

The receiving water for this discharge is Moffett Channel which ultimately flows into South San Francisco Bay via Guadalupe Slough. Salinity data are not available for Moffett Channel; however, salinity as measured at the Regional Monitoring Program (RMP) Sunnyvale Slough station (C-1-3) indicates an estuarine environment (59 percent of the salinity data fell between 1 and 10 ppt). Moffett Channel and Guadalupe Slough are tidally influenced and are therefore considered estuarine receiving waters. The lower of the marine and freshwater WQOs from the Basin Plan, NTR, and CTR apply to this discharge.

- f. **Receiving Water Hardness.** Ambient hardness values are used to calculate freshwater WQOs that are hardness dependent. In determining the WQOs for this Order, Regional Water Board staff used a hardness value of 103 mg/L as CaCO_3 , the minimum hardness value observed at the Guadalupe Slough RMP station.
- g. **Site-Specific Translators.** 40 CFR 122.45(c) requires that effluent limitations for metals be expressed as total recoverable metal. Since applicable WQC for metals are typically expressed as dissolved metal, factors or translators must be used to convert metals concentrations from dissolved to total recoverable and vice versa. The CTR includes default conversion factors that are used in NPDES permitting activities; however, site-specific conditions, such as water temperature, pH, suspended solids, and organic carbon, greatly impact the form of metal (dissolved, filterable, or otherwise) that is present in the water and therefore available to cause toxicity. In general, the dissolved form of the metals is more available and more toxic to aquatic life than the filterable forms. Site-specific translators can be developed to account for site-specific conditions, thereby preventing exceedingly stringent or under protective WQOs.

Site-specific translators for copper and nickel were developed for South San Francisco Bay and are in the Basin Plan. The site-specific translators for copper and nickel are presented in Table F-10.

For this permit reissuance, Regional Water Board staff developed site-specific translators for chromium (VI), zinc, and lead for the South San Francisco Bay using data from the Dumbarton Bridge RMP station (BA30), and following USEPA's recommended guidelines for translator development. These translators were applied in determining reasonable potential and/or effluent limitations for these constituents. These translators were updated using additional RMP data collected since the previous permit issuance and Minitab statistical software. The newly calculated translators for Zn, Cr(VI), and Pb are also presented in Table F-10, below. In determining the need for and calculating WQBELs for all other metals, where appropriate, Regional Water Board staff used default conversion factors in the CTR, Table 2.

Table F-10. Site-Specific Translators for Cu, Ni, Zn, Cr(VI), and Pb for South San Francisco Bay

Pollutant	AMEL Translator	MDEL Translator
Copper	0.53	0.53
Nickel	0.44	0.44
Zinc	0.24	0.56
Chromium (VI)	0.037	0.089
Lead	0.060	0.15

3. Determining the Need for WQBELs

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

- a. **SIP Reasonable Potential Methodology.** The RPA identifies the observed MEC in the effluent for each pollutant based on effluent concentration data. There are three triggers in determining Reasonable Potential according to Section 1.3 of the SIP.
 - (1) The first trigger (Trigger 1) is activated if the MEC is greater than or equal to the lowest applicable WQC ($MEC \geq WQC$), which has been adjusted, if appropriate, for pH, hardness, and translator data. If the MEC is greater than or equal to the adjusted WQC, then that pollutant has Reasonable Potential, and a WQBEL is required.
 - (2) The second trigger (Trigger 2) is activated if the observed maximum ambient background concentration (B) is greater than the adjusted WQC ($B > WQC$), and the pollutant is detected in any of the effluent samples.
 - (3) The third trigger (Trigger 3) is activated if a review of other information determines that a WQBEL is required to protect beneficial uses, even though both MEC and B are less than the WQC.
- b. **Effluent Data.** The Regional Water Board's August 6, 2001, letter titled *Requirement for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy* formally required the Discharger to initiate or continue monitoring for the priority pollutants using analytical methods that provide the best detection limits reasonably feasible. Regional Water Board staff analyzed these effluent data and the nature of the discharge to determine if the discharge has Reasonable Potential. The RPA was based on the effluent monitoring data collected by the Discharger from February 2005 through January 2008 for most inorganic pollutants, and from November 2003 through January 2008 for most organic pollutants.
- c. **Ambient Background Data.** Ambient background values are typically used to determine reasonable potential and to calculate effluent limitations, when necessary. For the RPA, ambient background concentrations are the observed maximum detected water column

concentrations. The SIP states that, for calculating WQBELs, ambient background concentrations are either the observed maximum ambient water column concentrations or, for criteria intended to protect human health from carcinogenic effects, the arithmetic mean of observed ambient water concentrations.

The background data used in the RPA were generated at the Dumbarton Bridge RMP station, except for ammonia, for which the maximum ambient concentration at the Guadalupe Slough RMP station was used. The Discharger conducted an ammonia special study during 1997 through 2000. Ammonia data collected at this same station were also used in the RPA.

Not all the constituents listed in the CTR have been analyzed by the RMP. These data gaps are addressed by the Regional Water Board's August 6, 2001, Letter, which formally required dischargers to conduct ambient background monitoring and effluent monitoring for those constituents not currently monitored by the RMP and to provide this technical information to the Regional Water Board.

On May 15, 2003, a group of several San Francisco Bay Region Dischargers (known as the Bay Area Clean Water Agencies, or BACWA) submitted a collaborative receiving water study, entitled the San Francisco Bay Ambient Water Monitoring Interim Report (2003). This study includes monitoring results from sampling events in 2002 and 2003 for the remaining priority pollutants not monitored by the RMP. The study included the Dumbarton Bridge monitoring station. Additional data were provided from the BACWA Ambient Water Monitoring: Final CTR Sampling Update Report, dated June 15, 2004.

The RPA was conducted and the WQBELs were calculated using RMP data from 1993 through 2006 at the Dumbarton Bridge RMP station, and additional data from the BACWA receiving water study.

d. Reasonable Potential Analysis for Ammonia

Ammonia is a toxic pollutant, but not a priority pollutant as defined by the CTR; therefore, Regional Water Board staff used the procedures outlined in the *Technical Support Document for Toxics Control* (TSD) (EPA/505/2-90-001, March 1991) to determine if ammonia in the discharge has a reasonable potential to cause water quality objectives to be exceeded in the receiving water.

(1) TSD RPA Procedure

TSD allows using measured receiving water concentrations (RWC) or projected RWC from effluent data to perform RPA. The following summarizes steps to determine reasonable potential for excursions above ambient criteria using effluent data:

Step 1. Determine the number of total observations (n) for a set of effluent data and determine the highest value from that data set (the maximum effluent concentration or MEC).

Step 2. Determine the coefficient of variation (CV) from the data set. For a data set where $n < 10$, the CV is estimated to equal 0.6. For a data set where $n > 10$, the CV is calculated as the standard deviation divided by the mean.

