CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY

ORDER NO. 95-053
NPDES NO. CA0038733

WASTE DISCHARGE REQUIREMENTS FOR:

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

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

1. The Union Sanitary District (USD), hereinafter the discharger, by application dated December 21, 1994, has applied for issuance of waste discharge requirements and a permit to discharge wastewater under the National Pollutant Discharge Elimination System (NPDES).

2. Under present contractual agreements, USD currently discharges treated wastewater (42.9 million gallons per day contractual maximum) into the East Bay Dischargers Authority (EBDA) transport pipeline. EBDA is a Joint Exercise of Powers Agency (JEPA), the members of which separately own and operate collection and treatment facilities for domestic, commercial, and industrial wastewater. By contractual agreement, EBDA transports treated wastewater from its member agencies to its dechlorination station near the San Leandro Marina (Marina Dechlorination Facility) and thence to its deepwater outfall in Lower San Francisco Bay west of the Oakland Airport at longitude 122° 17' 42" W, latitude 37° 41' 40" N. The outfall's diffuser is located 37,000 feet from shore; it discharges 23.5 feet below the surface (MLLW); and it is designed to provide minimum initial dilution of greater than 10:1 at all times, and about 45:1 for 45% of the time.

3. Order No. 94-072 (NPDES No. CA0037869) regulates discharges from the EBDA member facilities.

4. During the period from 1994 through 2000, the discharger proposes a peak wet weather flows (PWWF) discharge up to approximately 5.1 million gallons (MG) of secondary treated and disinfected wastewater for a duration of approximately 10 hours during the 20-year wet weather event. Larger storms are expected to produce higher PWWF discharge volume. The discharge would occur via an existing outfall structure to the tidal portion of Old Alameda Creek at Latitude 37° 35' 40"., and Longitude 122° 5' 26". Old Alameda Creek is operated as a flood control channel by Alameda County Flood Control and Water Conservation District and flows to Lower San Francisco Bay where dilution of greater than 10:1 is expected.

Consistent with its Master Plan, USD plans to continue to build equalization storage and control rain water infiltration and inflow after 2000. This program will reduce the fraction of wet-weather related wastewater flow that is discharged to Old Alameda Creek. However, the volume of PWWF discharges for the 20-year storm is expected to increase from approximately 5.1 MG in 2000 to approximately 8.4 MG in 2020 due to development within USD's service area.

5. The discharger exercises its bypass valve and discharges approximately 135,000 gallons of secondary treated effluent through the existing 48" bypass line into flood control channel approximately 1100 feet northwest of the treatment facility. This bypass valve is exercised on a quarterly basis to ensure that the line is flushed and the discharge flapgate operational when it may be necessary to utilize this facility after an earth quake, or other emergency. During exercising the bypass valve, the discharge point will be visually monitored and sampled for chlorine residual and coliform bacteria at points approximately 100 feet upstream and downstream of the discharge point.

6. The discharger and other EBDA member agencies are participating in a coliform study that may lead to a revision of the effluent limitation in their permit to one based on fecal a coliform objective. Should the study results document that a revised coliform limitation will be protective of the beneficial uses of the receiving waters, the discharger may request a revision of the Effluent Limitation B.3. of this Order.

7. The discharger has conducted a technical study of the potential impacts of the proposed PWWF on beneficial uses. This study found the quality of wastewater to be superior to that of the storm runoff that is present in Old Alameda Creek when PWWF discharges could occur with respect to all water quality constituents that were evaluated except ammonia. Dilution of ammonia is expected to protect beneficial uses.

8. The discharger has prepared a District-wide Master Plan to meet sewage transport, treatment, disposal and reuse needs through 2030. The District has also certified the Environmental Impact Report (EIR) for the Master Plan. The Master Plan and EIR include a project to discharge to Old Alameda Creek, as the preferred approach to managing treated and infrequent peak wet weather flows (PWWFs). The EIR finds that the proposed PWWF discharge will neither adversely affect the beneficial uses nor cause water quality objectives to be exceeded.

