

Union Sanitary District, Wet Weather Permit - NPDES Permit No. CA0038733  
Order No. R2-2004-0002

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

**ORDER NO. R2-2004-0002  
NPDES PERMIT NO. CA0038733**

**UNION SANITARY DISTRICT  
OLD ALAMEDA CREEK INTERMITTENT WET WEATHER DISCHARGE  
UNION CITY, ALAMEDA COUNTY**

Effective Date: April 1, 2004

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

**ORDER NO. R2-2004-0002  
NPDES PERMIT NO. CA0038733**

**REISSUING WASTE DISCHARGE REQUIREMENTS FOR:**

**UNION SANITARY DISTRICT  
OLD ALAMEDA CREEK INTERMITTENT WET WEATHER DISCHARGE  
UNION CITY, ALAMEDA COUNTY**

**FINDINGS**

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

1. *Discharger and Permit Application.* The Union Sanitation District (hereinafter called the Discharger) has applied to the Board for reissuance of waste discharge requirements and a permit to discharge treated wastewater to waters of the State and the United States under the National Pollutant Discharge Elimination System (NPDES).

**Purpose of Order**

2. This NPDES permit regulates the intermittent discharge of treated effluent from the Alvarado Wastewater Treatment Plant's wet weather outfall, which discharges to Old Alameda Creek at latitude 37°35'40"N and longitude 122°5'26"W. The Waste Discharge Requirements in Order No. 95-053, adopted by the Board on March 15, 1995, previously governed this discharge. This Order rescinds the requirements of Order No. 95-053.
3. The U.S. EPA and the Board have classified this Discharger as a minor discharger.

**Facility Description**

4. The Discharger owns and operates a municipal wastewater treatment plant, the Alvarado Wastewater Treatment Plant, which serves Newark, Union City and the Fremont area. The Plant provides secondary treatment of domestic, and, to a lesser extent, industrial and commercial wastewaters. The Discharger also owns and maintains the sewer collection system, which consists of three (3) pump stations, one for each of the three drainage basins and approximately 762 miles of sewer lines. The Discharger's service area is divided into Alvarado Basin, Newark Basin, and Irvington Basin. Wastewater in each basin flows by gravity to its pump station, then pumped to the Alvarado Wastewater Treatment Plant.
5. The Discharger is a member of the East Bay Dischargers' Authority (EBDA). EBDA operates under a Joint Exercise of Powers Agreement (JPA) among the City of Hayward, City of San Leandro, Union Sanitary District, Oro Loma Sanitary District, and Castro Valley Sanitary District. By contractual agreement, EBDA transports treated wastewater from its member agencies to its dechlorination station near the San Leandro Marina and then to its deepwater outfall to lower San

Francisco Bay. The discharge through the deep-water outfall is regulated under a separate NPDES permit (CA0037869).

6. Under current contractual agreement, the Discharger can discharge a maximum of 42.9 million gallons per day (mgd) to the EBDA transport pipeline (see attached Figure 1 Wastewater Treatment Facility Flow Chart).
7. In addition to the Alvarado Wastewater Treatment Plant, the Discharger, together with East Bay Regional Parks District, owns and maintains a 145-acre constructed wastewater marsh system (Hayward Marsh). Hayward Marsh can hydraulically accept up to 20 mgd of treated wastewater from the Alvarado Wastewater Treatment Plant. Hayward Marsh typically receives less than 16.5 mgd under normal operational conditions, and is regulated under a separate permit (CA0038636).

### **Discharge Description**

8. The Alvarado Wastewater Treatment Plant has two outfalls. One is a wet weather outfall, which discharges the treated effluent to Old Alameda Creek and is regulated by this permit. The other one is its main outfall E-2 as defined in the permit for EBDA (NPDES permit No. CA0037869), which discharges to the EBDA pipeline. The treated wastewater discharged through the wet weather outfall is a portion of the flow diverted from the main outfall E-2. This wet weather discharge would have been discharged through the EBDA pipeline if that pipe were large enough to transport all the wet weather flow. Therefore, this discharge is not an additional discharge of pollutants. Both outfalls receive fully treated effluent from the treatment plant. The only differences between discharges from these two outfalls are the location and timing of discharge.
9. *Discharges from the Wet Weather Outfall.* There are two types of discharges from the wet weather outfall, discharges during Peak Wet Weather Flow (PWWF) conditions, and regular discharges from exercising the valve located in the wet weather outfall pipe for maintenance purpose.
  - a. *Wet weather discharges.* During the term of the previous permit, 1995 to present, there were three discharging events in February 3, 7 and 21 of 1998 due to the El Nino weather condition. The discharge volumes ranged from 980,000 gallons to 1,340,000 gallons each event with a duration ranging from 2 to 3 hours each. Effluent qualities from these three discharging events are included in the Fact Sheet attached to this Order.
  - b. *Regular discharges.* The Discharger also exercises its bypass valve and discharges approximately 135,000 gallons of treated effluent through its wet weather outfall quarterly. This is to ensure that the line is flushed and the discharge flap gate is operational when it is necessary to utilize this outfall under PWWF conditions. The Discharger visually inspects the wet weather outfall before each discharge and samples the discharge for chlorine residual and coliform bacteria. Effluent qualities are summarized in Fact Sheet attached to this Order.
10. *Discharges from main outfall E-2.* The main discharge of treated effluent from the Alvarado Wastewater Treatment Plant is regulated under a separate NPDES permit (CA0037869). Since there is limited data available from the wet weather outfall owing to the intermittent nature, the Board considered whether data on the main discharge could rely upon in this permit. Because they come from the same point in the treatment process, the quality of discharges from both outfalls during wet weather conditions should be very similar except for chlorine residual. The only additional treatment for the wet weather outfall discharge is dechlorination before discharging to Old Alameda Creek. Another point of difference is that E-2 metal data are based on 24-hour composite samples, whereas

wet weather outfall data are taken as grabs because of the intermittent nature of the discharge. This may introduce an unknown magnitude of greater variability in the wet weather outfall quality as illustrated by the higher selenium concentration in the wet weather outfall compared to E-2. For these reasons, it was determined that E-2 data would not be used in this permit for calculating performance-based limits.

### **Applicable Plans, Policies and Regulations**

#### **Basin Plan**

11. The Board, on June 21, 1995, adopted, in accordance with Section 13240 et seq. of the CWC, a revised Water Quality Control Plan, San Francisco Bay Basin (Basin Plan). This updated and revised Basin Plan was approved by the State Water Resources Control Board and the Office of Administrative Law on July 20, 1995, and November 13, 1995, respectively. A summary of revisions to regulatory provisions is contained in California Code of Regulations, Section 3912. The Basin Plan defines beneficial uses and water quality objectives for waters of the State, including surface waters and ground waters. This Order is in compliance with the Basin Plan.

#### **Beneficial Uses**

12. Old Alameda Creek is a tributary of lower San Francisco Bay. The wet weather outfall discharges to Old Alameda Creek at a location about three (3) miles upstream of lower San Francisco Bay. Alameda County installed a tide gate in the creek about half mile upstream of the Wet Weather discharge point. The tide gate is used to prevent flooding of Union City when a heavy storm event coincides with a high tide condition. This tide gate acts as an one-way valve, which allows upstream water to flow down to the Bay and prevents tidal water traveling beyond the tidal gate (see attached figure 2). It is therefore appropriate to apply the Basin Plan's tributary rule in determining the beneficial uses of Old Alameda Creek, by applying designated uses for lower San Francisco Bay. Beneficial uses for lower San Francisco Bay and its tributaries, as identified in the Basin Plan, are:

- a. Commercial and sport fishing
- b. Estuarine habitat
- c. Industrial service supply
- d. Fish migration
- e. Navigation
- f. Preservation of rare and endangered species
- g. Water contact and non-contact recreation
- h. Shellfish harvesting
- i. Fish spawning
- j. Wildlife habitat

#### **State Implementation Policy (SIP)**

13. The SWRCB adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (also known as the State Implementation Policy or SIP) on March 2, 2000 and the Office of Administrative Law (OAL) approved the SIP on April 28, 2000. The SIP applies to discharges of toxic pollutants in the inland surface waters, enclosed bays and estuaries of California subject to regulation under the State's Porter-Cologne Water Quality Control Act (Division 7 of the Water Code) and the federal Clean Water Act. The SIP establishes implementation provisions for priority pollutant criteria promulgated by the U.S. EPA through the National Toxics Rule (NTR) and California Toxics Rule (CTR), and for priority pollutant objectives established by the Regional Water Quality Control Boards (RWQCBs) in their water quality control

plans (Basin Plans). The SIP also establishes monitoring requirements for 2,3,7,8-TCDD equivalents, chronic toxicity control provisions, and Pollutant Minimization Programs.

#### California Toxics Rule (CTR)

14. On May 18, 2000, the U.S. EPA published the *Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California* (Federal Register, Volume 65, Number 97, 18 May 2000). These standards are generally referred to as the CTR. The CTR specified water quality criteria (WQC) for numerous pollutants, of which some are applicable to the Discharger's effluent discharges.

#### Other Regulatory Bases

15. WQOs/WQC and effluent limitations in this permit are based on the SIP; the plans, policies and WQOs and criteria of the Basin Plan; California Toxics Rule (Federal Register Volume 65, 97); Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing (40 CFR Part 136) and Best Professional Judgment (BPJ) as defined in the Basin Plan. Where numeric effluent limitations have not been established or updated in the Basin Plan, 40 CFR 122.44(d) specifies that water quality based effluent limitations (WQBELs) may be set based on U.S. EPA criteria and supplemented where necessary by other relevant information to attain and maintain narrative WQC to fully protect designated beneficial uses. Discussion of the specific bases and rationale for effluent limits are given in the associated Fact Sheet for this Permit, which is incorporated as part of this Order.

#### Exception to the Basin Plan Prohibition For Which Exceptions Are Necessary

16. The Basin Plan contains a prohibition against discharge of any wastewater, which has particular characteristics of concern to beneficial uses at any point at which the wastewater does not receive a minimum initial dilution of at least 10:1 or into any non-tidal water, dead-end slough, similar confined waters, or immediate tributaries thereof (Prohibition 1 in Table 4-1 of the Basin Plan). The Basin Plan also gives exceptions to this prohibition if an inordinate burden would be placed on the Discharger relative to beneficial uses provided, and an equivalent level of environmental protection can be achieved by alternate means.
17. The Discharger has not performed a dilution study on discharges to Old Alameda Creek. So, the actual dilution during PWWF condition is unknown at this time. Therefore, no dilution credit is granted in this Order.
18. The Discharger has conducted various studies and master planning since the early 1990s, e.g., the District Wide Master Plan in 1994 and the Wastewater Equalization Storage Facilities Pre-Design in 1998, in order to satisfactorily serve the increasing wastewater treatment needs from its service area and accommodate PWWFs. These Studies concluded that it would be an inordinate burden for the Discharger to construct a pipeline to transport all PWWF to the Bay, or construct equalization and storage basins to store all PWWF. The best alternative recommended by the Studies is to construct two 1.8 MG flow equalization basins and a 4 to 8 mgd water recycling plant at Irvington Pump Station, 13.4 MG treated effluent storage basins at Alvarado Wastewater Treatment Plant, and discharge of 8.4 MG secondary treated wastewater to Old Alameda Creek from a 20-year storm event. With this basis of design, PWWFs are expected to exceed the capacity of the EBDA transport pipeline about four (4) times in 40 years.
19. The construction of the first 1.8 MG equalization basin at Irvington Pump Station is in its final stage. The Dischargers, together with the Alameda County Water District (ACWD), is currently evaluating the feasibility of constructing a satellite water recycling plant at the Irvington Pump Station. The

product water from the satellite water recycling plant will serve recycled water demands identified in the southern and southwestern portions of the ACWD's service area.

20. In issuing the previous Order, the Board granted the Discharger an exception for the prohibitions. For this Order, the Board determines that the exception from the discharge prohibition continues to be appropriate for the following reasons:
- a. An inordinate burden would be placed on the Discharger by expanding the existing the EBDA pipeline to accommodate PWWFs.
  - b. PWWF discharge will be infrequent (approximately once in 10 years) and only during peak wet weather when there is high natural flows in Old Alameda Creek.
  - c. The Discharger's treatment system provides reliable and adequate secondary treatment of wastewater.
  - d. The Discharger performed a receiving water study in 1993, which shows that beneficial uses will not be adversely affected by the discharge.

**Applicable Water Quality Objectives/Criteria (WQO/WQC)**

21. The WQO and WQC applicable to the receiving waters for this discharge are from the Basin Plan, the CTR, and the NTR.
- a. The Basin Plan specifies numeric WQOs for 10 priority toxic pollutants, as well as narrative WQOs for toxicity and bioaccumulation in order to protect beneficial uses. The pollutants for which the Basin Plan specifies numeric objectives are arsenic, cadmium, chromium (VI), copper in freshwater, lead, mercury, nickel, silver, zinc, and cyanide (see also c. below). The narrative toxicity objective states in part "[a]ll waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms." The bioaccumulation objective states in part "[c]ontrollable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life." Effluent limitations and provisions contained in this Order are designed to implement these objectives, based on current available information.
  - b. The CTR specifies numeric aquatic life criteria for 23 priority toxic pollutants and numeric human health criteria for 57 priority toxic pollutants. These criteria apply to inland surface waters and enclosed bays and estuaries, except that where the Basin Plan's Tables 3-3 and 3-4 specify numeric objectives for certain priority toxic pollutants. The Basin Plan's numeric objectives apply over the CTR (except in the South Bay south of the Dumbarton Bridge).
  - c. The NTR established numeric aquatic life criteria for selenium, numeric aquatic life and human health criteria for cyanide, and numeric human health criteria for 34 toxic organic pollutants for waters of San Francisco Bay upstream to and including Suisun Bay and the Sacramento-San Joaquin Delta. This includes the receiving waters for this Discharger.

**Basin Plan Receiving Water Salinity Policy**

22. The Basin Plan states that the salinity characteristics (i.e., freshwater vs. saltwater) of the receiving water shall be considered in determining the applicable WQOs. Freshwater objectives apply to discharges to waters both outside the zone of tidal influence and with salinities lower than 5 parts per

thousand (ppt) at least 75 percent of the time. Saltwater objectives shall apply to discharges to waters with salinities greater than 5 ppt at least 75 percent of the time. For discharges to waters with salinities in between the two categories or tidally influenced freshwaters that support estuarine beneficial uses, the objectives shall be the lower of the salt or freshwater objectives, based on ambient hardness, for each substance. For constituents with water quality objectives specified in the Basin Plan, it is appropriate to use the Basin Plan definition for determining if the receiving water is fresh, marine, or estuarine.

#### CTR Receiving Water Salinity Policy

23. The CTR states that the salinity characteristics (i.e., freshwater vs. saltwater) of the receiving water shall be considered in determining the applicable WQC. Freshwater criteria shall apply to discharges to waters with salinities equal to or less than one (1) ppt at least 95 percent of the time. Saltwater criteria shall apply to discharges to waters with salinities equal to or greater than 10 ppt at least 95 percent of the time in a normal water year. For discharges to water with salinities in between these two categories, or tidally influenced freshwaters that support estuarine beneficial uses, the criteria shall be the lower of the salt or freshwater criteria, (the latter calculated based on ambient hardness), for each substance. In applying CTR, criteria it is appropriate to use the CTR definition for determining if the receiving water if fresh, marine, or estuarine.

#### Receiving Water Salinity

24. The receiving water for the subject discharge is Old Alameda Creek and is considered estuarine because it is a tidally influenced water body and is subject to both salt water and freshwater influence. The Discharger collected salinity data at the discharge location in Old Alameda Creek for a period of 22 days in June 1993. The salinities at the vicinity of the wet weather outfall ranged from 10 ppt to 20 ppt, which is salt water. Alameda County Water District (ACWD) collected salinity data about a mile upstream of the tide gate (see Finding 12 for tide gate detail). The salinity at upstream of the tide gate ranges from 0.37 to 4.33 ppt, which is fresh water. During PWWF condition when the discharge occurs, there will be a large amount of fresh storm water flow from upstream mixing with saltwater thus creating estuarine condition. Because the receiving water is estuarine, this Order's effluent limitations are based on the lower of the freshwater and marine water quality objectives or criteria (WQO/WQC) in accordance with the CTR. The receiving water hardness is 273 mg/L as calcium carbonate according to data from the ACWD. Additional salinity and hardness data that better represent the receiving water of the discharge are necessary and, are required by this Order. When calculating freshwater criteria, a receiving water hardness of 300 mg/L as calcium carbonate was used in accordance with CTR requirement.

#### **Reasonable Potential Analysis (RPA)**

25. As specified in 40 CFR 122.44(d) (1) (i), permits are required to include Water Quality Based Effluent Limits (WQBELs) for all pollutants "which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard." Using the method prescribed in Section 1.3 of the SIP, Board staff has analyzed the effluent data to determine if the discharge has a reasonable potential to cause or contribute to an excursion above a State water quality standard ("Reasonable Potential Analysis" or "RPA"). For all parameters that have reasonable potential, numeric WQBELs are required. The RPA compares the effluent data with numeric and narrative WQOs in the Basin Plan and numeric WQC from the U.S. EPA, the NTR, and the CTR.
26. *RPA Methodology.* The method for determining RPA involves identifying the observed maximum pollutant concentration in the effluent (MEC) for each constituent, based on effluent concentration

data. The RPA for all constituents is based on zero dilution, according to section 1.3 of the SIP. There are three triggers in determining reasonable potential.

