8. ***Intent to Issue a Water Quality Certificate and Authorize an Interim Mixing Zone (IMZ) for the Arecibo Regional Wastewater Treatment Plant- NPDES PR0023710 – Puerto Rico Department of Natural and Environmental Resources - December 20, 2022***

GOVERNMENT OF PUERTO RICO
DEPARTMENT OF NATURAL AND ENVIRONMENTAL RESOURCES

**RETURN RECEIPT REQUESTED**

**DEC 2 0 2022**

Mr. Edgardo Bermúdez Valentín
Executive Director
Environmental Compliance, Health and Safety
Puerto Rico Aqueduct and Sewer Authority
P. O. Box 7066
San Juan, Puerto Rico 00916-7066

Dear Mr. Bermúdez:

**RE: INTENT TO ISSUE A WATER QUALITY CERTIFICATE AND AUTHORIZE AN INTERIM MIXING ZONE (IMZ) ARECIBO REGIONAL WASTEWATER TREATMENT PLANT STATE ROAD NO. 681, KM 2.0 ISLOTE WARD ARECIBO, PUERTO RICO NPDES NO. PR0023710**

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.*) (CWA) for the discharge of the referenced facility. We also have received and evaluated a request to obtain a Water Quality Certificate (WQC) submitted by the Puerto Rico Aqueduct and Sewer Authority (PRASA) in letter dated May 29, 2020, pursuant to Rule 1306.11 of the Puerto Rico Water Quality Standards Regulation (PRWQSR), as amended. In such letter, PRASA requested a mixing zone definition and authorization for the discharge of the referenced facility, pursuant to Rule 1305 of the PRWQSR.

Therefore, the Department of Natural and Environmental Resources (DNER), has evaluated the aforementioned WQC request and prepared the draft WQC for the referenced facility, after due consideration of the applicable provisions established in the PRWQSR and in Sections 301, 302, 303, 306 and 307 of the CWA, with water quality-based effluent limitations. Copy of the draft WQC, Public Notice and Preliminary Determinations are enclosed.

It is required that the Spanish version of the aforementioned notice be published in a newspaper of general circulation in Puerto Rico for one (1) day, notifying the DNER's intention to issue the WQC requested pursuant to the CWA. Such notice shall include the logo of the DNER. Also, the petitioner must provide a publication affidavit from the newspaper in which such notice is published. The original of the affidavit shall

be submitted to the Water Quality Area prior to the end of the public participation period. The cost of the publication of such notice shall be paid by the petitioner of the corresponding permit that requires the WQC as indicated in Rule 1306.11 (B) of the PRWQSR.

Once the petitioner receives the draft WQC and the public notice, it will have a term of fifteen (15) days to publish the notice, as indicated in Rule 1306.11 (B) of the PRWQSR. If the petitioner does not publish the notice within the aforementioned time period, the DNER may proceed to deny the WQC. In such case the Environmental Protection Agency will not issue the NPDES permit for the discharge in accordance with the provisions of Section 401(a)(1) of the CWA, and the Title 40 of the Code of Federal Regulations, Part 122.4 (b).

The DNER intends to certify, pursuant to the PRWQSR, that there is a reasonable assurance that the allowed discharge will comply with the applicable water quality requirements, if the limitations and monitoring requirements in Tables A-1, A-2 and A-3 of the enclosed draft WQC are met. The conditions specified in the aforementioned tables shall be incorporated into the NPDES permit in order to satisfy the provisions of Section 401 (d) of the CWA.

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

Cordially,

Wanda E. García Hernández by:

Ángel R. Meléndez Aguilar
Acting Manager
Water Quality Area

Enclosures

c: Ms. Yasmin Laguer, EPA-CEPD

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**PRELIMINARY DETERMINATIONS FOR**
**WATER QUALITY CERTIFICATE**

**NPDES No. PR0023710**

The Department of Natural and Environmental Resources (DNER) has received from the Puerto Rico Aqueduct and Sewer Authority (PRASA) a request to obtain a Water Quality Certificate (WQC) and an application for a mixing zone definition and authorization, pursuant to Rule 1305 of the Puerto Rico Water Quality Standards Regulation (PRWQSR) as amended, for the discharge of wastewater coming from the Arecibo Regional Wastewater Treatment Plant (ARWWTP), located at State Road No. 681, Km 2.0, Islote Ward, Arecibo, Puerto Rico (P.O. Box 7066, San Juan, Puerto Rico 00916-7066). Also, PRASA has requested from the Environmental Protection Agency (EPA) a permit under the National Pollutant Discharge Elimination System (NPDES) for the referred discharge.

