

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION

ORDER NO. 79-101

NPDES NO. CA0037729

WASTE DISCHARGE REQUIREMENTS FOR:

CITY OF RICHMOND,  
CONTRA COSTA COUNTY

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

1. The City of Richmond, hereinafter called the discharger, submitted a report of waste discharge (NPDES Standard Form A) dated March 29, 1979.
2. The discharger discharges an average of 7.5 mgd of municipal and industrial wastewater (industrial flow = 1.0 mgd) containing pollutants into San Francisco Bay, a water of the United States, about 250 feet offshore, and discharge depth of approximately 4 feet below mean lower low water. The present treatment facilities include pretreatment and chlorination, primary sedimentation, biological treatment by activated sludge, secondary sedimentation, disinfection, and dechlorination. Design flow is 16 mgd. Sludge is treated by air flotation thickening, anaerobic digestion and vacuum filtration and is hauled to a landfill for final disposal.
3. Heavy winter rains cause overflow of untreated wastewater totaling approximately 10 million gallons per incident from four different locations into San Francisco Bay waters. During rainstorms flows exceeding 16 mgd bypass the secondary treatment system and are discharged to San Francisco Bay.
4. The Board adopted an NPDES Permit (Order 74-112) on October 15, 1974, and amended it by adopting Order 75-52 on August 15, 1975. Prohibition C.2 of Order 74-112 required that the discharge receive a minimum 10:1 initial dilution. Prohibition C.1 prohibited discharge of untreated wastewaters.
5. To comply with the initial dilution requirement of Prohibition C.2, the discharger is now constructing an outfall and expects completion by August 1980.
6. To comply with Prohibition C.1, the discharger is designing a sewer system rehabilitation program to reduce wet weather flows and raw sewage bypassing and expects completion in October 1980. Subsequent to evaluating rehabilitation effectiveness, wet weather treatment facilities will be designed and built with completion expected by June 1983.
7. An environmental impact report and statement for the proposed wastewater treatment and outfall facilities, dated February 1976 and amended January 1977 and July 1977, was prepared in accordance with the California Environmental Quality Act (Public Resources Code Section 2100, et seq).

8. The environmental documents concluded that the project will have the following significant impacts on the environment:
  - a. Beneficial water quality impacts due to elimination of bypassing of inadequately treated sewage during wet weather.
  - b. Beneficial impacts on shellfish growing areas by the elimination of shoreline discharges of municipal effluent.
  - c. Potential long term adverse impacts, which have not as yet been quantified, related to continuation of discharge of low concentrations of toxicants to Bay waters.
9. Potential impacts due to low level toxicant discharges will be mitigated by stringent NPDES permit effluent limits on toxicants. These limits are intended to protect aquatic organisms from adverse effects due to long term exposure.
10. The Board adopted the Water Quality Control Plan for the San Francisco Bay Basin on April 8, 1975.
11. The beneficial uses of San Pablo Bay and contiguous water bodies are:
  - a. Water contact recreation
  - b. Non-contact water recreation
  - c. Navigation
  - d. Open commercial and sport fishing
  - e. Wildlife habitat
  - f. Fish spawning and migration
  - g. Industrial uses
  - h. Preservation of rare and endangered species
  - i. Shellfishing
12. Effluent limitations and toxic and pretreatment effluent standards established pursuant to Sections 208b, 301, 302, 303d, 304, and 307 of the Federal Water Pollution Control Act are applicable to the discharge.
13. The Board has notified the discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the proposed discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
14. The Board in a public meeting heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that the City of Richmond, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Federal Water Pollution Control Act and regulations and guidelines adopted thereunder, shall comply with the following:

A. Effluent Limitations

1. The discharge of an effluent containing constituents in excess of the following limits is prohibited:

| <u>Constituents</u>     | <u>Units</u> | <u>30-Day<br/>Average</u> | <u>7-Day<br/>Average</u> | <u>Daily<br/>Maximum</u> |
|-------------------------|--------------|---------------------------|--------------------------|--------------------------|
| a. BOD                  | mg/l         | 30                        | 45                       | 60                       |
|                         | kg/day       | 1820                      |                          | 5900                     |
| b. Suspended<br>Solids  | mg/l         | 30                        | 45                       | 60                       |
|                         | kg/day       | 1820                      |                          | 5900                     |
| c. Oil & Grease         | mg/l         | 10                        |                          | 20                       |
|                         | kg/day       | 605                       |                          | 1970                     |
| d. Chlorine<br>Residual | mg/l         | -                         | -                        | 0.0                      |
| e. Settleable<br>Matter | ml/l/hr      | 0.1                       | -                        | 0.2                      |

2. The discharge shall not have pH of less than 6.5 nor greater than 8.5.

3. In any representative set of samples the waste as discharged shall meet the following limit of quality:

TOXICITY:

The survival of test organisms acceptable to the Regional Board in 96-hour bioassays of the effluent shall achieve a median of 90% survival for three consecutive samples and a 90 percentile value of not less than 70% survival for 10 consecutive samples.

4. Representative samples of the effluent shall not exceed constituents of the following limits more than the percentage of time indicated:<sup>1/</sup>

| <u>Constituents</u>   | <u>Unit of Measurements</u> | <u>50% of time</u> | <u>10% of time</u> |
|---|-----------------------------|--------------------|--------------------|
| Arsenic   | mg/l (kg/day)               | 0.01 (0.605)       | 0.02 (1.97)        |
| Cadmium   | mg/l (kg/day)               | 0.02 (1.21)        | 0.03 (2.95)        |
| Total Chromium  | mg/l (kg/day)               | 0.005 (0.303)      | 0.01 (0.983)       |
| Copper  | mg/l (kg/day)               | 0.2 (12.1)         | 0.3 (29.5)         |
| Lead  | mg/l (kg/day)               | .1 (6.05)          | .2 (19.7)          |
| Mercury   | mg/l (kg/day)               | 0.001 (0.0605)     | 0.002 (0.0197)     |
| Nickel  | mg/l (kg/day)               | 0.1 (6.05)         | 0.2 (19.7)         |
| Silver  | mg/l (kg/day)               | 0.02 (1.21)        | 0.04 (3.93)        |
| Zinc  | mg/l (kg/day)               | 0.3 (18.2)         | 0.5 (49.2)         |
| Cyanide   | mg/l (kg/day)               | 0.1 (6.05)         | 0.2 (19.7)         |
| Phenolic Compounds  | mg/l (kg/day)               | 0.5 (30.3)         | 1.0 (98.3)         |
| Total Identifiable<br>Chlorinated<br>Hydrocarbons <sup>2/</sup> | mg/l (kg/day)               | 0.002 (.121)       | 0.004 (0.393)      |

<sup>1/</sup> These limits are intended to be achieved through secondary treatment, source control, and application of pretreatment standards.

<sup>2/</sup> Total Identifiable Chlorinated Hydrocarbons shall be measured by summing the individual concentrations of DDT, DDD, DDE, aldrin, BHC, chlordane, endrin, heptachlor, lindane, dieldrin, polychlorinated biphenyls, and other identifiable chlorinated hydrocarbons.

5. The arithmetic mean of values for BOD and Suspended Solids, by weight, in effluent samples collected in a period of 30 consecutive days shall not exceed 15 percent of the arithmetic mean of respective values for influent samples collected at approximately the same times during the same period (i.e., 85 percent removal).
6. Total coliform bacteria for a median of 5 consecutive samples shall not exceed 240 MPN/100 ml. Any single sample shall not exceed 10,000 MPN/100 ml when verified by a repeat sample taken within 48 hours.

B. Receiving Water Limitations

1. The discharge of waste 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;
  - 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 aquatic biota, wildlife, or waterfowl, 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. Annual median - 80% saturation. When natural factors cause lesser concentration(s) than those specified above, then this discharge shall not cause further reduction in the concentration of dissolved oxygen.
  - b. Dissolved sulfide      0.1 mg/l maximum.
  - c. pH                      Variation from natural ambient pH by more than 0.2 pH units.
  - d. Un-ionized              0.025 mg/l (annual median)  
 ammonium hydroxide    .4 mg/l (maximum)  
       as N

3. The discharge shall not cause a violation of any applicable water quality standard for receiving waters adopted by the Board or the State Water Resources Control Board as required by the Federal Water Pollution Control Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Federal Water Pollution Control Act, or amendments thereto, the Board will revise and modify this Order in accordance with such more stringent standards.