- a. The first trigger is activated when the MEC is greater than or equal to the lowest applicable WQO/WQC, which has been adjusted for pH, hardness (assumed in this permit analysis at 300 mg/L), and translator data, if appropriate. An MEC that is greater than or equal to the (adjusted) WQO/WQC means that there is reasonable potential for that constituent to cause or contribute to an excursion above the WQO/WQC and a WQBEL is required. (Is the  $MEC \geq WQO/WQC$ ?)
- b. The second trigger is activated if the observed maximum ambient background concentration (B) is greater than the adjusted WQO/WQC and the MEC is less than the adjusted WQO/WQC or the pollutant was not detected in any of the effluent samples and all of the detection levels are greater than or equal to the adjusted WQO/WQC. If B is greater than the adjusted WQO/WQC, then a WQBEL is required. (Is  $B > WQO/WQC$ ?)
- c. The third trigger is activated after a review of other information determines that a WQBEL is required even though both MEC and B are less than the WQO/WQC. A limit is only required under certain circumstances to protect beneficial uses.

27. *Receiving Water Ambient Background Data used in Reasonable Potential Analysis* There is no receiving water data available in the vicinity of the discharge location during storm events. This Order requires the Discharger to collect receiving water data during PWWF conditions in Old Alameda Creek. The data will be used in the next permit reissuance for determining reasonable potential.

28. *Summary of RPA Data and Results.* The RPA was based on effluent monitoring data from the Alvarado Wastewater Treatment Plant at E-2 during winter months from October to April for the past three years and three (3) discharging events from the wet weather outfall in February 1998. Based on the RPA methodology described above and in the SIP, the following constituents have been found to have reasonable potential to cause or contribute to an excursion above WQOs/WQC: copper, mercury, nickel, zinc and cyanide.

29. *RPA Determinations.* The reasonable potential conclusions from the RPA are listed in the following table for all constituents analyzed. The Board determined that the constituents in the CTR that are not listed in the table below had insufficient data to determine reasonable potential. This Order prescribes monitoring requirements to fill this data gap. The Fact Sheet contains further details on the RPA.

Constituent	WQO/ WQC ( $\mu\text{g/L}$ )	Basis	Maximum Effluent Conc. ( $\mu\text{g/L}$ )	Reasonable Potential
Copper	3.7	CTR, sw,	24.7	Yes
Mercury	0.025	BP, sw&fw	0.034	Yes
Nickel	7.1	BP, sw	26	Yes
Zinc	58	BP, sw	75.5	Yes
Cyanide	1	NTR, sw	8	Yes

WQO: Water Quality Objective; WQC: Water Quality Criteria  
 CTR: California Toxic Rule; BP: Basin Plan; sw: Salt Water; fw: Fresh Water

**Requirement for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy**

30. On August 6, 2001, the Board sent a letter to all the permitted dischargers pursuant to Section 13267 of the California Water Code requiring the submittal of effluent and receiving water data on priority pollutants. This formal request for technical information addresses the insufficient effluent and ambient background data, and the dioxin study. Board waived the Discharger from monitoring requirements prescribed in August 6, 2001 letter because there is no regular discharge from its wet weather outfall.
31. The Self-Monitoring Program in this Order requires the Discharger to monitor CTR constituents that are not regularly monitored at the main outfall E-2 to fill the data gap in order to conduct a reasonable potential analysis. As discussed in a previous finding, the effluent quality is expected to be similar between outfall E-2 and the wet weather outfall. Therefore, representative samples can be taken at E-2 during wet weather if there is no discharge from the wet weather outfall. This Order also requires the Discharger to monitor Old Alameda Creek during wet weather events to fill the ambient background data gap.

**Basis for Effluent Limitations**

General Basis

32. *Federal Water Pollution Control Act.* Effluent limitations and toxic effluent standards are established pursuant to sections 301 through 305, and 307 of the Federal Water Pollution Control Act and amendments thereto are applicable to the discharges herein.

Technology Based Effluent Limits

33. According to 40 CFR Part 125.3, technology-based limits signify the minimum level of control that a discharger must attain for conventional pollutants. In this permit, technology-based effluent limits are based on 40 CFR Part 133 and the Basin Plan Table 4-2, Effluent Limitations for Conventional Pollutants. The limits include for 5-day biochemical oxygen demand (BOD<sub>5</sub>), total suspended solids (TSS), oil and grease, total coliform, pH and chlorine residual. Monthly average limits are not included because the discharge is emergency in nature, and it only discharges occasionally.

Water Quality-Based Effluent Limitations (WQBELs)

34. Toxic substances are regulated by WQBELs derived from water quality objectives listed in the Basin Plan Tables 3-3 and 3-4, the NTR, U.S. EPA recommended criteria, the CTR, the SIP, and/or BPJ. Numeric WQBELs are required for all constituents that have reasonable potential to cause or contribute to an excursion above any State WQO/WQC. Reasonable potential is determined using the methodology outlined in the SIP. If the Discharger demonstrates that the final limits will be infeasible to meet and provides justification for a compliance schedule, then interim limits are established, with compliance schedules to achieve the final limits. Further details about the effluent limitations are given in the associated Fact Sheet.

Interim Limits and Compliance Schedules

35. This Order establishes compliance schedules based on Sections 2.1 and 2.2 of the SIP for limits derived from CTR criteria or based on the Basin Plan for limits derived from the Basin Plan WQOs. If an existing Discharger cannot immediately comply with a new and more stringent effluent limitation, the SIP and the Basin Plan authorize a compliance schedule in the permit. To qualify for a compliance schedule, both the SIP and the Basin Plan require that the Discharger demonstrate that

it is infeasible to achieve immediate compliance with the new limits. The SIP and the Basin Plan require that the following information be submitted to the Board to support a finding of infeasibility:

- a. documentation that diligent efforts have been made to quantify pollutant levels in the discharge and sources of the pollutant in the waste stream, including the results of those efforts;
  - b. documentation of source control and/or pollution minimization efforts currently under way or completed;
  - c. a proposed schedule for additional or future source control measures, pollutant minimization or waste treatment; and
  - d. a demonstration that the proposed schedule is as short as practicable
36. On October 22, 2003, the Discharger submitted an infeasibility study. Based on the information in this report, the Board believes that the Discharger has fulfilled all of the above requirements and is eligible for compliance schedules for copper, mercury, nickel, zinc and cyanide. In summary, the infeasibility analysis consisted of comparing the mean, 95<sup>th</sup> percentile and 99<sup>th</sup> percentile of the effluent data from Outfall E-2 (from winters of year 2000 through 2003) to the LTA (Long Term Average), AMEL (Average Monthly Limit), and MDEL (daily Maximum Limit) calculated using SIP procedures. The result shows that mean, 95<sup>th</sup> or 99<sup>th</sup> percentiles of effluent data were greater than LTA, AMEL or MDEL, thus it is infeasible to achieve immediate compliance. For cyanide, majority of data are non-detect. There were not sufficient detected values available to perform a statistical analysis. Infeasibility analysis for cyanide is by comparing the maximum cyanide effluent concentration (MEC) with the newly calculated final WQBELs (presented in the Fact Sheet). The MEC is greater than the WQBEL, thus it is infeasible to achieve immediate compliance.
37. According to the Basin Plan (page 4-14, Compliance Schedule) or the SIP (Section 2.1, Compliance Schedule), if the Discharger demonstrated that it is infeasible to immediately comply with the WQBELs calculated according to Section 1.4 of the SIP, the permit should allow a compliance schedule to achieve the compliance with the final WQBELs. Therefore, this Order establishes a five-year compliance schedule for final limits based on CTR or NTR criteria (e.g., copper and cyanide), a compliance schedule of March 31, 2010, for final limits based on the Basin Plan numeric objectives (e.g., mercury, nickel and zinc). This provision has been construed to authorize compliance schedules for new interpretations of existing standards, such as the numeric water quality objectives specified in the Basin Plan, resulting in more stringent limits than those in the previous permit. Due to the adoption of the SIP, the Board has newly interpreted these objectives. As a result of applying the SIP methodologies, the effluent limitations for some pollutants are more stringent than the prior permit. Accordingly, a compliance schedule is appropriate here for the new limits for these pollutants.
38. These compliance schedules both exceed the length of the permit, which is 4 year and 11 months. Therefore as provided in the SIP, these calculated final limits are intended as a point of reference for the feasibility demonstration and are only included in the findings by reference to the fact sheet. Additionally, the final WQBELs for copper and mercury will very likely be based on either the Site Specific Objective (SSO) or TMDL/WLA.
39. Until final WQBELs or WLAs are adopted, state and federal anti-backsliding and antidegradation policies, and the SIP, require that the Board include interim effluent limitations. The interim effluent limitations in this Order are based on the previous order except mercury. Staff is unable to determine performance based limits because there were effluent data from only three wet weather discharges in 1998. As described in a previous finding, the E-2 data were not used because the composite samples at E-2 may not be fully representative of grab samples of the wet weather discharge due to the

difference in the duration of discharge. However, mercury samples have generally been collected as grab samples by other dischargers in this region. Therefore, the mercury interim limit in this Order is a performance-based limit obtained from statistical analysis of pooled data from selected municipal dischargers in this region. The pooled mercury data were obtained from grab samples from both dry and wet weather effluents. So, variations in mercury concentrations during wet weather discharges were factored in the calculation of this performance-based limit.

Total Maximum Daily Loads (TMDLs) and Waste Load Allocations (WLAs)

40. On July 25, 2003, the U.S. EPA approved a revised list of impaired water bodies prepared by the State. The list (hereinafter referred to as the 303(d) list) was prepared in accordance with Section 303(d) of the federal Clean Water Act to identify specific water bodies where water quality standards are not expected to be met after implementation of technology-based effluent limitations on point sources. Alameda Creek is listed as an impaired water body. The pollutants impairing Alameda Creek is diazinon. Old Alameda Creek is downstream section of Alameda Creek where the Creek connects with lower San Francisco Bay. Therefore, Old Alameda Creek is a tributary of lower San Francisco Bay. The pollutants impairing lower San Francisco Bay include chlordane, DDT, diazinon, dieldrin, dioxin compounds, mercury, nickel, PCBs and exotic species.
41. Based on the 303(d) list of pollutants impairing San Francisco Bay, the Board plans to adopt TMDLs for these pollutants no later than 2010, with the exception of dioxin and furan compounds. The Board defers development of the TMDL for dioxin and furan compounds to the U.S. EPA. Future review of the 303(d) list for San Francisco Bay may result in revision of the schedules and/or provide schedules for other pollutants.
42. The TMDLs will establish waste load allocations (WLAs) and load allocations for point sources and non-point sources, respectively, and will result in achieving the water quality standards for the water body. The final effluent limitations for pollutants with TMDLs and WLAs will be based on WLAs, which are derived from the TMDLs.

Source Control and Pollution Prevention

43. The Discharger has established a Pollution Prevention Program under the requirements specified by the Board.
  - a. Section 2.4.5 of the SIP specifies under what situations and for which priority pollutant(s) (i.e., reportable priority pollutants) the Discharger shall be required to conduct a Pollutant Minimization Program in accordance with Section 2.4.5.1.
  - b. There may be some redundancy between the Pollution Prevention Program and the Pollutant Minimization Program requirements.
  - c. Where the two programs' requirements overlap, the Discharger is allowed to continue/modify/expand its existing Pollution Prevention Program to satisfy the Pollutant Minimization Program requirements.
  - d. For constituents identified under Effluent Limits, the Discharger will conduct appropriate source control or pollutant minimization measures that are consistent with its approved Pretreatment and Pollution Prevention Programs. For constituents with compliance schedules under this permit, the applicable source control/pollutant minimization requirements of SIP Section 2.1 will also apply.

44. On October 15, 2003, the Regional Board adopted Resolution R2 2003-0096 in support of a collaborative working approach between the Board and Bay Area Clean Water Agencies (BACWA) to promote Pollution Prevention Program development and excellence. Specifically, the Resolution embodies a set of eleven guiding principles that will be used to develop tools such as "P2 menus" for specific pollutants, as well as provide guidance in improving P2 program efficiency and accountability. Key guiding principles in the Resolution include promoting watershed, cross-program and cross-media approaches to pollution prevention, and jointly developing tools to assess individual Discharger's program performance that may include peer reviews, self-audits or other formats.

#### SSO/TMDL Participation Requirement

45. For copper, mercury, nickel, zinc and cyanide, the Discharger will conduct additional source control or pollutant minimization measures in accordance with Provision D.3 of this Order.

#### Dilution

46. The actual dilution and mixing received by the wet weather discharge in Old Alameda Creek has not been modeled or measured therefore no dilution credit is granted in this Order. The SIP allows the Regional Board to take into consideration of actual and seasonal variations of the receiving water and the effluent in establishing a mixing zone and a dilution credit for a discharge. For example, the Board may prohibit mixing zones during seasonal low flows and allow them during seasonal high flows. The Board may consider granting dilution credit if the Discharger provides the information on if and how much receiving water is available to dilute the discharge during PWWF conditions, along with the quality of the receiving water.

#### Permit Reopener

47. This Order includes a reopener provision to allow numeric effluent limitations to be added or deleted for any constituent that exhibits or does not exhibit, respectively, reasonable potential. The Board will make this determination based on monitoring results required in this Order.

#### Antibacksliding and Antidegradation

48. *Antidegradation and Anti-backsliding.* The limitations in this Order are in compliance with the Clean Water Act Section 402(o) prohibition against establishment of less stringent WQBELs for the following reasons:
- For impairing pollutants, the revised final limitations will be in accordance with TMDLs and WLAs once they are established;
  - For non-impairing pollutants, the final limitations are/will be consistent with current State WQOs/WQC.
  - Antibacksliding does not apply to the interim limitations established under previous Orders;
  - If antibacksliding policies apply to interim limitations under 402(o)(2)(c), a less stringent limitation is necessary because of events over which the Discharger has no control and for which there is no reasonable available remedy, and/or new information is available that was not available during previous permit issuance.

The interim limitations in this permit are in compliance with antidegradation requirements and meet the requirements of the SIP because the interim limitations hold the Discharger to performance levels that will not cause or contribute to water quality impairment or further water quality degradation.

### **CEQA Exemption and Public Hearing**

49. *NPDES Permit.* This Order serves as an NPDES Permit, adoption of which is exempt from the provisions of Chapter 3 (commencing with Section 21100) of Division 13 of the Public Resources Code [California Environmental Quality Act (CEQA)] pursuant to Section 13389 of the California Water Code.
50. *Notification.* The Discharger and interested agencies and persons have been notified of the Board's intent to reissue requirements for the existing discharges and have been provided an opportunity to submit their written views and recommendations. Board staff prepared a Fact Sheet and Response to Comments, which are hereby incorporated by reference as part of this Order.
51. *Public Hearing.* The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

**IT IS HEREBY ORDERED**, pursuant to the provisions of Division 7 of the California Water Code, regulations, and plans and policies adopted thereunder, and to the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, that the Discharger shall comply with the following:

#### **A. DISCHARGE PROHIBITIONS**

1. Discharge of treated wastewater at a location or in a manner different from that described in this Order is prohibited.
2. Discharge of dry weather wastewater from the wet weather outfall is prohibited, except discharges required for regular exercising bypass valve as described in Finding 9.b.
3. Discharge through the wet weather outfall is prohibited except as defined as follows: The 20-year storm event shall not result in a Peak Wet Weather Flow (PWWF) discharge of more than 8.4 million gallons per event.
4. The bypass or overflow of untreated or partially treated wastewater to waters of the State, either at the treatment plant or from the collection system or pump stations tributary to the treatment plant, is prohibited, except as provided for bypasses under the conditions stated in 40 CFR 122.41(m)(4) and in Standard Provisions A.13.

The discharge of blended wastewater, that is biologically treated wastewater blended with wastewater that have been diverted around biological treatment units or advanced treatment units, is allowable only 1) during wet weather, and 2) when the discharge complies with the effluent and receiving water limitations contained in this Order. Furthermore, the Discharger shall operate the facility as designed and in accordance with the Operation and Maintenance Manuals developed for the facility. This means that the Discharger shall optimize storage and use of equalization units, and shall fully utilize the biological treatment units, and advanced treatment units if applicable. The Discharger shall report these incidents of blended effluent discharges in routine monitoring reports, and shall conduct monitoring of this discharge as specified elsewhere in this Order.

**B. EFFLUENT LIMITATIONS**

**1. Effluent limitations for conventional pollutants**

Effluent discharged into Old Alameda Creek shall not exceed the following:

<u>Constituent</u>	<u>Units</u>	<u>7-day Average</u>	<u>Instantaneous Maximum</u>	<u>Daily Maximum</u>
Carbonaceous BOD <sub>5</sub>	mg/L	40		
TSS	mg/L	45		
Oil and Grease	mg/L			20
Chlorine Residual <sup>1</sup>	mg/L		0.0	
Fecal Coliform Organisms	MPN/100 ml			500
pH, in pH units <sup>2</sup>	Discharge must be within 6.5 to 8.5			

<sup>1</sup> The chlorine residual requirement is defined as below the limit of detection defined in *Standard Methods for the Examination of Water and Wastewater*. The Discharger may elect to use a continuous on-line monitoring system(s) for measuring flows, chlorine and sodium bisulfate dosage, and concentration to prove that chlorine residual exceedances are false positives. If convincing evidence is provided, Board may conclude that these false positive chlorine residual exceedances are not violations of this permit limit.