The applicant, PRASA, proposes to discharge 75,708.2 $m^3$/day (20 MGD) as daily maximum flow of primary treated wastewater through the discharge point 001 to the Atlantic Ocean.

The receiving water body, Atlantic Ocean, is classified as SB by the PRWQSR, as amended.

After the corresponding evaluation of the NPDES permit renewal application, the mixing zone application, other available information, and the applicable provisions established in the PRWQSR and in Sections 301, 302, 303, 306 and 307 of the Federal Clean Water Act, as amended (33 U.S.C. 466 *et seq.*) (CWA); the DNER intends to issue a WQC and define and authorize a mixing zone, subject to compliance with all the conditions specified in Tables A-1, A-2 and A-3. In this manner, the DNER intends to certify that there is a reasonable assurance that the allowed discharge will comply with the applicable water quality requirements.

The conditions specified in the aforementioned tables shall be incorporated into the NPDES permit in order to satisfy the provisions of Section 401 (d) of the CWA.

**TABLE A-1** **EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS** **NPDES No. PR0023710**

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

Receiving Waters Name and Classification: Atlantic Ocean, SB

| Effluent Characteristics | Gross Discharge Limitations | | Monitoring Requirements | |
|---|---|---|---|---|
| | Monthly Average | Daily Maximum | Measurements Frequency | Sample Type |
| $BOD_5$ (mg/L) | 74.0 | | Monthly | Composite |
| Color (Pt-Co Units) | | --- | Monthly | Grab |
| Copper (Cu) (µg/L) | | 21.92 | Monthly | Grab |
| Cyanide, Free (CN) (µg/L) ϕ γ | | 3.75 | Monthly | Grab |
| Dissolved Oxygen (mg/L) | | --- | Daily | Grab |
| Enterococci (colonies/100 mL) σ | The enterococci density, in terms of geometric mean shall not exceed 35 colonies/100 mL in any 90-day interval; neither the 90th Percentile of the samples taken shall exceed 130 colonies/100 mL in the same 90-day interval. | | Twice per Month | Grab |
| Flow $m^3$/day (MGD) | | 75,708.2 (20) | Continuous Recording | |
| Nickel (Ni) (µg/L) | | 9.63 | Quarterly | Grab |
| Oil and Grease (mg/L) | The waters of Puerto Rico shall be substantially free from floating non-petroleum oils and greases as well as petroleum derived oil and greases. | | Monthly | Grab |
| Pentachlorophenol (µg/L) | | 0.4 | Monthly | Grab |

**TABLE A-1** **EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS** **NPDES No. PR0023710**

Receiving Waters Name and Classification: Atlantic Ocean, SB

| Effluent Characteristics | Gross Discharge Limitations | | Monitoring Requirements | |
|---|---|---|---|---|
| | Monthly Average | Daily Maximum | Measurements Frequency | Sample Type |
| pH (SU) | Shall always lie between 6.0 and 9.0. | | Daily | Grab |
| Residual Chlorine (µg /L) δ | | 500 | Daily | Grab |
| Silver (Ag) (µg/L) | | 4.74 | Monthly | Grab |
| Solids and Other Matter | The water of Puerto Rico shall not contain floating debris, scum or other floating materials attributable to the discharge in amounts sufficient to be unsightly or deleterious to the existing or designated uses of the water body. | | ---- | ---- |
| Sulfates ($SO_4$) (mg/L) | | ---- | ψ | Grab |
| Sulfide (undissociated $H_2S$) (µg/L) ε | | 280.0 | Monthly | Grab |
| Surfactants (as MBAS) (µg/L) | | 5,694 | Monthly | Grab |
| Suspended, Colloidal or Settleable Solids (mL/L) | Solids from wastewater sources shall not cause deposition in, or be deleterious to the existing or designated uses of the water body. | | Daily | Grab |
| Taste and Odor-producing Substances | Shall not be present in amounts that will render any undesirable taste or odor to edible aquatic life. | | ---- | ---- |
| Temperature oF (°C) | No heat may be added to the waters of Puerto Rico, which would cause the temperature of any site to exceed 86 °F (30 °C). | | Daily | Grab |

**TABLE A-1** **EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS** **NPDES No. PR0023710**

Receiving Waters Name and Classification: Atlantic Ocean, SB

| Effluent Characteristics | Gross Discharge Limitations | | Monitoring Requirements | |
|---|---|---|---|---|
| | Monthly Average | Daily Maximum | Measurements Frequency | Sample Type |
| Thallium (Tl) (µg/L) | | 1.70 | Monthly | Grab |
| TKN (µg/L) | --- | --- | Monthly | Grab |
| Total Nitrogen ($NO_3$, $NO_2$, TKN) (µg/L) | | 27,022 | Monthly | Grab |
| Total Suspended Solids (mg/L) | --- | --- | Monthly | Composite |
| Turbidity (NTU) | | 103 | Monthly | Grab |
| Zinc (Zn) (µg/L) | | 103.63 | Annually | Grab |
| Special Conditions | See attached sheets which contain special conditions that constitute part of this certification. | | --- | --- |

Notes:

To comply with the monitoring requirements specified above, samples shall be taken at the sampling point for discharge 001.
All flow measurements shall achieve accuracy within the range of plus or minus 10%.

