because this Order establishes effluent limitations for these pollutants. Monitoring for all other priority toxic pollutants must be conducted in accordance with methods described in the Regional Water Board's August 6, 2001, Letter for major dischargers.

Semiannual monitoring for benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene, 4,4'-DDE, heptachlor epoxide, and dieldrin is no longer required because these pollutants no longer demonstrate reasonable potential.

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 toxicity testing is required monthly in order to demonstrate compliance with the Basin Plan's narrative toxicity objective. The Discharger conducted an effluent toxicity screening study prior to the expiration of the previous Order, which indicated *Ceriodaphnia dubia* is the most sensitive species for chronic toxicity testing. The Discharger shall re-screen during the anticipated term of this Order.

D. Receiving Water Monitoring

1. On April 15, 1992, the Regional Water Board adopted Resolution No. 92-043 directing the Executive Officer to implement the 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 CWC, 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 RMP 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.
2. Monitoring requirements for Renzel Marsh Pond are retained from the previous Order. The marsh is part of a habitat enhancement project, and continued monitoring is required to evaluate and maintain the health of the wetlands, as well as the health of the downstream receiving water – Matadero Creek.

E. Pretreatment and Biosolids Monitoring Requirements

Pretreatment monitoring requirements for the influent, effluent, and biosolids are retained from the previous Order, and are required to assess compliance with the Discharger's USEPA approved pretreatment program. Biosolids monitoring is required pursuant to 40 CFR Part 503.

This Order specifies the sampling type for pretreatment monitoring. Specifically, this Order requires multiple grabs for VOCs, BNA, cyanide, and hexavalent chromium to make the requirement consistent both with the Federal pretreatment requirements in 40 CFR 403.12, which require 24-hour composites, and with the Regional Water Board's August 6, 2001, Letter. Composites made up of discrete grabs for these parameters are necessary because of potential loss of the constituents during automatic compositing. VOCs are volatile; hexavalent chromium is chemically unstable; hexavalent chromium, cyanide, and BNAs are also somewhat volatile.

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions (Provision VI.A)

Standard Provisions, which, in accordance with 40 CFR 122.41 and 122.42, apply to all NPDES discharges and must be included in every NPDES permit, are provided in Attachments D and G

to this Order. The Discharger must comply with all standard provisions and with those additional conditions that apply under 40 CFR 122.42.

40 CFR 122.41(a)(1) and (b) through (n) establish conditions that apply to all state-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. Section 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with section 123.25, this Order omits federal conditions that address enforcement authority specified in sections 122.41(j)(5) and (k)(2) because the enforcement authority under CWC is more stringent. In lieu of these conditions, this Order incorporates by reference CWC section 13387(e).

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

The Discharger is required to monitor the permitted discharges in order to evaluate compliance with permit conditions. Monitoring requirements are contained in the MRP (Attachment E), the Regional Water Board Standard Provisions, and SMP Part A (Attachment G) of this Order. This provision requires compliance with these documents and is based on 40 CFR 122.63.

C. Special Provisions (Provision VI.C)

1. Reopener Provisions

These provisions are based on 40 CFR 123 and allow modification of this Order and its effluent limitations, as necessary, to respond to updated information.

2. Special Studies and Additional Monitoring Requirements

- a. **Effluent Characterization Study.** This Order does not include effluent limitations for priority pollutants that do not demonstrate Reasonable Potential, but this provision requires the Discharger to continue monitoring for these pollutants as described in the August 6, 2001, Letter and as specified in the MRP. 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 WQC. This provision is based on the SIP and is retained from the previous Order.
- b. **Ambient Background Receiving Water Study.** This provision is based on the Basin Plan, the SIP, and the August 6, 2001, Letter for priority pollutant monitoring. As indicated in this Order, this requirement may be met by participating in the collaborative BACWA study. This provision is retained from the previous Order.
- c. **Chronic Toxicity Reduction Evaluation (TRE) Requirements.** This provision requires toxicity identification and reduction evaluations when there is consistent chronic toxicity in the discharge and it establishes guidelines for these evaluations. This requirement is unchanged from the previous Order.
- d. **Receiving Water Ammonia Characterization Study.** This study requires a study to characterize ammonia levels in both the Matadero Creek and South Bay. It will generate

new information for the Regional Water Board to evaluate the ammonia/unionized ammonia changes after mixing with receiving water, to develop an appropriate dilution credit for ammonia effluent limit calculation for the next permit reissuance. The Regional Water Board can also use the data to examine whether the receiving waters meet Basin Plan objectives for unionized ammonia.

- e. **Optional Mass Offset Plan.** This option is provided to encourage the Discharger to further implement aggressive reduction of mass loadings of pollutants to South San Francisco Bay. If the Discharger wishes to pursue a mass offset program, it must submit a mass offset plan for reducing 303(d) listed pollutants to the same receiving water body for Regional Water Board approval. The Regional Water Board will consider any proposed mass offset plan and amend this Order accordingly.
- f. **Optional Near-Field Site Specific Translator Study.** This provision is newly established by this Order. Site-specific translators were calculated for this Order for zinc, lead, and chromium (VI), using data collected from the Dumbarton Bridge RMP station. USEPA guidance for developing site-specific translators requires that site-specific translators be developed using data collected at near-field stations. The Discharger has the option to conduct a receiving water study to develop a data set for dissolved and total zinc, chromium (VI), and lead concentrations in the receiving water in the vicinity of the discharge for site-specific translator development in future permit reissuances.

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

This provision for a Pollutant Minimization Program is based on Chapter 4 (section 4.13.2) of the Basin Plan and Chapter 2 (section 2.4.5) of the SIP.