<sup>2</sup> If the Discharger continuously monitoring pH, the discharger shall be in compliance with the pH limitation provided that both of the following conditions are satisfied: (1) The total time during which the pH values are outside the required range of 6.5 to 8.5 pH values shall not exceed 99% of the total duration of discharge during any calendar month; and (2) No individual excursion from the range of pH values shall exceed 60 minutes.

**2. Toxic Substances:**

Effluent discharged into Old Alameda Creek shall not exceed the following:

<u>Constituent</u>	<u>Unit</u>	<u>Interim Daily Max</u>	<u>Notes</u>
Copper	µg/L	37	(1) (2)
Mercury	µg/L	0.087	(1) (3) (4)
Nickel	µg/L	65	(1) (3)
Zinc	µg/L	580	(1) (3)
Cyanide	µg/L	10	(1) (2)

Footnotes:

- (1) (a) Compliance with these limits is intended to be achieved through secondary treatment and, as necessary, pretreatment and source control.
- (b) All analyses shall be performed using current U.S. EPA methods, or equivalent methods approved in writing by the Executive Officer. The Discharger is in violation of the limit if the discharge concentration exceeds the effluent limitation and the reported minimum level (ML) for the analysis.
- (c) Limits apply to the average concentration of all samples collected during the averaging period (Daily = 24-hour period).

- (2) This interim limit shall remain in effect until March 31, 2009, or until the Board amends the limit based on site-specific objectives or the Waste Load Allocation in the TMDL. However, during the next permit reissuance, Board staff may re-evaluate the interim limits.
- (3) This interim limit shall remain in effect until March 31, 2010, or until the Board amends the limit based on site-specific objectives or the Waste Load Allocation in the TMDL. However, during the next permit reissuance, Board staff may re-evaluate the interim limits.
- (4) Mercury: Effluent mercury monitoring shall be performed by using ultra-clean sampling and analysis techniques, with a minimum level of 0.002 µg/L or lower.

### C. RECEIVING WATER LIMITATIONS

1. The discharges shall not cause the following conditions to exist in waters of the State at any place:
  - a. Floating, suspended, or deposited macroscopic particulate matter or foam;
  - b. Bottom deposits or aquatic growths to the extent that such deposits or growths cause nuisance or adversely affect beneficial uses;
  - c. Alteration of temperature, turbidity, or apparent color beyond present natural background levels;
  - d. Visible floating, suspended, or deposited oil or other products of petroleum origin; and
  - e. Toxic or other deleterious substances to be present in concentrations or quantities which will cause deleterious effects on wildlife, waterfowl, or other aquatic biota, or which render any of these unfit for human consumption, either at levels created in the receiving waters or as a result of biological concentration.
2. The discharges shall not cause nuisance, or adversely affect the beneficial uses of the receiving water.
3. The discharges shall not cause the following limits to be violated in waters of the State at any one place within one foot of the water surface:
  - a. Dissolved Oxygen:            5.0 mg/L, minimum  
  
The median dissolved oxygen concentration for any three consecutive months shall not be less than 80% of the dissolved oxygen content at saturation. When natural factors cause concentrations less than that specified above, then the discharges shall not cause further reduction in ambient dissolved oxygen concentrations.
  - b. Dissolved Sulfide:            0.1 mg/L, maximum
  - c. pH:                                The pH shall not be depressed below 6.5 nor raised above 8.5, nor caused to vary from normal ambient pH by more than 0.5 pH units.

- d. Un-ionized Ammonia: 0.025 mg/L as N, annual median; and 0.4 mg/L as N, maximum.
  - e. Nutrients: Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.
4. The discharges shall not cause a violation of any particular water quality standard for receiving waters adopted by the Board or the State Board as required by the Clean Water Act and regulations adopted there under. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Clean Water Act, or amendments thereto, the Board will revise and modify this Order in accordance with such more stringent standards.

#### D. PROVISIONS

##### 1. Optional Receiving Water Dilution Study and Schedule

In order to develop information that may be used to grant dilution credit, the Discharger may conduct a dilution study in Old Alameda Creek in the vicinity of the wet weather outfall during Peak Wet Weather Flow (PWWF) conditions. After the study results are approved by the Executive Officer, the dilution credit will be used to calculate water quality based effluent limitations for non-bio-accumulative pollutants in the next permit reissuance. If the Discharger chooses to conduct this study,

- a. The Discharger shall first submit a study plan, acceptable to the Executive Officer, on how to perform the study. After Executive Officer approval, the Discharger shall begin implementing the study plan.
- b. The Discharger shall conduct the study in accordance with the study plan. The Discharger shall submit a report documenting the study results and any other site-specific information that the Discharger would like the Board to consider in granting the dilution credit. If the Discharger chooses to conduct this study, the study shall be completed at least 6 months before the expiration date of this permit and the final report shall be submitted with the renewal application.

##### 2. Optional site-specific translator study

Optionally, the Discharger may implement a sampling plan to collect data for development of site-specific translators for metals specified in CTR. If the Discharger chooses to proceed with the translator study, the work shall be performed in accordance with the following tasks:

- a. Translator Study Plan. If submitted, the study plan shall be acceptable to the Executive Officer and shall outline data collection for establishment of metal translators, as discussed in the Findings.
- c. After Executive Officer approval, the study plan may be implemented. If submitted, the study plan shall provide for development of translators in accordance with the SIP, U.S. EPA guidelines, California Department of Fish and Game approval, and any relevant portions of the Basin Plan, as amended.

- d. Site-specific Metal Translator Final Report. If the Discharger conducts a translator study, it will use field sampling data approximate to the discharge point, in the vicinity of the discharge point and during the wet weather condition, or as otherwise provided for in the approved work plan, and will submit a final report, acceptable to the Executive Officer, together with the next permit renewal application. The final report shall document the results of the translator study.

### 3. Pollutant Prevention and Minimization Program (PMP)

- a. The Discharger shall continue to implement and improve its existing Pollution PMP in order to reduce pollutant loadings to the treatment plant and therefore to the receiving waters.
- b. The discharger shall submit an annual report, acceptable to the Executive Officer, no later than February 28<sup>th</sup> of each calendar year. *For annual reports due February 28<sup>th</sup>*, Annual report shall cover January through December of the preceding year. *For annual reports due August 30<sup>th</sup>*, Annual reports shall cover July of the preceding year through June of the current year. The Discharger may provide one report, which covers effluent flows transported through the EBDA outfall, to the Hayward Marsh, and through the wet weather outfall.

The annual report shall include at least the following information:

- (i) *A brief description of its treatment plant, treatment plant processes and service area.*
- (ii) *A discussion of the current pollutants of concern.* Periodically, the discharger shall analyze its own situation to determine which pollutants are currently a problem and/or which pollutants may be potential future problems. This discussion shall include the reasons why the pollutants were chosen.
- (iii) *Identification of sources for the pollutants of concern.* This discussion shall include how the discharger intends to estimate and identify sources of the pollutants. The discharger should also identify sources or potential sources not directly within the ability or authority of the discharger to control such as pollutants in the potable water supply and air deposition.
- (iv) *Identification of tasks to reduce the sources of the pollutants of concern.* This discussion shall identify and prioritize tasks to address the discharger's pollutants of concern. Tasks can target its industrial, commercial, or residential sectors. The discharger may implement tasks themselves or participate in group, regional, or national tasks that will address its pollutants of concern. The discharger is strongly encouraged to participate in group, regional, or national tasks that will address its pollutants of concern whenever it is efficient and appropriate to do so. A time line shall be included for the implementation of each task.
- (v) *Implementation and continuation of outreach tasks for City and/or District employees.* The discharger shall implement outreach tasks for City and/or District employees. The overall goal of this task is to inform employees about the pollutants of concerns, potential sources, and how they might be able to help reduce the discharge of pollutants of concerns

- into the treatment plant. The discharger may provide a forum for employees to provide input to the Program.
- (vi) *Implementation and continuation of a public outreach program.* The discharger shall implement a public outreach program to communicate pollution prevention to its service area. Outreach may include participation in existing community events such as county fairs, initiating new community events such as displays and contests during Pollution Prevention Week, implementation of a school outreach program, conducting plant tours, and providing public information in newspaper articles or advertisements, radio, television stories or spots, newsletters, utility bill inserts, and web site. Information shall be specific to the target audiences. The discharger should coordinate with other agencies as appropriate.
  - (vii) *Discussion of criteria used to measure Program's and tasks' effectiveness.* The discharger shall establish criteria to evaluate the effectiveness of its Pollution Prevention Program. This shall also include a discussion of the specific criteria used to measure the effectiveness of each of the tasks in item b. (iv), b. (v), and b. (vi).
  - (viii) *Documentation of efforts and progress.* This discussion shall detail all of the discharger's activities in the Pollution Prevention Program during the reporting year.
  - (ix) *Evaluation of Program's and tasks' effectiveness.* This discharger shall utilize the criteria established in b. (vii) to evaluate the Program's and tasks' effectiveness.
  - (x) *Identification of specific tasks and time schedules for future efforts.* Based on the evaluation, the discharger shall detail how it intends to continue or change its tasks in order to more effectively reduce the amount of pollutants to the treatment plant, and subsequently in its effluent.
- c. According to Section 2.4.5.1 of the SIP, when there is evidence that a priority pollutant is present in the effluent above an effluent limitation and either:
- (i) A sample result is reported as detected, but not quantified (i.e., <Minimum Level) and the effluent limitation is less than the reported ML; or
  - (ii) A sample result is reported as not detected (Method Detection Limit) and the effluent limitation is less than the Method Detection Limit, the discharger shall be required to expand its existing Pollution Prevention Program to include the reportable priority pollutant(s). A priority pollutant becomes a reportable priority pollutant when there is evidence that it is present in the effluent above an effluent limitation and either (i) or (ii) is triggered.
- d. If triggered by the reasons in Provision 4.c. and notified by the Executive Officer, the discharger's Pollution Prevention Program shall, within 6 months, also include:
- (i) An annual review and semi-annual monitoring of potential sources of the reportable priority pollutant(s), which may include fish tissue monitoring and other bio-uptake sampling, or alternative measures approved by the Executive Officer when it is demonstrated that source monitoring is unlikely to produce useful analytical data;

- (ii) Quarterly monitoring for the reportable priority pollutant(s) in the influent to the wastewater treatment system, or alternative measures approved by the Executive Officer when it is demonstrated that influent monitoring is unlikely to produce useful analytical data;
  - (iii) Submittal of a control strategy designed to proceed toward the goal of maintaining concentrations of the reportable priority pollutant(s) in the effluent at or below the effluent limitation;
  - (iv) Implementation of appropriate cost-effective control measures for the reportable priority pollutant(s), consistent with the control strategy; and
  - (v) An annual status report that shall be sent to the RWQCB including:
    - (1) All Pollution Prevention monitoring results for the previous year;
    - (2) A list of potential sources of the reportable priority pollutant(s);
    - (3) A summary of all actions undertaken pursuant to the control strategy; and
    - (4) A description of actions to be taken in the following year.
- e. To the extent where the requirements of the Pollution Prevention Program and the Pollutant Minimization Program overlap, the discharger is allowed to continue/modify/expand its existing Pollution Prevention Program to satisfy the Pollutant Minimization Program requirements.
- f. These Pollution Prevention/Pollutant Minimization Program requirements are not intended to fulfill the requirements in Water Code 13263.

**4. SSO/TMDL participation Requirement**

The Discharger shall participate in the region-wide group effort to develop TMDL or Site Specific Objectives (SSO) for copper, mercury, nickel, zinc and cyanide. By January 31 of each year, an update will be submitted to the Board by the group to document progress made on development of TMDLs or SSO.

**5. Self-Monitoring Program**

The Discharger shall comply with the Self-Monitoring Program (SMP) for this Order as adopted by the Board. The SMP may be amended by the Executive Officer pursuant to U.S. EPA regulations 40 CFR 122.62, 122.63, and 124.5.

**6. Standard Provisions and Reporting Requirements**

The Discharger shall comply with all applicable items of the Standard Provisions and Reporting Requirements for NPDES Surface Water Discharge Permits, August 1993 (attached), or any amendments thereafter. Where provisions or reporting requirements specified in this Order are different from equivalent or related provisions or reporting requirements given in 'Standard Provisions', the specifications of this Order shall apply.

**7. Change in Control or Ownership**

- a. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Board.
- b. To assume responsibility of and operations under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order (see

Standard Provisions & Reporting Requirements, August 1993, Section E.4.). Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code.

**8. Permit Reopener**

The Board may modify or reopen this Order and Permit prior to its expiration date in any of the following circumstances:

- a. If present or future investigations demonstrate that the discharge(s) governed by this Order and Permit will or have a reasonable potential to cause or contribute to adverse impacts on water quality and/or beneficial uses of the receiving waters;
- b. New or revised Water Quality Objectives (WQOs) come into effect for the San Francisco Bay estuary and contiguous water bodies (whether statewide, regional, or site-specific). In such cases, effluent limitations in this permit will be modified as necessary to reflect updated WQOs. Adoption of effluent limitations contained in this Order and Permit are not intended to restrict in any way future modifications based on legally adopted WQOs or as otherwise permitted under Federal regulations governing NPDES permit modifications;

**9. Permit Compliance and Rescission of Previous Waste Discharge Requirements**

The Discharger shall comply with all sections of this Order beginning on April 1, 2004. Requirements prescribed by this Order supersede the requirements prescribed by Order No. 95-053.

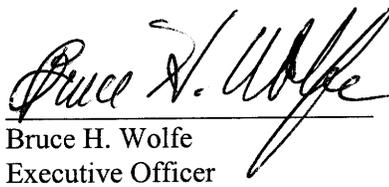
**10. NPDES Permit**

This Order shall serve as a National Pollutant Discharge Elimination System (NPDES) permit pursuant to Section 402 of the Clean Water Act or amendments thereto, and shall become effective on April 1, 2004, provided the U.S. EPA Regional Administrator has no objection. If the Regional Administrator objects to its issuance, the permit shall not become effective until such objection is withdrawn.

**11. Order Expiration and Reapplication**

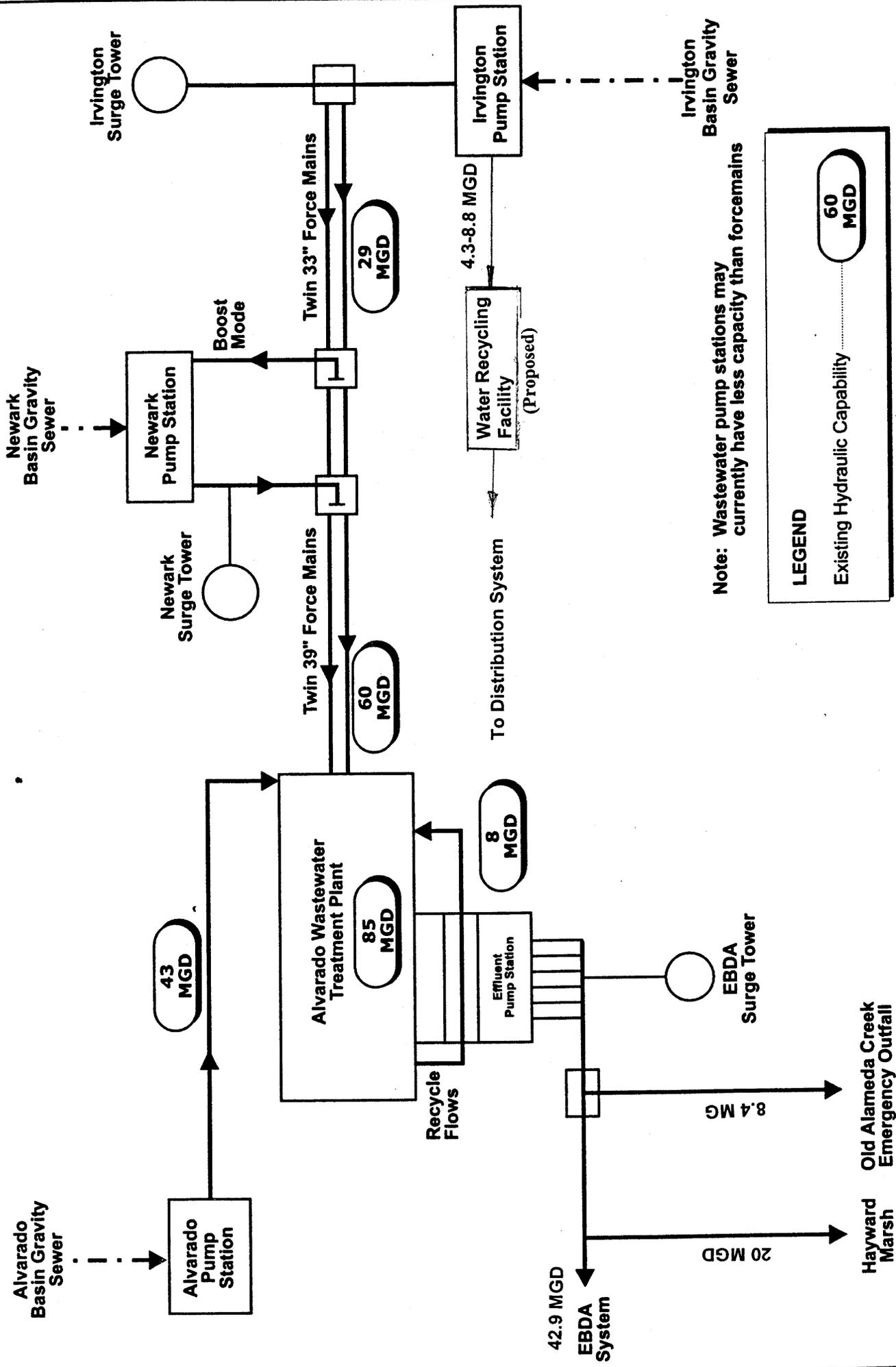
- a. This Order expires on February 28, 2009.
- b. In accordance with Title 23, Chapter 3, Subchapter 9 of the California Administrative Code, the Discharger must file a report of waste discharge no later than 180 days before the expiration date of this Order as application for reissue of this permit and waste discharge requirements. The application shall be accompanied by a summary of all available water quality data including conventional pollutant data from no less than the most recent 3 years, and of toxic pollutant data no less than from the most recent 5 years, in the discharge and receiving water.

