# APPENDIX C

**COMMONWEALTH OF PUERTO RICO**
**OFFICE OF THE GOVERNOR**
**ENVIRONMENTAL QUALITY BOARD**

PUERTO RICO VERDE

**Governing Board**

Victor
FL - 29/Jun/'10

**RETURN RECEIPT REQUESTED**

2010 JUN -9 PM 2:04

June 3, 2010

Mrs. Martha Rivera Rosa
Special Assistant for the Executive Director
Compliance and Quality Control
Puerto Rico Aqueduct and Sewer Authority
P.O. Box 7066
San Juan, Puerto Rico 00916-7066

Dear Mrs. Rivera:

**Re: Modified Water Quality Certificate and Authorize a Mixing Zone (MZ)**
**Puerto Nuevo Regional Wastewater Treatment Plant**
**Cataño, Puerto Rico**
**NPDES No. PR0021555**

We have received and reviewed the application for a permit under Section 402, National Pollutant Discharge Elimination System (NPDES), of the Federal Clean Water Act, as amended (33 U.S.C. 466 *et seq.)* (the Act) for the referenced facility.

Pursuant to Section 401 (a) (1) of the Act, after due consideration of the applicable provisions established in the Puerto Rico Water Quality Standards Regulation (PRWQSR), as amended and in Sections 208(e), 301, 302, 303, 304(e), 306 and 307 of the Act, it is certified that there is reasonable assurance as determined by the Environmental Quality Board (EQB) that the allowed discharge will not cause violations to the applicable water quality standards at the receiving water body if the limitations and monitoring requirements on Table A-1 are met.

The conditions specified in the aforementioned table shall be incorporated into the NPDES permit in order to satisfy the provisions of Section 301 (b) (1) (C) of the Act.

ODEC - 3238
10-junio-10

Cruz A. Matos Environmental Agencies Bldg., San José Industrial Park
1375 Ponce de León Ave., San Juan, PR 00926-2604
PO Box 11488, San Juan, PR 00910
Tel. 787-767-8181 • Fax 787-767-4861

If you have any objection to the Water Quality Certificate (WQC), you have the right to request reconsideration to the EQB within the statutory period (twenty (20) calendar days from the date that the WQC is received).

The EQB reserves the right to comment at a later date concerning other environmental aspects of the discharge.

Angel O. Berrios Silvestre, P.E.
Associate Member

Wanda E. García Hernández
Alternate Member

Pedro J. Nieves Miranda, Esq.
Chairman

LDS/dcc

c: Eng. Carl-Axel P. Soderberg, EPA-CEPD

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## SPECIAL CONDITIONS

## NPDES No. PR0021555

These special conditions are an integral part of the Water Quality Certificate (WQC) and shall be incorporated into the NPDES permit in order to satisfy the provisions of Section 301 (b) (1) (C) of the Federal Clean Water Act (CWA) as amended (33 U.S.C. 466 *et seq.*):

1. The flow of discharge 001 shall not exceed the limitation of 545,205.96 $m^3$/day (144.0 MGD) as daily maximum. No increase in flow shall be authorized without a recertification from the Puerto Rico Environmental Quality Board (EQB). [1,4,5]

2. The permittee will provide to the EQB an inventory of all industries connected to the treatment system with its corresponding waste characteristics, in a term not greater than eighteen (18) months after the Effective Date of the Permit (EDP).

   The permittee shall require any industrial user of the treatment system to comply with the requirements of Section 307 and 308 of the Federal Clean Water Act as amended (33 U.S.C. 466 *et seq.*) by requiring each user to provide pretreatment to all industrial wastewater prior to the discharge to such system as determined by the Environmental Protection Agency (EPA) and EQB. The permittee shall require to each industrial user to comply with Section 308 of the Federal Clean Water Act by requiring to each user to perform the necessary monitoring to verify compliance with the level of pretreatment required. Each industrial user shall establish and maintain good records in relation to their pretreatment and shall allow entry to their facilities by EPA and EQB personnel at any time for any appropriate inspection. [7]

3. The permittee shall provide written notice to the EQB and EPA of the following changes that may affect the treatment system:

   a. Any new introduction of pollutants, not exclusively sanitary, coming from an industrial facility. If the industrial facility is an existing significant industrial user, shall notify only when the new introduction of pollutants, exceeds 1,000 gallons/day.

   b. Any <u>significant change</u> in volume or character of pollutants being introduced into the treatment system by an existing source, that may cause a variation in the quality of the effluent to be discharged.