Step 3. Determine an appropriate ratio for projecting a selected upper bound concentration (e.g., the 99th or 95th percentile) assuming a lognormal distribution.

To do this, the percentile represented by the MEC in a data set of " n " samples, p_n , needs to be determined based on the desired confidence interval, e.g., 95% or 99%.

$$p_n = (1 - \text{confidence interval})^{1/n}$$

Then concentrations based on two percentile values, $C_{\text{upper bound}}$, and C_{P_n} need to be calculated using the following equation.

$$C_p = \exp(Z_p \sigma - 0.5 \sigma^2)$$

where $\sigma = \ln(\text{CV}^2 + 1)$, p is the percentile (upper bound or p_n), and Z_p is the standard normal distribution value for the percentile p .

The ratio, R , is then determined to be

$$R = \frac{C_{\text{upper bound}}}{C_{P_n}}$$

Step 4. Multiply the MEC by the ratio, R , determined by Step 3. Use this value with the appropriate dilution to project the receiving water concentration (RWC) (this analysis assumes no dilution or $D=1$).

$$\text{RWC} = \text{MEC} \times R / \text{dilution ratio}$$

Step 5. Compare the projected RWC to the applicable WQC (CCC, CMC, human health criteria, etc). If a RWC is greater than or equal to a criterion, then there is reasonable potential.

(2) TSD-based RPA for Ammonia

- i. *Ammonia WQOs*. The Basin Plan contains WQOs for un-ionized ammonia of 0.025 mg/L as an annual median and 0.4 mg/L as a maximum for Lower San Francisco Bay.
- ii. *Ammonia Data Translation*. Effluent and receiving water monitoring data are available for total ammonia, not un-ionized ammonia, because (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 water. Regional Water Board staff

translates total ammonia concentrations into un-ionized ammonia concentrations (as nitrogen) to compare with the Basin Plan un-ionized ammonia objectives based on the following equations [Ambient Water Quality Criteria for Ammonia (saltwater) – 1989, USEPA Publication 440/5-88-004, USEPA, 1989]:

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

Where:

$$pK = 9.245 + 0.116*(I) + 0.0324*(298-T) + 0.0415*(P)/T$$

$$I = \text{the molal ionic strength of saltwater} = 19.9273*(S)/(1000-1.005109*S)$$

S = salinity (parts per thousand)

T = temperature in Kelvin

P = pressure (one atmosphere)

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

Where:

$$pK = 0.09018 + 2729.92/T$$

T = temperature in Kelvin

For this effluent data calculation, no salinity data were available and staff assumed that the effluent is fresh; therefore, staff used the equation for waters of salinity <1 ppt.

- iii. *Ammonia Dilution.* For purposes of this discharge, no dilution was assumed for ammonia, i.e., dilution ratio=1; therefore, the RWC is the same as the projected upper bound concentration, i.e., $RWC = MEC \times R$ (see Step 4 under TSD RPA Procedure above).
- iv. Two Approaches

According to the TSD, the RPA can be performed based on the projected RWC using effluent data (the steps summarized above) or measured receiving water concentrations. Both values may be compared directly with WQOs.

(a) RPA Based on Effluent Data

Regional Water Board staff used effluent monitoring data for total ammonia from April 1, 2006, through March 31, 2009. Un-ionized ammonia concentrations were calculated using the pH and temperature data collected for the same samples. There were 318 data points (n=318). The MEC was 0.11 mg/L un-ionized ammonia. The confidence interval was set at 95%. The percentile represented by the MEC is calculated to be:

$$p_n = (1-0.95)^{1/318} = 0.99$$

Therefore, the MEC represented the 99th percentile. For this analysis, $C_{\text{upper bound}}$ is set at the 99th percentile, which means $C_{P_n} = C_{\text{upper bound}}$ and $R = 1$. With no dilution (dilution ratio=1), the projected RWC is the same as the observed MEC, 0.11 mg/L (= MEC×R/dilution ratio). This value is less than the Basin Plan un-ionized ammonia acute objective of 0.4 mg/L, indicating no reasonable potential to exceed this objective.

The median of the effluent data is appropriate for comparing with the chronic objective, which is expressed as an annual median. Regional Water Board staff calculated the 50th percentile un-ionized ammonia concentration from the effluent data and compared this value with the annual median objective. No projection is needed because the observed 50th percentile is generally very close to the population 50th percentile. The 50th percentile value is 0.002 mg/L, which is less than the annual median objective of 0.025 mg/L.

Therefore, there is no reasonable potential based on the effluent data.

(b) RPA Based on Receiving Water

The Discharger conducted a receiving water study during 1997-2000 (*City of Sunnyvale WPCP Receiving Water Ammonia Investigations 2001 Final Report, June 29, 2001*). The Discharger collected ammonia, pH, salinity, and temperature data at seven receiving water stations located in Moffett Channel and Guadalupe Slough, both upstream and downstream of the discharge point. In addition, the Regional Monitoring Program (RMP) has monitoring data at one of the sampling stations (C-1-3). This analysis uses the RMP data as well.

Regional Water Board staff translated the measured total ammonia concentrations into un-ionized ammonia concentrations using the pH, salinity, and temperature data collected on the same sampling dates. Then they used the data from all seven stations to determine the maximum receiving water concentration to be compared with the acute objective, and the highest 50th percentile value from the seven stations to be compared to the annual median objective.

The maximum RWC as un-ionized ammonia was 0.068 mg/L. This occurred on November 19, 1998, at Station C-3-0, which is located at the confluence of Moffett Channel and Guadalupe Slough (the closest station to the outfall). This un-ionized ammonia value is less than the acute objective of 0.4 mg/L.

The highest 50th percentile at any location occurred at station C-2-0 (located about 8000 feet above the discharge outfall in Guadalupe Slough). The median value there was 0.015 mg/L, which is less than the annual median objective of 0.025 mg/L.

Therefore, there is no reasonable potential based on the receiving water data.

- e. **RPA Determination.** Except for ammonia, discussed above, the RPA for this Order is based on the SIP. The MECs, most stringent applicable WQC, and background

concentrations used in the RPA are presented in Table F-11, along with the RPA results (yes or no) for each pollutant. Reasonable Potential was not determined for all pollutants because there are not applicable WQC for all pollutants, or monitoring data were not available for others. The RPA determines that cyanide, chlorodibromomethane, endrin, and tributyltin exhibit Reasonable Potential by Trigger 1. Mercury and dioxin-TEQ exhibit reasonable potential by Trigger 2. Copper and nickel have reasonable potential by Trigger 3 as explained below.