4. **Construction, Operation, and Maintenance Specifications**

- a. **Wastewater Facilities, Review and Evaluation, and Status Reports.** This provision is based on the Basin Plan and is retained from the previous Order.
- b. **Operations and Maintenance Manual, Review and Status Reports.** This provision is based on the Basin Plan, the requirements of 40 CFR 122 and is retained from the previous Order.
- c. **Reliability Report.** This provision is retained from the previous Order and is required as part of reviewing requests for exceptions to the Basin Plan discharge prohibitions.
- d. **Contingency Plan, Review and Status Reports.** This provision is based Regional Water Board Resolution 74-10 and is retained from the previous Order.

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

- a. **Pretreatment Program.** This provision is based on 40 CFR Part 403 (General Pretreatment Regulations for Existing and New Sources of Pollution) and is retained from the previous Order.

- b. **Sludge Management Practices Requirements.** This provision is based on the Basin Plan (Chapter 4) and 40 CFR Parts 257 and 503 and is retained from the previous Order.
- 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 systems, and to promote consistency with the State Water Board adopted General Collection System WDRs (General Order, Order No. 2006-0003-DWQ).

The General Order requires public agencies that own or operate sanitary sewer systems with greater than one mile of pipes or sewer lines to enroll for coverage under the General Order. The General Order requires agencies to develop sanitary sewer management plans (SSMPs) and report all sanitary sewer overflows, among other requirements and prohibitions.

Furthermore, the General Order contains requirements for operation and maintenance of collection systems and for reporting and mitigating sanitary sewer overflows. Inasmuch that the Discharger's collection systems are part of the system that is subject to this Order, certain standard provisions are applicable as specified in Provisions, section VI.C.5. For instance, the 24-hour reporting requirements in this Order are not included in the General Order. The Discharger must comply with both the General Order and this Order. The Discharger and public agencies that are discharging wastewater into the facility were required to obtain enrollment for regulation under the General Order by December 1, 2006.

The State Water Board amended the General Order on February 20, 2008 in Order No. WQ 2008-0002-EXEC, to strengthen the notification and reporting requirements for sanitary sewer overflows. The Regional Water Board issued a 13267 letter on May 1, 2008, requiring dischargers to comply with the new notification requirements for sanitary sewer overflows, and to comply with similar notification and reporting requirements for spills from wastewater treatment facilities. The Discharger has fulfilled this requirement by August 1, 2008.

6. Other Special Provisions

- a. **Action Plan for Cyanide.** This provision is based on the Basin Plan, which contains SSOs for cyanide for San Francisco Bay (Regional Water Board Resolution R2-2006-0086). The Basin Plan requires an action plan for source control to ensure compliance with State and federal antidegradation policies. Additionally, because a dilution credit has been granted in establishing effluent limitations for cyanide, source control efforts are necessary for the continued exception to the Basin Plan prohibition regarding shallow water dischargers. The Discharger will need to comply with this provision upon the effective date of the permit.
- b. **Action Plan for Copper.** This provision is based on the proposed Basin Plan Amendment that will adopt the SSOs for copper for San Francisco Bay (Resolution No. R2-2007-0042). South San Francisco Bay was listed in 1998 on the 303(d) impaired water body list as impaired by copper. Subsequent studies concluded that impairment of beneficial uses of the South Bay due to ambient copper concentrations was unlikely. The Regional Water Board previously adopted a Basin Plan amendment that included copper

SSOs and a Water Quality Attainment Strategy (WQAS) for copper in South San Francisco Bay. Its purpose was to prevent water quality degradation and ensure ongoing maintenance of the SSOs. The four elements of the WQAS were: (1) measures to minimize copper and nickel releases to South San Francisco Bay (baseline actions); (2) a receiving water monitoring program with statistically based water quality triggers for additional control measures if the triggers are exceeded; (3) a proactive framework for addressing increases to future copper and nickel concentrations in South Bay, if they should occur; (4) and metal translators for calculating copper and nickel effluent limitations for the South Bay municipal wastewater treatment plant dischargers. The previous Order required the Discharger to implement a Watershed Management Initiatives to comply with these Basin Plan requirements. Recently, the Regional Water Board and State Water Board approved another Basin Plan amendment (Resolution No. R2-2007-0042) that updated these requirements for South San Francisco Bay dischargers, which includes a copper action plan that applies to all San Francisco Bay dischargers and which is the basis of this provision. The Discharger will need to comply with this provision upon the effective date of this Order.

- c. **Reclamation Programs.** This provision is retained from the previous Order. It requires the Discharger to maintain its reclamation programs as one of the conditions to get an exception of the Basin Plan discharge prohibition.
- d. **Compliance Schedule for Dioxin-TEQ.** The compliance schedule for dioxin-TEQ and the requirement to submit reports on further measures to reduce concentrations to ensure compliance with final limits are based on the Basin Plan section 4.7.6 and the State Water Board's Compliance Schedule Policy. Maximum compliance schedules are allowed because of the considerable uncertainty in determining effective measures (e.g., pollution prevention, treatment upgrades) that should be implemented to ensure compliance with final limits. It is appropriate to allow the Discharger sufficient time to first explore source control measures before requiring it to propose further actions, such as treatment plant upgrades, that are likely to be much more costly. This approach is supported by the Basin Plan (section 4.13), which states, "In general, it is often more economical to reduce overall pollutant loading into treatment systems than to install complex and expensive technology at the Plant."

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 City of Palo Alto Regional Water Quality Control Plant. As a step in the WDRs adoption process, Regional Water Board staff has developed tentative WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The Regional Water Board has notified the 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. Notifications were provided through Palo Alto Weekly on January 9 and March 6, 2009.

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, Attention: Tong Yin.

To receive full consideration and a response from Regional Water Board staff, written comments should be received at the Regional Water Board offices by 5:00 p.m. on February 13, 2009.

C. Public Hearing

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

Date: April 8, 2009

Time: 9 a.m.