C. Discharge Prohibitions

1. There shall be no bypass or overflow of untreated wastewater to waters of the State either at the treatment plant or from the collection system.
2. Discharge of waste at any point where it does not receive a minimum initial dilution of 45:1, other than periods when the Delta outflow is greater than 8,000 cubic feet (227 M3) per second, is prohibited. During the periods of Delta outflow greater than 8,000 cubic feet (227 M3) per second, the waste shall receive a minimum initial dilution of 10:1 at all times.
3. The average dry weather flow shall not exceed 16.0 mgd. Average shall be determined over three consecutive months each year.

D. Provisions

1. The discharger shall comply with the Self-Monitoring Reporting Program as ordered by the Executive Officer.
2. The discharger shall comply with all items of the attached "Standard Provisions and Reporting Requirements" dated April 1977 except A.16.
3. This permit shall be modified, or alternatively revoked and reissued as soon as practicable to incorporate an approved publicly owned treatment work (POTW) pretreatment program or a compliance schedule for the development of a POTW pretreatment program as required under Section 402(b)(8) of the Clean Water Act and implementing regulations or by the requirements of the approved state pretreatment program as appropriate.
4. The discharger shall review and update annually its contingency plan as required by Regional Board Resolution No. 74-10. The discharge of pollutants in violation of this Order where the discharger has failed to develop and/or implement a contingency plan will be basis for considering such discharge a willful and negligent violation of this Order pursuant to Section 13387 of the California Water Code.
5. This Order is effective immediately, and expires August 21, 1984. The discharger must file a Report of Waste Discharge not later than 180 days in advance of such date as an application for issuance of new waste discharge requirements.

6. Orders 74-112 and 75-52 are hereby rescinded.
7. This Order shall serve as a National Pollutant Discharge Elimination System permit pursuant to Section 402 of the Federal Water Pollution Control Act, or amendments thereto, and shall take effect at the end of ten days from date of hearing provided the Regional Administrator of the U. S. Environmental Protection Agency has no objections.

I, Fred H. Dierker, Executive Officer, do hereby certify 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 August 21, 1979.

FRED H. DIERKER  
Executive Officer

Attachments:

Standard Provisions & Reporting Requirements 4/77  
Resolution 74-10  
Self-Monitoring Program

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM  
FOR

CITY OF RICHMOND

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WATER POLLUTION CONTROL PLANT

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NPDES NO. CA 00 37729

ORDER NO. 79-101

CONSISTS OF

PART A, dated 1/78

AND

PART B

PART B

I. DESCRIPTION OF SAMPLING STATIONS

A. INFLUENT AND INTAKE

| <u>Station</u> | <u>Description</u>  |
|----------------|---|
| A-001          | At any point in the treatment facilities head-works at which all waste tributary to the system is present and preceding any phase of treatment. |

B. EFFLUENT

| <u>Station</u> | <u>Description</u>  |
|----------------|---|
| E-001          | At any point in the outfall from the treatment facilities between the point of discharge and the point at which all waste tributary to that outfall is present. |
| E-001-D        | At a point in the disinfection facilities for Waste E-001 at which point adequate contact with the disinfectant is assured.                                     |

C. RECEIVING WATERS

| <u>Station</u> | <u>Description</u>  |
|----------------|---|
| C-1            | At a point in Richmond Harbor, located in waste plume within 25 feet from the point of discharge. |

D. LAND OBSERVATIONS

| <u>Station</u>          | <u>Description</u>  |
|-------------------------|---|
| P-1<br>through<br>P-'n' | Located at the corners and midpoints of the perimeter fence line surrounding the treatment facilities. (A sketch showing the locations of these stations will accompany each report.) |

E. OVERFLOWS AND BYPASSES

| <u>Station</u>          | <u>Description</u>   |
|-------------------------|--|
| O-1<br>through<br>O-'n' | Bypass or overflows from manholes, pump stations or collection system. |

NOTE: Initial SMP report to include map and description of each known bypass or overflow location.

