

ATTACHMENT D
RESPONSIVENESS SUMMARY
FOR THE FOLLOWING WTP DRAFT PERMITS

Aguadilla RWWTP (PR0023736)
Arecibo RWWTP (PR0023710)

On September 5, 2025, the United States Environmental Protection Agency (EPA) issued draft National Pollutant Discharge Elimination System (NPDES) permits for Water Treatments Plants (WTPs) and one Wastewater Treatment Plant (WWTP) owned by the Puerto Rico Aqueduct and Sewer Authority (PRASA) listed above.

According to 40 Code of Federal Regulations (CFR) §124.17, at the time that any final permit decision is issued under §124.15, EPA shall issue a response to comments. This response shall (1) specify which provisions, if any, of the draft permit have been changed in the final permit decision and the reasons for the change; and (2) briefly describe and respond to all significant comments on the draft permit raised during the public comment period, or during any hearing.

Comments on behalf of the following comments were received:

Jacobs, on behalf of PRASA
Metro Office Park 17, Suite 400
Guaynabo, PR 00968

A summary of and response to the comments received follows:

A. AGUADILLA RWWTP COMMENTS (PR0023736)

1) Comment: Specification of Outfall Locations

It is standard practice to identify the outfall discharge location using a single point. In the case of a “Y”-shaped diffuser, the apex of the diffuser is best suited to represent the location of the discharge. The coordinates of the apex used in the mixing zone application to define the mixing zone differ from the coordinates in the draft permit. ***PRASA requests that the coordinates of the outfall, based on the apex of the diffuser, be listed as latitude 18°24'26.70"N and longitude 67°11'16.35"W to conform with the mixing zone application.***

Response: Petition was not granted. Outfall coordinates were based on PRASA’s renewal application.

2) Comment: Specification of Effluent Toxicity No Observable Effects Concentration (NOEC) Limitation

It is noted that EPA performed an assessment of whole effluent toxicity (WET) in the 301h Decision Documents for each plant. The assessments were based on the effluent toxicity test results from each plant and the revised critical initial dilutions (CIDs) on which Puerto Rico Department of Natural and Environmental Resources (DNER) based each plant's current Water Quality Certificate. The conclusion for each plant was:

“EPA has determined this discharge does not cause or contribute or have the reasonable potential to cause or contribute to an excursion of the narrative or recommended water quality standards for toxicity at the edge of the mixing zone.”

Table A-1 and Part IV.B.2.a.1 (Page 15) in both permits include a WET NOEC limitation of $\geq 0.81\%$ effluent. PRASA believes this value needs to be corrected. This value is noted in the draft permits, and in the associated fact sheets, as being based on a reasonable potential to exceed the water quality standard of 1.0 chronic toxicity units. This conclusion contradicts the conclusions of the 301h Decision Document for each plant and the results of the calculations shown below.

There is no calculation shown in the permit or the associated fact sheet to support a value of 0.81 percent effluent. PRASA requests that EPA provide their calculations of the reasonable potential for further review prior to finalizing the permits.

Based on the Puerto Rico Water Quality Standards Regulation (PRWQSR), as discussed below, it is unclear how both RWWTPs can be limited by the same effluent limitation for toxicity given the differences in initial dilution and the PRWQSR specifications for effluent limitations for toxicity.

The effluent limitation should be determined based on the Interim Mixing Zone and Bioassay Guidelines (MZBAG, [Revised June 2012 and published by the Puerto Rico Environmental Quality Board]) which are included by reference in the PRWQSR (Amended June 2025 and published by DNER). The MZBAG (Section II, Chapter 3) requires the chronic toxicity units (TU_c) at the edge and beyond the approved mixing zone boundary to be based on the CID. Specifically, the chronic toxicity units in the effluent following critical initial dilution must be $TU_c \leq 1.0$. The required NOEC is defined in the MZBAG as $100/CID$.

It is noted that the CID represents a worst-case condition and is not expected to be the actual dilution at any given time. More than a dozen mixing zone validation studies for effluent discharges in Puerto Rico marine waters have indicated that the CID is indeed a worst-case condition, and observations have consistently shown higher actual dilutions.

It is further noted that PRASA has conducted toxicity tests of the background receiving water at three RWWTP discharge sites (Carolina, Ponce, and Bayamón/Puerto Nuevo) and determined there is no toxicity in the background receiving water from other sources.

For the Aguadilla RWWTP, the CID as approved by DNER and noted on page 1 (Part I.D) of the draft permit is 212:1. This requires a NOEC of 0.47% ($TU_c = 100/212$, or 0.47).

Note that a NOEC of 0.81%, as stated in the draft permit, corresponds to a dilution of 123:1, approximately one-half the actual DNER-established dilution credit and does not represent the dilution associated with any identified risk of exceedance.