9. The Board adopted a revised Water Quality Control Plan for the San Francisco Basin (Basin Plan) on December 17, 1986. The Board amended its Basin Plan on September 16, 1992, and the State Board approved it on April 27, 1993, with the approval from the State Office of administrative Law pending. Section 1 of the 1992 Basin Plan amendments, "Implementation of Statewide Plans," was remanded by the State Board on June 23, 1994, due to its reliance on two Statewide Plans that are no longer legally in effect. The Basin Plan identifies beneficial uses and water quality objectives for surface and groundwaters in the region, as well as effluent limitations and discharge prohibitions intended to protect beneficial uses. This Order implements the plans, policies and provisions of the Board's Basin Plan.

10. Effluent limitations in this permit are based on the plans, policies, and water quality criteria of the Basin Plan, *Quality Criteria for Water* (EPA/5-86-001, 1986; Gold Book), applicable Federal Regulations (40 CFR Parts 122 and 131), and Best Professional Judgement.

11. The beneficial uses of tidal Old Alameda Creek and Lower San Francisco Bay include:

    - Industrial Service Supply
    - Navigation
    - Water Contact Recreation
    - Non-contact Water Recreation
    - Ocean Commercial and Sport Fishing
    - Wildlife Habitat
    - Preservation of Rare and Endangered Species
    - Fish Migration
    - Fish Spawning
    - Shellfish Harvesting
    - Estuarine Habitat

12. The Basin Plan contains a prohibition of discharge of any wastewater which has particular constituents 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.

13. The Basin Plan allows exceptions to this discharge prohibition in three cases:

    a. An inordinate burden would be placed on the discharger relative to beneficial uses protected and an equivalent level of environmental protection can be achieved by alternate means, such as an alternative discharge site, a higher level of treatment, and/or improved; or

    b. A discharge is approved as part of a reclamation project; or

    c. It can be demonstrated that a net environmental benefit will be derived as a result of the discharge.

14. An exception to the Basin Plan discharge prohibition for USD's PWWF discharge based on Finding 12.a. is justified for the following reasons:

    a. An inordinate burden would be placed on USD by expanding the existing EBDA pipeline to accommodate the PWWFs.

    b. The PWWF discharge will be intermittent (approximately once in 10 years and only during wet weather).

c. The discharger's treatment system provides reliable and adequate secondary treatment of wastewater.

d. A receiving water study has been performed by USD and has shown that beneficial uses will not be adversely affected by the discharge.

15. This Order serves as an NPDES permit, issuance of which is exempt from the provisions of Chapter 3 (commencing with Section 2100 of Division 13) of the Public Resources Code (CEQA) pursuant to Section 13389 of the Water Code.

16. The dischargers and interested agencies and persons have been notified of the Board's intent to reissue requirements for the existing discharge and have been provided an opportunity to submit their written views and recommendations.

17. 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 and regulations adopted thereunder, and to the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, that the dischargers shall comply with the following:

A. DISCHARGE PROHIBITIONS

1. The bypass or overflow of untreated or partially treated wastewater to waters of the State, either at the treatment plant or from any of the joint facilities or collection system(s) or pump stations tributary to the treatment plant is prohibited.

2. The 20-year wet weather event shall not result in a PWWF discharge by USD of more than 8.4 million gallons.

3. Discharge of dry weather treated wastewater into Old Alameda Creek in a manner different than that described in Finding No. 5 is prohibited.

B. EFFLUENT LIMITATIONS

1. Effluent discharged shall not exceed following limits:

Constituent	Units	Monthly Average	Weekly Average	Daily Maximum	Instantaneous Max
a. Carbonaceous BOD (CBOD5, 20°C)	mg/l	--	--	--	50
b. Total Suspended Solids	mg/l	--	--	--	60
c. Settleable Matter	ml/l-hr	--	--	--	0.2
d. Total Chlorine Residual [1]	mg/l	--	--	--	0.0

Footnote:
(1) Requirement defined as below the limit of detection in standard test methods.

2. pH: the pH of the discharge shall not exceed 9.0 nor be less than 6.0

3. Total Coliform Bacteria:

   Value for the Most Probable Number (MPN) of total coliform bacteria in any single sample shall not exceed 10,000 MPN/100 ml.