REPORTING: Shall be submitted monthly and include date, time, and period of each bypass and overflow.

II. MODIFICATIONS TO PART A, DATED JANUARY 1978

- A. Exclusions: Paragraphs C.3, C.4, C.5.d, D.4.

III. SCHEDULE OF SAMPLING AND ANALYSIS

- A. The schedule of sampling, measurements and analyses shall be that given in Table I, attached.

IV. MISCELLANEOUS REPORTING

- A. The annual report shall include the previous 10 (or more) analyses for heavy metals and cyanide.

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

1. Has been developed in accordance with the procedure 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. 79-101.
2. Is effective on the date shown below.
3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the discharger. Revisions will be ordered by the Executive Officer.

FRED H. DIERKER  
Executive Officer

Attachments:  
Table I

Effective Date \_\_\_\_\_

TABLE I  
SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS \*

| Sampling Station   | A-001 |      | E-001 |     | E-001-D |      | All Sta. C | P | O | B |   |      |
|--|-------|------|-------|-----|---------|------|------------|---|---|---|---|------|
|  | C-24  | Cont | G     | G   | C-24    | Cont |            |   |   |   | G | C-24 |
| Flow Rate (mgd)  |       | Cont |       |     |         | Cont |            |   |   |   |   |      |
| BOD, 5-day, 20° C, or COD (mg/l & kg/day)                              | 5/W   |      |       |     | 5/W     |      |            |   |   |   |   |      |
| Chlorine Residual & Dosage (mg/l & kg/day)                             |       |      |       |     |         |      | 2H or Cont |   |   |   |   |      |
| Settleable Matter (ml/1-hr. & cu. ft./day)                             |       |      |       | D   |         |      |            |   |   |   |   |      |
| Total Suspended Matter (mg/l & kg/day)                                 | 5/W   |      |       |     | 5/W     |      |            |   |   |   |   |      |
| Oil & Grease (1) (mg/l & kg/day)                                       |       |      | 2/W   | 2/W |         |      |            |   |   |   |   |      |
| Coliform (Total) (MPN/100 ml) per req't                                |       |      |       |     |         |      | 3/W        |   |   |   |   |      |
| Fish Toxicity, 96-hr. TL <sub>50</sub> % Survival in undiluted waste   |       |      |       |     | M       |      |            |   |   |   |   |      |
| Ammonia Nitrogen (mg/l & kg/day)                                       |       |      |       |     | M       |      |            |   |   |   |   |      |
| Nitrate Nitrogen (mg/l & kg/day)                                       |       |      |       |     |         |      |            |   |   |   |   |      |
| Nitrite Nitrogen (mg/l & kg/day)                                       |       |      |       |     |         |      |            |   |   |   |   |      |
| Total Organic Nitrogen (mg/l & kg/day)                                 |       |      |       |     |         |      |            |   |   |   |   |      |
| Total Phosphate (mg/l & kg/day)  |       |      |       |     |         |      |            |   |   |   |   |      |
| Turbidity (Jackson Turbidity Units)                                    |       |      |       |     | 2/M     |      |            |   |   |   |   |      |
| pH (units)   |       |      |       | D   |         |      |            |   |   |   |   |      |
| Dissolved Oxygen (mg/l and % Saturation)                               |       |      |       | D   |         |      |            |   |   |   |   |      |
| Temperature (°C)   |       |      |       | D   |         |      |            |   |   |   |   |      |
| Apparent Color (describe & compare with reference sta. apparent color) |       |      |       |     |         |      |            |   |   |   |   |      |
| Secchi Disc (inches)   |       |      |       |     |         |      |            |   |   |   |   |      |
| Sulfides (if DO < 5.0 mg/l) Total & Dissolved (mg/l)                   |       |      |       |     | 3M      |      |            |   |   |   |   |      |
| Arsenic (mg/l & kg/day)  |       |      |       |     | 6M      |      |            |   |   |   |   |      |
| Cadmium (mg/l & kg/day)  |       |      |       |     | 6M      |      |            |   |   |   |   |      |
| Chromium, Total (mg/l & kg/day)  |       |      |       |     | M       |      |            |   |   |   |   |      |
| Copper (mg/l & kg/day)   |       |      |       |     | 6M      |      |            |   |   |   |   |      |
| Cyanide (mg/l & kg/day)  |       |      |       |     | M       |      |            |   |   |   |   |      |
| Silver (mg/l & kg/day)   |       |      |       |     | 6M      |      |            |   |   |   |   |      |
| Lead (mg/l & kg/day)   |       |      |       |     | 6M      |      |            |   |   |   |   |      |