   Such notice shall include information of the quality and quantity of the effluent to be introduced into such treatment system and the anticipated impact of such change in quantity and/or quality of the effluent to be discharged from the system. [7]

4. No toxic substances shall be discharged, in toxic concentrations, other than those allowed as specified in the NPDES permit. Those toxic substances included in the Permit Renewal Application, but not regulated by the permit, shall not exceed those concentrations as specified in the applicable regulatory limitations. [1, 2]

5. The samples taken for the analysis of cyanide and mercury shall be analyzed using the analytic method approved by the EPA with the lowest possible detection level, in accordance with Section 6.2.3 of the Puerto Rico Water Quality Standard Regulation (PSRWQSR). [4]

6. The permitee shall use the approved EPA analytical method, with the lowest possible detection limit, in accordance with the Code of Federal Regulations Number 40 (40 CFR) Part 136 for Sulfide (as S). Also, the permitee shall complete the calculations specified in Method 4500-$S^{-2}$ F, Calculation of Un-ionized Hydrogen Sulfide, of Standards Methods 18th Edition, 1992, to determine the concentration of undissociated $H_2S$. If the sample results of Dissolved Sulfide are below the detection limit of the approved EPA method established in the 40 CFR Part 136, then, the concentration of undissociated $H_2S$ should be reported as "below detection limit". [2,3]

7. All sample collection, preservation, and analysis shall be carried out in accordance with the 40 CFR Part 136. A licensed chemist authorized to practice the profession in Puerto Rico shall certify all chemical analyses. All bacteriological tests shall be certified by a microbiologist or a medical technician licensed to practice the profession in Puerto Rico. [1,3]

8. The solid wastes (sludge, screenings and grit) generated due to the treatment system operation shall be:

   a. Disposed in compliance with the applicable requirements established in the 40 CFR Part 257. A semiannual report shall be submitted to EQB and EPA notifying the methods used to dispose the solid wastes generated in the facility. Also, copy of the approval or permit applicable to the disposal method used shall be submitted, if any.

   b. Transported adequately in such way that access is not gained to any body of water or soil. In the event of a spill of solid waste on land or into a body of water, the permittee shall notify the Point Sources Permits Division of the EQB's Water Quality Area in the following manner:

1) By telephone communication within a term no longer than twenty four (24) hours after the spill (787-767-8073).

2) By letter, within a term no longer than five (5) days after the spill.

This notification shall include the following information:

a) Spill material
b) Spill volume
c) Measures taken to prevent the spill material to gain access to any body of water.

This special condition does not relieve the permittee from its responsibility to obtain the corresponding permits from the EQB's Solid Wastes Program and other state and federal agencies, if any. [4,6]

9. A log book should be kept for the material removed from the treatment system, such as sludge, screenings and grit detailing the following items:

a. Removed material, date and source of it.
b. Approximate volume and weight.
c. Method by which it is removed and transported.
d. Final disposal and location.
e. Person that offers the service.

A copy of the Non-Hazardous Solid Waste Collection and Transportation Service Permit issued by the authorized official from the EQB should be attached to the log book. [3]

10. The sludge produced within the facility due to the operation of the system shall be analyzed and all constituents shall be identified as required by "Standards for the Use or Disposal of Sewage Sludge" (40 CFR, Part 503). The sludge shall be disposed properly in such manner that water pollution or other adverse effects to surface waters or to ground water do not occur. [4,6]

11. If any standard or prohibition to the sanitary sludge disposal is promulgated and said prohibition or standard is more stringent than any condition, restriction, prohibition or standard contained in the NPDES permit, such permit shall be modified accordingly or revoked and reissued to be adjusted with regard to such prohibition or standard. [6]

12. No changes in the design or capacity of the treatment system will be permitted without the previous authorization of EQB. [5]

13. Prior to the construction of any additional treatment system or prior to the modification of the existing one, the permittee shall obtain the approval of the engineering report, plans and specifications from EQB. [5]

14. The permittee shall install, maintain and operate all water pollution control equipment in such manner as to be in compliance with the applicable Rules and Regulations. [1, 4]

15. The flow measurement device for the discharge 001 shall be periodically calibrated and properly maintained. Calibration and maintenance records must be kept in compliance with the applicable Rules and Regulations. [4,5]

16. The sampling point for discharge 001 shall be located immediately after the primary flow measuring device of the effluent of the treatment system.