4. Acute Toxicity:

   The survival of organisms in undiluted effluent shall be an eleven (11) sample median value of not less than 90 percent survival, and an eleven (11) sample 90 percentile value of not less than 70 percent survival. The eleven sample median and 90th percentile effluent limitations are defined as follows:

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

   If the discharger demonstrates to the satisfaction of the Executive Officer that toxicity exceeding the levels cited above is caused by ammonia and that the ammonia in the discharge is not adversely impacting receiving water quality or beneficial uses, then such toxicity does not constitute a violation of this effluent limitation. In the event that ammonia in the effluent consistently causes toxicity, the Board may consider modifying or granting an exception to this effluent limitation if the discharger demonstrates that ammonia in the effluent is not impacting receiving water quality or beneficial uses. Anti-backsliding will not apply to such a modification because the limit does not apply to ammonia toxicity.

5. TOXIC SUBSTANCES EFFLUENT LIMITATIONS: Representative samples of the effluent containing constituents in excess of the following concentration limits is prohibited (a,e):

Table 1
(All limits in $\mu g/\ell$)

	Constituent	Daily Maximum(b)
1.	Arsenic	200
2.	Cadmium	30
3.	Chromium (VI) (c)	110
4.	Copper	37
5.	Lead	53
6.	Mercury	0.21
7.	Nickel	65
8.	Selenium	50
9.	Silver	23
10.	Zinc	580
11.	Cyanide (d)	10

Footnotes:

a. These limits are based on marine water quality objectives, and are intended to be achieved through secondary treatment and, as necessary, pretreatment and source control.
b. Limits apply to the average concentration of all samples collected during the averaging period (Daily - 24-hour period).
c. The dischargers may meet this limit as total chromium.
d. The dischargers may demonstrate compliance with this limitation by measurement of weak acid dissociable cyanide.
e. All analyses shall be performed using current USEPA Methods, as specified in 40 CFR 136 (40 CFR 122.44(i)).

C. RECEIVING WATER LIMITATIONS

1. The discharge of waste shall not cause the following conditions to exist in waters of the State at any place at levels that cause nuisance or adversely affect beneficial uses:

   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;

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

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

a.	Dissolved Oxygen	5.0 mg/l, minimum
b.	Dissolved Sulfide	0.1 mg/l, maximum
c.	pH	Variation from normal ambient pH by more than 0.5 pH units.
d.	Un-ionized Ammonia	0.4 mg/l as N, max.

3. The discharge 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 thereunder. 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. The discharger shall comply with all sections of this Order immediately upon adoption.

2. Compliance with Acute Toxicity Effluent Limitation

   a. Compliance with Effluent Limitation B.4. (Acute Toxicity) of this Order shall be evaluated by measuring survival of test organisms acceptable to the Executive Officer exposed to undiluted effluent for 96 hours in flow-through bioassays.

   b. All bioassays shall be performed according to protocols approved by the USEPA or State Board, or published by the American Society for Testing and Materials (ASTM) or American Public Health Association.

3. The discharger shall comply with the **Self-Monitoring Program** for this order, as adopted by the Board and as may be amended by the Executive Officer.

4. The discharger shall comply with all applicable items of the attached "**Standard Provisions and Reporting Requirements** " dated August 1993, or any amendments thereafter.

5. The Board may modify, or revoke and reissue, this Order and Permit if present or future investigations demonstrate that the discharge governed by this Order is causing or significantly contributing to adverse impacts on water quality and/or beneficial uses of the receiving waters.

6. This Order expires on March 15, 2000. The dischargers must file a report of waste discharge in accordance with Title 23, Chapter 3, Subchapter 9 of the California Administrative Code not later than 180 days before this expiration date as application for reissuance of waste discharge requirements.

7. 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 10 days after the date of its adoption provided the Regional Administrator, EPA, has no objection. If the Regional Administrator objects to its issuance, the permit shall not become effective until such objection is withdrawn.

I, Steven R. Ritchie, 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 March 15, 1995.