I, Bruce H. Wolfe, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on January 21, 2004.

  
Bruce H. Wolfe  
Executive Officer

**Attachments:**

- A. Figure 1. Existing Treatment System Capacities at USD
- B. Figure 2. Alvarado Wastewater Treatment Plant Location Map
- C. Self-Monitoring Program
  - Part A (dated August 1993), not enclosed, see our website at <http://www.swrcb.ca.gov/rwqcb2/Download.htm> for document
  - Part B, enclosed
- D. Fact Sheet
- E. Standard Provisions and Reporting Requirements, August 1993  
(Not enclosed, see our website at <http://www.swrcb.ca.gov/rwqcb2/Download.htm> for document)
- F. August 6, 2001 letter (Not enclosed, see our website at <http://www.swrcb.ca.gov/rwqcb2/Download.htm> for document)
- G. Board Resolution No. 74-10 (not enclosed, see our website at <http://www.swrcb.ca.gov/rwqcb2/Download.htm> for document)



Note: Wastewater pump stations may currently have less capacity than force mains

**LEGEND**

Existing Hydraulic Capability

60 MGD

Figure 1 Existing Transport System Capacities at USD

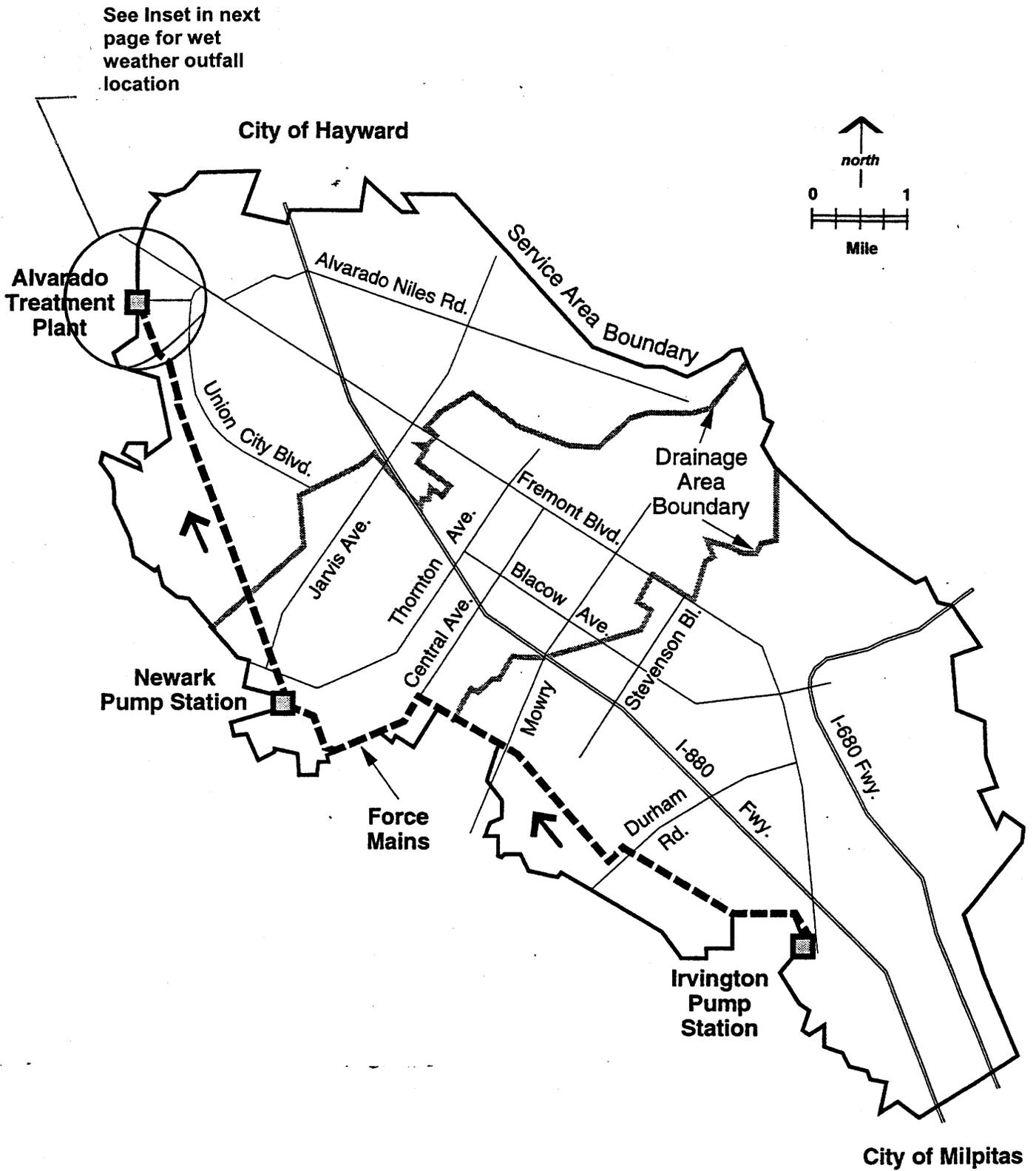
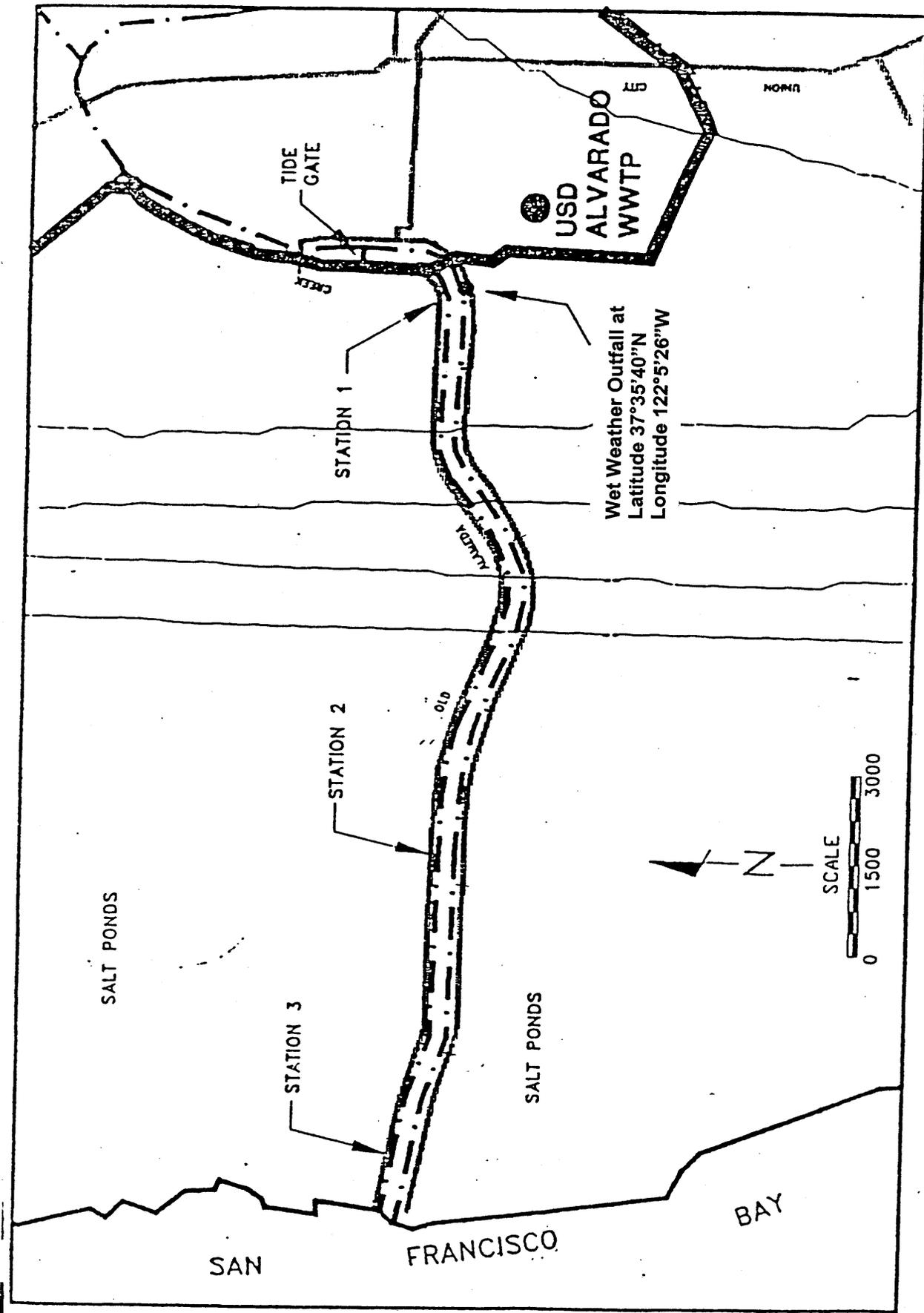


Figure 2 Alvarado Wastewater Treatment Plant Location Map



Inset for Figure 2. Wet Weather Outfall Location

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

**SELF-MONITORING PROGRAM**

**FOR**

**UNION SANITATION DISTRICT  
OLD ALAMEDA CREEK INTERMITTENT WET WEATHER DISCHARGE  
UNION CITY, ALAMEDA COUNTY**

**NPDES PERMIT NO. CA0038733**

**ORDER NO. R2-2004-0002**

**Consists of:**

**Part A (not attached)  
Adopted August 1993**

**and**

**Part B (Attached)  
Effective: April 1, 2004**

*Note: Part A (dated August 1993, not attached, but are available for review or download on the Board's website at [www.swrcb.ca.gov/rwqcb2](http://www.swrcb.ca.gov/rwqcb2))*

## SELF-MONITORING PROGRAM – Part B

### I. Description of Sampling and Observation Stations

<u>Station</u>	<u>Description</u>
A. EFFLUENT	
E-wet weather	At any point in the outfall from the treatment facility at which adequate disinfections has taken place and just prior to discharge, and the point at which all waste tributary to that outfall is present.

### II. Schedule of Sampling, Measurements, and Analysis

1. **Effluent Monitoring** The sampling, measurements, and analysis for effluent shall follow the schedule given in Table 1 below.

**Table 1 Schedule of Effluent Sampling, Analysis for Peak Wet Weather Discharges**

Sampling Station	Unit	E-wet weather	
		Grab	24-hour composite [a]
Flow volume	Gallons	Each occurrence	
During of discharge	Hours and minutes	Each occurrence	
Total Suspended Solids	mg/L		Each occurrence
BOD <sub>5</sub>	mg/L		Each occurrence
Oil and Grease	mg/L	Each occurrence	
Fecal Coliform Organisms	MPN/100 ml	Each occurrence	
pH		Each occurrence	
Total Chlorine Residual [b]	mg/L	Continuous/hourly	
Copper	µg/L		Each occurrence
Mercury	µg/L	Each occurrence	
Nickel	µg/L		Each occurrence
Zinc	µg/L		Each occurrence
Cyanide	µg/L	Each occurrence	

USD Wet Weather permit-SMP  
 Order No. R2-2004-0002  
 CA0038733

Sampling Station	Unit	E-wet weather	
Sample Type		Grab	24-hour composite [a]
Parameters in Enclosure A of August 6, 2003 Letter except metals	µg/L	Once per year [c]	

**FOOTNOTES FOR TABLE 1:**

- a. If the discharge is expected to last less than 24 hour, the Discharger has the option of taking grab sample or composite sample by mechanically or manually compositing samples on an hourly, or once every two hour basis for the duration of the discharge.
- b. Chlorine residual shall be monitored continuously or hourly. If an effluent violation is detected, grab samples shall be taken every 30 minutes until compliance is achieved.
- c. These data shall be complied and submitted with the Self-Monitoring Report, and with the application for permit reissuance in five years. The Discharger is not required to monitor the constituents, such as metals, which are regularly monitored at Alvarado Wastewater Treatment Plant outfall E-2 under separate permit (CA0037869). If there is no discharge from the wet weather outfall, samples shall be taken from Alvarado Wastewater Treatment Plant outfall E-2 preferably during a wet weather event, but not later than March of each year. Refer to August 6, 2001 letter for test method requirement. August 6, 2001 letter can be found at the Board wet site at <http://www.swrcb.ca.gov/rwqcb2/Download.htm> under "Requirement for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy."

Table 2 lists the Minimum Levels (SIP) of the priority constituents, which have interim limits in the Order

**Table 2. Minimum Levels (µg/l or ppb)**

CTR #	Constituent [a]	Types of Analytical Methods [b]											
		GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGF AA	HYD RIDE	CVAA	DCP
6.	Copper [c]					25	5	10	0.5	2			1000
8.	Mercury [d]												
9.	Nickel					50	5	20	1	5			1000
13.	Zinc					20		20	1	10			
14.	Cyanide				5								

**FOOTNOTES FOR TABLE 2:**

- (a) According to the SIP, method-specific factors (MSFs) can be applied. In such cases, this additional factor must be applied in the computation of the reporting limit. Application of such factors will alter the reported ML (as described in section 2.4.1 of the SIP). Discharger is to instruct laboratories to establish calibration standards so that the ML value is the lowest calibration standard. At no time is the discharger to use analytical data derived from the extrapolation beyond the lowest point of the calibration curve.

- (b) Laboratory techniques are defined as follows: GC = Gas Chromatography; GCMS = Gas Chromatography/Mass Spectrometry; LC = High Pressure Liquid Chromatography; Color = Colorimetric; FAA = Flame Atomic Absorption; GFAA = Graphite Furnace Atomic Absorption; Hydride = Gaseous Hydride Atomic Absorption; CVAA = Cold Vapor Atomic Absorption; ICP = Inductively Coupled Plasma; ICPMS = Inductively Coupled Plasma/Mass Spectrometry; SPGFAA = Stabilized Platform Graphite Furnace Atomic Absorption (i.e. EPA 200.9); DCP = Direct Current Plasma.
- (c) For copper, the discharger may also use the following laboratory techniques with the relevant minimum level: GFAA with a minimum level of 5 µg/L and SPGFAA with a minimum level of 2 µg/L.
- (d) Use ultra-clean sampling (EPA 1669) to the maximum extent practicable, and ultra clean analytical methods (EPA 1631) for mercury monitoring. The discharger may use alternative methods of analysis (such as EPA 245), if the alternate method has a Minimum Level of 2 ng/L or less.

**Table 3 Schedule of Effluent Sampling, Analysis for Regular Valve Exercise Discharges**

Sampling Station	Unit	E-wet weather
Sample Type		Grab
Chlorine residual	mg/L	Once per occurrence
Fecal Coliform Organism	MPN/100 ml	Once per occurrence

2. **Receiving Water Monitoring** The sampling, measurements, and analysis for receiving water shall follow the schedule and requirement specified in Board August 6, 2001 letter. The Discharger shall submit a Sample Plan for approval by the Executive Officer prior to start of the receiving water sampling. The samples shall be taken between October to March and when Old Alameda Creek is in its Peak Wet Weather Flow (PWWF) condition as safety permits. If safety is of concern during the discharge event, the receiving water monitoring may be conducted outside the discharge period, as long as the sample is collected during the PWWF conditions and is conducted as close to the wet weather discharge as is safe to do so. These data shall be compiled and submitted with the Self-Monitoring Reports, and with the application for permit reissuance in five years. The analysis results will be used as background data for reasonable potential analysis in the next permit reissuance.

### III. Reporting Requirements

- A. General Reporting Requirements are described in Section E of the Board's *Standard Provisions and Reporting Requirements for NPDES Surface Water Discharge Permits*, dated August 1993.
- B. Self-monitoring reports shall be submitted quarterly. The required contents of these reports are described in Section F.4. of Part A as modified below.
- C. An Annual Report shall be submitted for each calendar year. The report shall be submitted to the Board by February 1 of each year. The required contents of the Annual Report are described in Section F.5 of Part A as modified below.