PRASA believes that the NOEC limit should be based on the CID (the dilution credit approved by DNER) and requests that the NOEC value in the permit either reference the dilution credit or be explicitly stated as 0.47%.

Response:

The NOEC of 0.81% effluent as presented in the draft permit is incorrect, as noted by PRASA. However, PRASA's definition and calculation of the NOEC and associated TUC is incorrect in the comment above. As provided in the 2025 amended *PRWQS*, the *Technical Support Document for Water Quality Based Toxics Control* (EPA, March 1991), and the *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms* (EPA-821-R-02-014, Fourth Edition, 2002); $TUC = 100/NOEC$ where the NOEC is the highest tested effluent concentration (in percent effluent) that does not cause an adverse effect on the test organism (i.e., the highest effluent concentration at which the values for the observed responses are not statistically different from the control). The discharger provided the document *Update of Supplemental 301(h) Waiver Application Information for the Aguadilla Regional Wastewater Treatment Plant (NPDES Permit PR0023736)* (May 28, 2020) as part of the Clean Water Act §301(h) Waiver and Mixing Zone application. This document tabulated WET results from January 2017 through January 2020. Based on the WET data included in the application, the most critical chronic NOEC level of **1.41% effluent** occurred in both *Mysidopsis bahia* and *Arbacia punctulata* tests.

EPA evaluated receiving water toxicity with consideration of a CID of **212:1**. Additionally, as per EPA (March 1991) EPA applied a coefficient of variation of 0.6 for >20 samples and used a multiplier of 2.3 (Table 3-1) on the most critical chronic NOEC to evaluate whether these levels demonstrated the reasonable potential to cause or contribute to an excursion of the water quality standard for toxicity. The resulting calculations are below:

$$100/NOEC = TUC$$

$$100/1.41 (NOEC) = 70.92 TUC \text{ at the discharge point}$$

After dilution;

$$70.92 TUC/212 (CID) = 0.335 TUC$$

Using the multiplier of 2.3 from table 3-1 of the TSD at the 99th Percentile this exhibits a critical condition of;

$$0.335 \times 2.3 = \mathbf{0.77 TUC}, \text{ which is less than the } 1.0 TUC \text{ recommended criterion.}$$

Therefore, EPA has determined this discharge does not cause or contribute or have the reasonable potential to cause or contribute to an excursion of the narrative or recommended

water quality standards for toxicity at the edge of the mixing zone.

3) **Comment:** Specification of WET Reporting

The reporting time for WET testing is listed as 60 days following the testing (first sentence of Part IV.B.2.d). The table in the same section of the permit indicates 30 days following receipt of the test results. These should be consistent. PRASA requests that reports be due 60 days after the receipt of the test results and the text and tables in the draft permit and/or corresponding fact sheet be updated to reflect that approach.

Response: This was a typographical error. The reporting period has been modified to read thirty (30) day period.

B. ARECIBO RWWTP COMMENTS (PR0023710)

1) **Comment:** Specification of Outfall Locations

For a linear diffuser, the mid-point of the diffuser is generally best suited to represent the location of the diffuser. The coordinates of the mid-point used in the mixing zone application to define the mixing zone differ from the coordinates in the draft permit. *PRASA requests that the coordinates of the outfall, based on the mid-point of the diffuser, be listed as latitude 18°29'22.69"N and longitude 66°41'23.92"W to conform with the mixing zone application.*

Response: Petition was not granted. Outfall coordinates were based on PRASA's renewal application.

2) **Comment:** Specification of Effluent Toxicity No Observable Effects Concentration (NOEC) Limitation

It is noted that EPA performed an assessment of whole effluent toxicity (WET) in the 301h Decision Documents for each plant. The assessments were based on the effluent toxicity test results from each plant and the revised critical initial dilutions (CIDs) on which Puerto Rico Department of Natural and Environmental Resources (DNER) based each plant's current Water Quality Certificate. The conclusion for each plant was:

"EPA has determined this discharge does not cause or contribute or have the reasonable potential to cause or contribute to an excursion of the narrative or recommended water quality standards for toxicity at the edge of the mixing zone."

Table A-1 and Part IV.B.2.a.1 (Page 15) in both permits include a WET NOEC limitation of $\geq 0.81\%$ effluent. PRASA believes this value needs to be corrected. This value is noted in the draft permits, and in the associated fact sheets, as being based on a reasonable potential to exceed the water quality standard of 1.0 chronic toxicity units. This conclusion contradicts the conclusions of the 301h Decision Document for each plant and the results of the calculations shown below.

There is no calculation shown in the permit or the associated fact sheet to support a value of 0.81 percent effluent. PRASA requests that EPA provide their calculations of the reasonable potential for further review prior to finalizing the permits.

Based on the Puerto Rico Water Quality Standards Regulation (PRWQSR), as discussed below, it is unclear how both RWWTPs can be limited by the same effluent limitation for toxicity given the differences in initial dilution and the PRWQSR specifications for effluent limitations for toxicity.