TABLE I (continued)  
SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

| Sampling Station  | A-001 |      | E-001 |      |      | All Sta <sup>C</sup> | P   | O |  |  |  |  |  |  |
|---|-------|------|-------|------|------|----------------------|-----|---|--|--|--|--|--|--|
|   | C-24  | Cont | G     | C-24 | Cont |                      |     |   |  |  |  |  |  |  |
| Mercury (mg/l & kg/day)                                     |       |      |       | 6M   |      |                      |     |   |  |  |  |  |  |  |
| Nickel (mg/l & kg/day)                                      |       |      |       | M    |      |                      |     |   |  |  |  |  |  |  |
| Zinc (mg/l & kg/day)  |       |      |       | M    |      |                      |     |   |  |  |  |  |  |  |
| PHENOLIC COMPOUNDS (mg/l & kg/day)                          |       |      |       | 6M   |      |                      |     |   |  |  |  |  |  |  |
| All Applicable Standard Observations                        |       |      | D     |      |      | M                    | 2/W | E |  |  |  |  |  |  |
| Total Identifiable Chlorinated Hydrocarbons (mg/l & kg/day) |       |      |       | Y    |      |                      |     |   |  |  |  |  |  |  |
| Un-ionized ammonium hydroxide (mg/l)                        |       |      |       | M    |      |                      |     |   |  |  |  |  |  |  |
|   |       |      |       |      |      |                      |     |   |  |  |  |  |  |  |
|   |       |      |       |      |      |                      |     |   |  |  |  |  |  |  |
|   |       |      |       |      |      |                      |     |   |  |  |  |  |  |  |
|   |       |      |       |      |      |                      |     |   |  |  |  |  |  |  |

\*During any day when bypassing occurs from any treatment unit(s) in the plant, the monitoring program for the effluent shall include the following in addition to the above schedule for sampling, measurement and analyses:

1. Composite sample for BOD, Total Suspended Solids, oil and grease (influent and effluent).
2. Grab sample for Coliform (Total and Fecal), Settleable matter, and chlorine residual (continuous or every two hours).
3. Continuous monitoring of flow.

LEGEND FOR TABLE

TYPES OF SAMPLES

G = grab sample  
 C-24 = composite sample - 24-hour  
 Cont = continuous sampling  
 O = observation

TYPES OF STATIONS

A = treatment facility influent stations  
 E = waste effluent stations  
 C = receiving water stations  
 P = treatment facilities perimeter stations  
 O = overflow in bypass

FREQUENCY OF SAMPLING

D = once each day  
 M = once each month  
 Y = once each year  
 3/W = 3 days per week  
 2/W = 2 days per week  
 5/W = 5 days per week  
 2/M = 2 days per month  
 2H = every 2 hours  
 3M = every 3 months  
 6M = every 6 months;  
     once in February  
     once in August  
 Cont = continuous

NOTES FOR TABLE I

- (1) Oil and grease sampling shall consist of 3 grab samples taken at 8-hour intervals during the sampling day, with each grab being collected in a glass container. The grab samples shall be mixed in equal volumes. Each glass container used for sample collection or mixing shall be thoroughly rinsed with solvent as soon as possible after use, and the solvent rinsings shall be added to the composite wastewater sample for extraction and analysis.