STEVEN R. RITCHIE
Executive Officer

Attachments:
Figure 1 - Facility Map
Self-Monitoring Program
Standard Provisions and Reporting Requirements - August 1993

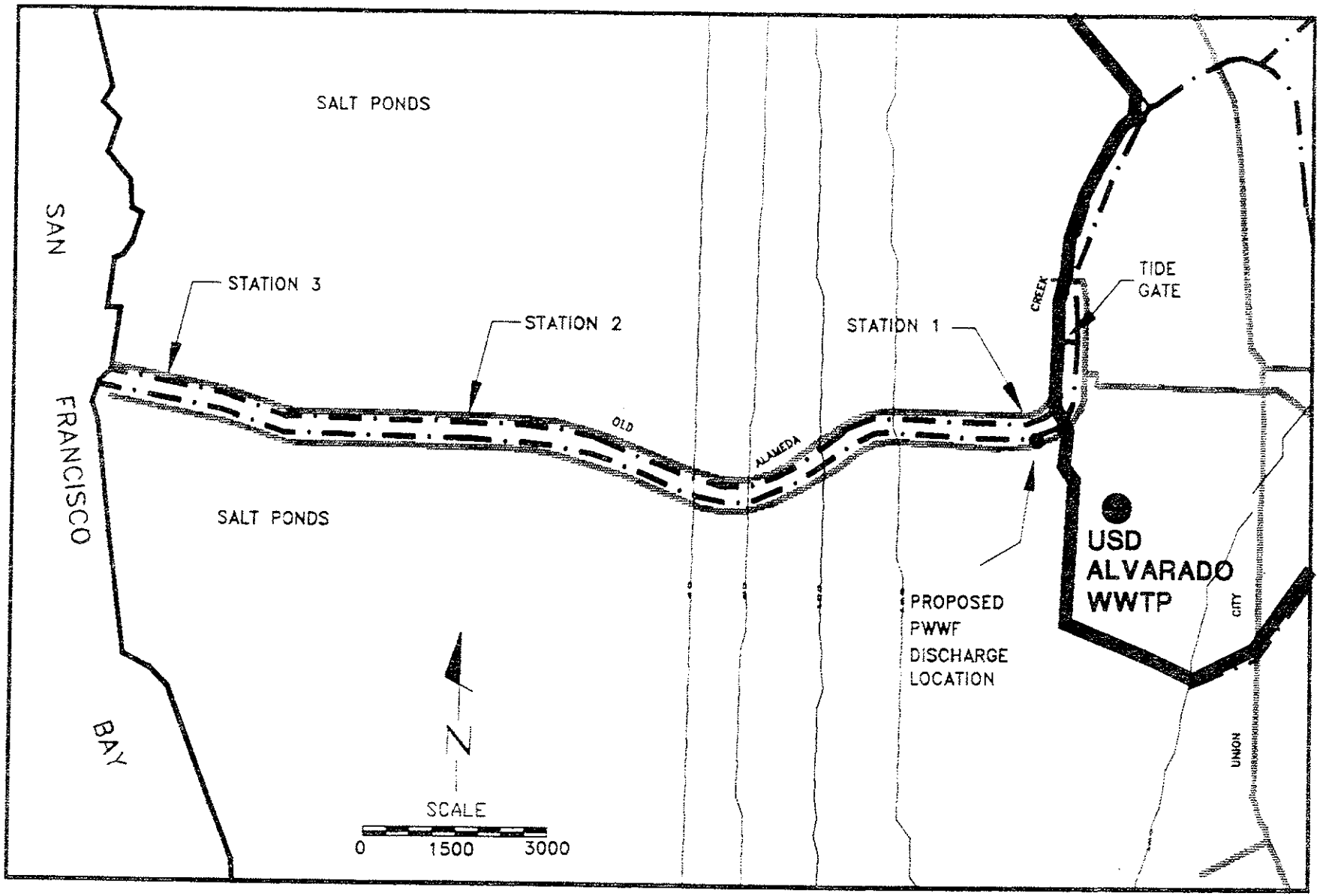
SALT PONDS
SAN
FRANCISCO
BAY
STATION 3
STATION 2
STATION 1
OLD
ALAMEDA
CREEK
TIDE
GATE
SALT PONDS
USD
ALVARADO
WWTP
PROPOSED
PWWF
DISCHARGE
LOCATION
CITY
UNION
N
SCALE
0
1500
3000

FIGURE 1

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM
FOR

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

NPDES NO. CA0038733
ORDER NO. 95-053

CONSISTING OF
PART A, DATED AUGUST 1993
AND PART B

PART B

I. DESCRIPTION OF SAMPLING STATIONS

A. EFFLUENT - DECHLORINATION FACILITY

Station	Description
E-001	At any point in the discharger's Old Alameda Creek discharge pipeline at which all waste tributary to that outfall is present.