ϕ The samples shall be analyzed using the method approved by EPA in letter of February 20, 2007.
δ See Special Conditions 6 and 7.
ε See Special Condition 10.
γ See Special Condition 11.

ψ The permittee shall implement a monthly monitoring program using the analytical method approved by EPA with the lowest possible detection level, in accordance with Rule 1306.2 (C) of the PRWQSR as amended, for one (1) year period, after which they will be conducted annually. The monitoring program shall commence no later than thirty (30) days after the EDP.

Receiving Waters Name and Classification: Atlantic Ocean, SB

σ The enterococci density geometric mean and the 90$^{th}$ Percentile shall be calculated on a monthly basis beginning on EDP + 90 days, using the 6 points data set obtained during the previous 90-day interval. A monthly report with the calculations and the data set shall be submitted to DNER's Water Quality Area and to the Municipal Water Programs Branch of the EPA's Region 2 Caribbean Environmental Protection Division, beginning on EDP + 105 days and during the effectiveness of the permit.

**TABLE A-2 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS AT THE EDGE OF THE MIXING ZONE NPDES No. PR0023710**

During the period beginning on EDP + 24 months and lasting through EDP + 36 months, the permittee shall perform monitoring at the mixing zone monitoring stations as specified below:

Receiving Waters Name and Classification: Atlantic Ocean, SB

| Effluent Characteristics | Gross Discharge Limitations | | Monitoring Requirements | |
|---|---|---|---|---|
| | Monthly Average | Daily Maximum | Measurements Frequency | Sample Type |
| Color (Pt-Co Units) | Shall not be altered by other than natural phenomena. | | α | Grab |
| Copper (Cu) (µg/L) | | 3.73 | α | Grab |
| Cyanide, Free (CN) (µg/L) ϕ γ | | 1.0 | α | Grab |
| Dissolved Oxygen (mg/L) | Shall contain no less than 5.0. | | α | Grab |
| Nickel (Ni) (µg/L) | | 8.28 | α | Grab |
| pH (SU) | Shall always lie between 7.3 and 8.5. | | α | Grab |
| Residual Chlorine (µg /L) δ | | 7.5 | α | Grab |
| Silver (Ag) (µg/L) | | 2.24 | α | Grab |
| Sulfide (undissociated $H_2S$) (µg/L) ε | | 2.0 | α | Grab |
| Surfactants (as MBAS) (µg/L) | | 500 | α | Grab |

**TABLE A-2 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS AT THE EDGE OF THE MIXING ZONE NPDES No. PR0023710**

Receiving Waters Name and Classification: Atlantic Ocean, SB

| Effluent Characteristics | Gross Discharge Limitations | | Monitoring Requirements | |
|---|---|---|---|---|
| | Monthly Average | Daily Maximum | Measurements Frequency | Sample Type |
| Thallium (Tl) (µg/L) | | 0.47 | α | Grab |
| Total Nitrogen ($NO_3$, $NO_2$, TKN) (µg/L) | | 5,000 | α | Grab |
| Turbidity (NTU) | | 10 | α | Grab |
| Zinc (Zn) (µg/L) | | 85.62 | α | Grab |

Notes:

ϕ The samples shall be analyzed using the method approved by EPA in letter of February 20, 2007.
δ See Special Conditions 6 and 7.
ε See Special Condition 10.
γ See Special Condition 11.
α See Special Condition 20.