Table F-11. Summary of RPA Results

CTR #	Priority Pollutants	MEC or Minimum DL ⁽¹⁾⁽²⁾ (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background or Minimum DL ⁽¹⁾⁽²⁾ (µg/L)	RPA Results ⁽³⁾
1	Antimony	1	4300	1.3	No
2	Arsenic	1.4	36	5.1	No
3	Beryllium	< 1	No Criteria	0.11	Ud
4	Cadmium	0.15	2.5	0.17	No
5a	Chromium (III)	7	212	14.7	No
5b	Chromium (VI)	1.3	180	15	No
6	Copper	5.4	13	8.6	Yes
7	Lead	1.8	43	4.2	No
8	Mercury (303d listed)	0.007	0.051	0.068	Yes
9	Nickel	3.4	27	16	Yes
10	Selenium	2.6	5	0.63	No
11	Silver	1.6	2.2	0.12	No
12	Thallium	< 1	6.3	0.16	No
13	Zinc	50	161	21	No
14	Cyanide	10	2.9	< 0.4	Yes
15	Asbestos	Not Available	No Criteria	Not Available	Ud
16	2,3,7,8-TCDD	< 5.6E-07	1.4E-08	2.4E-08	No
	Dioxin TEQ (303d listed)	1.2E-09	1.4E-08	2.6E-07	Yes
17	Acrolein	< 0.5	780	< 0.5	No
18	Acrylonitrile	< 0.33	0.66	< 0.02	No
19	Benzene	< 0.03	71	< 0.05	No
20	Bromoform	8	360	< 0.5	No
21	Carbon Tetrachloride	0.7	4.4	0.07	No
22	Chlorobenzene	< 0.03	21000	< 0.5	No
23	Chlorodibromomethane	37	34	0.057	Yes
24	Chloroethane	< 0.03	No Criteria	< 0.5	Ud
25	2-Chloroethylvinyl ether	< 0.1	No Criteria	< 0.5	Ud
26	Chloroform	15	No Criteria	< 0.5	Ud
27	Dichlorobromomethane	30	46	< 0.05	No
28	1,1-Dichloroethane	< 0.04	No Criteria	< 0.05	Ud
29	1,2-Dichloroethane	< 0.04	99	0.04	No
30	1,1-Dichloroethylene	< 0.06	3.2	< 0.5	No
31	1,2-Dichloropropane	< 0.03	39	< 0.05	No
32	1,3-Dichloropropylene	< 0.03	1700	Not Available	No
33	Ethylbenzene	< 0.04	29000	< 0.5	No
34	Methyl Bromide	< 0.05	4000	< 0.5	No
35	Methyl Chloride	< 0.04	No Criteria	< 0.5	Ud
36	Methylene Chloride	2.7	1600	< 0.5	No
37	1,1,2,2-Tetrachloroethane	< 0.04	11	< 0.05	No
38	Tetrachloroethylene	0.09	8.9	< 0.05	No
39	Toluene	0.2	200000	< 0.3	No
40	1,2-Trans-Dichloroethylene	< 0.05	140000	< 0.5	No
41	1,1,1-Trichloroethane	< 0.03	No Criteria	< 0.5	Ud
42	1,1,2-Trichloroethane	< 0.05	42	< 0.05	No
43	Trichloroethylene	0.3	81	< 0.5	No

CTR #	Priority Pollutants	MEC or Minimum DL ⁽¹⁾⁽²⁾ (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background or Minimum DL ⁽¹⁾⁽²⁾ (µg/L)	RPA Results ⁽³⁾
44	Vinyl Chloride	< 0.05	525	< 0.5	No
45	2-Chlorophenol	< 0.6	400	< 1.2	No
46	2,4-Dichlorophenol	< 0.7	790	< 1.5	No
47	2,4-Dimethylphenol	< 0.8	2300	< 1.3	No
48	2-Methyl- 4,6-Dinitrophenol	< 0.6	765	< 1.2	No
49	2,4-Dinitrophenol	< 0.6	14000	< 0.7	No
50	2-Nitrophenol	< 0.6	No Criteria	< 1.3	Ud
51	4-Nitrophenol	< 0.6	No Criteria	< 1.6	Ud
52	3-Methyl 4-Chlorophenol	< 0.5	No Criteria	< 1.1	Ud
53	Pentachlorophenol	< 0.6	7.9	< 1	No
54	Phenol	22	4600000	< 1.3	No
55	2,4,6-Trichlorophenol	< 0.6	6.5	< 1.3	No
56	Acenaphthene	< 0.03	2700	0.0026	No
57	Acenaphthylene	< 0.02	No Criteria	0.0026	Ud
58	Anthracene	< 0.02	110000	0.0023	No
59	Benzidine	< 1	0.00054	< 0.0015	No
60	Benzo(a)Anthracene	< 0.02	0.049	0.011	No
61	Benzo(a)Pyrene	< 0.02	0.049	0.045	No
62	Benzo(b)Fluoranthene	< 0.02	0.049	0.057	No
63	Benzo(ghi)Perylene	< 0.02	No Criteria	0.015	Ud
64	Benzo(k)Fluoranthene	< 0.02	0.049	0.021	No
65	Bis(2-Chloroethoxy)Methane	< 0.7	No Criteria	< 0.3	Ud
66	Bis(2-Chloroethyl)Ether	< 0.7	1.4	< 0.32	No
67	Bis(2-Chloroisopropyl)Ether	< 0.6	170000	Not Available	No
68	Bis(2-Ethylhexyl)Phthalate	1.2	5.9	0.93	No
69	4-Bromophenyl Phenyl Ether	< 0.4	No Criteria	< 0.23	Ud
70	Butylbenzyl Phthalate	3	5200	0.0055	No
71	2-Chloronaphthalene	< 0.5	4300	< 0.3	No
72	4-Chlorophenyl Phenyl Ether	< 0.5	No Criteria	< 0.31	Ud
73	Chrysene	< 0.02	0.049	0.022	No
74	Dibenzo(a,h)Anthracene	< 0.02	0.049	0.0088	No
75	1,2-Dichlorobenzene	< 0.03	17000	< 0.3	No
76	1,3-Dichlorobenzene	< 0.03	2600	< 0.3	No
77	1,4-Dichlorobenzene	0.1	2600	< 0.3	No
78	3,3 Dichlorobenzidine	< 0.3	0.077	< 0.001	No
79	Diethyl Phthalate	7.4	120000	0.3	No
80	Dimethyl Phthalate	0.8	2900000	< 0.21	No
81	Di-n-Butyl Phthalate	2.8	12000	2.2	No
82	2,4-Dinitrotoluene	< 0.6	9.1	< 0.27	No
83	2,6-Dinitrotoluene	< 0.5	No Criteria	< 0.29	Ud
84	Di-n-Octyl Phthalate	< 0.7	No Criteria	< 0.38	Ud
85	1,2-Diphenylhydrazine	< 0.6	0.54	0.0053	No
86	Fluoranthene	< 0.02	370	0.039	No
87	Fluorene	< 0.02	14000	0.0055	No
88	Hexachlorobenzene	< 0.4	0.00077	0.00048	No
89	Hexachlorobutadiene	< 0.7	50	< 0.3	No
90	Hexachlorocyclopentadiene	< 0.4	17000	< 0.3	No
91	Hexachloroethane	< 0.6	8.9	< 0.2	No
92	Indeno(1,2,3-cd)Pyrene	< 0.02	0.049	0.078	No
93	Isophorone	< 0.5	600	< 0.3	No
94	Naphthalene	< 0.02	No Criteria	0.011	Ud
95	Nitrobenzene	< 0.7	1900	< 0.25	No
96	N-Nitrosodimethylamine	< 0.6	8.1	< 0.3	No
97	N-Nitrosodi-n-Propylamine	< 0.6	1.4	< 0.001	No
98	N-Nitrosodiphenylamine	< 0.6	16	< 0.2	No
99	Phenanthrene	< 0.02	No Criteria	0.014	Ud

