

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION**

**ADDENDUM NO. 1
TO
ORDER NO. 2000-203
WASTE DISCHARGE AND WATER RECYCLING REQUIREMENTS
FOR THE PRODUCTION AND PURVEYANCE
OF RECYCLED WATER
FOR
CITY OF SAN DIEGO
SOUTH BAY WATER RECLAMATION PLANT
SAN DIEGO COUNTY**

The California Regional Water Quality Control Board, San Diego Region (Regional Board) finds that:

1. On November 8, 2000, this Regional Board adopted Order No. 2000-203, Waste Discharge and Water Recycling Requirements for the Production and Purveyance of Recycled Water for the City of San Diego South Bay Water Reclamation Plant (SBWRP).
2. According to Section 13383(e) of the California Water Code, the Regional Board may, upon application by any affected person, or on its own motion, review and revise waste discharge requirements.
3. By letter dated August 9, 2004 the California Department of Health Services (DHS) requested changes to Order No. 2000-203 to address issues identified during a commissioning study of the ultraviolet (UV) disinfection system at the SBWRP.
4. The issuance of waste discharge requirements for this discharge is exempt from the requirement of preparation of environmental documents under the California Environmental Quality Act [Public Resources Code, Division 13, Chapter 3, Section 21000 *et seq.*] in accordance with Section 13389 of the California Water Code.
5. The Regional Board has notified all interested parties of its intent to modify Order No. 2000-203.
6. The Regional Board in a public hearing on October 13, 2004 heard and considered all comments pertaining to the modification of Order No. 2000-203.

IT IS HEREBY ORDERED THAT Order No. 2000-203 be modified as follows:

1. **Discharge Specification A.1** – The entire first paragraph of the section shall be replaced with the following:

Effluent used for landscape irrigation purposes shall be treated to the most restricted level in conformance with all applicable provisions of California Code of Regulations, Title 22, Division 4, Chapter 3 (Water Recycling Criteria) for landscaping irrigation [currently Section 60304 (a) and 60320.5].

2. **Discharge Specification A.1** – The entire text of footnote ** shall be replaced with the following:

Turbidity of the filter effluent shall not exceed a 24-hour average value of 2 NTU (nephelometric turbidity units), shall not exceed 5 NTU more than 5% of the time during a 24-hour period, and shall not exceed 10 NTU at any time.

3. **Facility Design and Operation Specification C.3. Disinfection Process** – The entire text of the section shall be replaced with the following:

The City of San Diego shall comply with the following:

- a. The UV system shall be operated at a flow of no less than 1.3 million gallons per day (MGD) and no greater than 15 MGD.
- b. The UV system shall be operated to provide a minimum UV dose of 100 millijoules per square centimeter (mJ/cm^2) at all times. The UV dose shall be calculated using the following empirically-derived multiple linear equation (to be incorporated into the UV process logic controller):

$$\text{Log (Dose per Bank)} = [\text{Log (Combined Derating Factor)}] + [-3.28 + (-0.91 \text{ Log Flow}) + (2.32 \text{ Log UV Transmittance}) + (1.34 \text{ Log Power Setting})]$$

Where,

| | | |
|--------------------------|---|-----------------------------------|
| Dose per Bank | = | mJ/cm^2 |
| Combined Derating Factor | = | Lamp Age Factor x Fouling Factor |
| Lamp Age Factor | = | 0.76 |
| Lamp Fouling Factor | = | 0.95 |
| Flow | = | gallons per minute (gpm) per lamp |
| UV Transmittance | = | % of maximum |
| Power Setting | = | % of maximum |

- c. Continuous, reliable monitoring of the flow, UV transmittance, power, and turbidity shall be provided.

- d. The UV transmittance (at 254 nanometers) in the wastewater exiting the UV system shall not fall below 55 percent of the maximum.
 - e. The power setting on any UV bank in operation shall not fall below 30 percent of the maximum.
 - f. The discharger shall use a minimum of two UV banks in service at all times.
 - g. The quartz sleeves and cleaning system components must be visually inspected every 3 months for physical wear (scoring, solarization, seal leaks, cleaning fluid levels, etc.) and to check on the efficacy of the cleaning system.
 - h. The lamp sleeves must be cleaned every 3 hours. The lamp cleaning fluid must be replaced every six months.
 - i. Lamps must be replaced after they have reached 5000 hours of operation, or sooner if there are indications the lamp is failing to provide adequate disinfection. Lamp age and lamp replacement records must be maintained.
 - j. The facility must be operated in accordance with an operations and maintenance manual approved by the Regional Board and DHS.
4. **Facility Design and Operation Specification C.5. Operation Manual** – The entire text of the section shall be replaced with the following:

A copy of the facility operations and maintenance manual shall be maintained at the City of San Diego's facility and shall be available to operation personnel and the Regional Board at all times. The following portions of the operations manual shall be posted at the treatment plant as a quick reference for treatment plant operators:

- a. Alarm set points for secondary turbidity, tertiary turbidity, low flow, high flow, UV dose, UV transmittance, power, and UV lamp operating hours.
- b. Values at which flow will be diverted for secondary turbidity, tertiary turbidity, low flow, high flow, UV dose, UV transmittance, power, and UV lamp operating hours.
- c. When to divert flow for high daily and weekly median total coliform.
- d. When the DHS, DEH, and Regional Board will be notified in the event of system failure.
- e. Frequency of calibration for meters measuring turbidity, flow, UV transmittance, and power.
- f. Frequency of mechanical cleaning and inspection of the quartz sleeves and replacement of the cleaning fluid.
- g. UV lamp tracking procedures and replacement interval.