**TABLE A-3** **MONITORING REQUIREMENTS AT THE BACKGROUND SAMPLING STATION** **NPDES No. PR0023710**

During the period beginning on EDP + 24 months and lasting through EDP + 36 months, the permittee shall perform monitoring at the background sampling station as specified below:

Receiving Waters Name and Classification: Atlantic Ocean, SB

| Effluent Characteristics | Monitoring Requirements | |
|---|---|---|
| | Measurements Frequency | Sample Type |
| Color (Pt-Co Units) | α | Grab |
| Copper (Cu) (µg/L) | α | Grab |
| Cyanide, Free (CN) (µg/L) ϕ γ | α | Grab |
| Dissolved Oxygen (mg/L) | α | Grab |
| Nickel (Ni) (µg/L) | α | Grab |
| pH (SU) | α | Grab |
| Residual Chlorine (µg /L) δ | α | Grab |
| Silver (Ag) (µg/L) | α | Grab |
| Sulfide (undissociated $H_2S$) (µg/L) ε | α | Grab |
| Surfactants (as MBAS) (µg/L) | α | Grab |
| Temperature °F (°C) | α | Grab |
| Thallium (Tl) (µg/L) | α | Grab |

**TABLE A-3** **MONITORING REQUIREMENTS AT THE BACKGROUND SAMPLING STATION** **NPDES NO. PR0023710**

Receiving Water Name and Classification: Atlantic Ocean, SB

| Effluent Characteristics | Monitoring Requirements | |
|---|---|---|
| | Measurements Frequency | Sample Type |
| Total Nitrogen ($NO_3$, $NO_2$, TKN) (µg/L) | α | Grab |
| Turbidity (NTU) | α | Grab |
| Zinc (Zn) (µg/L) | α | Grab |

Notes:

ϕ The samples shall be analyzed using the method approved by EPA in letter of February 20, 2007.
δ See Special Conditions 6 and 7.
ε See Special Condition 10.
γ See Special Condition 11.
α See Special Condition 20.

## A. SPECIAL CONDITIONS

**NPDES NO. PR0023710**

These special conditions are an integral part of the Water Quality Certificate (WQC) and are authorized by Article 9 of the Environmental Public Policy Act, Law No. 416-2004, as amended. Therefore, they must be incorporated into the NPDES permit in order to satisfy the provisions of Section 401(d) 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 75,708.2 $m^3$/day (20 MGD) as daily maximum. No increase in flow of discharge 001 shall be authorized without a recertification from the Department of Natural and Environmental Resources (DNER).

2. The permittee shall require to any industrial user of the treatment system, to comply with the requirements of Section 307 and 308 of the CWA, by requiring to 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 the DNER. The permittee shall require to each industrial user to comply with Section 308 of the CWA 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 the entry to their facilities to EPA and the DNER personnel at any time for any appropriate inspection.

3. The permittee shall provide written notice to the DNER's Water Quality Area and the Municipal Water Programs Branch of EPA's Region 2 Caribbean Environmental Protection Division, of the following changes that may affect the treatment system:

    a. Any new introduction of pollutants to the treatment system, 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 the treatment system and the anticipated impact of such change in quantity and/or quality of the effluent to be discharged from the system.

4. Prior to the construction of any additional treatment system or the modification of the existing one, the permittee shall obtain the approval from the DNER of the engineering report, plans and specifications.

5. 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.

6. 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 NPDES permit, shall not exceed the concentrations specified in the applicable regulatory limitations.

7. The waters of Puerto Rico shall not contain any substance attributable to discharge 001, at such concentration which, either alone or as result of synergistic effects with other substances, is toxic or produces undesirable physiological responses in human, fish or other fauna or flora.

8. The discharge 001 shall not cause the presence of oil sheen in the receiving water body.

9. All sample collection, preservation, and analysis shall be carried out in accordance with the Title 40 of the Code of Federal Regulations (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 licensed medical technologist authorized to practice the profession in Puerto Rico.

10. The permittee shall use the analytical method approved by the Environmental Protection Agency (EPA), with the lowest possible detection limit, in accordance with the 40 CFR, Part 136 for Sulfide (as S). Also, the permittee 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 EPA approved method established in the 40 CFR, Part 136, then, the concentration of undissociated $H_2S$ shall be reported as "below detection limit".

11. The samples taken for the analysis of free cyanide shall be analyzed using the analytic method approved by the EPA with the lowest possible detection level, in accordance with Rule 1306.8 of the Puerto Rico Water Quality Standards Regulation (PRWQSR), as amended.

12. The flow-measuring 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.

13. The sampling point for discharge 001 shall be located immediately after the primary flow-measuring device of the effluent.

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

"Punto de Muestreo para la Descarga 001"

15. All water or wastewater treatment facilities, whether publicly or privately owned, must be operated by a person licensed by the Examination Board of Water and Wastewater Treatment Plants Operators of Puerto Rico.