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100	Pyrene	< 0.02	11000	0.056	No
101	1,2,4-Trichlorobenzene	< 0.6	No Criteria	< 0.3	Ud
102	Aldrin	< 0.002	0.00014	1.37E-6	No
103	Alpha-BHC	< 0.003	0.013	0.00066	No
104	beta-BHC	< 0.003	0.046	0.00061	No
105	gamma-BHC	< 0.002	0.063	0.0017	No
106	delta-BHC	< 0.002	No Criteria	0.00013	Ud
107	Chlordane (303d listed)	< 0.005	0.00059	0.00057	No
108	4,4'-DDT (303d listed)	< 0.002	0.00059	0.00020	No
109	4,4'-DDE (linked to DDT)	< 0.002	0.00059	0.00068	No
110	4,4'-DDD	< 0.002	0.00084	0.00077	No
111	Dieldrin (303d listed)	< 0.002	0.00014	0.00029	No
112	Alpha-Endosulfan	< 0.002	0.0087	0.000027	No
113	beta-Endosulfan	< 0.002	0.0087	0.000046	No
114	Endosulfan Sulfate	< 0.002	240	0.00016	No
115	Endrin	0.003	0.0023	0.00012	Yes
116	Endrin Aldehyde	< 0.002	0.81	Not Available	No
117	Heptachlor	< 0.003	0.00021	0.000022	No
118	Heptachlor Epoxide	< 0.002	0.00011	0.00017	No
119-125	PCBs sum (303d listed)	< 0.02	0.00017	0.0040	No
126	Toxaphene	< 0.15	0.0002	Not Available	No
	Tributyltin	0.016	0.0074	0.003	Yes
	Total PAHs	< 0.02	15	0.38	No

Footnotes for Table F-11:

- (1) The MEC and maximum background concentration are the actual detected concentrations unless preceded by a "<" sign, in which case the value shown is the minimum detection level (DL).
- (2) The MEC or maximum background concentration is "Not Available" when there are no monitoring data for the constituent.
- (3) RPA Results = Yes, if MEC > WQO/WQC, B > WQO/WQC and MEC is detected, or Trigger 3;
= No, if MEC and B are < WQO/WQC or all effluent data are undetected;
= Undetermined (Ud), if no criteria have been promulgated or there are insufficient data.
- (4) The units for ammonia are expressed in mg/L.

- f. **Constituents with limited data.** In some cases, Reasonable Potential cannot be determined because effluent data are limited, or ambient background concentrations are not available. The Dischargers will continue to monitor for these constituents in the effluent using analytical methods that provide the best feasible detection limits. When additional data become available, further RPA will be conducted to determine whether to add numeric effluent limitations to this Order or to continue monitoring.
- g. **Pollutants with no Reasonable Potential.** WQBELs are not included in this Order for constituents that do not demonstrate Reasonable Potential; however, monitoring for those pollutants is still required. If concentrations of these constituents are found to have increased significantly, the 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 interim effluent limits for dichlorobromomethane, 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. 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.** The Discharger's effluent is discharged to Moffett Channel, a shallow water slough. Due to the tidal nature of the slough, and limited upstream freshwater flows, the discharge is classified by the Regional Water Board as a shallow water discharge. No dilution credit ($D=0$) was used to calculate WQBELs for most pollutants, with the exception of cyanide. Cyanide attenuates in receiving waters due to both degradation and dilution. The Basin Plan specifies dilution credits for cyanide for shallow water discharges. The cyanide WQBELs are based on a dilution ratio of 4:1 ($D=3.0$) as specified in the Basin Plan.
- c. **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 effluent limits for copper for South San Francisco Bay dischargers; therefore, reasonable potential for copper is based on Trigger 3.
 - iii. *Copper WQBELs.* WQBELs for copper, calculated according to SIP procedures, with an effluent data coefficient of variation (CV) of 0.46, are an AMEL of 11 $\mu\text{g/L}$ and an MDEL of 20 $\mu\text{g/L}$. The previous Order contained an AMEL of 10 $\mu\text{g/L}$ and an MDEL of 20 $\mu\text{g/L}$, which are more stringent. Therefore, the previous Order effluent limits are retained as the WQBELs.
 - iv. *Immediate Compliance Feasible.* Statistical analysis of the effluent data for copper, collected over the period of February 2005 through January 2008, shows that the 95th percentile (3.4 $\mu\text{g/L}$) is less than the AMEL (10 $\mu\text{g/L}$); the 99th percentile (4.6 $\mu\text{g/L}$) is less than the MDEL (20 $\mu\text{g/L}$); and the mean (1.7 $\mu\text{g/L}$) is

less than the LTA (7.8 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 effluent limits are the same as those in the previous Order; therefore, antibacksliding requirements are satisfied.

(2) Nickel

- i. *Nickel WQC*. The most stringent chronic and acute marine WQC of 11.9 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 effluent limits for nickel for South San Francisco Bay dischargers; therefore, reasonable potential for nickel is based on Trigger 3.
- iii. *Nickel WQBELs*. WQBELs for nickel, calculated according to SIP procedures, with an effluent CV of 0.31, are an AMEL of 24 µg/L and an MDEL of 37 µg/L.
- iv. *Immediate Compliance Feasible*. Statistical analysis of the effluent data for nickel over the period of February 2005- January 2008 shows that the 95th percentile (3.0 µg/L) is less than the AMEL (24 µg/L); the 99th percentile (3.4 µg/L) is less than the MDEL (37 µg/L); and the mean (2.0 µg/L) is less than the LTA (19 µg/L). The Regional Water Board concludes that immediate compliance with these WQBELs is feasible.
- v. *Antibacksliding*. Antibacksliding requirements are satisfied as nickel effluent limits established by this Order are more stringent than those in the previous Order, which were an AMEL of 24 µg/L and an MDEL of 40 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.