17. The sampling point for discharge 001 shall be labeled with a 18 inches x 12 inches (minimum dimensions) sign that reads as follows:

"PUNTO DE MUESTREO PARA LA DESCARGA 001"

18. All water or wastewater treatment facilities, whether publicly or privately owned, must be operated by a person licensed by the Potable Water and Wastewaters Treatment Plants Operations Examining Board of the Commonwealth of Puerto Rico. [4]

19. The EQB has defined and authorized a Mixing Zone (MZ) pursuant to Article 5 of the PRWQSR. [3]

a. The MZ is delineated by the following points (See diagram I):

| | **Geographic Coordinates *** |
|---|---|
| Point 1 | Lat. 18° 29.181'<br>Long. 66° 08.518' |
| Point 2 | Lat. 18° 29.202'<br>Long. 66° 08.503' |
| Point 3 | Lat. 18° 29.100<br>Long. 66° 08.340' |

| | **Geographic Coordinates *** |
|---|---|
| Point 1 | Lat. 18° 29.181'<br>Long. 66° 08.518' |
| Point 4 | Lat. 18° 29.097'<br>Long. 66° 08.150' |
| Point 5 | Lat. 18° 29.072'<br>Long. 66° 08.150' |

*NAD 83 State Plane Coordinates

The diffuser configuration is a one hundred twenty (120) degree "Y" type consisting of two (2) legs of one thousand ten (1,010) feet long and a constant diameter of eigthy-four (84) inches. A total of one hundred two (102) ports along each diffuser's leg shall be opened. There are twenty (20) ports of seven (7) inches at the end of each diffuser's leg and eighty two (82) ports of six (6) inches between the "Y" split and the larger ports at the end of each diffuser's leg. The ports discharge in alternate directions at a constant spacing of ten (10) feet.

b. The MZ is defined for the following parameters:

| **Parameter** | **Daily Maximum Discharge Limitation at Outfall Serial Number 001** | **Daily Maximum Limitation at the Borders of the MZ** |
|---|---|---|
| Cadmium (Cd) (µg/l) | Monitoring Only | 8.85 |
| Color (Pt-Co Units) | 70 | Ω |
| Copper (Cu) (µg/l) | 207.7 | 3.73 |
| Cyanide, Free (CN) (µg/l) | 32.2 | 1.0 |
| Dissolved Oxygen (mg/l) | Monitoring Only | ≥4.0 |
| Lead (Pb) (µgl) | 15.1 | 8.52 |
| Mercury (Hg) (µg/l) | 0.29 | 0.051 |
| Nickel (µg/l) | 12.5 | 8.28 |
| Nitrogen ($NO_2$, $NO_3$, $NH_3$) (mg/l) | 21.190 | 5.000 |

Ω The color at the edge of the mixing zone shall not exceed the color of the receiving water body (background sampling point).

| Parameter | Daily Maximum Discharge Limitation at Outfall Serial Number 001 | Daily Maximum Limitation at the Borders of the MZ |
|---|---|---|
| pH (SU) | 6.0 – 9.0 | 7.3 – 8.5 |
| Silver (Ag) (µg/l) | 3.3 | 2.24 |
| Sulfide (undissociated $H_2S$) (µg/l) | 84 | 2 |
| Surfactants (MBAS) (µg/l) | 7,020 | 500 |
| Temperature F ( C) | ** | ** |
| Thallium (TI) (µg/l) | 4.3 | 0.47 |
| Turbidity (NTU) | 119 | 10 |
| Zinc (µg/l) | 129.20 | 85.62 |

c. The permittee shall conduct annually definitive acute and chronic toxicity tests using the organisms Mysidopsis bahia, Cyprinodon variegatus and Arbacia punctulata for the wastewater discharge identified as 001.

d. The toxicity tests shall be conducted according to the most recent editions of the following publications of the Federal Environmental Protection Agency (EPA):

1) "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms" EPA-821-R-02-012 (Fifth Edition), October 2002.