16. The solid waste such as sludge, screenings and grit, generated due to the operation of the Arecibo Regional Wastewater Treatment Plant (ARWWTP) shall be:

    a. Disposed in compliance with the applicable requirements established in the 40 CFR, Part 257. A semiannual report shall be submitted to the Water Quality Area and the Land Pollution Control Area of the DNER and to the Municipal Water Programs Branch of EPA's Region 2 Caribbean Environmental Protection Division, notifying the method or methods used to dispose the solid waste 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 water body or soil. In the event of a spill of solid waste on land or into a water body, the permittee shall notify the Point Sources Permits Division of the DNER's Water Quality Area in writing within a term no longer than twenty-four (24) hours after the spill to the following electronic address: bypass@drna.pr.gov.

       This notification shall include the following information:

       i. spilled material,
       ii. spilled volume,
       iii. measures taken to prevent the spilled material to gain access to any water body.

    This special condition does not relieve the permittee from its responsibility to obtain the corresponding permits from the DNER's Land Pollution Control Area and other state and federal agencies, if any.

17. A log book must be kept for the material removed from the ARWWTP, 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 performs the service.

    A copy of the Non-Hazardous Solid Waste Collection or Transportation Services Permit issued by the authorized official from the DNER must be attached to the log book.

18. The sludge produced within the facility due to the operation of the treatment 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 waters do not occur.

19. 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.

20. The DNER has defined and authorized an Interim Mixing Zone (IMZ) pursuant to Rule 1305 of the PRWQSR.

a. The IMZ is delineated by the following points (See Diagram I):

| | **Geographic Coordinates*** |
|---|---|
| Point 1 | Lat. 18° 29' 26.125"<br>Long. 66° 41' 27.008" |
| Point 2 | Lat. 18° 29' 27.192"<br>Long. 66° 41' 23.416" |
| Point 3 | Lat. 18° 29' 19.257"<br>Long. 66° 41' 20.828" |
| Point 4 | Lat. 18° 29' 18.191"<br>Long. 66° 41' 24.420" |

* NAD 83 State Plane Coordinates

The ARWWTP outfall is a forty-eight (48) inch diameter pipeline that extends 3,769 ft from the shore. The diffuser is a linear type structure of six hundred and sixty (660) feet long and a constant diameter of forty-eight (48) inch. The outfall and diffuser are buried approximately 6.6 ft under the ocean floor at a slope of approximately 0.0925 feet per foot. The diffuser has fifty-six (56) raisers equally spaced at twelve (12) feet, center to center. Each riser extends above the ocean floor to a T-section, except for the terminal structure that incorporates two (2) ports and an end gate. Each side of the riser has an orifice port of 2.5-inch-diameter, except the most seaward riser on the terminal structure that has 3.5-inch-diameter ports. The angle of each port is zero degrees (0°) from the horizontal and the orientation of diffuser is perpendicular (90°) to the predominant currents. The water depth to the ocean floor along the diffuser varies from 82 to 91 feet, with an average depth of 84 feet.

A total of forty-one (41) ports shall be opened, discharging at the seaward end of the diffuser. One port on the end structure and on each riser will be open, discharging in opposite directions. The depth of the fourty (40) open 2.5-inch-diameter ports ranges from 82 to 87 feet, with an average depth of 84 feet. The depth of the open 3.5-inch-diameter port (port 2 on raiser 1) is 90 feet.

b. The mixing zone sampling stations shall be located at the four (4) points described in Part "a" of this special condition.

c. The background sampling station shall be located one hundred (100) meters from Point 1 or Point 2 of the mixing zone, depending of the current direction at the time of sampling. The background stations shall be located at the following geographic coordinates:

| | **Geographic Coordinates*** |
|---|---|
| BG1 | Lat. 18° 29' 25.158"<br>Long. 66° 41' 30.263" |
| BG2 | Lat. 18° 29' 28.158"<br>Long. 66° 41' 20.161" |

* NAD 83 State Plane Coordinates

d. The permittee shall maintain records of the equipment used to situate at the mixing zone boundaries. Such records shall include the date when the equipment was obtained or leased, calibration date, serial number, model, etc.

To identify the location of the sampling points of the mixing zone and the background, the permittee shall use the procedure established in the EPA-QA/QC for 301(h) Document (Table D-1 Example ZID Boundary Stations Locations).