B RECEIVING WATERS (OLD ALAMEDA CREEK)

Station	Description
C-1	At a point located 100 feet upchannel from the discharge point.
C-2	At a point located 100 feet downchannel from the discharge point.
C-3	Reference station located 1/2 mile upchannel and/or out of the discharge's zone of influence.

C. OVERFLOWS AND BYPASSES

Station	Description
O-1 through O-n	Bypass or overflows from manholes, pump stations, interceptors, or collection system.

NOTE:

1. A map and description of each known or observed overflow or bypass location shall accompany each monthly report. A summary of these occurrences and their locations shall be included with the Annual Report for each calendar year.

II. SCHEDULE OF SAMPLING, ANALYSIS AND OBSERVATIONS

The schedule of sampling, analysis and observation shall be that given in Table 1.

I, Steven R. Ritchie, Executive Officer, hereby certify that this Self-Monitoring Program:

1. Has been developed in accordance with the procedures set forth in this Regional Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Regional Board Order No. 95-053.

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 authorized by the Executive Officer.

3. Is effective on the date shown below.

STEVEN R. RITCHIE
Executive Officer

Effective Date: 3/15/95

Attachment:
A. Table 1

TABLE 1
SCHEDULE OF SAMPLING, MEASUREMENTS, AND ANALYSIS

NPDES NO. CA0038733
ORDER NO. 95-053

SAMPLING STATION	E-1			All C Sta. (3)
TYPE OF SAMPLE	G(1)	C-X	Cont.	G(1)
Flow Rate (mgd)			C	
CBOD, 5-day, 20 °C (mg/l & Kg/day) (1)		E		
Total Suspended Solids (mg/l & Kg/day)		E		
Chlorine Residual & Dosage (mg/l & Kg/day) (2)	H or Cont			
Settleable Matter (ml/l-hr. & Cu.ft./day)	E			
Total Coliform (MPN/100 ml)	E			
Acute Toxicity - 96 Hour (% survival)		E		
Chronic Toxicity				
Dissolved Oxygen (mg/l & % saturation)		E		E
Sulfides (mg/l if DO<5.0 mg/l)		E		E
pH (Units)		E		E
Ammonia Nitrogen (mg/l & Kg/day)		E		
Nitrate Nitrogen (mg/l & Kg/day)				
Temperature (°C)	E			C
Arsenic (μg/l & Kg/day)		C		
Cadmium (μg/l & Kg/day)		C		
Chromium (μg/l & Kg/day)		C		

TABLE 1 (continued)
SCHEDULE OF SAMPLING, MEASUREMENTS, AND ANALYSIS

SAMPLING STATION	E-1			All C Sta. (3)
TYPE OF SAMPLE	G(1)	C-X	Cont.	G(1)
Copper (μg/l & Kg/day)		C		
Cyanide (μg/l & Kg/day)		C		
Lead (μg/l & Kg/day)		C		
Mercury (μg/l & Kg/day)		C		
Nickel (μg/l & Kg/day)		C		
Selenium (μg/l & Kg/day)		C		
Silver (μg/l & Kg/day)		C		
Zinc (μg/l & Kg/day)		C		
All applicable Standard Observations	E			E
Un-ionized Ammonia (mg/l)	E			E
Dilution Ratio Estimate (3)		E		E

LEGEND

TYPES OF SAMPLES

G = grab sample
Cont. = continuous sampling
C-X = composite sample (X-hours) (used when discharge does not continue for 24-hour period)

TYPES OF STATIONS

E = waste effluent stations
C = receiving water stations

FREQUENCY OF SAMPLING

E = each occurrence
C = once each period of continuous discharge
H= once each hour
Cont. = continuous

NOTES FOR TABLE 1:

(1) Grab samples shall be taken on day(s) of composite sampling.

(2) Chlorine residual analyzers shall be calibrated against grab samples as frequently as necessary to maintain accurate control and reliable operation. If an effluent violation is detected, grab samples shall be taken every 30 minutes until compliance is achieved.

(3) Minimum and maximum dilution ratios (effluent vs. channel flow) shall be calculated for each day of discharge. The concentration of un-ionized ammonia and other parameters after dilution for receiving water stations (C-1 & C-2) may be calculated upon approval by the Executive Officer of a satisfactory methodology submitted by the discharger.