2) "Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms" EPA-821-R-02-013 (Fourth Edition), October 2002.

e. The procedures, methods, techniques, conditions, etc., included in the above mentioned publications shall be followed at all times. If the permittee determines to use other procedures, methods, etc., because the permitte understands that:

1) by the nature or conditions of this case is impossible to follow such publications;

2) other procedures, methods, etc., are adequate,

** No heat may be added to the waters of Puerto Rico, which would cause the temperatura of any site to exceed 90°F (32.2 °C)

then the permittee shall, prior to the utilization of other procedures, methods, etc., obtain written approval from the EPA and EQB.

f. The effluent samples for the toxicity tests shall be used in or before 36 hours after being collected.

g. A report on the toxicity tests conducted shall be submitted to the EQB, during the sixty (60) days period after the tests were conducted. This report shall be prepared according to the aforementioned publications of EPA.

h. Based on the review of the test results, the EQB can require additional toxicity tests, including toxicity/treatability studies and can revoke the final mixing zone authorization according with Section 5.14 of the PRWQSR.

i. Solids from wasterwater sources shall not cause deposition in, or be deleterious to, the designated uses of the waters.

j. The discharge shall not cause the growth or propagation of organisms that negatively disturb the ecological equilibrium in the areas adjacent to the mixing zone.

k. The mixing zone shall be free of debris, scum, floating oil and any other substances that produce objectionable odors.

l. The permittee shall maintain in good operating conditions the discharge system (discharge outfall [land and submarine], diffuser, ports, etc.). At least once a year, the discharge system shall be inspected to determine if some repairs, replacing, etc., on the discharge system is required. A report of such inspections shall be submitted to EPA and EQB not later than sixty (60) days after the performance of the inspection.

m. The EQB, can require that the permittee conduct bioaccumulation studies, dye studies, water quality studies or any other pertinent studies. If the EQB require one or more of the aforementioned studies, the permittee will be notified to conduct such study(ies). One hundred and twenty (120) days after the notification of the EQB, the permittee shall submit, for evaluation and approval of the EQB, a protocol to conduct such study(ies). Sixty (60) days after the EQB approval, the permittee shall conduct such study(ies). Ninety (90) days after conducting such study(ies), the permittee shall submit a report that includes the results of such study(ies).

n. The permittee shall conduct a dye study to verify the Critical Initial Dilution and the plume behavior within the mixing zone. The dye study shall be conducted ninety (90) days after the written approval of the corresponding Protocol and Quality Assurance Project Plan (QAPP). Such Protocol and QAPP shall be submitted to EQB ninety (90) days after the EDP. This study shall consist of at least one set of the required samples, as established in the QAPP for a complete sampling event.

o. The authorization for the mixing zone will not be transferable and does not convey any property rights of any sort or any exclusive privileges, nor it authorizes any injury to persons or property or invasion of other private rights, of any infringement of Federal or State laws or regulations.

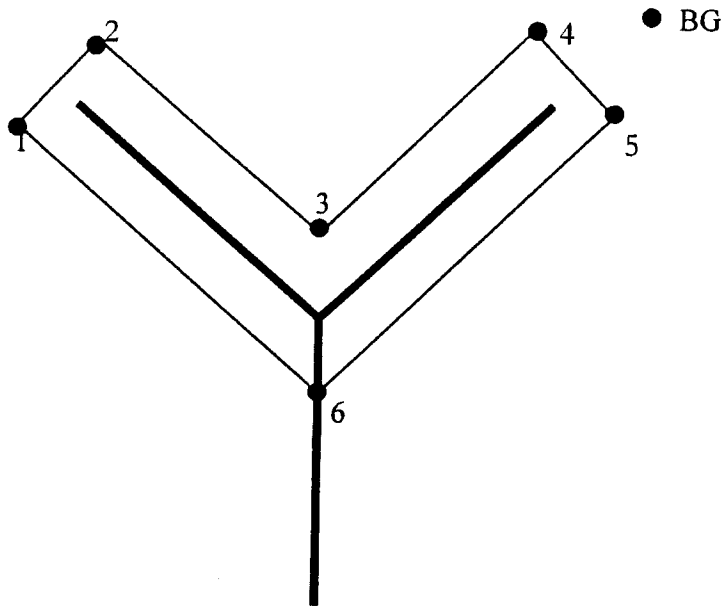
20. The conditions of this WQC are considered as separate. Therefore, if the applicability of any condition of this WQC is stayed due to any circumstance, the remaining conditions of this WQC will not be affected. [5]