Monitoring and Reporting Program No. 2000-203

5. **Monitoring Provision A.10** – The entire text of the section shall be replaced with the following:

The discharger shall report all instances of noncompliance not reported under Provision D.6 of Order No. 2000-203 at the time monitoring reports are submitted. The reports shall contain the information described in Provision D.6.

6. **Monitoring Provision A.11** – The entire text of the section shall be replaced with the following:

The monitoring reports shall be signed by an authorized person as required by Standard Provision D.20.

7. **Effluent Monitoring B.1** – The entire text of the section shall be replaced with the following:

Unless specified otherwise in Monitoring and Reporting Program No. 2000-203, the SBWRP effluent shall be monitored after all treatment processes, at or near the effluent pump station, and just prior to the distribution system.

8. **Effluent Monitoring B.2** – The entire text of the section shall be replaced with the following:

The discharger is responsible for monitoring and reporting in accordance with the following schedule:

| CONSTITUENT | UNIT | TYPE OF SAMPLE | SAMPLING FREQUENCY | REPORTING FREQUENCY |
|--|--------------------|----------------|----------------------|---------------------|
| Flowrate ¹ | MGD | Continuous | Continuous | Monthly |
| Turbidity ² | NTU | Continuous | Continuous | Monthly |
| Number of Banks in Operation | # | Continuous | Continuous | See Note 3 |
| UV Transmittance | % | Continuous | Continuous | See Note 3 |
| Power Setting | % | Continuous | Continuous | See Note 3 |
| UV Dose ³ | mJ/cm ² | Calculated | Continuous | Monthly |
| Biochemical Oxygen Demand (BOD ₅ @ 20 °C) | mg/l | Composite | Daily | Monthly |
| Total Suspended Solids | mg/l | Composite | Daily | Monthly |
| Volatile Suspended Solids | mg/l | Composite | Daily | Monthly |
| pH | Unit | Grab | Daily ⁴ | Monthly |
| Total Coliform ⁵ | MPN/100ml | Grab | Daily | Monthly |
| Total Dissolved Solids | mg/L | Composite | Monthly ⁶ | Monthly |
| Chloride | mg/L | Composite | Monthly ⁶ | Monthly |
| Sulfate | mg/L | Composite | Monthly ⁶ | Monthly |
| % Na | % | Composite | Monthly ⁶ | Monthly |
| Nitrate as N | mg/l | Composite | Monthly ⁶ | Monthly |

| CONSTITUENT | UNIT | TYPE OF SAMPLE | SAMPLING FREQUENCY | REPORTING FREQUENCY |
|----------------------------------|------|----------------|----------------------|---------------------|
| Methylene Blue Active Substances | mg/L | Composite | Monthly ⁶ | Monthly |
| Iron | mg/L | Composite | Monthly ⁶ | Monthly |
| Manganese | mg/L | Composite | Monthly ⁶ | Monthly |
| Boron | mg/L | Composite | Monthly ⁶ | Monthly |
| Fluoride | mg/L | Composite | Monthly ⁶ | Monthly |

Notes: MGD = Million gallons per day
 MPN/100 ml = Most Probable Number per 100 milliliters
 mg/L = milligrams per liter
 NTU = Nephelometric Turbidity Units
 mJ/cm² = millijoules per square centimeter

- 1 Report both the daily average, daily minimum, and daily maximum.
- 2 Samples for effluent turbidity may be collected immediately after the tertiary filters. Effluent turbidity analyses shall be conducted continuously using a continuous monitoring and recording turbidimeter. Compliance with the daily average operating filter effluent turbidity limit of 2 NTU shall be determined by averaging the recorded turbidity levels at a minimum of four-hour intervals over a 24-hour period. Compliance with the turbidity standard of not exceeding 5 NTU more than 5 percent of the time over a 24-hour period shall be determined using the levels of recorded turbidity taken at intervals of no more than 1.2 hours over a 24-hour period. Should the continuous turbidity meter and/or recorder fail, grab sampling at a minimum frequency of one sample every 1.2 hours may be substituted until the turbidity meter and/or recorder is fixed. The discharger shall report the daily average effluent turbidity, the daily duration that turbidity exceeds 5 NTU, and the daily maximum turbidity (daily being defined as the 24-hour period from 12 am to 12 am). Continuous turbidity monitoring must also be provided prior to filtration to ensure adequate process control, and automatically actuate coagulant feed when the turbidity of the secondary treated effluent is greater than 10 NTU.
- 3 Report daily minimum and daily average UV dose. For the daily minimum UV dose, also report the associated # banks, gallons per minute per lamp, power settings, and UV transmittance used in the calculation. If recycled water that has received less than the minimum required UV dose is not diverted from delivery, report the duration and dose calculation variables associated with each incident.
- 4 pH may be monitored 6 days per week.
- 5 Samples for total coliform bacteria may be collected immediately after the UV system. Samples for total coliform bacteria shall be collected at least daily and at a time when wastewater characteristics are most demanding on the treatment facilities and disinfection procedures. The discharger shall report the results of daily total coliform bacteria monitoring and running 7-day median determination.
- 6 The discharger shall increase the monitoring frequency from monthly to weekly whenever the monitoring data indicates a violation of the daily maximum limits list in the Discharge Specifications of Order No. 2000-203. The weekly monitoring shall continue until the discharger achieves compliance with the limitations for two consecutive weeks. After compliance is achieved, the discharger shall resume monitoring at the monthly frequency.

I, John H. Robertus, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of Addendum No. 1 to Order No. 2000-203 adopted by the California Regional Water Quality Control Board, San Diego Region, on October 13, 2004.

A handwritten signature in black ink, appearing to read "John H. Robertus", written over a horizontal line.

JOHN H. ROBERTUS
Executive Officer