Location: Elihu Harris State Office Building
1515 Clay Street, 1st Floor Auditorium
Oakland, CA 94612

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

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

Please be aware that dates and venues may change. Our Web address is <http://www.waterboards.ca.gov/sanfranciscobay> where 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 (ROWD), related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., except from noon to 1:00 p.m.,

Monday through Friday. Copying of documents may be arranged through the Regional Water Board by calling 510-622-2300.

F. Register of Interested Persons

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

G. Additional Information

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

ATTACHMENT H**Pretreatment Program Provisions**

1. The Discharger shall implement all pretreatment requirements contained in 40 CFR 403, as amended. The Discharger shall be subject to enforcement actions, penalties, and fines as provided in the Clean Water Act (33 USC 1351 *et seq.*), as amended. The Discharger shall implement and enforce its Approved Pretreatment Program or modified Pretreatment Program as directed by the Regional Water Board's Executive Officer or the USEPA. The USEPA and/or the State may initiate enforcement action against an industrial user for noncompliance with applicable standards and requirements as provided in the Clean Water Act.
2. The Discharger shall enforce the requirements promulgated under Sections 307(b), 307(c), 307(d) and 402(b) of the Clean Water Act. The Discharger shall cause industrial users subject to Federal Categorical Standards to achieve compliance no later than the date specified in those requirements or, in the case of a new industrial user, upon commencement of the discharge.
3. The Discharger shall perform the pretreatment functions as required in 40 CFR Part 403 and amendments or modifications thereto including, but not limited to:
 - i) Implement the necessary legal authorities to fully implement the pretreatment regulations as provided in 40 CFR 403.8(f)(1);
 - ii) Implement the programmatic functions as provided in 40 CFR 403.8(f)(2);
 - iii) Publish an annual list of industrial users in significant noncompliance as provided per 40 CFR 403.8(f)(2)(vii);
 - iv) Provide for the requisite funding and personnel to implement the pretreatment program as provided in 40 CFR 403.8(f)(3); and
 - v) Enforce the national pretreatment standards for prohibited discharges and categorical standards as provided in 40 CFR 403.5 and 403.6, respectively.
4. The Discharger shall submit annually a report to USEPA Region 9, the State Water Board and the Regional Water Board describing its pretreatment program activities over the previous twelve months. In the event that the Discharger is not in compliance with any conditions or requirements of the Pretreatment Program, the Discharger shall also include the reasons for noncompliance and a plan and schedule for achieving compliance. The report shall contain, but is not limited to, the information specified in Appendix A entitled, "Requirements for Pretreatment Annual Reports," which is made a part of this Order. The annual report is due on the last day of February each year.
5. The Discharger shall submit semiannual pretreatment reports to USEPA Region 9, the State Water Board and the Regional Water Board describing the status of its significant industrial users (SIUs). The report shall contain, but is not limited to, the information specified in Appendix B entitled, "Requirements for Semiannual Pretreatment Reports," which is made part of this Order. The semiannual reports are due July 31st (for the period January through June) and January 31st (for the

period July through December) of each year. The Executive Officer may exempt a Discharger from the semiannual reporting requirements on a case by case basis subject to State Water Board and USEPA's comment and approval.

6. The Discharger may combine the annual pretreatment report with the semiannual pretreatment report (for the July through December reporting period). The combined report shall contain all of the information requested in Appendices A and B and will be due on January 31st of each year.
7. The Discharger shall conduct the monitoring of its treatment plant's influent, effluent, and sludge as described in Appendix C entitled, "Requirements for Influent, Effluent and Sludge Monitoring," which is made part of this Order. The results of the sampling and analysis, along with a discussion of any trends, shall be submitted in the semiannual reports. A tabulation of the data shall be included in the annual pretreatment report. The Executive Officer may require more or less frequent monitoring on a case by case basis.

APPENDIX H-A**REQUIREMENTS FOR PRETREATMENT ANNUAL REPORTS**

The Pretreatment Annual Report is due each year on the last day of February. [If the annual report is combined with the semiannual report (for the July through December period) the submittal deadline is January 31st of each year.] The purpose of the Annual Report is 1) to describe the status of the Publicly Owned Treatment Works (POTW) pretreatment program and 2) to report on the effectiveness of the program, as determined by comparing the results of the preceding year's program implementation. The report shall contain at a minimum, but is not limited to, the following information:

1) Cover Sheet

The cover sheet must contain the name(s) and National Pollutant Discharge Elimination Discharge System (NPDES) permit number(s) of those POTWs that are part of the Pretreatment Program. Additionally, the cover sheet must include: the name, address and telephone number of a pretreatment contact person; the period covered in the report; a statement of truthfulness; and the dated signature of a principal executive officer, ranking elected official, or other duly authorized employee who is responsible for overall operation of the POTW (40 CFR 403.12(j)).

2) Introduction

The Introduction shall include any pertinent background information related to the Discharger, the POTW and/or the industrial user base of the area. Also, this section shall include an update on the status of any Pretreatment Compliance Inspection (PCI) tasks, Pretreatment Performance Evaluation tasks, Pretreatment Compliance Audit (PCA) tasks, Cleanup and Abatement Order (CAO) tasks, or other pretreatment-related enforcement actions required by the Regional Water Board or the USEPA. A more specific discussion shall be included in the section entitled, "Program Changes."

3) Definitions

This section shall contain a list of key terms and their definitions that the Discharger uses to describe or characterize elements of its pretreatment program.

4) Discussion of Upset, Interference and Pass Through

This section shall include a discussion of Upset, Interference or Pass Through incidents, if any, at the POTW(s) that the Discharger knows of or suspects were caused by industrial discharges. Each incident shall be described, at a minimum, consisting of the following information:

- a) a description of what occurred;
- b) a description of what was done to identify the source;
- c) the name and address of the IU responsible
- d) the reason(s) why the incident occurred;
- e) a description of the corrective actions taken; and

- f) an examination of the local and federal discharge limits and requirements for the purposes of determining whether any additional limits or changes to existing requirements may be necessary to prevent other Upset, Interference or Pass Through incidents.