21. The EQB, by the issuance of the WQC, does not relieve the applicant from its responsibility to obtain additional permits or authorizations from the EQB as required by law. The issuance of the WQC shall not be construed as an authorization to conduct activities not specifically covered in the WQC, which will cause water pollution as determined by the PRWQSR. [4]

For 1, 2, 3, 4, 5, 6, 7 and 8 see page 10

## DIAGRAM-I

### Puerto Nuevo RWWTP Mixing Zone




**Geographic Coordinates***

| | |
|---|---|
| Point 1 | Lat. 18° 29.181'<br>Long. 66° 08.518' |
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| Point 3 | Lat. 18° 29.100'<br>Long. 66° 08.340' |
| Point 4 | Lat. 18° 29.097'<br>Long. 66° 08.150' |
| Point 5 | Lat. 18° 29.072'<br>Long. 66° 08.150' |
| Point 6 | Lat. 18° 29.075'<br>Long. 66° 08.348' |

*NAD 83 State Plane Coordinates

1. According to Article 1, Puerto Rico Water Quality Standards Regulation as Amended.

2. According to Article 3, Puerto Rico Water Quality Standards Regulation as Amended.

3. According to Article 5, Puerto Rico Water Quality Standards Regulation as Ameded.

4. According to Article 6, Puerto Rico Water Quality Standards Regulation as Amended.

5. According to the Environmental Public Policy Act of September 22, 2004, Act No. 416, effective since March 22, 2005.

6. According to the Section 405 (d) (4) of the Federal Clean Water Act as Amended (33 U.S.C. 466 *et seq.*).

7. According to Environmental Protection Agency Pretreatment Standard (40 CFR 403, June 26, 1978, effective August 25, 1978, as Amended.

8. According to the Code of Federal Regulation Number 40 (40 CFR), Part 131.40, as amended (Federal Register/Volume 69, No. 16/Monday, January 26, 2004).

## TABLE A-1 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS NPDES NO. PR0021555

During the period beginning on EDP and lasting through 5 years the permittee is authorized to dicharge from outfall serial number 001 (primary treated wastewaters). Such discharge shall be limited and monitored by the permittee as specified below:

Receiving Waters Name and Classification: Atlantic Ocean, SC

| Effluent Characteristics | Gross Discharge Limitations | | Monitoring Requirements | |
|---|---|---|---|---|
| | Monthly Average | Daily Maximum | Measurements Frequency | Sample Type |
| $BOD_5$ (mg/l) [1,2,3,4] α | 117.00 | | Monthly | Composite |
| Cadmium (Cd) (µg/l) [2,3,4] | | ---- | Monthly | Grab |
| Color (Pt-Co Units) [2,3,4] | | 70 | Monthly | Grab |
| Copper (Cu) (µg/l) [2,3,4] | | 207.7 | Monthly | Grab |
| Cyanide, Free (CN) (µg/l) [2,3,4] γ Δ | | 32.2 | Monthly | Grab |
| Dissolved Oxygen (mg/l) [1,2,3,4] | | ---- | Daily | Grab |
| Enterococci (colonies/100 ml) [1,2,4,8] | The enterococci density in terms of geometric mean of at least 5 representative samples taken sequentially shall not exceed 35/100 ml. No single sample should exceed the upper confidence limit of 75% using 0.7 as the log standard deviation until sufficient site data exist to establish a site-specific log standard deviation. | | Monthly | Grab |