If the permittee determines to use another method to identify the sampling points of the mixing zone, the permittee shall, prior to the utilization of such method, obtain written approval from the DNER.

e. The IMZ is defined for the following parameters:

| **Parameter** | **Daily Maximum Discharge Limitation at Outfall Serial Number 001** | **Daily Maximum Limitation at the Edge of the MZ** |
|---|---|---|
| Color (Pt-Co Units) | Monitoring Only | Ω |
| Copper (Cu) (µg/L) | 21.92 | 3.73 |

| Parameter | Daily Maximum Discharge Limitation at Outfall Serial Number 001 | Daily Maximum Limitation at the Edge of the MZ |
|---|---|---|
| Cyanide, Free (CN) (µg/L) | 3.75 | 1.0 |
| Dissolved Oxygen (mg/L) | Monitoring Only | ≥ 5.0 |
| Nickel (Ni) (µg/L) | 9.63 | 8.28 |
| pH (SU) | 6.0 – 9.0 | 7.3 – 8.5 |
| Residual Chlorine (µg /L) | 500 | 7.5 |
| Silver (Ag) (µg/L) | 4.74 | 2.24 |
| Sulfide (undissociated $H_2S$) (µg/L) | 280.0 | 2.0 |
| Surfactants (as MBAS) (µg/L) | 5,694 | 500 |
| Thallium (Tl) (µg/L) | 1.70 | 0.47 |
| Total Nitrogen ($NO_3$, $NO_2$, TKN) (µg/L) | 27,022 | 5,000 |
| Turbidity (NTU) | 103 | 10 |
| Zinc (Zn) (µg/L) | 103.63 | 85.62 |

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

f. Monitoring samples for these parameters shall be taken at the sampling point for discharge 001, the background monitoring stations and at the sampling stations of the IMZ. The discharge shall comply with the water quality standards as effluent limitations at sampling point for discharge 001 for all the other substances.

g. The monitoring samples at the four (4) stations in the boundaries of the IMZ and the background monitoring stations shall be taken at three (3) depths in each station: 10%, 50%, 90% of the depth.

h. No later than one hundred eighty (180) days from EDP, 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.

i. Thirty (30) days from the EDP, the permittee shall submit, for evaluation and approval by the DNER, a protocol to conduct such toxicity tests.

Such protocol shall include, but will not be limited to:

i. An identification of the organizations responsible for conducting the tests, including a full description of the laboratory capabilities and personnel expertise and the species to be tested.

ii. A detailed description of the methodology to be utilized in the conduct of the tests, including equipment, sample collection, dilution water and source of test organisms.

iii. A schematic diagram which depicts the sampling point for discharge 001 in relation to the wastewater treatment system and discharge point 001.

j. The toxicity tests shall be conducted according to the most recent editions of the following publications of the EPA:

i. *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, or the most recent edition of this publication, if such edition is available.

ii. *Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms* (EPA-821-R-02-014), Third Edition, October 2002, or the most recent edition of this publication, if such edition is available.

k. 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 permittee understands that:

i. by the nature or conditions of this case is impossible to follow such publications;

ii. other procedures, methods, etc., are adequate;

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

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

m. A report of the toxicity tests conducted shall be submitted to the DNER's Water Quality Area, during the sixty (60) days period after the tests were conducted. This report shall be prepared according to the aforementioned publications of EPA.

n. Based on the review of the test results, the DNER can require additional toxicity tests, including toxicity/treatability studies and can revoke the interim mixing zone authorization according with Rule 1305.14 of the PRWQSR. In such case, the NPDES permit shall be modified in accordance with this determination.

o. Solids from wastewater sources shall not cause deposition in, or be deleterious to the existing or designated uses of the receiving water body.

p. 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.

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

r. The permittee shall maintain in good operating conditions the discharge system [discharge outfall (land and submarine), diffuser, ports, etc.]. The discharge system shall be inspected during the third year of the effectiveness of the NPDES permit. This inspection should be performed to determine if any repairs, replacements, etc. are necessary in the system. A report of such inspection shall be submitted to the DNER's Water Quality Area and the Municipal Water Programs Branch of the EPA's Region 2 Caribbean Environmental Protection Division no later than sixty (60) days after the performance of the inspection.

s. The DNER can require that the permittee conduct bioaccumulation studies, dye studies, water quality studies or any other pertinent studies. If the DNER 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 DNER, the permittee shall submit, for evaluation and approval of the DNER, a protocol to conduct such study(ies). Sixty (60) days after the DNER approval, the permittee shall initiate 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).

t. The permittee shall implement a one year monitoring program to obtain the necessary data to validate the IMZ. The monitoring program shall consist of the sampling of the parameters included in Part "e" of this special condition to verify compliance with the applicable provisions of the PRWQSR and a dye study to validate the mathematical model used to determine the critical initial dilution and verify the behavior of the plume within the mixing zone. The monitoring program shall be conducted as follows:

   i. The permittee shall conduct two (2) sampling events at the four (4) stations at the boundaries of the IMZ, at the background sampling station and at the sampling point of discharge 001, during two seasons (summer and winter). One sampling event shall be conducted during each season.