The effluent limitation should be determined based on the Interim Mixing Zone and Bioassay Guidelines (MZBAG, [Revised June 2012 and published by the Puerto Rico Environmental Quality Board]) which are included by reference in the PRWQSR (Amended June 2025 and published by DNER). The MZBAG (Section II, Chapter 3) requires the chronic toxicity units (TUC) at the edge and beyond the approved mixing zone boundary to be based on the CID. Specifically, the chronic toxicity units in the effluent following critical initial dilution must be $TUC \leq 1.0$. The required NOEC is defined in the MZBAG as $100/CID$.

It is noted that the CID represents a worse-case condition and is not expected to be the actual dilution at any given time. More than a dozen mixing zone validation studies for effluent discharges in Puerto Rico marine waters have indicated that the CID is indeed a worst-case condition, and observations have consistently shown higher actual dilutions.

It is further noted that PRASA has conducted toxicity tests of the background receiving water at three RWWTP discharge sites (Carolina, Ponce, and Bayamón/Puerto Nuevo) and determined there is no toxicity in the background receiving water from other sources.

For the Arecibo RWWTP, the CID as approved by DNER and noted on page 1 (Part I.D) of the draft permit of 376:1. This requires an NOEC of 0.27%.

Note that an NOEC of 0.81% as stated in the permit corresponds to a dilution of 123:1, less than one-third of the actual DNER-established dilution credit and does not represent the dilution associated with any identified risk of exceedance.

PRASA believes that the NOEC limit should be based on the CID (the dilution credit approved by DNER) and requests that the NOEC value in the permit either reference the dilution credit or be explicitly stated as 0.27%.

Response:

The NOEC of 0.81% effluent as presented in the draft permit is incorrect, as noted by PRASA. However, PRASA's definition and calculation of the NOEC and associated TUC is incorrect in the comment above. As provided in the 2025 amended *PRWQS*, the *Technical Support Document for Water Quality Based Toxics Control* (EPA, March 1991), and the *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms* (EPA-821-R-02-014, Fourth Edition, 2002); $TUC = 100/NOEC$ where the NOEC is the highest tested effluent concentration (in percent effluent) that does not cause an adverse effect on the test organism (i.e., the highest effluent concentration at which the values for the observed responses are not statistically different from the control). The discharger provided the document *Application for Renewal of the 301(h) Waiver for the Arecibo Regional Wastewater Treatment Plant (RWWTP) (NPDES Permit PR0023710)* (May 28, 2020) as part of the Clean Water Act §301(h) Waiver and Mixing Zone application. PRASA also provided WET data from January 2016 through January 2020 with the NPDES renewal application dated May 29, 2020, as well as updated results from January 2023. Based on the WET data included in the application, the most critical chronic NOEC level of **1.41% effluent** occurred in both *Mysidopsis bahia* and *Arbacia punctulata* tests.

EPA evaluated receiving water toxicity with consideration of a CID of **376:1**. Additionally, as per EPA (March 1991) EPA applied a coefficient of variation of 0.6 for >20 samples and used a multiplier of 2.3 (Table 3-1) on the most critical chronic NOEC to evaluate whether these levels demonstrated the reasonable potential to cause or contribute to an excursion of the water quality standard for toxicity. The resulting calculations are below:

$$100/NOEC = TUC$$

$$100/1.41NOEC = 70.92 TUC \text{ at the discharge point}$$

After dilution;

$$70.92 TUC / 376CID = 0.189 TUC$$

Using the multiplier of 2.3 from table 3-1 of the TSD at the 99th Percentile this exhibits a critical condition of;

$$0.189 \times 2.3 = \mathbf{0.43 TUC}, \text{ which is less than the } 1.0 TUC \text{ recommended criterion.}$$

Additionally, PRASA also provided updated testing from January 2023, which included a NOEC result of **0.85%** effluent for the *A. punctulata* fertilization test.

$$100/0.85NOEC = 117.65 TUC$$

$$117.65 TUC / 376CID = 0.313 \times 2.3TSD \text{ multiplier} = \mathbf{0.72 TUC}, \text{ which is also less than the } 1.0 TUC \text{ recommended criterion.}$$

Therefore, EPA has determined this discharge does not cause or contribute or have the reasonable potential to cause or contribute to an excursion of the narrative or recommended

water quality standards for toxicity at the edge of the mixing zone.

3) Comment: Specification of WET Reporting

The reporting time for WET testing is listed as 60 days following the testing (first sentence of Part IV.B.2.d). The table in the same section of the permit indicates 30 days following receipt of the testing results. These should be consistent. PRASA requests that reports be due 60 days after the receipt of the test results and the text and tables in the draft permit and/or corresponding fact sheet be updated to reflect that approach.

Response: This was a typographical error. The reporting period has been modified to read thirty (30) day period.