## TABLE A-1 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS NPDES NO. PR0021555

Receiving Waters Name and Classification: Atlantic Ocean, SC

| Effluent Characteristics | Gross Discharge Limitations | | Monitoring Requirements | |
|---|---|---|---|---|
| | Monthly Average | Daily Maximum | Measurements Frequency | Sample Type |
| Fecal Coliforms (colonies/100 ml) [1,2,4,8] | The coliform geometric mean of a series of representative samples (at least five samples) of the waters taken sequentially in a given instance shall not exceed 200 colonies/100 ml. Not more than 20% of the samples shall exceed 400 colonies/100 ml. | | Monthly | Grab |
| Flow $m^3$/day (MGD) [4,5] | 302,832.96 (80.0) | 545,205.96 (144.0) | Continuous Recording | |
| Lead (Pb) (µg/l) [2,3,4] | | 15.1 | Monthly | Grab |
| Mercury (Hg) (µg/l) [2,3,4] γ | | 0.29 | Monthly | Grab |
| Nickel (Ni) (µg/l) [2,3,4] | | 12.5 | Monthly | Grab |
| Nitrogen ($NO_3$, $NO_2$, $NH_3$) (mg/l) [2,3,4] | | 21.190 | Monthly | Grab |
| Oil and Grease (mg/l) [2,4] | The waters of Puerto Rico shall be substantially free from floating non-petroleum oils and greases as well as petroleum derived oil and greases. | | Twice per Month | Grab |
| pH (SU) [2,3,4] | Shall always lie between 6.0 – 9.0 | | Daily | Grab |
| Residual Chlorine (mg/l) [2,4] | | 0.50 | Daily | Grab |

## TABLE A-1 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS NPDES NO. PR0021555

Receiving Waters Name and Classification: Atlantic Ocean, SC

| Effluent Characteristics | Gross Discharge Limitations | | Monitoring Requirements | |
|---|---|---|---|---|
| | Monthly Average | Daily Maximum | Measurements Frequency | Sample Type |
| Silver (Ag) (µg/l) [2,3,4] | | 3.3 | Monthly | Grab |
| Solids and Other Matter (ml/l) [2,4] | The water of Puerto Rico shall not contain floating debris, scum and other floating materials attributable to discharges in amounts sufficient to be unsightly or deleterious to the existing or designated uses of the water body. | | ---- | ---- |
| Sulfide (undissociated $H_2S$) (µg/l) [2,3,4] δ | | 84 | Monthly | Grab |
| Surfactants (as Methylene Blue Activate Substances) (µg/l) [1,2,3,4] | | 7,020 | Monthly | Grab |
| Suspended, Colloidal or Settleable Solids (ml/l) [1,2,4] | Solids from wastewater sources shal not cause deposition in, or be deleterious to, the designated uses of the waters. | | Daily | Grab |
| Taste and Odor-producing Substances. [2,4] | Shall not be present in amounts that will interfere with the use for potable water supply, or will render any undesirable taste or to edible aquatic life. | | ---- | ---- |
| Temperature °F (°C) [2,4] | No heat may be added to the waters of Puerto Rico which would cause the temperature of any site to exceed 90°F (32.2°C). | | Daily | Grab |

**TABLE A-1 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS NPDES NO. PR0021555**

Receiving Waters Name and Classification: Atlantic Ocean, SC

| Effluent Characteristics | Gross Discharge Limitations | | Monitoring Requirements | |
|---|---|---|---|---|
| | Monthly Average | Daily Maximum | Measurements Frequency | Sample Type |
| Thallium (Tl) (µg/l) [2,3,4] | | 4.3 | Monthly | Grab |
| Turbidity (NTU) [2,3,4] | | 119 | Monthly | Grab |
| Zinc (Zn) (µg/l) [2,3,4] | | 129.20 | Monthly | Grab |
| Special Conditions | See attached sheet which contains special conditions that constitute part of this certification. | | | |

Notes:

To comply with the monitoring requirements specified above, samples shall be taken at the outfall of discharge serial number 001.

All flow measurements shall achieve accuracy within the range of plus or minus 10%.

α The effluent limitation for $BOD_5$ is based on the PRASA Mixing Zone Application for the Puerto Nuevo Wastewaters Treatment Plant, after determining that there is a reasonable assurance that this limit will not cause violations to the water quality standard for Dissolved Oxygen for Class SC.

γ See Special Condition 5.

δ See Special Condition 6.

Δ The samples shall be analyzed using the method approved by EPA in letter of February 20, 2007.