5) **Influent, Effluent and Sludge Monitoring Results**

This section shall provide a summary of the analytical results from the "Influent, Effluent and Sludge Monitoring" as specified in Appendix C. The results should be reported in a summary matrix that lists monthly influent and effluent metal results for the reporting year.

A graphical representation of the influent and effluent metal monitoring data for the past five years shall also be provided with a discussion of any trends.

6) **Inspection and Sampling Program**

This section shall contain at a minimum, but is not limited to, the following information:

- a) Inspections: the number of inspections performed for each type of IU; the criteria for determining the frequency of inspections; the inspection format procedures;
- b) Sampling Events: the number of sampling events performed for each type of IU; the criteria for determining the frequency of sampling; the chain of custody procedures.

7) **Enforcement Procedures**

This section shall provide information as to when the approved Enforcement Response Plan (ERP) had been formally adopted or last revised. In addition, the date the finalized ERP was submitted to the Regional Water Board shall also be given.

8) **Federal Categories**

This section shall contain a list of all of the federal categories that apply to the Discharger. The specific category shall be listed including the subpart and 40 CFR section that applies. The maximum and average limits for the each category shall be provided. This list shall indicate the number of Categorical Industrial Users (CIUs) per category and the CIUs that are being regulated pursuant to the category. The information and data used to determine the limits for those CIUs for which a combined waste stream formula is applied shall also be provided.

9) **Local Standards**

This section shall include a table presenting the local limits.

10) **Updated List of Regulated SIUs**

This section shall contain a complete and updated list of the Discharger's Significant Industrial Users (SIUs), including their names, addresses, and a brief description of the individual SIU's type of

business. The list shall include all deletions and additions keyed to the list as submitted in the previous annual report. All deletions shall be briefly explained.

11) **Compliance Activities**

- a) **Inspection and Sampling Summary:** This section shall contain a summary of all the inspections and sampling activities conducted by the Discharger over the past year to gather information and data regarding the SIUs. The summary shall include:
- (1) the number of inspections and sampling events conducted for each SIU;
 - (2) the quarters in which these activities were conducted; and
 - (3) the compliance status of each SIU, delineated by quarter, and characterized using all applicable descriptions as given below:
 - (a) in consistent compliance;
 - (b) in inconsistent compliance;
 - (c) in significant noncompliance;
 - (d) on a compliance schedule to achieve compliance, (include the date final compliance is required);
 - (e) not in compliance and not on a compliance schedule;
 - (f) compliance status unknown, and why not.
- b) **Enforcement Summary:** This section shall contain a summary of the compliance and enforcement activities during the past year. The summary shall include the names of all the SIUs affected by the following actions:
- (1) Warning letters or notices of violations regarding SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements. For each notice, indicate whether it was for an infraction of a federal or local standard/limit or requirement.
 - (2) Administrative Orders regarding the SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements. For each notice, indicate whether it was for an infraction of a federal or local standard/limit or requirement.
 - (3) Civil actions regarding the SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements. For each notice, indicate whether it was for an infraction of a federal or local standard/limit or requirement.
 - (4) Criminal actions regarding the SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local

limits and/or requirements. For each notice, indicate whether it was for an infraction of a federal or local standard/limit or requirement.

- (5) Assessment of monetary penalties. Identify the amount of penalty in each case and reason for assessing the penalty.
- (6) Order to restrict/suspend discharge to the POTW.
- (7) Order to disconnect the discharge from entering the POTW.

12) **Baseline Monitoring Report Update**

This section shall provide a list of CIUs that have been added to the pretreatment program since the last annual report. This list of new CIUs shall summarize the status of the respective Baseline Monitoring Reports (BMR). The BMR must contain all of the information specified in 40 CFR 403.12(b). For each of the new CIUs, the summary shall indicate when the BMR was due; when the CIU was notified by the POTW of this requirement; when the CIU submitted the report; and/or when the report is due.

13) **Pretreatment Program Changes**

This section shall contain a description of any significant changes in the Pretreatment Program during the past year including, but not limited to: legal authority, local limits, monitoring/ inspection program and frequency, enforcement protocol, program's administrative structure, staffing level, resource requirements and funding mechanism. If the manager of the pretreatment program changes, a revised organizational chart shall be included. If any element(s) of the program is in the process of being modified, this intention shall also be indicated.

14) **Pretreatment Program Budget**

This section shall present the budget spent on the Pretreatment Program. The budget, either by the calendar or fiscal year, shall show the amounts spent on personnel, equipment, chemical analyses and any other appropriate categories. A brief discussion of the source(s) of funding shall be provided.

15) **Public Participation Summary**

This section shall include a copy of the public notice as required in 40 CFR 403.8(f)(2)(vii). If a notice was not published, the reason shall be stated.

16) **Sludge Storage and Disposal Practice**

This section shall have a description of how the treated sludge is stored and ultimately disposed. The sludge storage area, if one is used, shall be described in detail. Its location, a description of the containment features and the sludge handling procedures shall be included.

17) **PCS Data Entry Form**

The annual report shall include the PCS Data Entry Form. This form shall summarize the enforcement actions taken against SIUs in the past year. This form shall include the following information: the POTW name, NPDES Permit number, period covered by the report, the number of SIUs in significant noncompliance (SNC) that are on a pretreatment compliance schedule, the number of notices of violation and administrative orders issued against SIUs, the number of civil and criminal judicial actions against SIUs, the number of SIUs that have been published as a result of being in SNC, and the number of SIUs from which penalties have been collected.

18) **Other Subjects (Not applicable)**

Other information related to the Pretreatment Program that does not fit into one of the above categories should be included in this section.