- D. Any overflow, bypass, or any significant noncompliance incident that may endanger health or the environment shall be reported in accordance with Sections F.1 and F.2 of Part A. The date, time, duration, location, estimated volume of wastewater discharged, and corrective actions taken for these events shall be reported in quarterly self-monitoring reports.

#### IV. Modifications to Part A

##### B. Modification to section F.4 of Part A: Self-Monitoring Report

The first sentence of section F.4 shall be modified as follows: Written reports shall be filed regularly for each calendar quarter. If there is no discharge during the quarter, the Discharger shall indicate that there is no discharge during the reporting quarter on its self-monitoring report.

##### C. Modification to section F.4 of Part A: Self-Monitoring Report:

*Quarterly self-monitoring report:* The purpose of the report is to document treatment performance, effluent quality and compliance with waste discharge requirements prescribed by this Order, as demonstrated by the monitoring program data and the Discharger's operation practices. A self-monitoring report (SMR) shall be submitted to the Board in accordance with the following:

1. The report shall be submitted to the Board no later than 30 days from the last day of the reporting quarter. If there is no discharge during the quarter, the Discharger shall indicate that there is no discharge during the reporting quarter.
2. *Letter of Transmittal:* Each report shall be submitted with a letter of transmittal. This letter shall include the following:
  - a. Identification of all violations of effluent limits or other discharge requirements found during the monitoring period;
  - b. Details of the violations: parameters, magnitude, test results, frequency, and dates;
  - c. The cause of the violations;
  - d. Discussion of corrective actions taken or planned to resolve violations and prevent recurrence, and dates or time schedule of action implementation. If previous reports have been submitted that address corrective actions, reference to such reports is satisfactory;
  - e. Signature: The letter of transmittal shall be signed by the Discharger's principal executive officer or ranking elected official, or duly authorized representative, and shall include the following certification statement:

"I certify under penalty of law that this document and all attachments have been prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. The information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

3. *Compliance Evaluation Summary*: Each report shall include a compliance evaluation summary. This summary shall include, for each parameter for which effluent limits are specified in the Permit, the number of samples taken during the monitoring period, and the number of samples in violation of applicable effluent limits.
4. *Results of Analyses and Observations*.
  - a. Tabulations of all required analyses and observations, including parameter, sample date and time, sample station, and test result;
  - b. If any parameter specified in Table 1 of Part B is monitored more frequently than required by this permit and SMP, the results of this additional monitoring shall be included in the monitoring report, and the data shall be included in data calculations and compliance evaluations for the monitoring period;
  - c. Calculations for all effluent limits that require averaging of measurements shall utilize an arithmetic mean, unless specified otherwise in this permit or SMP.
5. *Effluent Data Summary – U.S. EPA NPDES Discharge Monitoring Reports*: Summary tabulations of monitoring data including maximum, minimum and average values for subject monitoring period shall be reported in accordance with the format given by the U.S. EPA NPDES Discharge Report(s) (DMRs; U.S. EPA Form 3320-1 or successor). Copies of these DMRs shall be provided to U.S. EPA as required by U.S. EPA.
6. *Data Reporting for Results Not Yet Available*: The Discharger shall make all reasonable efforts to obtain analytical data for required parameter sampling in a timely manner. The Board recognizes that certain analyses require additional time in order to complete analytical processes and result reporting. For cases where required monitoring parameters require additional time to complete analytical processes and reporting, and results are not available in time to be included in the SMR for the subject monitoring period, such cases shall be described in the SMR. Data for these parameters, and relevant discussions of any observed violations, shall be included in the next following SMR after the data become available.
7. *Report Submittal*: The Discharger shall submit SMRs to:

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

D. Modification to section F.5 of Part A: Annual Report:

An Annual Report shall be submitted for each calendar year. The report shall be submitted to the Board by February 1 of the following year. This report shall include the following:

1. Both tabular and graphical summaries of monitoring data collected during the calendar year that characterize treatment plant performance and compliance with waste discharge requirements.
2. A comprehensive discussion of treatment plant performance and compliance with waste discharge requirements. This discussion should include any corrective actions taken or

planned such as changes to facility equipment or operation practices which may be needed to achieve compliance, and any other actions taken or planned that are intended to improve performance and reliability of the Discharger's wastewater collection, treatment or disposal practices.

E. Additions to Part A of Self-Modification Program:

1. Reporting Data in Electronic Format:

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

- a. *Reporting Method:* The Discharger shall submit SMRs electronically via the process approved by the Executive Officer in a letter dated December 17, 1999, Official Implementation of Electronic Reporting System (ERS).
- b. *Modification of reporting requirements:* Reporting requirements F.4 in the attached *Self-Monitoring program, Part A*, dated August 1993, shall be modified as follows. In the future, the Board intends to modify Part A to reflect these changes.
- c. *Quarterly Report Requirements:* For each calendar quarter, a self-monitoring report (SMR) shall be submitted to the Board in accordance with the following:
  - i. The report shall be submitted to the Board no later than 30 days from the last day of the reporting quarter.
  - ii. *Letter of Transmittal:* Each report shall be submitted with a letter of transmittal. This letter shall include the following:
    - (i) Identification of all violations of effluent limits or other discharge requirements found during the monitoring period;
    - (ii) Details of the violations: parameters, magnitude, test results, frequency, and dates;
    - (iii) The cause of the violations;
    - (iv) Discussion of corrective actions taken or planned to resolve violations and prevent recurrence, and dates or time schedule of action implementation. If previous reports have been submitted that address corrective actions, reference to such reports is satisfactory.
    - (v) *Signature:* The letter of transmittal shall be signed by the Discharger's principal executive officer or ranking elected official, or duly authorized representative, and shall include the following certification statement:

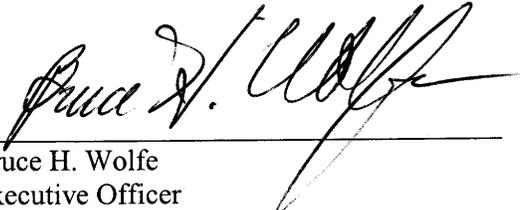
"I certify under penalty of law that this document and all attachments have been prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. The information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."
    - (vi) *Compliance Evaluation Summary:* Each report shall include a compliance evaluation summary. This summary shall include the number of samples in violation of applicable effluent limits.
    - (vii) *Results of Analyses and Observations.*

- (viii) Tabulations of all required analyses and observations, including parameter, sample date, sample station, and test result.
  - (ix) If any parameter is monitored more frequently than required by this permit and SMP, the results of this additional monitoring shall be included in the monitoring report, and the data shall be included in data calculations and compliance evaluations for the monitoring period.
  - (x) Calculations for all effluent limits that require averaging of measurements shall utilize an arithmetic mean, unless specified otherwise in this permit or SMP.
- d. Data Reporting for Results Not Yet Available: The Discharger shall make all reasonable efforts to obtain analytical data for required parameter sampling in a timely manner. The Board recognizes that certain analyses require additional time in order to complete analytical processes and result reporting. For cases where required monitoring parameters require additional time to complete analytical processes and reporting, and results are not available in time to be included in the SMR for the subjected monitoring period, such cases shall be described in the SMR. Data for these parameters, and relevant discussions of any observed violations, shall be included in the next following SMR after the data become available.

#### V. Self-Monitoring Program Certification

I, Bruce H. Wolfe, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in this Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Board Order No. R2-2004-0002.
2. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the Discharger, and revisions will be ordered by the Executive Officer.
3. Is effective as of April 1, 2004.

  
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Bruce H. Wolfe  
Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION  
1515 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612  
(510) 622-2300 ♦ Fax: (510) 622-2460

**FACT SHEET**

FOR  
NPDES PERMIT and WASTE DISCHARGE REQUIREMENTS for  
Union Sanitary District  
Old Alameda Creek Intermittent Wet Weather Discharge  
Union City, Alameda County

NPDES Permit No. CA0038733

**PUBLIC NOTICE:**

**Written Comments**

- Interested persons are invited to submit written comments concerning this draft permit.
- Comments must be received by the Regional Board no later than 5:00 p.m. on December 19, 2003.
- Send comments to the ATTN: Jenny Chen

**Public Hearing**

- The draft permit will be considered for adoption by the Board at a public hearing during the Board's regular monthly meeting at: Elihu Harris State Office Building, 1515 Clay Street, Oakland, CA; 1<sup>st</sup> floor Auditorium.
- This meeting will be held on: January 21, 2004, starting at 9:00 am.

**Additional Information**

- For additional information about this matter, interested persons should contact Regional Board staff member: Ms. Jenny Chen, Phone: (510) 622-2405; email: [jc@rb2.swrcb.ca.gov](mailto:jc@rb2.swrcb.ca.gov)

This Fact Sheet contains information regarding an application for waste discharge requirements and National Pollutant Discharge Elimination System (NPDES) permit for the Union Sanitary District from its wet weather outfall to Old Alameda Creek. The Fact Sheet describes the factual, legal, and methodological basis for the proposed permit and provides supporting documentation to explain the rationale and assumptions used in deriving the limits.

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**I. INTRODUCTION**

The Union Sanitary District (hereinafter the Discharger) applied to the California Regional Water Quality Control Board, San Francisco Bay Region, (hereinafter the Board) for reissuance of its NPDES permit for discharge of treated wastewater from its wet weather outfall at latitude 37°35'40"N and longitude 122°5'26"W to Old Alameda Creek, a water of the State.

The Discharger owns and operates a municipal wastewater treatment plant, the Alvarado Wastewater Treatment Plant, which serves Newark, Union City and the Fremont area. The Plant provides

secondary treatment of domestic and to lesser extent industrial and commercial wastewaters. The Discharger is a member of the East Bay Dischargers Authority (EBDA), a joint exercise of powers agency. EBDA is jointly owned and operated under a Joint Exercise of Powers Agreement (JPA) comprising the City of Hayward, City of San Leandro, Union Sanitary District, Oro Loma Sanitary District and Castro Valley Sanitary District. By contractual agreement, EBDA transports treated wastewater from its member agencies to its dechlorination station near the San Leandro Marina and then to its deepwater outfall to the Lower San Francisco Bay. Due to limited EBDA line capacity, it is necessary to discharge 8.4 million gallons (MG) of treated wastewater to Old Alameda Creek during peak wet weather flow (PWWF) at a 20-year or greater storm event. With this basis of design, peak wet weather flows are expected to exceed the capacity of the EBDA transport pipeline about four (4) times in every 40 years.

## II. DESCRIPTION OF EFFLUENTS

### 1. Discharges from the wet weather outfall

Board Order No. 95-053 (hereinafter the previous permit) presently regulates the discharge from the wet weather outfall. Since 1995, there have been only three discharges on February 3, 7 and 21 of 1998 due to the El Nino weather conditions. The discharge volumes ranged from 980 to 1340 thousand gallons. The effluent test results are shown in the table below:

**Table 1. Summary of Effluent Data from three discharges in February 1998**

Constituent	Feb. 3/98	Feb. 7/98	Feb. 21/98
Discharge duration, hours	3	2	1
Chlorine Residual, mg/L	<0.02	<0.02	<0.02
Settleable Matter, ml/L-hr	<0.1	<0.1	<0.1
Temp. °C	18.0	19.7	20.0
Total Coliform, MPN/100 ml	300	500	900
Fecal Coliform, MPN/100 ml	8	80	30
Unionized NH <sub>4</sub> , mg/L	0.042	0.038	0.15
Ammonia, mg/L	8.6	19.0	24.7
Conductivity, umhos/cm	1310	1700	1850
pH, standard unit	7.1	6.8	7.3
Total Sulfide, mg/L	<0.1	<0.1	<0.1
Dissolved oxygen, mg/L	3.7	3.5	3.0
CBOD <sub>5</sub> (mg/l)	9	14	13
Total Suspended Solids, mg/L	13	18	23
Arsenic (µg/l)	4.86	4.47	2.88
Cadmium (µg/l)	<0.5	<0.5	<0.5
Chromium (µg/l)	<3.0	<3.0	<3.0
Copper (µg/l)	14.4	24.4	23.8
Mercury (µg/l)	<0.2	<0.2	<0.2
Lead (µg/l)	<2.0	2.08	<2.0
Nickel (µg/l)	7.85	10.9	8.78
Selenium (µg/l)	<1.0	1.98	<1.0
Silver (µg/l)	<1.0	<1.0	<1.0
Zinc (µg/l)	35	60.1	75.5
Cyanide (µg/L)	3.3	4.1	3.3

### 2. Regular discharges from the wet weather outfall

The Discharger also tests its bypass valve and discharges approximately 135,000 gallons of treated effluent through its wet weather outfall quarterly. Table 2 below summarizes the effluent qualities.

Table 2 Effluent Quality from Bypass Valve Exercise<sup>1</sup>

Parameter	Average	Daily Maximum
Chlorine Residual, mg/L		0.0
Total Coliform Bacteria (MPN/100 mL)	78.8	500

<sup>1</sup> Data are summary of self-monitoring reports from April 2000 through April 2003

3. Discharges from main outfall E-2.

The main discharge of treated effluent from the Alvarado Wastewater Treatment Plant is regulated under a separate NPDES permit (CA0037869). Table 3 below summarizes the monitoring results from E-2 during the winter months for the past three (3) years.

Table 3 Effluent Quality at the Alvarado Treatment Plant Outfall, E-2<sup>1</sup>

Parameter	Average	Daily Maximum
pH, standard units	7.2	7.6
BOD <sub>5</sub> , mg/L	11	32
TSS, mg/L	17	44
Total Coliform Bacteria (MPN/100 mL)	157.5	1300
Arsenic, µg/L	Less than 1.7 <sup>2</sup>	11
Cadmium, µg/L	Less than 0.09 <sup>2</sup>	0.14
Chromium, µg/L	Less than 1.09 <sup>2</sup>	1.6
Copper, µg/L	15.62	24.7
Lead, µg/L	Less than 0.96 <sup>2</sup>	2.2
Mercury, µg/L	0.0127	0.034
Nickel, µg/L	Less than 8.15 <sup>2</sup>	16
Selenium, µg/L	Less than 0.37 <sup>2</sup>	0.6
Silver, µg/L	Less than 0.23 <sup>2</sup>	0.41
Zinc, µg/L	42	75.5
Cyanide, µg/L	Less than 3.27 <sup>2</sup>	8

<sup>1</sup> Data are summary of self-monitoring reports from winters of year 2000 through 2003. Winter is defined as those months from October 15 to April 15 of each year.

<sup>2</sup> Detection limit is used when the sample is non-detect when calculating average concentration. So the actual average concentration is less than the concentration shown in this table.

**III. GENERAL RATIONALE**

The following documents are the bases for the requirements contained in the proposed Order, and are referred to under the specific rationale section of this Fact Sheet.

- Federal Water Pollution Control Act, as amended (hereinafter the CWA).

- Federal Code of Regulations, Title 40 (40 CFR)- Protection of Environment, Chapter 1, Environmental Protection Agency, Subchapter D, Water Programs, Parts 122-129 (hereinafter referred to as 40 CFR specific part number).
- Water Quality Control Plan, San Francisco Bay Basin, adopted by the Board on June 21, 1995 (hereinafter the Basin Plan). The California State Water Resources Control Board (hereinafter the State Board) approved the Basin Plan on July 20, 1995 and by California State Office of Administrative Law approved it on November 13, 1995. The Basin Plan defines beneficial uses and contains water quality objectives (WQOs) for waters of the State, including Suisun Bay.
- California Toxics Rules, Federal Register, Vol. 65, No. 97, May 18, 2000 (hereinafter the CTR).
- National Toxics Rules 57 FR 60848, December 22, 1992, as amended (hereinafter the NTR).
- State Board's Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, May 1, 2000 (hereinafter the State Implementation Policy, or SIP).

#### IV. SPECIFIC RATIONALE

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

##### 1. **Secondary Treatment Level Technology Based Limits**

The Clean Water Act requires that all Publicly Owned Treatment Works (POTWs) meet performance-based requirement based on available performance level, referred to as "secondary treatment". The U.S. EPA developed secondary treatment standards for POTWs, which are specified in 40 CFR Part 133. All discharges including the discharge from the wet weather outfall, should meet the secondary level of treatment, which is the basis for technology-based limits in this permit.

##### 2. **Recent Plant Performance for Water Quality Based Effluent Limits**

Section 402(o) of the CWA and 40 CFR 122.44(l) require that water-quality based effluent limits (WQBELs) in re-issued permits are at least as stringent as in the previous permit. The SIP specifies that interim effluent limitations must be based on current treatment facility performance or on previous permit limitations whichever is more stringent. In determining what constitutes "recent plant performance", best professional judgment (BPJ) as defined in the Basin Plan was used. For metals, cyanide and selenium, effluent monitoring data collected in winter months (October to April) over the last three years (from April 2000 to April 2003) from the Alvarado Wastewater Treatment Plant main outfall E-2 are considered representative of the wet weather outfall discharge for reasonable potential determination. This is because effluent to the wet weather outfall is a side stream diverted from the effluent discharged to E-2. Use of E-2 data is necessary as there have been only three discharges from the wet weather outfall since 1995; so direct discharge data is limited. However, data from main outfall E-2 were not used to calculate performance-based limits. This is because E-2 metal data are based on 24-hour composite samples, whereas wet weather outfall data are taken as grabs because of the intermittent nature of the discharge. This may introduce an unknown magnitude of greater variability in the wet weather outfall quality as illustrated by the higher selenium concentration in the wet weather

outfall compared to E-2. For organic pollutants, there is no data from either the wet weather outfall or E-2.