(3) Cyanide

- i. *Cyanide WQC.* The most stringent applicable WQC for cyanide are from 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 10 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 0.79 and a dilution credit of 3.0 (or a dilution ratio of 4:1), are an AMEL of 8.0 µg/L and an MDEL of 18 µg/L.
- iv. *Immediate Compliance Feasible.* Statistical analysis of effluent data for cyanide over the period from February 2005 through January 2008 shows that the 95th percentile (5.1 µg/L) is less than the AMEL (8.0 µg/L); the 99th percentile (7.8 µg/L) is less than the MDEL (18 µg/L); and the mean (2.1 µg/L) is less than the LTA (4.6 µg/L). The Regional Water Board concludes that immediate compliance with cyanide WQBELs is feasible.
- v. *Antibacksliding.* Antibacksliding requirements are satisfied because the previous Order did not include final effluent limitations for cyanide.

(4) Dioxin-TEQ

- i. *Dioxin-TEQ WQC.* The Basin Plan narrative WQC 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 WQC is applicable to these pollutants. Elevated levels of dioxins and furans in fish tissue in San Francisco Bay demonstrate that the narrative bioaccumulation WQC 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 WQC for 2,3,7,8-tetrachlorinated dibenzo-p-dioxin (2,3,7,8-TCDD) of 1.4×10^{-8} µg/L for the protection of human health, when aquatic organisms are consumed. When the CTR was promulgated, USEPA stated its support of the regulation of other dioxin and dioxin-like compounds through the use of 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 average ambient background concentration (1.1×10^{-7} $\mu\text{g/L}$), as measured at Dumbarton Bridge (RMP Station BA30), exceeds the applicable WQC (1.4×10^{-8} $\mu\text{g/L}$), demonstrating Reasonable Potential by Trigger 2.
- 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 December 5, 2008, asserts that the facility cannot immediately comply with WQBELs for dioxin-TEQ. Even though the MEC is lower than the AMEL, the Discharger believes there is a very high degree of uncertainty in the dioxin data given the small dataset and the high degree of variability and uncertainty inherent with dioxin sampling and analysis when trying to measure concentrations in the pg/L range. Given the uncertainties in dioxin data and analysis, the Discharger does not believe that it is possible to determine whether it could comply with the proposed final WQBELs in the future. The Regional Water Board staff concurs with this assertion.
- 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 requires that compliance schedules include interim limits. The final effluent limits will become effective on

October 1, 2019. The Regional Water Board may amend these limits based on new information or a TMDL for dioxin-TEQ.

- vi. *Interim Effluent Limits.* 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 September 30, 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 (37 $\mu\text{g/L}$) 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 1.3, are an AMEL of 34 $\mu\text{g/L}$ and an MDEL of 93 $\mu\text{g/L}$.
- iv. *Immediate Compliance Feasible.* Statistical analysis of effluent data for chlorodibromomethane collected during the period of February 2005 through January 2008 shows that the 95th percentile (22 $\mu\text{g/L}$) is less than the AMEL (34 $\mu\text{g/L}$); and the 99th percentile (37 $\mu\text{g/L}$) is less than the MDEL (93 $\mu\text{g/L}$). The Regional Water Board concludes that immediate compliance with final WQBELs for chlorodibromomethane is feasible.
- v. *Antibacksliding.* Antibacksliding requirements are satisfied because the previous Order did not include final effluent limitations for chlorodibromomethane.

(6) Endrin

- i. *Endrin WQC.* The most stringent applicable WQC for endrin is the CTR criterion for protection of aquatic life of 0.0023 $\mu\text{g/L}$.
- ii. *RPA Results.* This Order finds reasonable potential and thus establishes effluent limitations for endrin because the MEC (0.0030 $\mu\text{g/L}$) exceeds the most stringent applicable criterion (0.0023 $\mu\text{g/L}$), demonstrating reasonable potential by Trigger 1.

- iii. *Endrin WQBELs*. WQBELs for endrin, calculated according to SIP procedures, with a SIP default CV of 0.60, are an AMEL of 0.0019 $\mu\text{g/L}$ and an MDEL of 0.0038 $\mu\text{g/L}$.
- iv. *Immediate Compliance Feasible*. The endrin data set collected during February 2005 through January 2008 contains 38 non-detected values out of 42 samples; therefore, it is impossible to perform a meaningful statistical analysis to determine compliance. Nevertheless, all four endrin effluent data greater than the AMEL are "J" flagged, meaning detected but not quantified. The Discharger believes that it could comply with endrin WQBELs.
- v. *Antibacksliding*. Antibacksliding requirements are satisfied because the previous Order did not include final effluent limitations for endrin.

(7) Tributyltin

- i. *Tributyltin WQC*. The Basin Plan contains a narrative WQC for toxicity which states "[A]ll waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms." This narrative WQC applies to tributyltin, an anti-fouling agent which is extremely toxic to aquatic organisms. USEPA has developed WQC for tributyltin in fresh and marine waters by authority under Section 304(a) of the Clean Water Act, found at *Ambient Aquatic Life Water Quality Criteria for Tributyltin (TBT) – Final* EPA-822-031, December 2003. The most stringent of these criteria are the chronic and acute criteria for saltwater, 0.0074 $\mu\text{g/L}$ and 0.42 $\mu\text{g/L}$, respectively.
 - ii. *RPA Results*. This Order finds reasonable potential and thus establishes effluent limitations for tributyltin because the MEC (0.016 $\mu\text{g/L}$) exceeds the most stringent applicable criterion (0.0074 $\mu\text{g/L}$), demonstrating reasonable potential by Trigger 1.
 - iii. *Tributyltin WQBELs*. WQBELs for tributyltin, calculated according to SIP procedures, with a SIP default CV of 0.60, are an AMEL of 0.0061 $\mu\text{g/L}$ and an MDEL of 0.012 $\mu\text{g/L}$.
 - iv. *Immediate Compliance Feasible*. The tributyltin data set collected during February 2005 through January 2008 contains 34 non-detected values out of 38 samples; therefore, it is impossible to perform a meaningful statistical analysis to determine compliance. Nevertheless, the Discharger believes that it can comply with the WQBELs.
 - v. *Antibacksliding*. Antibacksliding requirements are satisfied because final effluent limitations for tributyltin are more stringent than those in the previous Order.
- d. **Effluent Limit Calculations**. The following table shows the derivation of WQBELs for copper, nickel, cyanide, dioxin-TEQ, chlorodibromomethane, endrin, and tributyltin.