Signed copies of the reports shall be submitted to the Regional Administrator at USEPA, the State Water Board and the Regional Water Board at the following addresses:

Regional Administrator
United States Environmental Protection Agency
Region 9, Mail Code: WTR-7
Clean Water Act Compliance Office
Water Division
75 Hawthorne Street
San Francisco, CA 94105

Pretreatment Program Manager
Regulatory Unit
State Water Resources Control Board
Division of Water Quality
1001 I Street
Sacramento, CA 95814

Pretreatment Coordinator
NPDES Permits Division
SF Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

APPENDIX H-B**REQUIREMENTS FOR SEMIANNUAL PRETREATMENT REPORTS**

The semiannual pretreatment reports are due on July 31st (for pretreatment program activities conducted from January through June) and January 31st (for pretreatment activities conducted from July through December) of each year, unless an exception has been granted by the Regional Water Board's Executive Officer. The semiannual reports shall contain, at a minimum, but is not limited to, the following information:

1) Influent, Effluent and Sludge Monitoring

The influent, effluent and sludge monitoring results shall be included in the report. The analytical laboratory report shall also be included, with the QA/QC data validation provided upon request. A description of the sampling procedures and a discussion of the results shall be given. (Please see Appendix C for specific detailed requirements.) The contributing source(s) of the parameters that exceed NPDES limits shall be investigated and discussed. In addition, a brief discussion of the contributing source(s) of all organic compounds identified shall be provided.

The Discharger has the option to submit all monitoring results via an electronic reporting format approved by the Executive Officer. The procedures for submitting the data will be similar to the electronic submittal of the NPDES self-monitoring reports as outlined in the December 17, 1999 Regional Water Board letter, Official Implementation of Electronic Reporting System (ERS). The Discharger shall contact the Regional Water Board's ERS Project Manager for specific details in submitting the monitoring data.

If the monitoring results are submitted electronically, the analytical laboratory reports (along with the QA/QC data validation) should be kept at the discharger's facility.

2) Industrial User Compliance Status

This section shall contain a list of all Significant Industrial Users (SIUs) that were not in consistent compliance with all pretreatment standards/limits or requirements for the reporting period. The compliance status for the previous reporting period shall also be included. Once the SIU has determined to be out of compliance, the SIU shall be included in the report until consistent compliance has been achieved. A brief description detailing the actions that the SIU undertook to come back into compliance shall be provided.

For each SIU on the list, the following information shall be provided:

- a. Indicate if the SIU is subject to Federal categorical standards; if so, specify the category including the subpart that applies.
- b. For SIUs subject to Federal Categorical Standards, indicate if the violation is of a categorical or local standard.

- c. Indicate the compliance status of the SIU for the two quarters of the reporting period.
- d. For violations/noncompliance occurring in the reporting period, provide (1) the date(s) of violation(s); (2) the parameters and corresponding concentrations exceeding the limits and the discharge limits for these parameters and (3) a brief summary of the noncompliant event(s) and the steps that are being taken to achieve compliance.

3) POTW's Compliance with Pretreatment Program Requirements

This section shall contain a discussion of the Discharger's compliance status with the Pretreatment Program Requirements as indicated in the latest Pretreatment Compliance Audit (PCA) Report, Pretreatment Compliance Inspection (PCI) Report or Pretreatment Performance Evaluation (PPE) Report. It shall contain a summary of the following information:

- a. Date of latest PCA, PCI or PPE and report.
- b. Date of the Discharger's response.
- c. List of unresolved issues.
- d. Plan and schedule for resolving the remaining issues.

The reports shall be signed by a principal executive officer, ranking elected official, or other duly authorized employee who is responsible for the overall operation of the Publicly Owned Treatment Works (POTW) (40 CFR 403.12(j)). Signed copies of the reports shall be submitted to the Regional Administrator at USEPA, the State Water Board and the Regional Water Board at the following addresses:

Regional Administrator
United States Environmental Protection Agency
Region 9, Mail Code: WTR-7
Clean Water Act Compliance Office
Water Division
75 Hawthorne Street
San Francisco, CA 94105

Pretreatment Program Manager
Regulatory Unit
State Water Resources Control Board
Division of Water Quality
1001 I Street
Sacramento, CA 95814

Pretreatment Coordinator
NPDES Permits Division
SF Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

APPENDIX H-C**REQUIREMENTS FOR INFLUENT, EFFLUENT AND SLUDGE MONITORING**

The Discharger shall conduct sampling of its treatment plant's influent, effluent and sludge at the frequency as shown in Table E-6 on Page E-10 of the Monitoring and Reporting Program (Attachment E).

The monitoring and reporting requirements of the POTW's Pretreatment Program are in addition to those specified in Tables E-3 and E-4 of the MRP. Any subsequent modifications of the requirements specified in Tables E-3 and E-4 shall be adhered to and shall not affect the requirements described in this Appendix unless written notice from the Regional Water Board is received. When sampling periods coincide, one set of test results, reported separately, may be used for those parameters that are required to be monitored by both Table E-3 and E-4 and the Pretreatment Program. The Pretreatment Program monitoring reports shall be sent to the Pretreatment Program Coordinator.

1. Influent and Effluent Monitoring

The Discharger shall monitor for the parameters using the required test methods listed in Table E-6 of the MRP. Any test method substitutions must have received prior written Regional Water Board approval. Influent and Effluent sampling locations shall be the same as those sites specified in the Self-Monitoring Program.

The influent and effluent sampled should be taken during the same 24-hour period. All samples must be representative of daily operations. A grab sample shall be used for volatile organic compounds, cyanide and phenol. In addition, any samples for oil and grease, polychlorinated biphenyls, dioxins/furans, and polynuclear aromatic hydrocarbons shall be grab samples. For all other pollutants, 24-hour composite samples must be obtained through flow-proportioned composite sampling. Sampling and analysis shall be performed in accordance with the techniques prescribed in 40 CFR Part 136 and amendments thereto. For effluent monitoring, the reporting limits for the individual parameters shall be at or below the minimum levels (MLs) as stated in the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (2000) [also known as the State Implementation Policy (SIP)]; any revisions to the MLs shall be adhered to. If a parameter does not have a stated minimum level, then the Discharger shall conduct the analysis using the lowest commercially available and reasonably achievable detection levels.