**3. Impaired Water Bodies in 303(d) List**

The U.S. EPA Region 9 office approved the State's 303(d) list of impaired waterbodies on July 25, 2003. The list was prepared in accordance with section 303(d) of the CWA to identify specific water bodies where water quality standards are not expected to be met after implementation of technology-based effluent limitations on point sources. Both Alameda Creek and lower San Francisco Bay are listed as impaired water bodies. Alameda Creek is listed for diazinon. Old Alameda Creek is the downstream section of Alameda Creek. Old Alameda Creek is a tributary of lower San Francisco Bay. The pollutants impairing lower San Francisco Bay include chlordane, DDT, diazinon, dieldrin, dioxin compounds, mercury, nickel, PCBs and exotic species.

The SIP requires final effluent limits for all 303(d)-listed pollutants to be based on total maximum daily loads (TMDL) and wasteload allocation (WLA) results. The SIP and federal regulations also require that final concentration limits be included for all pollutants with reasonable potential (RP).

**3. Basis for Prohibitions**

**a. Prohibition A.1 (no discharges other than as described in the permit):**

This prohibition is based on the Basin Plan, previous permit and BPJ.

**b. Prohibition A.2 (Discharge of dry weather flow through the wet weather outfall):**

This prohibition is based on the Basin Plan. The Basin Plan prohibits discharges of wastewater, which has particular characteristics of concern to beneficial uses, does not receive a minimum dilution of at least 10:1. The Basin Plan also prohibits discharge any wastewater, which has particular characteristics of concern to beneficial uses to Alameda Creek when no natural flow occurs in the Creek. Discharges during dry weather condition violate these two prohibitions, where as the Board has granted exception to these prohibitions during extreme wet weather.

The Board allows the Discharger to exercise its bypass valve and discharge treated effluent during dry weather through its wet weather outfall quarterly, in order to ensure that the line is flushed and the discharge flap gate is operational when it is necessary to utilize this outfall under PWWF conditions.

**c. Prohibition A.3 (The Discharger is allowed to discharge 8.4 million gallons of treated wastewater under 20-year or bigger storm event through its wet weather outfall):**

This prohibition is based on the BPJ.

**d. Prohibition A.4 (Bypass and overflow):**

This prohibition is based on 40CFR 122.41(m).

**4. Basis for Effluent Limitations**

**a. Effluent Limitations B.1 Effluent limitations for conventional pollutants:**

Effluent discharged into Old Alameda Creek shall not exceed the following:

<u>Constituent</u>	<u>Units</u>	<u>7-day Average</u>	<u>Instantaneous Maximum</u>	<u>Daily Maximum</u>
Carbonaceous BOD <sub>5</sub>	mg/L	40		
TSS	mg/L	45		
Oil and Grease	mg/L			20
Chlorine Residual <sup>1</sup>	mg/L		0.0	
Fecal Coliform Organisms	MPN/100 ml			500
pH, in pH units <sup>2</sup>	Discharge must be within 6.5 to 8.5			

<sup>1</sup> The chlorine residual requirement is defined as below the limit of detection defined in *Standard Methods for the Examination of Water and Wastewater*. The Discharger may elect to use a continuous on-line monitoring system(s) for measuring flows, chlorine and sodium bisulfate dosage (which could be interpolated), and concentration to prove that chlorine residual exceedances are false positives. If convincing evidence is provided, Board may conclude that these false positive chlorine residual exceedances are not violations of this permit limit.

<sup>2</sup> Pursuant to 40 CFR 401.17, effluent limitations under continuous monitoring, the discharger shall be in compliance with the pH limitation provided that both of the following conditions are satisfied: (1) The total time during which the pH values are outside the required range of 6.5 to 8.5 pH values shall not exceed 99% of the total duration of discharge during any calendar month; and (2) No individual excursion from the range of pH values shall exceed 60 minutes.

- (1) These limits are technology-based limits, which are representative of and intended to ensure adequate and reliable secondary level wastewater treatment. These limits are based on the Basin Plan (Chapter 4, page 4-8, and Table 4-2, at page 4-69).
- (2) Carbonaceous BOD<sub>5</sub> of 40 mg/L & TSS of 45 mg/L weekly average: These are standard secondary treatment requirements, which are based on the Basin Plan requirements, derived from federal requirements (40 CFR 133.102). Compliance has been demonstrated by existing plant performance measured at Alvarado Wastewater Treatment Plant outfall E-2.
- (3) Oil & Grease and Total Chlorine Residual: These limits are standard secondary treatment requirements, and previous permit effluent limitations, except oil and grease, which are based on the Basin Plan requirements.
- (4) The pH limit is based on the Basin Plan.
- (5) Fecal Coliform Bacteria: The purpose of this effluent limitation is to ensure adequate disinfection of the discharges in order to protect beneficial uses of the receiving waters. Effluent limits are based on water quality objectives for bacteriological parameters for receiving water beneficial uses. Water quality objectives are given in terms of

parameters, which serve as surrogates for pathogenic organisms. The traditional parameter in this regard is coliform bacteria, either as total coliform, as fecal coliform or as enterococci. Water quality objectives for various beneficial uses are given in the Basin Plan as total coliform, fecal coliform and enterococci (Basin Plan, Chapter 3, Table 3-1 and Table 3-2). The proposed limit in the draft permit is based on Order No. 96-106, which amends the previous permit's (Order No. 95-053) total coliform limit to fecal coliform limit.

**b. Effluent Limitation B.3 – Toxic Substances:**

- (1) Reasonable Potential Analysis (RPA): 40 CFR 122.44(d)(1)(i) specifies that permits are required to include water quality based effluent limits (WQBELs) for all pollutants “which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard”. Thus, the fundamental step in determining whether or not a WQBEL is required is to assess a pollutant’s reasonable potential of excursion of its applicable water quality objective or criterion. The following section describes the reasonable potential analysis and the results of such an analysis for the pollutants identified in the Basin Plan and the CTR.
  - i. *WQOs and WQCs*: The RPA involves the comparison of effluent data with appropriate WQOs including narrative toxicity objectives in the Basin Plan, applicable WQCs in the CTR/NTR, and U.S. EPA’s 1986 Quality Criteria for Water.
  - ii. *Methodology*: RPA is conducted using the method and procedures prescribed in section 1.3 of the SIP. Board staff has analyzed the effluent data to determine if the discharge had reasonable potential to cause or contribute to exceedances of applicable WQOs or WQCs. Attached Table 1 of this Fact Sheet shows the step-wise process described in Section 1.3 of the SIP.
  - iii. *Effluent and background data*: The RPA used effluent data collected from Alvarado Wastewater Treatment Plant outfall E-2 from October to April over the most recent three years, and effluent data collection during three discharges through the wet weather outfall in February 1998 for metals, selenium, and cyanide. The Discharger did not analyze organic pollutants at its effluent. This Order requires the Discharger to conduct effluent monitoring for the organic pollutants to fulfill this data gap.

There is no receiving water quality data in Old Alameda Creek during wet weather flow condition. This Order also specified a monitoring requirement to fulfill the data gap.
  - iv. *RPA determination*: The RPA results are shown in the attached Table. RPA summary is shown below. Pollutants that tested positively for RP were copper, mercury, nickel, zinc, and cyanide.

**Summary of Reasonable Potential Results**

Constituent	WQO/WQC (µg/L)	Basis	Maximum Effluent Conc. (µg/L)	Reasonable Potential
Copper	3.7	CTR, sw,	24.7	Yes
Mercury	0.025	BP, sw&fw	0.034	Yes
Nickel	7.1	BP, sw	26	Yes
Zinc	58	BP, sw	75.5	Yes
Cyanide	1	NTR, sw	8	Yes

WQO: Water Quality Objective; WQC: Water Quality Criteria  
 CTR: California Toxic Rule; BP: Basin Plan; sw: Salt Water; fw: Fresh Water

vi. *Pollutants with no reasonable potential:* WQBEL effluent limits are not included in this Order for constituents that do not have reasonable potential to cause or contribute to an exceedance of applicable water quality objectives. The Discharger routinely monitors for metals at Alvarado Wastewater Treatment Plant outfall E-2. If concentrations of any constituents were found to have increased significantly, the Discharger will be required to investigate the source(s) of the increase(s). Remedial measures are required if the increases pose a threat to water quality in the receiving water. These requirements are specified under a separate permit (CA0037869) for its regular discharge through outfall E-2.

vii. *Permit Reopener:* The permit includes a reopener provision to allow numeric effluent limits to be added for any constituent that in the future exhibits reasonable potential to cause or contribute to exceedance of a water quality objective. This determination, based on monitoring results, will be made by the Board.

(2) *Final Water Quality Based Effluent Limits (WQBELs):* The final effluent limitations for toxic substances in the Order are water-quality based. They were developed and set for the toxic and priority pollutants that were determined to have reasonable potential to cause or contribute to exceedances of the WQOs or WQCs. Final effluent limitations were calculated based on the appropriate procedures specified in Section 1.4 of the SIP (See attached table to this Fact Sheet). The WQO or WQC used for each pollutant with reasonable potential is indicated below as well as in the table for reasonable potential analysis attached to this Fact Sheet.

**Water Quality Objectives/Criteria for Pollutants with RP**

Pollutant	Chronic WQO/C (µg/L)	Acute WQO/C (µg/L)	Human Health (µg/L)	Basis of Lowest (Chronic) WQO/C Used in RP
Copper	3.7	5.8		CTR (SW, CCC)
Mercury	0.025	2.1		Basin Plan Table 3.4 (SW, 4-day average)
Nickel	7.1	140		Basin Plan Table 3.3 (SW, 24-hr average)
Zinc	58	170		Basin Plan Table 3.4 (SW, 24-hr average)
Cyanide	1	1	220,000	NTR (FW, CCC), CTR (HH)

Acronyms used in the table: SW: Salt Water; FW: Fresh Water; HH: Human Health; CCC: Criteria Continuous Concentration;

**Final Limitations for Toxic Pollutants Calculated Based on SIP Procedure**

<u>Constituent</u>	<u>Units</u>	<u>Daily Max</u>	<u>Monthly Average</u>
Copper	µg/L	4.5	3.5
Mercury	µg/L	0.04	0.02
Nickel	µg/L	11	6
Zinc	µg/L	77	53
Cyanide	µg/L	1.0	0.5

- (3) **Interim Limits:** Interim effluent limitations were derived for those constituents for which the Discharger has shown infeasibility of complying with the final water quality based limits and has demonstrated that compliance schedules are justified based on the discharger’s source control and pollution minimization efforts in the past and continued efforts in the present and future. In this Order, interim performance-based limits are based on the previous permit limits except mercury. Staff is unable to determine performance based limits because there were only three (3) effluent data from three wet weather discharges in 1998. Mercury interim limit is a performance-based limit from statistical analysis of pooled data from selected municipal dischargers in this region. The pooled mercury data were obtained from grab samples from both dry and wet weather effluents. So, variations in mercury concentrations during wet weather discharges are included in the calculation for this performance-based limit.
- (4) **Compliance Schedules and Infeasibility Analysis:** The infeasibility analysis consisted of comparing the mean, 95<sup>th</sup> percentile and 99<sup>th</sup> percentile of the effluent data from Outfall E-2 (from winters of year 2000 through 2003) to the LTA (Long Term Average), AMEL (Average Monthly Limit), and MDEL (daily Maximum Limit) calculated using SIP procedures. The result shows that mean, 95<sup>th</sup> or 99<sup>th</sup> percentiles of effluent data were greater than LTA, AMEL or MDEL, thus it is infeasible to achieve immediate compliance. For cyanide, majority of data are non-detect and detection levels. There were not sufficient detected values available to perform a statistical analysis. Infeasibility analysis for cyanide is by comparing the maximum cyanide effluent concentration (MEC) with the newly calculated final WQBELs (presented in the Fact Sheet). If the MEC is greater than the WQBEL, then it is infeasible to achieve immediate compliance. If not, the Discharger is required to demonstrate that it is infeasible to comply with these limits immediately through the extent to of past pollution prevention efforts, as well as measurements of the efforts’ effectiveness and future plans for focused pollution prevention efforts.

On October 22, 2003, the Discharger submitted an infeasibility study that demonstrated, according to the Basin Plan (page 4-14, Compliance Schedule) and the SIP (Section 2.1, Compliance Schedule), that it is infeasible to immediately comply with the WQBELs. This permit establishes a five-year compliance schedule of November 30, 2008 for final limits based on CTR or NTR criteria (e.g., copper and cyanide), a compliance schedule of March 31, 2010 for final limits based on the Basin Plan objectives (e.g., mercury, nickel and zinc). Both November 30, 2008 and March 31, 2010 compliance schedules exceed the length of the permit, therefore, these calculated final limits in the table shown above are intended for point of reference for the infeasibility demonstration.

- (5) This Order establishes compliance schedules for these pollutants that extend beyond one year. Pursuant to the SIP, and 40 CFR 122.47, the Board shall establish interim numeric limitations and interim requirements to control the pollutants. This Order establishes

interim limits for these pollutants based on the previous permit. The NPDES permit for regular discharges from Alvarado Wastewater Treatment Plant (CA0037869) has interim requirements in a provision for development and improvement of a Pollution Prevention Program to reduce pollutant loadings to the treatment plant, and for submittal of annual reports on this Program. The Discharger has also committed to support development of TMDLs for pollutants, which its discharge may be contributing to the impairment. BACWA, which the Discharger is a member of, has entered into a Memorandum of Understanding with the Board to accelerate development of these TMDLs to reduce overall loading of these pollutants to the Bay. In addition, the Discharger is participating in the Clean Estuary Partnership (CEP) Copper/Nickel Study, which addresses San Francisco Bay north of the Dumbarton Bridge for copper and nickel. The results of these studies will also apply to the Discharger.

## 5. Basis for Receiving Water Limitations

### a. Receiving water limitations C.1 and C.3 (conditions to be avoided):

These limits are based on the previous permit and the narrative/numerical objectives contained in Chapters 2 and 3 of the Basin Plan

### b. Receiving water limitation C.4 (compliance with State Law):

This requirement is in the previous permit, requires compliance with Federal and State law, and is self-explanatory.

## 6. Basis for Provisions

### a. **Provision F.1. (Optional Receiving Water Dilution Study and Schedule)**

This optional requirement is based on BPJ and the SIP.

### b. **Provision F.2. (Optional Translator Study)**

This optional requirement is based on BPJ.

### c. **Provision F.3. (Pollutant Prevention and Minimization Program)**

This provision is based on the Basin Plan and the SIP

### d. **Provision F.4. (SSO/TMDL participation Requirement)**

This provision requires participation in the development of a TMDL or site-specific objective for copper, mercury, nickel, zinc and cyanide. By January 31 of each year, an update will be submitted to the Board by the group to document progress made on source control and pollutant minimization measures and development of TMDL or site-specific objective. Regional Board staff shall review the status of TMDL development. This Order may be reopened in the future to reflect any changes required by TMDL development.

**e. Provision F.5. (Self-Monitoring Program)**

The Discharger is required to conduct monitoring of the permitted discharges in order to evaluate compliance with permit conditions. Monitoring requirements are given in the Self Monitoring Program (SMP) of the Permit. This provision requires compliance with the SMP, and is based on 40 CFR 122.44(i), 122.62, 122.63 and 124.5. The SMP is a standard requirement in almost all NPDES permits (including this Order) issued by the Board. In addition to containing definitions of terms, it specifies general sampling/analytical protocols and the requirements of reporting of spills, violations, and routine monitoring data in accordance with NPDES regulations, the California Water Code, and the Board's policies. The SMP also contains a sampling program specific for the discharger regulated under this Order. It defines the sampling stations and frequency, pollutants to be monitored, and additional reporting requirements. Pollutants to be monitored include parameters for which effluent limitations are specified. Additional constituents, for which no effluent limitations are established, are also required to be monitored to provide data for a future determination of their reasonable potential of exceeding the applicable WQOs or WQCs in the receiving water.

**f. Provision F.6. (Standard Provisions and Reporting Requirements)**

The purpose of this provision is to require compliance with the standard provisions and reporting requirements given in this Board's document titled, Standard Provisions and Reporting Requirements for NPDES Surface Water Discharge Permits, August 1993, or any amendments thereafter. This document is included as part of the permit and as an attachment of the permit. Where provisions or reporting requirements specified in the permit are different from equivalent or related provisions or reporting requirements given in 'Standard Provisions', the specifications given in the permit shall apply. The standard provisions and reporting requirements given in the above document are based on various state and federal regulations with specific references cited therein.

**g. Provision F.7. (Change in Control or Ownership):**

This provision is based on 40 CFR 122.61.

**h. Provisions F.8&10 (Permit Re-opener and NPDES Permit / U.S. EPA concurrence):**

This provision is based on 40 CFR 123.

**i. Provision F.9. (Permit compliance and rescission of previous permit):**

Time of compliance is based on 40 CFR 122. The basis of this Order supercedes and rescinds the previous permit in accordance with 40 CFR 122.46.

**j. Provision F.11 (Permit Expiration and Reapplication):**

This provision is based on 40 CFR 122.46 (a).