Table F-12. Effluent Limit Calculations

PRIORITY POLLUTANTS	Copper	Nickel	Cyanide	Dioxin TEQ	Chlorodibro- momethane	Endrin	Tributyltin
Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Basis and Criteria type	BP SSOs	BP SSOs	BP SSOs	CTR HH	CTR HH	CTR SW Aq. Life	BP SW Aq. Life
Criteria – Acute	10.8	62.4	9.4	----	----	----	0.42
Criteria – Chronic	6.9	11.9	2.9	----	----	----	0.0074
Water Effects Ratio (WER)	1	1	1	1	1	1	1
Lowest WQO	7	12	2.9	1.4E-08	34	0.0023	0.0074
Site Specific Translator - MDEL	0.53	0.44	----	----	----	----	----
Site Specific Translator - AMEL	0.53	0.44	----	----	----	----	----
Dilution Factor (D) (if applicable)	0	0	3.0	0	0	0	0
No. of samples per month	4	4	4	4	4	4	4
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	Y	N
Applicable Acute WQO	20	142	9.4			0.037	0.42
Applicable Chronic WQO	13	27	2.9			0.0023	0.0074
HH criteria		4600	220000	1.4E-08	34	0.81	
Background (Maximum Conc for Aquatic Life calc)	8.6	16	0.4	2.6E-07	0.057	0.00012	0.0030
Background (Average Conc for Human Health calc)		5.8	0.4	1.1E-07	0.057	0.000040	
Is the pollutant Bioaccumulative(Y/N)? (e.g., Hg)	N	N	N	Y	N	N	N
ECA acute	20	142	36			0.037	0.420
ECA chronic	13	27	10			0.0023	0.0074
ECA HH		4600	879999	1.4E-08	34	0.81	----
No. of data points <10 or at least 80% of data reported non detect? (Y/N)	N	N	N	Y	N	Y	Y
Avg of effluent data points	1.7	2.0	2.1		6.7		----
Std Dev of effluent data points	0.81	0.61	1.7		8.4		----
CV calculated	0.46	0.31	0.79	N/A	1.3	N/A	N/A
CV (Selected) - Final	0.46	0.31	0.79	0.60	1.3	0.60	0.60
ECA acute mult99	0.39	0.52	0.25			0.32	0.32
ECA chronic mult99	0.60	0.71	0.44			0.53	0.53
LTA acute	8.0	73.7	9.2			0.012	0.135
LTA chronic	7.8	19.2	4.6			0.0012	0.00390
minimum of LTAs	7.8	19.2	4.6			0.0012	0.0
AMEL mult95	1.4	1.3	1.7	1.6	2.2	1.6	1.6
MDEL mult99	2.5	1.9	4.0	3.1	6.0	3.1	3.1
AMEL (aq life)	11.1	24.4	8.0			0.0019	0.0
MDEL (aq life)	19.9	36.9	18			0.0038	0.0
MDEL/AMEL Multiplier	1.79	1.51	2.3	2.01	2.7	2.0	2.0
AMEL (human hlth)		4600	879999	1.4E-08	34	0.81	----
MDEL (human hlth)		6966	2003472	2.8E-08	93	1.6	----
minimum of AMEL for Aq. life vs HH	11	24	8.0	1.4E-08	34	0.0019	0.0061
minimum of MDEL for Aq. Life vs HH	20	37	18	2.8E-08	93	0.0038	0.012
Current limit in permit (30-day average)	10	24	----	----	----	----	0.01
Current limit in permit (daily)	20	40	32 (Interim)	----	58 (Interim)	----	0.03
Final limit - AMEL	10	24	8.0	1.4E-08	34	0.0019	0.0061
Final limit - MDEL	20	37	18	2.8E-08	93	0.0038	0.012
Max Effl Conc (MEC)	5.4	3.4	10	1.2E-09	37	0.0030	0.016

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 permit for Discharge Point 001. 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 bioassay results from November 2003 – November 2007 ranged from 95% to 100.0% survival, for 11-sample 90th percentiles, and was 100% for all 11-sample moving medians. There have been no acute toxicity effluent limit violations.

6. Whole Effluent Chronic Toxicity

- a. **History of Chronic Toxicity.** The previous permit contained chronic toxicity monitoring requirements and required accelerated monitoring upon exceedance of a trigger of either 1 TUc² as a three-sample median or 2 TUc for any single bioassay test. A value of 1 TUc represents no measured chronic toxicity when organisms are exposed to 100% effluent. A value of 2 TUc represents no measured toxicity when organisms are exposed to a mixture of 50% effluent and 50% "clean" laboratory water.

From November 2003 through March 2009, the Discharger reported 97 chronic toxicity tests using *Americamysis bahia*. The TUc values ranged from <1.0 to 8.8. Of the 97 tests, 20 had TUc values of 2.0 or greater (21%). The 3-sample median trigger of 1 TUc was exceeded 44 times out of 92 3-median values (48%) during the same period (the median values ranged from 1 to 5.9 TUc).

During this period, the Discharger used a three-sample median "trigger" of 1.25 TUc based on IC₅₀ or EC₅₀ to initiate the TIE process. Based on this criterion, the Discharger conducted or attempted to conduct several TIE studies in February 2004, March 2005, May 2005, June 2006, February 2008, and December 2008. The February 2004 and June 2006 Phase I TIE study found that the toxicity was not persistent; therefore, additional efforts were discontinued; the March 2005 and May 2005 attempts failed due to lack of effluent samples. The February 2008 TIE study suggested that the observed toxicity was caused by a contaminant that is not amenable to removal by centrifugation or C18SPE or alternatively that there are polar organic compounds present in concentrations high enough to cause toxicity. The last TIE study suggested the possibility that ammonia may cause or contribute to the toxicity. As part of the on-going Plant Master Planning effort, the Discharger has been investigating alternative measures and technologies to enhance nitrification performance. Per the design consultant's recommendations, in Fall 2009, the Discharger will be implementing Plant process changes to attempt to improve winter

² A TUc equals 100 divided by the no observable effect level (NOEL). The NOEL is determined from IC, EC, or NOEC values. These terms, their usage, and other chronic toxicity monitoring program requirements are defined in more detail in the MRP (**Attachment E**). The no observed effect concentration (NOEC) is the highest tested concentration of an effluent or a toxicant at which no adverse effects are observed on the aquatic test organisms at a specific time of observation.

nitrifying trickling filter performance. The previous permit states that the Regional Water Board would consider imposing numeric chronic toxicity limits if the Discharger failed to conduct a TRE within a designated period.

- b. **Toxicity Objective.** Basin Plan Section 3.3.18 states, "There shall be no chronic toxicity in ambient waters. Chronic toxicity is a detrimental biological effect on growth rate, reproduction, fertilization success, larval development, population abundance, community composition, or any other relevant measure of the health of an organism, population, or community."
- c. **Reasonable Potential.** Based on the data summarized above, there is reasonable potential for chronic toxicity in the effluent to cause or contribute to chronic toxicity in the receiving waters. Therefore, the SIP requires chronic toxicity effluent limits.
- d. **Permit Requirements.** This Order establishes a narrative effluent limitation for chronic toxicity based on the narrative Basin Plan toxicity objective discussed in item b above. In addition, this Order retains from the previous permit requirements to implement the chronic toxicity narrative objective and includes numeric triggers of 1.0 TUc as a three-sample median and 2.0 TUc as a single-sample maximum. The Discharger is also required to perform twice-monthly accelerated monitoring during the months of December through March and when permit triggers are exceeded.