The following standardized report format should be used for submittal of the influent and effluent monitoring report. A similar structured format may be used but will be subject to Regional Water Board approval. The monitoring reports shall be submitted with the Semiannual Reports.

- A. **Sampling Procedures** – This section shall include a brief discussion of the sample locations, collection times, how the sample was collected (i.e., direct collection using vials or bottles, or other types of collection using devices such as automatic samplers, buckets, or beakers), types of containers used, storage procedures and holding times. Include description of prechlorination and chlorination/dechlorination practices during the sampling periods.

- B. Method of Sampling Dechlorination – A brief description of the sample dechlorination method prior to analysis shall be provided.
- C. Sample Compositing – The manner in which samples are composited shall be described. If the compositing procedure is different from the test method specifications, a reason for the variation shall be provided.
- D. Data Validation – All quality assurance/quality control (QA/QC) methods to be used shall be discussed and summarized. These methods include, but are not limited to, spike samples, split samples, blanks and standards. Ways in which the QA/QC data will be used to qualify the analytical test results shall be identified. A certification statement shall be submitted with this discussion stating that the laboratory QA/QC validation data has been reviewed and has met the laboratory acceptance criteria. The QA/QC validation data shall be submitted to the Regional Water Board upon request.
- E. A tabulation of the test results shall be provided.
- F. Discussion of Results – The report shall include a complete discussion of the test results. If any pollutants are detected in sufficient concentration to upset, interfere or pass through plant operations, the type of pollutant(s) and potential source(s) shall be noted, along with a plan of action to control, eliminate, and/or monitor the pollutant(s). Any apparent generation and/or destruction of pollutants attributable to chlorination/dechlorination sampling and analysis practices shall be noted.

2. Sludge Monitoring

Sludge should be sampled in the same 24-hour period during which the influent and effluent are sampled except as noted in (C) below. The same parameters required for influent and effluent analysis shall be included in the sludge analysis. The sludge analyzed shall be a composite sample of the sludge for final disposal consisting of:

- A. Sludge lagoons – 20 grab samples collected at representative equidistant intervals (grid pattern) and composited as a single grab, or
- B. Dried stockpile – 20 grab samples collected at various representative locations and depths and composited as a single grab, or
- C. Dewatered sludge- daily composite of 4 representative grab samples each day for 5 days taken at equal intervals during the daily operating shift taken from a) the dewatering units or b) from each truckload, and shall be combined into a single 5-day composite.

The USEPA manual, POTW Sludge Sampling and Analysis Guidance Document, August 1989, containing detailed sampling protocols specific to sludge is recommended as a guidance for sampling procedures. The USEPA manual Analytical Methods of the National Sewage Sludge Survey, September 1990, containing detailed analytical protocols specific to sludge, is recommended as a guidance for analytical methods.

In determining if the sludge is a hazardous waste, the Dischargers shall adhere to Article 2, "Criteria for Identifying the Characteristics of Hazardous Waste," and Article 3, "Characteristics of

Hazardous Waste," of Title 22, California Code of Regulations, Sections 66261.10 to 66261.24 and all amendments thereto.

Sludge monitoring reports shall be submitted with the appropriate Semiannual Report. The following standardized report format should be used for submittal of the report. A similarly structured form may be used but will be subject to Regional Water Board approval.

- A. Sampling procedures – Include sample locations, collection procedures, types of containers used, storage/refrigeration methods, compositing techniques and holding times. Enclose a map of sample locations if sludge lagoons or stockpiled sludge is sampled.
- B. Data Validation – All quality assurance/quality control (QA/QC) methods to be used shall be discussed and summarized. These methods include, but are not limited to, spike samples, split samples, blanks and standards. Ways in which the QA/QC data will be used to qualify the analytical test results shall be identified. A certification statement shall be submitted with this discussion stating that the laboratory QA/QC validation data has been reviewed and has met the laboratory acceptance criteria. The QA/QC validation data shall be submitted to the Regional Water Board upon request.
- C. Test Results – Tabulate the test results and include the percent solids.
- D. Discussion of Results – The report shall include a complete discussion of test results. If the detected pollutant(s) is reasonably deemed to have an adverse effect on sludge disposal, a plan of action to control, eliminate, and/or monitor the pollutant(s) and the known or potential source(s) shall be included. Any apparent generation and/or destruction of pollutants attributable to chlorination/ dechlorination sampling and analysis practices shall be noted.

The Discharger shall also provide any influent, effluent or sludge monitoring data for nonpriority pollutants that the permittee believes may be causing or contributing to Interference, Pass Through or adversely impacting sludge quality.

ATTACHMENT I – ACTIONS TO MEET THE REQUIREMENTS OF STATE WATER BOARD ORDER NO. WQ 90-5

In response to the State Water Board's Water Quality Control Policy for the Enclosed Bays and Estuaries of California (the Bays and Estuaries Policy, adopted in May 1974), which includes a general prohibition against the discharge of municipal and industrial wastewaters to enclosed bays and estuaries, the Regional Water Board has included the following discharge prohibitions in Table 4-1 of the Basin Plan.

It shall be prohibited to discharge any wastewater which has particular characteristics of concern to beneficial uses at any point at which the wastewater does not receive a minimal initial dilution of at least 10:1, or into any non-tidal water, dead-end slough, similar confined waters, or any immediate tributaries thereof.

It shall be prohibited to discharge any wastewater which has particular characteristics of concern to San Francisco Bay south of the Dumbarton Bridge.