## V. WASTE DISCHARGE REQUIREMENT APPEALS

Any person may petition the State Water Resources Control Board to review the decision of the Board regarding the Waste Discharge Requirements. A petition must be made within 30 days of the Board public hearing.

### Attachments

- Table 1. Reasonable Potential Analysis (RPA)
- Table 2. CTR and Basin Plan Water Quality Criteria
- Table 3. Final WQBELs Calculation
- Table 4. Effluent data used for RPA and statistic analysis and calculation
- Table 5. Infeasibility Determination
- Table 6. Infeasibility Analysis Summary-Statistic Analysis
- Staff Summary Report on Statistical Analysis Data From Regionwide Ultra-Clean Mercury Sampling For Municipal Dischargers by Ken Katen, June 11, 2001 (not enclosed, see our website at <http://www.swrcb.ca.gov/rwqcb2/Agenda/04-17-02/potwhgstatisticreport.pdf>)

Table 1 Reasonable Potential Analysis, Steps in SIP, Section 1.3  
(Union Sanitary District)

Beginning	Step 1		Step 2		Step 3		Step 4	Step 5	Step 6	Steps 7 & 8		RPA
	C (µg/L)	Lowest (most stringent criteria)	Number of data points	MinDL (µg/L)	If all data points are ND and MinDL > C, interim monitoring is required	MEC (µg/L)	MEC vs. C	B (µg/L)	B vs. C	7) Review other information in the SIP page 4. If information is unavailable or insufficient: 8) the RWQCB shall establish interim monitoring requirements. <sup>h</sup>		
2 Arsenic	36		36			11	MEC < C, go to Step 5	No data	B < C, go to Step 7	Final limit in 95 permit		N
4 Cadmium	2.7		36			0.32	MEC < C, go to Step 5	No data	B < C, go to Step 7	Final limit in 95 permit		N
5a Chromium (III)	No Criteria						No criteria	No data	No criteria	No criteria		
5b Chromium (VI)/Total Cr	11		36			2.3	MEC < C, go to Step 5	No data	B < C, go to Step 7	Final limit in 95 permit		N
6 Copper	3.7		39			24.7	Effluent limit required	No data	B < C, go to Step 7	Final limit in 95 permit		Y
7 Lead	5.6		36			2.2	MEC < C, go to Step 5	No data	B < C, go to Step 7	Final limit in 95 permit		N
8 Mercury	0.025		36			0.034	Effluent limit required	No data	B < C, go to Step 7	Final limit in 95 permit		Y
9 Nickel	7.1		36			16	Effluent limit required	No data	B < C, go to Step 7	Final limit in 95 permit		Y
10 Selenium	5		36			0.8	MEC < C, go to Step 5	No data	B < C, go to Step 7	Final limit in 95 permit		N
11 Silver	2.3		36			0.41	MEC < C, go to Step 5	No data	B < C, go to Step 7	Final limit in 95 permit		N
13 Zinc	58		36			75.5	Effluent limit required	No data	B < C, go to Step 7	Final limit in 95 permit		Y
14 Cyanide	1		36			8	Effluent limit required	No data	B < C, go to Step 7	Final limit in 95 permit		Y

Note a. Alameda creek at discharge location during peak wet weather condition is considered as estuarine.

Table 2 CTR and Basin Water Quality Objectives/Criteria (WQOs/WQC)

	CTR and Basin Plan Criteria (total metals, µg/L) <sup>1</sup>														Lowest Criteria, C
	Criteria for Salt Water							Criteria for Fresh Water <sup>2</sup>							
	CTR: CMC	CTR: CCC	Human Health	95BP: 1hr Avg	95BP: 4day Avg	95BP: Inst.Max	95BP: 24hr Avg	CTR: CMC	CTR: CCC	Human Health	95BP: 1hr Avg	95BP: 4day Avg	95BP: Inst.Max	95BP: 24hr Avg	
Arsenic				69	36						360	190			36
Cadmium				43	9.3						14	2.7			2.7
Chromium (III)															No Criteria
Chromium (VI)/Total Cr				1100	50						16	11			11
Copper	5.8	3.7									50	30			3.7
Lead				140	5.6						331	13			5.6
<b>Mercury (303d listed)</b>				2.1	0.025						2.4	0.025			0.025
<b>Nickel (303d listed)</b>											3592	399			7.1
Selenium	290	71													5
Silver													2.3	27	2.3
Zinc											304	369	170	58	58
Cyanide		1		5.0								5.2	22		1

1. The discharge point is located north of Dumbarton Bridge.
2. The receiving water hardness is above 300 mg/L as CaCO<sub>3</sub>.

**Table 3 WQBEL Calculation**  
(Union Sanitary District)

PRIORITY POLLUTANT Basis and Criteria type	Mercury, ug/L		Cyanide, µg/L		Copper, µg/L		Zinc, µg/L		Nickel, µg/L	
	BP sw (4-d), CTR hh	CTR hh	BP fw, CTR hh	CTR hh	CTR sw	BP sw(4-d)	CTR hh	BP sw(24-hr.), CTR hh	CTR hh	
Lowest WQO, C	0.025		1		3.7	58		7.1		
Translator (if applicable)	NA		NA		0.83	NA		NA		
Applicable Acute WQO	2.4		1		5.8	170		140		
Applicable Chronic WQO	0.025		1		3.7	58		7.1		
Applicable Human Health WQO	0.051		220000							
Background	NA		NA		NA	NA		NA		
Avg bckgrnd (for HH criteria only)	NA		NA		NA	NA		NA		
ECA acute	2.40		1.00		5.80	170.00		140.00		
ECA chronic	0.025		1.00		3.700	58.000		7.100		
avg										
SD										
CV	0.4642		0.6657		0.2977	0.2752		0.5400		
ECA acute mult	0.3946		0.2937		0.5298	0.5532		0.3504		
ECA chronic mult	0.6026		0.4959		0.7165	0.7340		0.5589		
LTA acute	0.9470		0.2937		3.0726	94.0505		49.0569		
LTA chronic	0.0151		0.4959		2.6511	42.5748		3.9680		
minimum of LTAs	<b>0.015</b>		<b>0.294</b>		<b>2.651</b>	<b>42.575</b>		<b>3.968</b>		
AMEL mult95	1.4199		1.6172		1.2618	1.2410		1.4936		
MDEL mult99	2.5343		3.4054		1.8877	1.8075		2.8538		
AMEL (aq life)	0.0214		0.4749		3.3452	52.8351		5.9266		
MDEL(aq life)	0.0382		1.0000		5.0043	76.9557		11.3241		
MDEL/AMEL Multiplier (from Table 2, SIP)										
AMEL (human hlth)	0.025		1		3.7	58		7.1		
MDEL (human hlth)	0.0446		2.1058		5.5351	84.4785		13.5662		
minimum of AMEL for Aq. life vs HH	0.0214		0.4749		3.3452	52.8351		5.9266		
minimum of MDEL for Aq. Life vs HH	0.038		1.000		5.004	76.956		11.324		
Final limit - AMEL (ug/L)	<b>0.021</b>		<b>0.475</b>		<b>3.345</b>	<b>52.835</b>		<b>5.927</b>		
Final limit - MDEL (ug/L)	<b>0.038</b>		<b>1.000</b>		<b>5.004</b>	<b>76.956</b>		<b>11.324</b>		

Table 4 Effluent Metal Concentrations at USD E-2, µg/L (winters only)

Description	Metals	Date		Results, µg/L
I-Union SD Eff Daily Maximum	CN	11/1/00		3.1
I-Union SD Eff Daily Maximum	CN	12/6/00	N	1.5
I-Union SD Eff Daily Maximum	CN	1/3/01		
I-Union SD Eff Daily Maximum	CN	2/7/01	N	1.5
I-Union SD Eff Daily Maximum	CN	3/7/01		3
I-Union SD Eff Daily Maximum	CN	4/2/01	N	1.5
I-Union SD Eff Daily Maximum	CN	11/7/01	N	1.5
I-Union SD Eff Daily Maximum	CN	12/5/01	N	1.5
I-Union SD Eff Daily Maximum	CN	1/2/02	N	1.5
I-Union SD Eff Daily Maximum	CN	2/6/02	N	1.5
I-Union SD Eff Daily Maximum	CN	3/6/02	N	1.5
I-Union SD Eff Daily Maximum	CN	4/3/02		3
I-Union SD Eff Daily Maximum	CN	11/6/02		4
I-Union SD Eff Daily Maximum	CN	12/4/02	ND	1.5
I-Union SD Eff Daily Maximum	CN	1/8/03		4
I-Union SD Eff Daily Maximum	CN	2/5/03		8
I-Union SD Eff Daily Maximum	CN	3/5/03	ND	1.5
I-Union SD Eff Daily Maximum	CN	4/2/03		4
<b>Average:</b>				<b>2.5941</b>
<b>Maximum:</b>				<b>8</b>
<b>std</b>				<b>1.7268</b>
<b>CV=std/average</b>				<b>0.6657</b>
I-Union SD Eff Daily Maximum	Cu	4/5/00		14.3
I-Union SD Eff Daily Maximum	Cu	11/1/00		14
I-Union SD Eff Daily Maximum	Cu	12/6/00		12.6
I-Union SD Eff Daily Maximum	Cu	1/3/01		24.7
I-Union SD Eff Daily Maximum	Cu	2/7/01		13.4
I-Union SD Eff Daily Maximum	Cu	3/7/01		11.2
I-Union SD Eff Daily Maximum	Cu	4/2/01		17.5
I-Union SD Eff Daily Maximum	Cu	11/5/01		12
I-Union SD Eff Daily Maximum	Cu	11/6/01		12
I-Union SD Eff Daily Maximum	Cu	11/7/01		15.4
I-Union SD Eff Daily Maximum	Cu	11/8/01	N	5
I-Union SD Eff Daily Maximum	Cu	12/5/01		16.5
I-Union SD Eff Daily Maximum	Cu	1/2/02		20.3
I-Union SD Eff Daily Maximum	Cu	2/6/02		19
I-Union SD Eff Daily Maximum	Cu	3/6/02		15.6
I-Union SD Eff Daily Maximum	Cu	4/3/02		14.5
I-Union SD Eff Daily Maximum	Cu	11/6/02		16.7
I-Union SD Eff Daily Maximum	Cu	12/4/02		8.61
I-Union SD Eff Daily Maximum	Cu	1/8/03		12.3
I-Union SD Eff Daily Maximum	Cu	2/5/03		16.2
I-Union SD Eff Daily Maximum	Cu	3/5/03		14.8
I-Union SD Eff Daily Maximum	Cu	4/2/03		16.2
Wet Weather eff. Daily Maximum	Cu	2/3/98		14.4
Wet Weather eff. Daily Maximum	Cu	2/7/98		24.4
Wet Weather eff. Daily Maximum	Cu	2/21/98		23.8
<b>Maximum</b>				<b>24.7</b>
<b>Average</b>				<b>15.4164</b>
<b>std</b>				<b>4.5892</b>
<b>CV=std/average</b>				<b>0.2977</b>

Table 4 Effluent Metal Concentrations at USD E-2, µg/L (winters only)

Description	Metals	Date		Results, µg/L
I-Union SD Eff Daily Maximum	Hg	4/5/00		0.0130
I-Union SD Eff Daily Maximum	Hg	11/1/00		0.0118
I-Union SD Eff Daily Maximum	Hg	12/6/00		0.011
I-Union SD Eff Daily Maximum	Hg	1/3/01		0.015
I-Union SD Eff Daily Maximum	Hg	2/7/01		0.011
I-Union SD Eff Daily Maximum	Hg	3/7/01		0.0092
I-Union SD Eff Daily Maximum	Hg	4/2/01		0.014
I-Union SD Eff Daily Maximum	Hg	11/7/01		0.01
I-Union SD Eff Daily Maximum	Hg	12/5/01		0.034
I-Union SD Eff Daily Maximum	Hg	1/2/02		0.0076
I-Union SD Eff Daily Maximum	Hg	2/6/02		0.016
I-Union SD Eff Daily Maximum	Hg	3/6/02		0.0085
I-Union SD Eff Daily Maximum	Hg	4/10/02		0.015
I-Union SD Eff Daily Maximum	Hg	11/6/02		0.013
I-Union SD Eff Daily Maximum	Hg	12/4/02		0.0069
I-Union SD Eff Daily Maximum	Hg	1/8/03		0.01
I-Union SD Eff Daily Maximum	Hg	2/5/03		0.015
I-Union SD Eff Daily Maximum	Hg	3/5/03		0.013
I-Union SD Eff Daily Maximum	Hg	4/2/03		0.0071
Wet Weather eff. Daily Maximum	Hg	2/3/98	N	0.2
Wet Weather eff. Daily Maximum	Hg	2/7/98	N	0.2
Wet Weather eff. Daily Maximum	Hg	2/21/98	N	0.2
<b>Average</b>				<b>0.0382</b>
<b>Maximum</b>				<b>0.034</b>
Without 3 wet weather data			<b>average</b>	<b>0.0127</b>
<b>std</b>				<b>0.0059</b>
<b>CV=std/average</b>				<b>0.4642</b>
I-Union SD Eff Daily Maximum	Ni	4/5/00		16
I-Union SD Eff Daily Maximum	Ni	11/1/00		9.1
I-Union SD Eff Daily Maximum	Ni	12/6/00		8.5
I-Union SD Eff Daily Maximum	Ni	1/3/01		6.2
I-Union SD Eff Daily Maximum	Ni	2/7/01	N	5.5
I-Union SD Eff Daily Maximum	Ni	3/7/01		12
I-Union SD Eff Daily Maximum	Ni	4/2/01	N	4.65
I-Union SD Eff Daily Maximum	Ni	11/7/01	N	3.15
I-Union SD Eff Daily Maximum	Ni	12/5/01	N	2.5
I-Union SD Eff Daily Maximum	Ni	1/2/02	N	2.5
I-Union SD Eff Daily Maximum	Ni	2/6/02	N	5
I-Union SD Eff Daily Maximum	Ni	3/6/02		5.4
I-Union SD Eff Daily Maximum	Ni	4/3/02		9.9
I-Union SD Eff Daily Maximum	Ni	11/6/02	N	2.5
I-Union SD Eff Daily Maximum	Ni	12/4/02	ND	2.5
I-Union SD Eff Daily Maximum	Ni	1/8/03		14
I-Union SD Eff Daily Maximum	Ni	2/5/03		5.2
I-Union SD Eff Daily Maximum	Ni	3/5/03		5.3
I-Union SD Eff Daily Maximum	Ni	4/2/03		8.5
Wet Weather eff. Daily Maximum	Ni	2/3/98		7.85
Wet Weather eff. Daily Maximum	Ni	2/7/98		10.9
Wet Weather eff. Daily Maximum	Ni	2/21/98		8.78
<b>Average</b>				<b>7.0877</b>
<b>Maximum</b>				<b>16</b>

**Table 4 Effluent Metal Concentrations at USD E-2, µg/L (winters only)**

Description	Metals	Date	Results, µg/L
<b>std</b>			<b>3.8308</b>
<b>CV=std/average</b>			<b>0.5405</b>
I-Union SD Eff Daily Maximum	Zn	4/5/00	40.1
I-Union SD Eff Daily Maximum	Zn	11/1/00	40.1
I-Union SD Eff Daily Maximum	Zn	12/6/00	36.6
I-Union SD Eff Daily Maximum	Zn	1/3/01	49.2
I-Union SD Eff Daily Maximum	Zn	2/7/01	45.1
I-Union SD Eff Daily Maximum	Zn	3/7/01	38.7
I-Union SD Eff Daily Maximum	Zn	4/2/01	30.3
I-Union SD Eff Daily Maximum	Zn	11/7/01	38.9
I-Union SD Eff Daily Maximum	Zn	12/5/01	35.6
I-Union SD Eff Daily Maximum	Zn	1/2/02	44.7
I-Union SD Eff Daily Maximum	Zn	2/6/02	38.1
I-Union SD Eff Daily Maximum	Zn	3/6/02	56.6
I-Union SD Eff Daily Maximum	Zn	4/3/02	42
I-Union SD Eff Daily Maximum	Zn	11/6/02	42.2
I-Union SD Eff Daily Maximum	Zn	12/4/02	54.6
I-Union SD Eff Daily Maximum	Zn	1/8/03	24.8
I-Union SD Eff Daily Maximum	Zn	2/5/03	29
I-Union SD Eff Daily Maximum	Zn	3/5/03	32.8
I-Union SD Eff Daily Maximum	Zn	4/2/03	33.9
Wet Weather eff. Daily Maximum	Zn	2/3/98	35
Wet Weather eff. Daily Maximum	Zn	2/7/98	60.1
Wet Weather eff. Daily Maximum	Zn	2/21/98	75.5
<b>Average:</b>			<b>41.9955</b>
<b>Maximum:</b>			<b>75.5</b>
<b>std</b>			<b>11.5565</b>
<b>CV=std/average</b>			<b>0.2752</b>

Note: For non-detect data, half of the detection limits are used in calculating average and CV.