Because chronic toxicity continues to be a problem for this discharge, this Order requires the Discharger to conduct aggressive TIE/TRE to identify the causes of the toxicity and eliminate them. Provision VI.C.2.d requires the Discharger to plan and implement a "Chronic Toxicity Identification and Toxicity Reduction Study" to identify and reduce chronic toxicity immediately upon adoption of this Order. These requirements are consistent with the SIP.

- c. **Screening Phase Study.** 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 expiration of the permit term or after any significant change in the nature of the effluent.

7. Antibacksliding/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 antibacksliding 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 complies with antibacksliding requirement and is not expected to cause degradation of water quality because the Discharger will maintain its treatment at current levels and the 5-day geometric mean limit will hold the Discharger to 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; therefore, not retaining the limits for settleable solids is consistent with the exception to the backsliding 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 dichlorobromomethane, 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-backsliding 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 on December 5, 2008, demonstrating that it cannot immediately comply with final WQBELs for dioxin-TEQ. As stated in the previous findings in Fact Sheet Section IV.D.4.(d)(4), the Regional Water Board staff concurred with the Discharger's assertion of infeasibility to comply with final effluent limitations for dioxin-TEQ.

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 Policy requires the following documentation to be submitted to the Regional Water Board to justify a compliance schedule:

- Descriptions of diligent efforts a 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 of these pollutants 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 their assertions. Subsequently, a compliance schedule for dioxin-TEQ is appropriate because the Discharger has made good faith and 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 these pollutants 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 for this Discharger are established by Regional Water Board Order No. 94-069.

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.
2. Receiving Water Limitations V.A.3 is based in the previous permit and requires compliance with Federal and state law, which 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 permit 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 permit. 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, endrin, tributyltin, and total ammonia because this Order establishes effluent limitations for these pollutants. Monitoring for all other priority toxic pollutants must be conducted in accordance with frequency and methods described in the Regional Standard Provisions (Attachment G).

Semiannual monitoring for dichlorobromomethane, 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. With its ROWD, the Discharger requested a change in the acute toxicity compliance monitoring species from fathead minnow (*Pimephales promelas*) to rainbow trout (*Oncorhynchus mykiss*). A sensitivity screening test conducted in 2004 indicated no difference in species sensitivity between rainbow trout and fathead minnow. The request indicated that rainbow trout are preferred over fathead minnow in acute toxicity testing because less stress is imparted during handling, and the larger size of rainbow trout allows for a more thorough inspection for disease, deformities, and general health. The Regional Water Board granted the request and requires the use of rainbow trout in acute toxicity tests.
- 2. Chronic Toxicity.** This Order requires the Discharger to (1) plan and implement a TIE/TRE study, (2) commence accelerated monitoring during the months of December-March during the study period, and (3) reduce chronic toxicity in its discharge to below trigger levels no later than October 1, 2013. The Discharger is to use the existing most sensitive species. The Discharger conducted an effluent toxicity screening study during the previous permit term, which indicated *Americamysis bahia* is the most sensitive species for chronic toxicity testing. The Discharger shall re-screen in accordance with Appendix E-1 of the MRP (Attachment E) after any significant change in the nature of the effluent or prior to the expiration of this Order.

When chronic toxicity is reduced to below trigger levels, the Discharger shall perform routine chronic toxicity monitoring in accordance with the MRP.

D. Receiving Water Monitoring

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.

E. Pretreatment and Biosolids Monitoring Requirements

Pretreatment monitoring requirements for the influent, effluent, and biosolids are retained from the previous permit, 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 (instead of 24-hour composites for BNA and most metals, or grabs for VOCs, 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 proper sample handling for these parameters (summarized in the Regional Standard Provisions [Attachment G]). Composites made up of discrete grabs for these parameters are necessary because of potential loss of the constituents during automatic compositing. Hexavalent chromium is chemically unstable. It, cyanide, and BNAs are also somewhat volatile. For these same reasons, discrete analyses are also necessary since constituents are subject to loss during compositing at the laboratory.

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) and the Regional Standard Provisions (Attachment G). 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 Regional Standard Provisions (Attachment G) and as specified in the MRP (Attachment E). 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 Regional Standard Provisions (Attachment G). 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. **Avian Botulism Control Program.** This provision is retained from the previous Order. The requirement to monitor nearby sloughs and the facility oxidation ponds for the presence of avian botulism and to control any outbreaks is based on State Water Board Order No. WQ 90-5. In that Order, the State Water Board found that discharges of wastewater promote conditions in the receiving waters conducive to fostering avian botulism. Exceptions to the Basin Plan discharge prohibitions granted to the Discharger are conditioned, in part, upon continued efforts by the Discharger to control avian botulism.
- d. **Chronic Toxicity Identification and Toxicity Reduction Study.** This focused study requires the Discharger to aggressively identify the cause of effluent chronic toxicity and to implement measures to reduce the chronic toxicity below the trigger levels. The other general TIE/TRE requirements establishes guidelines for TIE/TRE evaluations. The other general requirement is unchanged from the previous Order.
- e. **Receiving Water Ammonia Characterization Study.** This Order requires a study on Moffett Channel and Guadalupe Slough focusing on ammonia. It will generate new information for the Regional Water Board to evaluate ammonia and un-ionized ammonia

levels in the receiving water. Regional Water Board staff may use the data to examine whether the receiving water meets applicable ammonia objectives. The Discharger may also be able to use this information to propose an appropriate dilution credit for the ammonia effluent limit calculation for the next permit reissuance. If monitoring data show that ammonia WQOs are exceeded in the receiving water, the permit may be reopened to include WQBELs for ammonia.

- f. **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.
- g. **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.
- h. **Total Suspended Solids Removal.** Due to the South San Francisco Bay's limited circulation and pollutant assimilative capacity, relative to more northern portions of San Francisco Bay, the Regional Water Board remains sensitive to loadings of TSS to the South San Francisco Bay from the Plant. Current effluent limitations for TSS (20/30 mg/L – average monthly/daily maximum) are less stringent than limitations (10/20 mg/L – average monthly/daily maximum) imposed on the other two significant dischargers to the South San Francisco Bay (San Jose/Santa Clara and Palo Alto). Although this difference in limitations may be based on a difference in secondary treatment processes (oxidation ponds versus activated sludge) used by the Discharger versus those used by the Cities of San Jose/Santa Clara and Palo Alto, advanced treatment processes employed by the Discharger (air flotation and dual media filtration) may be able to accomplish better TSS removals than the Plant does currently. The permit, therefore, requires the Discharger to prepare a report regarding TSS removal capability, including description of treatment technologies in place and unique wastewater treatability characteristics, to enable the Regional Water Board to reassess TSS limits imposed on the Plant.