Due to locations south of the Dumbarton Bridge and discharges to receiving waters where 10:1 minimum initial dilution is not achieved, these prohibitions essentially preclude discharges of treated wastewater from the wastewater treatment plants of San Jose/Santa Clara, Palo Alto, and Sunnyvale. In 1973, these dischargers formed the South Bay Dischargers Authority to address the possibility of relocating their outfalls to a location north of the Dumbarton Bridge, and gave attention to an exception to the discharge prohibitions allowed by the Basin Plan, and consistent with the *Bays and Estuaries Policy*, when a net environmental benefit is realized as a result of the discharge. Based on results of studies conducted between 1981 through 1986 showing net environmental benefit, in 1987, with applications for reissuance of their discharge permits, the three South Bay dischargers petitioned the Regional Water Board for exceptions to the discharge prohibitions.

In the same time period that the South Bay dischargers were addressing the discharge prohibitions, the Regional Water Board was establishing water quality objectives for many toxic pollutants in San Francisco Bay. An amendment of the Basin Plan in 1986 established several such water quality objectives, which corresponded to then current EPA recommended water quality criteria. Due to the unique hydrodynamic environment of South San Francisco Bay and implications of non-point pollution sources, however, the 1986 Basin Plan amendment exempted South San Francisco Bay from the newly adopted water quality objectives and required development of site-specific water quality objectives.

In reissuing permits to Sunnyvale (Order No. 88-176) and Palo Alto (Order No. 88-175) in 1988, the Regional Water Board found that discharges from these wastewater treatment facilities would provide a net environmental benefit and water quality enhancement. Exceptions to the Basin Plan discharge prohibitions were therefore granted provided that the dischargers conduct several studies, addressing salt marsh conversion, development of site-specific water quality objectives and effluent limitations for metals, ammonia removal, and avian botulism control. The Regional Water Board found that discharges from the San Jose/Santa Clara WPCF did not provide a net environmental benefit and water quality enhancement, and in particular cited the conversion, caused by the discharge, of extensive salt marsh habitat to brackish and freshwater marsh. The Regional Water Board concluded, however, that a finding of "net environmental benefit" could be made if the Discharger provided mitigation for the loss of salt marsh habitat; and if such mitigation was accomplished, then an exception, like that granted to Sunnyvale and Palo Alto, would be appropriate. On January 18, 1989, a Cease and Desist Order (Order No. 89-013), establishing a time schedule for either compliance with the Basin Plan prohibitions or

mitigation for the loss of salt marsh habitat, was adopted concurrently with the reissued discharge permit (Order No. 89-012) for the San Jose/Santa Clara facility.

In addition to addressing the exceptions to the Basin Plan's discharge prohibitions, the three reissued permits established a process to develop site-specific water quality objectives and effluent limitations for metals. Interim limitations, based on objectives in the 1982 Basin Plan, were established and were to be replaced by performance based interim limitations after one year. Ultimately, final effluent limitations would be established based on objectives from the 1986 Basin Plan or based on site-specific studies, which were mandated by the permits.

Responding to objections from environmental groups regarding the reissued permits for the three South Bay dischargers, on October 4, 1990, the State Water Board adopted Order No. WQ 90-5 to address three issues: (a) the conditional exceptions granted to Sunnyvale and Palo Alto and denied to San Jose/Santa Clara regarding the Basin Plan discharge prohibitions, (b) regulation of toxic pollutants, and (c) mitigation for the loss of salt marsh habitat.

As described by Order No. WQ 90-5, the State Water Board concluded that all three South Bay dischargers had failed to demonstrate that exceptions to the Basin Plan discharge prohibitions should be granted on the basis of net environmental benefit. The State Water Board explained that impacts of nutrient loading in South San Francisco Bay remained unresolved, that avian botulism was negatively impacting wildlife and estuarine habitat, and that discharges of metals were contributing or threatening to contribute to impairment of San Francisco Bay. In addition, discharges from the San Jose/Santa Clara facility, specifically, had a substantial adverse impact on rare and endangered species resulting from the loss of salt marsh habitat.

Through Order No. WQ 90-5, the State Water Board did acknowledge that relocation of the discharges to a location north of the Dumbarton Bridge was not an economically or environmentally sound solution to the issues associated with the South Bay discharges; although if the discharges were, in fact, located north of the Dumbarton Bridge, they would need to comply with water quality objectives for toxic pollutants, which were incorporated into the Basin Plan in 1986. The State Water Board "strongly encouraged" the Regional Water Board and the South Bay Dischargers Authority to pursue wastewater reclamation projections as a means to reduce discharges to San Francisco Bay, and it also concluded that exceptions to the Basin Plan discharge prohibitions could be granted on the basis of "equivalent protection" (i.e., protection equivalent to relocating the discharges to a location north of the Dumbarton Bridge), provided that certain conditions were met. In Order No. WQ 90-5, the State Water Board stated that exceptions to the Basin Plan discharge prohibitions could be granted in the South Bay permits, on the basis of "equivalent protection," (a) if the discharge permits include numeric, water quality based limitations for toxic pollutants; (b) if the dischargers continue efforts to control avian botulism; and (c) if the dischargers properly protect rare and endangered species by limiting flows discharged to San Francisco Bay to not more than 120 MGD (average dry weather flow) or to flows which would not further adversely impact rare or endangered species, and by providing for the creation or restoration of 380 acres of wetlands.

The following text briefly describes, chronologically, actions taken by the State and Regional Water Boards and the City of Palo Alto shortly before and after adoption of State Water Board Order No. WQ 90-05. This summary also clarifies the origin of some provisions that appear in this Order.

Regional Water Board Order No. 90-034 (February 21, 1990) amended Order No. 88-175.