   ii. The dye study shall be conducted twice, once at the same time as one of the sampling events.

u. The monitoring program shall commence 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 the DNER ninety (90) days after the EDP.

v. If the mathematical model is validated as established in the applicable provisions of the PRWQSR and in the Mixing Zone and Bioassays Guidelines, a final mixing zone authorization will be issued by the DNER. Nevertheless, if the mathematical model is not validated, the DNER may revoke the IMZ authorization in accordance with Rule 1305.14 of the PRWQSR. In such case, the permittee must submit a compliance plan according to Rule 1305.16 of the PRWQSR; and, the NPDES permit shall be modified in accordance with this determination.

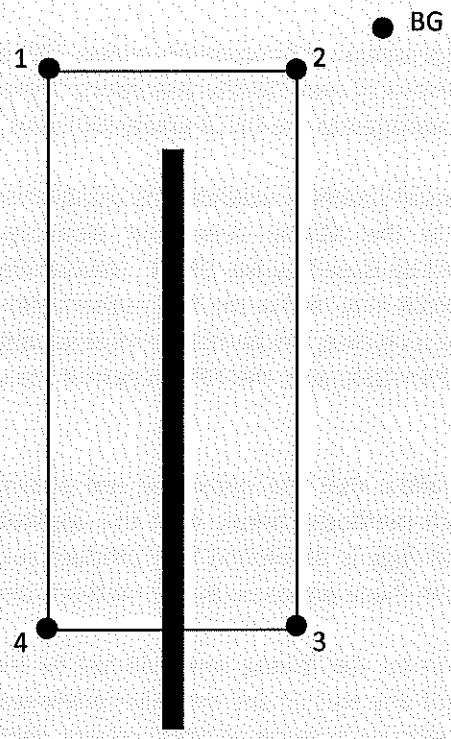
w. The DNER can allow that the permittee use alternative methods for the mixing zone validation if such methods comply with the applicable federal and state regulations or when new technology is developed that produce results technically and environmentally more reliable than those produced by the methods described in this special condition.

x. 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 does it authorize any injury to persons or property or invasion of other private rights, or any infringement of Federal or State laws or regulations.

21. The DNER, by the issuance of the WQC, does not relieve the applicant from its responsibility to obtain additional permits or authorizations from the DNER 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 defined by the Puerto Rico Water Quality Standards Regulation, as amended.

**DIAGRAM-I**

**Arecibo RWWTP Mixing Zone**




**Geographic Coordinates***

| | |
|---|---|
| Point 1 | Lat. 18° 29' 26.125"<br>Long. 66° 41' 27.008" |
| Point 2 | Lat. 18° 29' 27.192"<br>Long. 66° 41' 23.416" |
| Point 3 | Lat. 18° 29' 19.257"<br>Long. 66° 41' 20.828" |
| Point 4 | Lat. 18° 29' 18.191"<br>Long. 66° 41' 24.420" |

*NAD 83 State Plane Coordinates

## B. CITATION AND JUSTIFICATION FOR SPECIAL CONDITIONS (40 CFR 121.7(d)(2))

| Special Condition | Statement explaining why the condition is necessary (40 CFR 121.7(d)(2)(i)) | Citation to federal or state law that authorizes the condition (40 CFR 121.7(d)(2)(ii)) |
|---|---|---|
| 1, 2, 3 | These special conditions are established to assure that no changes in nature or flow of the allowed discharge occur without an evaluation of the effects of such changes in the compliance with the applicable water quality requirements set forth in the PRWQSR and in Sections 301, 302 and 303 of the CWA. | • Rule 1306.1.B of the PRWQSR<br>• Sections 301, 302 and 303 of the CWA |
| 4 | This special condition is necessary to assure that the treatment system evaluated and authorized, for compliance with the requirement to implement control measures to prevent adverse effects on the receiving water body, is not altered without prior authorization from DNER. | • Rule 1306.7 of the PRWQSR |
| 5, 12 | These special conditions are necessary to require the permittee to establish control measures to prevent that the discharge coming from the facility affects or causes impairment to the applicable water quality requirements set forth in the PRWQSR and in Sections 301, 302 and 303 of the CWA. | • Rule 1306.6.A.1 of the PRWQSR<br>• Sections 301, 302 and 303 of the CWA |
| 6,7 | These special conditions are established to assure that the discharge coming from the facility does not affect or cause impairment to the applicable water quality requirements set forth in the PRWQSR and Sections 301, 302, 303 and 307 of the CWA. | • Rule 1303.1.J of the PRWQSR<br>• Rule 1306.1.B of the PRWQSR<br>• Sections 301, 302, 303 and 307 of the CWA |
| 8 | This special condition is established to assure that the discharge coming from the facility does not affect or cause impairment to the applicable water quality requirements set forth in the PRWQSR and Sections 301, 302 and 303 of the CWA. | • Rule 1303.1.H of the PRWQSR<br>• Rule 1306.1.B of the PRWQSR<br>• Sections 301, 302 and 303 of the CWA |
| 9, 10 | These special conditions are necessary to establish source monitoring, record keeping, reporting, sampling, and testing methods requirements in the WQC, to assure that the allowed discharge will comply with the applicable water quality requirements established in the PRWQSR and in Sections 301, 302 and 303 of the CWA. | • Rule 1306.2.C of the PRWQSR<br>• Sections 301, 302 and 303 of the CWA |
| 11 | This special condition is necessary to establish source monitoring, record keeping, reporting, sampling, and testing methods requirements in the WQC, to assure that the allowed discharge will comply with the applicable water quality requirements established in the PRWQSR and in Sections 301, 302 and 303 of the CWA. | • Rule 1306.2.C of the PRWQSR<br>• Rule 1306.8 of the PRWQSR<br>• Sections 301, 302 and 303 of the CWA |