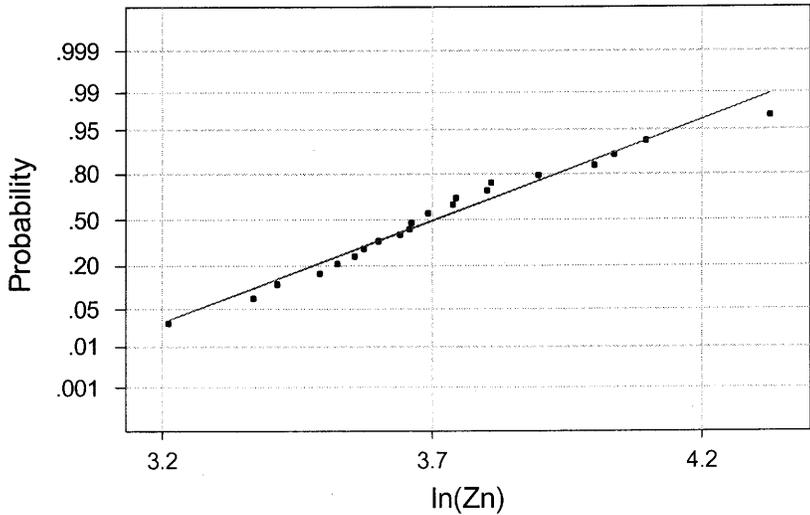
Table 5. Infeasibility Determination by Analyzing Frequency Distribution of the Data

1. The following pollutants to be analyzed: Copper, Mercury, Nickel, Zinc and Cyanide.
2. Calculation equations/criteria for feasibility determination:  
Comparing: Mean with LTA (Long Term Average)  
95<sup>th</sup> percentile with AMEL (Average Monthly Limit)  
99<sup>th</sup> percentile with MDEL (Daily Maximum Limit)  
  
For normal distribution: 95<sup>th</sup> percentile = mean+1.645\*SD  
99<sup>th</sup> percentile = mean +2.326\*SD  
For log normal distribution: 95<sup>th</sup> percentile = exp (mean+1.645\*SD)  
99<sup>th</sup> percentile = exp (mean +2.326\*SD)
3. Equation for calculating performance based limit:  
For normal distribution: Performance-based limit = Mean + 3\*SD  
For log normal distribution: Performance-based limit = exp (Mean + 3\*SD)
4. Fitness criteria: AD (Anderson Darling) < 1.01  
P-value > 0.05
5. Data selection: \* Use E-2 data of winters of 2000 through 2003;  
\* Use detected data only for feasibility determination;  
\* Use all data for calculating performance-based limits, and use detection limits for non-detected values, but treat detection limits separately in MiniTab;
6. Cyanide & mercury:  
*Cyanide.* Staff is unable to calculate PBEL for cyanide because there are only six (6) detected data points.  
*Mercury.* Mercury IPBEL of 0.087 µg/L is based on the regionwide interim performance-based mercury effluent limits for municipal dischargers stated in “Statistical Analysis Data From Regionwide Ultra Clean Mercury Sampling For Municipal Dischargers” by Ken Katen dated June 11, 2001.

**Zinc**

Log normal distribution (AD= 0.776; P-value=0.632): Mean = 3.705; SD = 0.250  
 Mean= average of Table 4=42;  
 $95^{th} = \exp(3.705+1.645*0.25)=61.33$ ;  
 $99^{th} = \exp(3.705+2.326*0.25)=72.71$ ;  
 Performance based limit =  $\exp(3.705+3*0.25) = 86.1 \mu\text{g/L}$ .

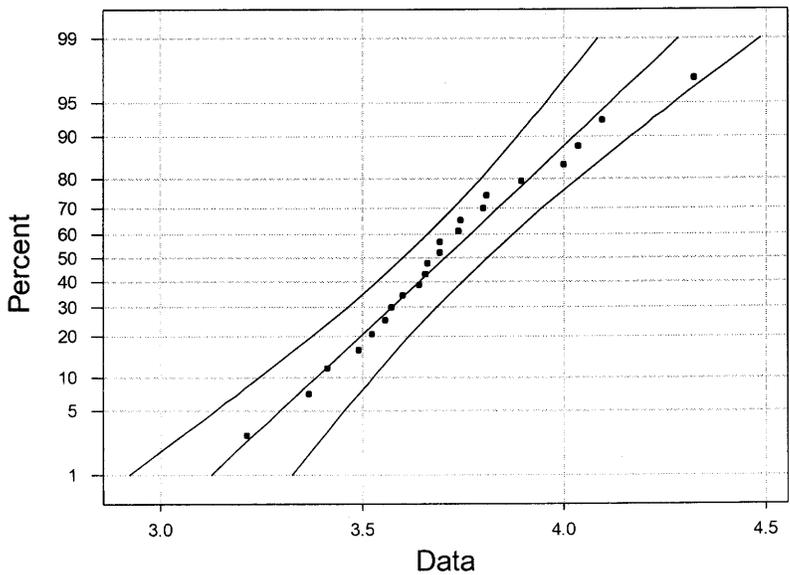
**Normality Test on Natural Log of Zn Raw Data**



Average: 3.70508  
 StDev: 0.255890  
 N: 22

Anderson-Darling Normality Test  
 A-Squared: 0.273  
 P-Value: 0.632

**calculate percentile Ln(Zn)**  
 ML Estimates - 95% CI



ML Estimates  
 Mean 3.70508  
 StDev 0.250007  
 Goodness of Fit  
 AD\* 0.776

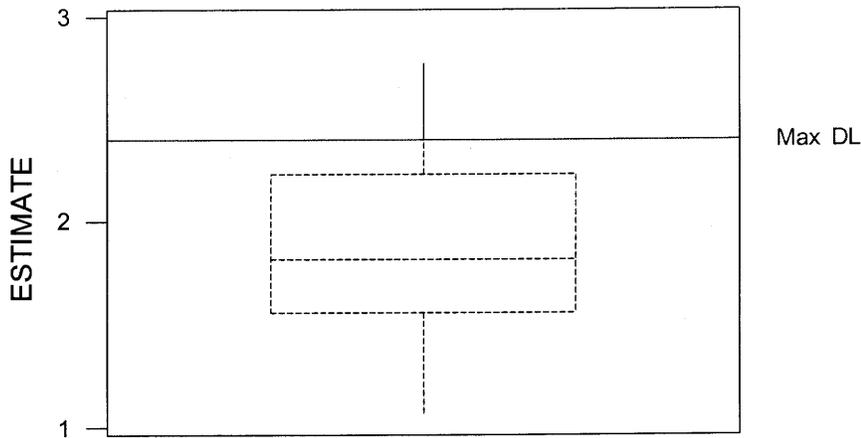
**Nickel**

**Summary calculation**

Log normal distribution (AD= 1.006; P-value=0.604) Mean = 1.9039; SD = 0.4601  
 Mean =average of Table 4=7;  
 $95^{th} = \exp(1.9039+1.645*0.4601)=14$ ;  
 $99^{th} = \exp(1.9039+2.326*0.4601)=20$ ;  
 Performance based limit =  $\exp(1.9039+3*0.4601)=27 \mu\text{g/L}$ .

**MiniTab statistical analysis**

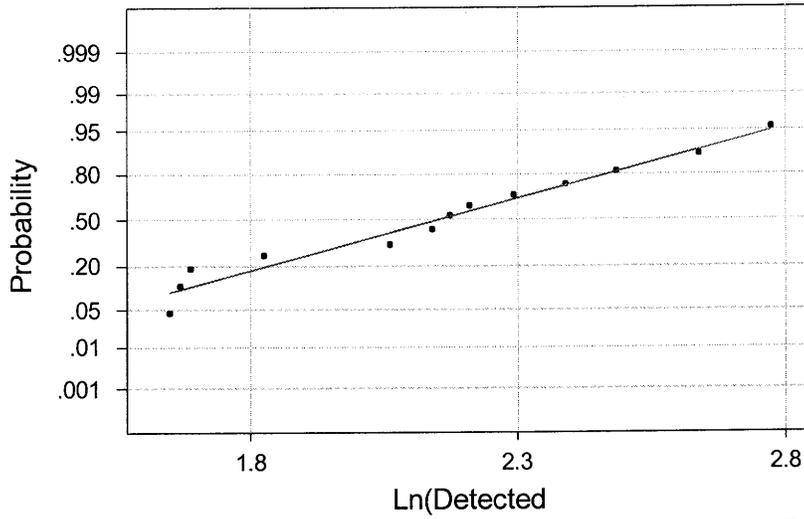
**Censored Boxplot**



**Ni Descriptive Statistics: ESTIMATE**

Variable	N	Mean	Median	TrMean	StDev	SE Mean
ESTIMATE	22	1.9039	1.8167	1.9028	0.4601	0.0981
Variable	Minimum	Maximum	Q1	Q3		
ESTIMATE	1.0556	2.7726	1.5579	2.2293		

### Normality Test on Ln(Detected Ni)

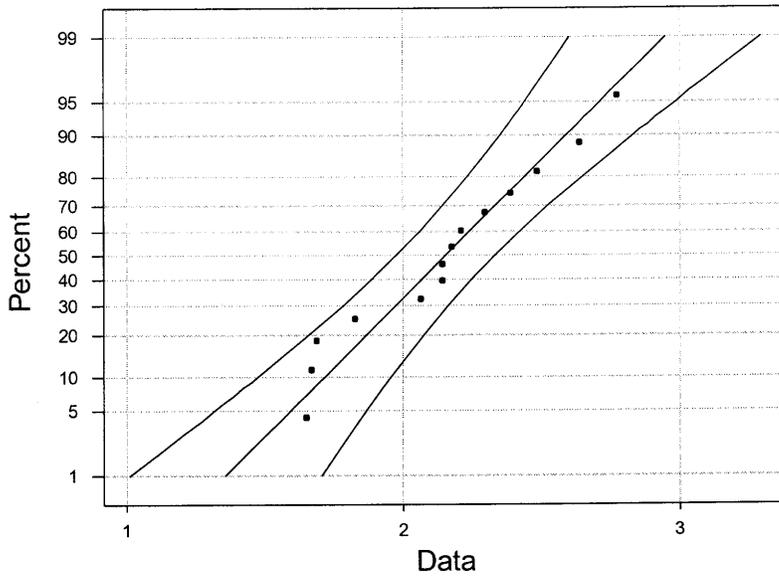


Average: 2.15190  
 StDev: 0.354437  
 N: 14

Anderson-Darling Normality Test  
 A-Squared: 0.275  
 P-Value: 0.604

### Calculate 95th Percentile Ln(Detected Ni)

ML Estimates - 95% CI

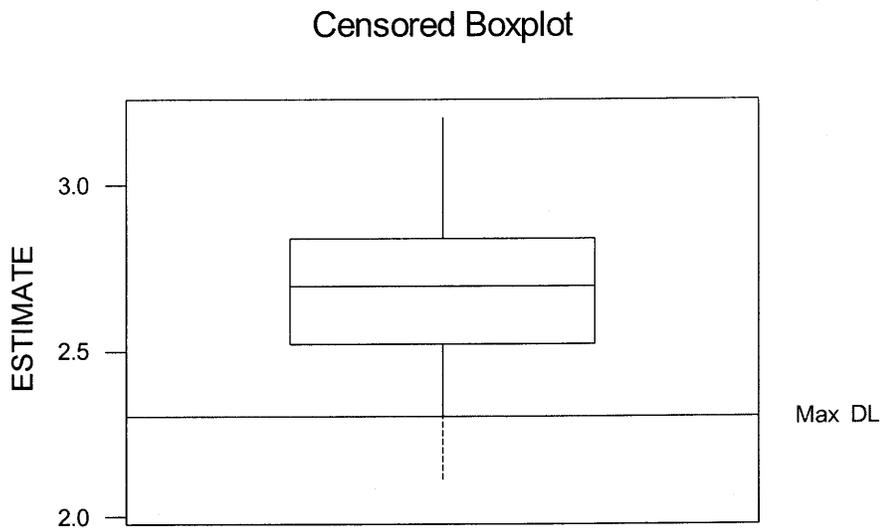


ML Estimates  
 Mean 2.15190  
 StDev 0.341544  
 Goodness of Fit  
 AD\* 1.006

**Copper**

**Summary calculation**

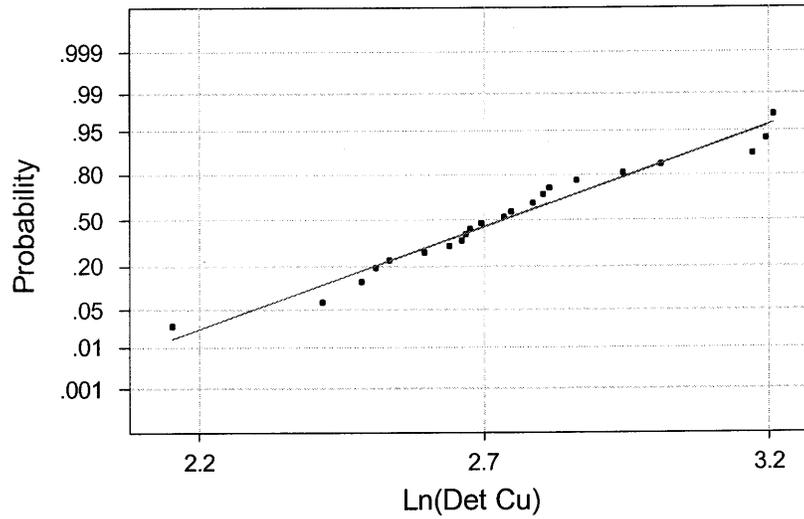
Log normal distribution (AD= 0.803; P-value=0.454): Mean = 2.7071; SD = 0.2777  
 Mean =average of Table 4=15.4;  
 $95^{th} = \exp(2.7071+1.645*0.2777)=24$ ;  
 $99^{th} = \exp(2.7071+2.326*0.2777)=29$ ;  
 Performance based limit =  $\exp(2.7071+3*0.2777)= 34.5\mu\text{g/L}$ .



**Cu Descriptive Statistics: ESTIMATE**

Variable	N	Mean	Median	TrMean	StDev	SE Mean
ESTIMATE	25	2.7071	2.6946	2.7115	0.2777	0.0555
Variable	Minimum	Maximum	Q1	Q3		
ESTIMATE	2.1072	3.2068	2.5216	2.8388		

### Normality Test on Ln(detected Cu data)

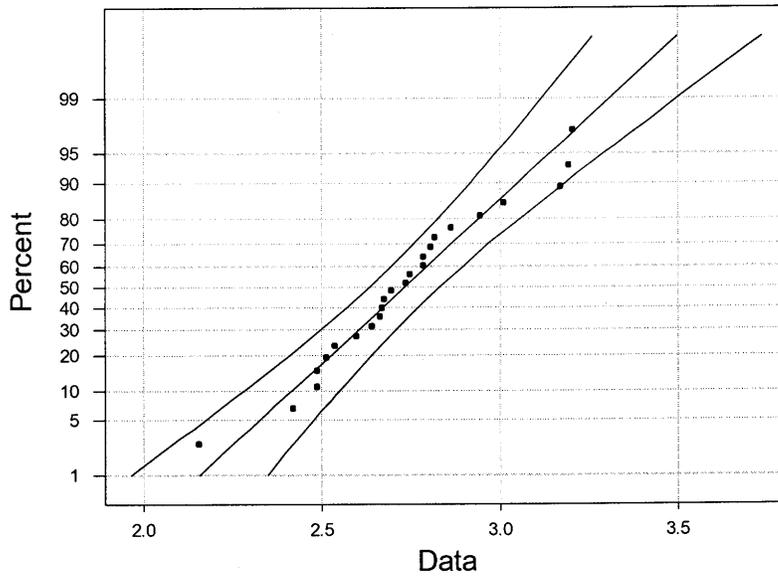


Average: 2.73214  
 StDev: 0.253340  
 N: 24

Anderson-Darling Normality Test  
 A-Squared: 0.345  
 P-Value: 0.454

### Calculate 95th Percentile Ln(detected Cu)

ML Estimates - 95% CI



ML Estimates  
 Mean 2.73214  
 StDev 0.248006  
 Goodness of Fit  
 AD\* 0.803

**Table 6 Infeasibility Analysis Summary-Statistic Analysis**

Pollutants	Normality Fitness		SIP criteria		Performance		SIP criteria		Performance		Performance based limit <sup>2</sup>	Previous permit limit
	P-Value	AD Value	Lowest LTA	Mean	AMEL	95th	MDEL	99th				
Mercury <sup>3</sup>			0.0132	0.013	0.021		0.038		0.087		0.21	
Copper	0.454	0.803	2.7	15	3.4	24	5	29	34.5		37	
Zinc	0.632	0.776	42.5	42	52.8	61.3	77	72.7	86		580	
Nickle	0.604	1.006	4	7.1	5.9	14	11.3	20	27		65	
Cyanide <sup>4</sup>			0.294	2.6	0.47		1				10	

Note: 1. P-value equal or greater than 0.05 is considered acceptable

AD less than 1.01 is considered acceptable

2. Performance based limit = mean + 3 x deviation, or 99.87 percentile

3. Performance based limit for mercury is calculated based on pooled ultraclean mercury data from selected municipal dischargers.

See Staff Summary Report on our website at <http://www.swrcb.ca.gov/rwqcb2/Agenda/04-17-02/potwhgstatisticreport.pdf>.

4. Staff is unable to calculate a performance based limit because there are only 7 detected data.