- Established interim performance based limits, at the 95 percent confidence level, for As, Cd, Cr⁺⁶, Cu, Pb, Hg, Ni, Ag, Zn, CN, phenolic compounds, PAHs, and Se. Interim limits were to remain effective while SSOs were being developed, and site-specific limits had to be in place by December 31, 1991. [The Basin Plan had not established WQ objectives for metals in South San Francisco Bay, and the Discharger was obligated to assist in gathering data for development of SSOs and effluent limitations.]
- Interim mass based limits were established for the same pollutants to maintain ambient conditions in South San Francisco Bay until SSOs and site-specific limits were in place by December 31, 1991. [Interim limits were needed for metals because of the lack of assimilative capacity in San Francisco Bay, although loadings of metals to San Francisco Bay had diminished since 1975.]

Regional Water Board Order No. 90-069 (May 16, 1990) amended Order No. 88-175.

- By August 1, 1991, required implementation of additional source control measures, including pretreatment program improvements, to reduce toxic pollutants in influent wastewater
- By December 1, 1990 required submittal of an interim report regarding progress of implementing additional source control measures.

State Water Board Order No. WQ 90-05 was adopted on October 4, 1990.

Regional Water Board Order No. 91-068 (April 17, 1991) amended Order No. 88-175 to comply with State Water Board Order No. 90-5.

- Previous work did not support a finding of “net environmental benefit” and “water quality enhancement.” Exceptions to the Basin Plan prohibitions could be granted, however, based on “equivalent protection,” if certain conditions can be satisfied: (1) WQBELs for toxic pollutants must be included in the facility’s discharge permit, (2) the discharge permit must include mass limits for toxic pollutants, and (3) a chronic toxicity limitation is included in the permit.
- The permit was amended to state that “water quality objectives for South San Francisco Bay exist, and are appropriate to use when developing water quality based effluent limitations. The Discharger is currently conducting studies which may lead to development of new site-specific objectives for copper, lead, mercury, and nickel. The Regional Board is also developing Bay-wide objectives for copper and nickel. New proposed objectives for the South Bay, and any subsequent changes in effluent limitations, will be considered at the next permit reissuance.” Order No. 91-068 states that “[o]n April 11, 1991, the State Board adopted water quality objectives for the State in its Bays and Estuaries Plan. Those objectives are applicable to San Francisco Bay below Dumbarton Bridge.” [Note that the State Water Board’s Bays and Estuaries Plan, as well as an Inland Surface Waters Plan, which was also adopted in 1991, were rescinded in 1994.] The Order also contained a requirement to conduct a TRE/TIE for chronic toxicity prior to permit expiration, and that a chronic toxicity limitation would be adopted at the next permit issuance.
- Order No. 91-068 established new, interim, concentration based limits for As, Cd, Cr⁺⁶, Cu, Pb, Hg, Ni, Ag, Zn, and Se; and new, interim, mass-based limitations for As, Cd, Cr⁺⁶, Cu, Pb, Hg, Ni, Ag, Zn, Se, CN, phenols, and PAHs.

Regional Water Board Order No. 93-085 (July 21, 1993) reissued NPDES/Waste Discharge Requirements for the City of Palo Alto.

- Consistent with the requirements of State Water Board Order No. 90-5, this Order contained water quality based effluent limits for toxics, and mass loadings limits for metals, and therefore granted exceptions to the Basin Plan discharge prohibitions.
- Chronic toxicity was addressed by incorporating all permit amendments contained in the Blanket Chronic Toxicity Order (Regional Water Board Order No. 92-104).

Regional Water Board Cease and Desist Order No. 93-083 (July 21, 1993).

- The Cease and Desist Order addressed significant violations of effluent limitations established by Order No. 91-068 for copper and nickel between May 1991 and August 1992, and included compliance schedules to come into full compliance with the requirements of Order No. 93-085 for copper and nickel.

Regional Water Board Order No. 98-054 (June 17, 1998) reissued NPDES/Waste Discharge Requirements for the City of Palo Alto.

- Effluent limitations for copper and nickel were based on (then) current performance of the treatment plant to ensure that ambient conditions in South San Francisco Bay would be maintained. These limitations reflected the 99.7th percentile of Plant performance from 1995 through 1997. For all other toxic pollutants with limitations established by the Order, limitations were based on the 1995 Basin Plan or USEPA criteria (i.e., mercury, nickel, selenium, and tributyltin).
- Continued exceptions to the Basin Plan discharge prohibitions were granted, as effluent limitations which are substantially equivalent to the effluent limitations in the 1993 NPDES permit, and requirements to conduct studies to develop water quality based mass loading limits for metals, measures to maximize reclamation and minimize effluent discharge and the continued operation of the Plant at a high degree of reliability are required by the permit.
- The Regional Water Board expected SSOs for copper and nickel to be developed during the anticipated term of Order No. 98-054; and it established requirements in the Order for the Discharger to participate in TMDL development.
- Order No. 98-054 established compliance with the Basin Plan narrative objective for chronic toxicity to be demonstrated through monitoring, and required accelerated monitoring upon exceedance of chronic toxicity "triggers."

Regional Water Board Order No. R2-2002-0061 (May 22, 2002) adopted a Basin Plan amendment establishing SSOs for copper and nickel in the San Francisco Bay south of Dumbarton Bridge.

State Water Board Resolution No. 2002-0151 (October 17, 2002) granted State Water Board approval of SSOs for copper and nickel for the South San Francisco Bay, which were subsequently approved by USEPA on January 21, 2003.

Regional Water Board Order No. R2-2003-0078 (August 20, 2003) reissued NPDES/Waste Discharge Requirements for the City of Palo Alto.

- The Order contained requirements for the Discharger to comply with the Copper and Nickel Action Plans.
- The Order did not automatically carry over mass-based limitations for metals from the previous permit, as water quality-based effluent limitations of the Order were established based on guidance of the California Toxics Rule and the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (the CTR and the SIP, which both became effective on May 18, 2000).
- Based on its findings regarding the establishment of water quality-based effluent limitations, and continuing a marsh reclamation program (which is unrelated to State Water Order 90-5), the permit continued exceptions to the Basin Plan discharge prohibitions.