| Special Condition | Statement explaining why the condition is necessary (40 CFR 121.7(d)(2)(i)) | Citation to federal or state law that authorizes the condition (40 CFR 121.7(d)(2)(ii)) |
|---|---|---|
| 13, 14 | These special conditions are necessary to assure proper characterization of the discharge to comply with the applicable water quality requirements established in the PRWQSR and in Sections 301, 302 and 303 of the CWA. | • Rule 1306.2.E of the PRWQSR<br>• Sections 301, 302 and 303 of the CWA |
| 15 | This special condition is necessary to assure that the discharge will comply with the water quality requirements established in the PRWQSR. | • Rule 1306.6.B of the PRWQSR |
| 16, 19 | These special conditions are necessary to require the permittee to establish Best Management Practice to prevent that solids and other pollutants coming from the facility gaining access to the water body, in such manner that the permitted activity comply with the applicable water quality requirements established in the PRWQSR, and in Sections 301, 302 and 303 of the CWA. Also, this condition is necessary to establish record keeping and reporting requirements in the WQC, to comply with water quality requirements established in the PRWQSR. | • Rule 1306.1 of the PRWQSR<br>• Rule 1306.2 of the PRWQSR<br>• Rule 1306.4 of the PRWQSR<br>• Rule 1306.6.A.2 of the PRWQSR<br>• Sections 301, 302 and 303 of the CWA |
| 17, 19 | These special conditions are necessary to establish source monitoring, record keeping, reporting, sampling, and testing methods requirements in the WQC, to assure that the allowed discharge will comply with the applicable water quality requirements established in the PRWQSR and in Sections 301, 302, and 303 of the CWA. | • Rule 1306.2.A of the PRWQSR<br>• Sections 301, 302 and 303 of the CWA |
| 20 | This special condition is necessary to establish source monitoring, record keeping, reporting, sampling, and testing methods requirements in the WQC, to assure that the allowed discharge will comply with the applicable water quality requirements established in the PRWQSR and in Sections 301, 302, 303 and 307 of the CWA. | • Rule 1305 of the PRWQSR<br>• Rule 1306.9 of the PRWQSR<br>• Sections 301, 302, 303 and 307 of the CWA. |
| 21 | This special condition is necessary to require the permittee to establish the Best Management Practice to prevent pollutants coming from facility gaining access to the water body, in such manner that the facility comply with the applicable requirements established in the PRWQSR concerning the conservation and protection of the natural resources that may affect the quality of water resources. | • Rule 1306.1.B of the PRWQSR |
| Tables A-1, A-2 and A-3 | Tables A-1, A-2 and A-3 are necessary to establish the water quality-based effluent limitations and monitoring requirements in order to assure that the | • Rule 1302 of the PRWQSR<br>• Rule 1303 of the PRWQSR<br>• Rule 1305 of the PRWQSR |

| Special Condition | Statement explaining why the condition is necessary (40 CFR 121.7(d)(2)(i)) | Citation to federal or state law that authorizes the condition (40 CFR 121.7(d)(2)(ii)) |
|---|---|---|
| | allowed discharge will comply with the applicable water quality requirements established in the PRWQSR and in Sections 301, 302, 303 and 307 of the CWA. | • Rule 1306 of the PRWQSR<br>• Sections 301, 302, 303 and 307 of the CWA |