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 on 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 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 system, 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 system is 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 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 Order requires the Discharger to implement monitoring and surveillance, pretreatment, source control, and pollution prevention for copper in accordance with the Basin Plan. The Basin Plan contains site-specific water quality objectives for copper in all San Francisco Bay segments. The water quality objectives for South San Francisco Bay are 6.9 µg/L dissolved copper as a 4-day average, and 10.8 µg/L dissolved copper as a 1-hour average. The Basin Plan includes an implementation plan that requires a Copper Action Plan to ensure no degradation of water quality.
- c. **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 the Sunnyvale Water Pollution 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 Discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through the *San Jose City Times* on July 8, 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 Officer 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 June 29, 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: August 12, 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).

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

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

For

NPDES WASTEWATER DISCHARGE PERMITS

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

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

FOR

NPDES WASTEWATER DISCHARGE PERMITS

APPLICABILITY

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

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

I. STANDARD PROVISIONS - PERMIT COMPLIANCE

A. Duty to Comply – Not Supplemented

B. Need to Halt or Reduce Activity Not a Defense – Not Supplemented

C. Duty to Mitigate – This supplements I.C. of Standard Provisions (Attachment D)

- 1. Contingency Plan** - The Discharger shall maintain a Contingency Plan as originally required by Regional Water Board Resolution 74-10 and as prudent in accordance with current municipal facility emergency planning. The Contingency Plan shall describe procedures to ensure that existing facilities remain in, or are rapidly returned to, operation in the event of a process failure or emergency incident, such as employee strike, strike by suppliers of chemicals or maintenance services, power outage, vandalism, earthquake, or fire. The Discharger may combine the Contingency Plan and Spill Prevention Plan into one document. Discharge in violation of the permit where the Discharger has failed to develop and implement a Contingency Plan as described below will be the basis for considering the discharge a willful and negligent violation of the permit pursuant to California Water Code Section 13387. The Contingency Plan shall, at a minimum, contain the provisions of a. through g. below.

- a. Provision of personnel for continued operation and maintenance of sewerage facilities during employee strikes or strikes against contractors providing services.
- b. Maintenance of adequate chemicals or other supplies and spare parts necessary for continued operations of sewerage facilities.

- c. Provisions of emergency standby power.
 - d. Protection against vandalism.
 - e. Expeditious action to repair failures of, or damage to, equipment and sewer lines.
 - f. Report of spills and discharges of untreated or inadequately treated wastes, including measures taken to clean up the effects of such discharges.
 - g. Programs for maintenance, replacement, and surveillance of physical condition of equipment, facilities, and sewer lines.
2. **Spill Prevention Plan** - The Discharger shall maintain a Spill Prevention Plan to prevent accidental discharges and minimize the effects of such events. The Spill Prevention Plan shall:
- a. Identify the possible sources of accidental discharge, untreated or partially treated waste bypass, and polluted drainage;
 - b. Evaluate the effectiveness of present facilities and procedures, and state when they became operational; and
 - c. Predict the effectiveness of the proposed facilities and procedures, and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational.

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

D. Proper Operation & Maintenance – This supplements I.D of Standard Provisions (Attachment D)

- 1. **Operation and Maintenance (O&M) Manual** - The Discharger shall maintain an O&M Manual to provide the plant and regulatory personnel with a source of information describing all equipment, recommended operational strategies, process control monitoring, and maintenance activities. To remain a useful and relevant document, the O&M Manual shall be kept updated to reflect significant changes in treatment facility equipment and operational practices. The O&M Manual shall be maintained in usable condition and be available for reference and use by all relevant personnel and Regional Water Board staff.
- 2. **Wastewater Facilities Status Report** - The Discharger shall regularly review, revise, or update, as necessary, its Wastewater Facilities Status Report. This report shall document how the Discharger operates and maintains its wastewater collection, treatment, and disposal facilities to ensure that all facilities are adequately staffed, supervised, financed, operated, maintained, repaired, and upgraded as necessary to provide adequate and reliable transport, treatment, and disposal of all wastewater from both existing and planned future wastewater sources under the Discharger's service responsibilities.

- 3. Proper Supervision and Operation of Publicly Owned Treatment Works (POTWs) -**
POTWs shall be supervised and operated by persons possessing certificates of appropriate grade pursuant to Division 4, Chapter 14, Title 23 of the California Code of Regulations.

E. Property Rights – Not Supplemented

F. Inspection and Entry – Not Supplemented

G. Bypass – Not Supplemented

H. Upset – Not Supplemented

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

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

J. Storm Water – This section is an addition to Standard Provisions (Attachment D)

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

1. Storm Water Pollution Prevention Plan (SWPP Plan)

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

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

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

2. Source Identification

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

- a. A topographical map (or other acceptable map if a topographical map is unavailable), extending one-quarter mile beyond the property boundaries of the facility, showing the wastewater treatment facility process areas, surface water bodies (including springs and wells), and discharge point(s) where the facility's storm water discharges to a municipal storm drain system or other points of discharge to waters of the State. The requirements of this paragraph may be included in the site map required under the following paragraph if appropriate.
- b. A site map showing the following:
 - 1) Storm water conveyance, drainage, and discharge structures;
 - 2) An outline of the storm water drainage areas for each storm water discharge point;
 - 3) Paved areas and buildings;
 - 4) Areas of actual or potential pollutant contact with storm water or release to storm water, including but not limited to outdoor storage and process areas; material loading, unloading, and access areas; and waste treatment, storage, and disposal areas;
 - 5) Location of existing storm water structural control measures (i.e., berms, coverings, etc.);
 - 6) Surface water locations, including springs and wetlands; and
 - 7) Vehicle service areas.
- c. A narrative description of the following:
 - 1) Wastewater treatment process activity areas;
 - 2) Materials, equipment, and vehicle management practices employed to minimize contact of significant materials of concern with storm water discharges;
 - 3) Material storage, loading, unloading, and access areas;
 - 4) Existing structural and non-structural control measures (if any) to reduce pollutants in storm water discharges; and
 - 5) Methods of on-site storage and disposal of significant materials.
- d. A list of pollutants that have a reasonable potential to be present in storm water discharges in significant quantities.

3. Storm Water Management Controls

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

- a. Storm water pollution prevention personnel

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

b. Good housekeeping

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

c. Spill prevention and response

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

d. Source control

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

e. Storm water management practices

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

f. Sediment and erosion control

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

g. Employee training

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

h. Inspections

All inspections shall be done by trained personnel. Material handling areas shall be inspected for evidence of, or the potential for, pollutants entering storm water discharges. A tracking or follow up procedure shall be used to ensure appropriate response has been taken in response to an

inspection. Inspections and maintenance activities shall be documented and recorded. Inspection records shall be retained for five years.

i. Records

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

4. Annual Verification of SWPP Plan

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

K. Biosolids Management – This section is an addition to Standard Provisions (Attachment D)

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

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

II. STANDARD PROVISIONS – PERMIT ACTION – Not Supplemented

III. STANDARD PROVISIONS – MONITORING

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

1. Use of Certified Laboratories

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