



United States Environmental Protection Agency
Region 2
Clean Water Division
New York, New York 10007

FACT SHEET

**DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
PUERTO RICO ELECTRIC POWER AUTHORITY
AGUIRRE POWER PLANT COMPLEX
PERMIT No. PR0001660**

This Fact Sheet sets forth the principle facts and technical rationale that serve as the legal basis for the requirements of the accompanying draft permit. The draft permit has been prepared in accordance with Clean Water Act (CWA) section 402 and its implementing regulations at Title 40 of the *Code of Federal Regulations* (CFR), Parts 122 through 124, and the Intent to issue a Water Quality Certificate (IWQC) issued by the Puerto Rico Environmental Quality Board (EQB) on June 14, 2018 pursuant to CWA section 401 requirements.

Pursuant to 40 CFR 124.53, the Commonwealth of Puerto Rico must either grant a certification pursuant to CWA section 401 or waive this certification before the U.S. Environmental Protection Agency (EPA) may issue a final permit. On June 14, 2018, the EQB provided in the IWQC 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 in the IWQC are met. In accordance with CWA section 401, EPA has incorporated the conditions of the IWQC into the draft permit. The IWQC conditions are discussed in this Fact Sheet and are no less stringent than allowed by federal requirements. Additional requirements might apply to comply with other sections of the CWA. Review and appeals of limitations and conditions attributable to the IWQC were made through the applicable procedures of the Commonwealth of Puerto Rico and not through EPA procedures.

Background

A. Permittee and Facility Description

The Puerto Rico Electric Power Authority (PREPA) (referred to throughout as the Permittee) has applied for renewal of its National Pollutant Discharge Elimination System (NPDES) permit. The Permittee is discharging pursuant to NPDES Permit No. PR0001660. The Permittee submitted Application Form 1, and Forms and 2F on June 30, 2015, applying for an NPDES permit to discharge treated wastewater from the Aguirre Power Plant Complex in Salinas, Puerto Rico, referred herein as the facility. The applicant later provided a supplement to their NPDES renewal application on May 24, 2016. The facility is classified as a major discharger by EPA in accordance with the EPA rating criteria.

The Permittee owns and operates a steam electric generating station. Attachment A of this Fact Sheet provides a map of the area around the facility and a flow schematic of the facility.

The Aguirre Power Plant Complex (APPC) is owned and operated by Puerto Rico Electrical Power Authority (PREPA), and is located in the Municipality of Salinas, in the Aguirre Seco Ward on the southern coast of Puerto Rico. This activity has a Standard Industrial Classification (SIC) Code of 4911, Electric Services. The Thermo-Electric plant was built in the early 1970s, and consists of two twenty (20) megawatt (MW) oil-fired turbine generators, and two oil-fired four hundred and fifty (450) MW steam-electric units. The Combined Cycle plant includes two three hundred (300) MW combined cycle oil-fired units built in 1975. The Aguirre Power Plant Complex has a total electrical output rating of 1,540 MW.

APPC withdraws approximately 654.0 million gallons per day (MGD) of seawater from the Bahía de Jobos (Jobos Bay), which is the second largest estuary in Puerto Rico, and is designated by the National Oceanic and Atmospheric Administration (NOAA) as a National Estuarine Research Reserve. Cooling water, process wastewater, and stormwater are discharged to Jobos Bay via five separate outfalls. The total length of Jobos Bay, from the eastern tip of Cayos Ratones to the eastern-most part at Puerto Jobos, is approximately 7 nautical miles. The widest area is 2.2 nautical miles from Central Aguirre to Boca del Infierno. Jobos Bay contains three times more coastline (37 mi) than any other estuary in Puerto Rico due to an extensive mangrove fringe with many channels, islets and coastal lagoons. The bay is formed by Punta Pozuelo, protruding from the east, and a

series of islands (cays) on the south (Cayos Caribes) and southwesterly sides (Cayos de Barca). Water depths range from 2 to 20 feet throughout most of the bay. A maximum depth of 27 feet is maintained in the dredged ship channel with naturally occurring depths of 28-34 feet in the western bay. The receiving body of water is classified SC by the Environmental Quality Board (EQB) of the Commonwealth of Puerto Rico.

The intake structure consists of five intake channels with five bar screens, five dual flow traveling screens and five intake pumps. The heated discharge from Units 1 & 2 flows first to an open 1,775 ft long discharge canal at the end of which water is pumped through a 13-ft diameter 5,800-ft long pipe to a discharge outlet located southwest of the intake in Jobos Bay. Waste heat from the two 300 MW combined cycle units is dissipated to the air using a closed cycle cooling system employing mechanical draft cooling towers. The open discharge canal serves as both the source of cooling tower makeup water (5,800 gpm) and the discharge location of cooling tower blowdown (2,400 gpm).

The applicant has provided the following description of the facility and water useage system:

The PREPA Aguirre Power Plant Complex (APPC) is an onshore electric power generation facility located on the south coast of Puerto Rico in the municipality of Salinas. The facility consists of two 450 MW oil-fired steam electric generating units, two 20 MW gas turbine generator power units, and two 300 MW combined cycle units. The combined cycle units are comprised of four combustion turbines and one steam turbine per unit. The total electric generating capacity of the complex is 1540 MW.

The APPC uses seawater from Jobos Bay for the steam turbines, condensers, combined cycle and oil fired units and fresh water from nearby groundwater wells for the complex operational processes. Cooling water, wastewater, and storm water are discharged through Outfalls 001, 002, 003, and 004 to Jobos Bay. Storm water is also discharged through Outfall 005 to Jobos Bay.

The main uses of seawater included oil-fired unit's once-through cooling condensers, traveling screen washing and recirculating cooling. Raw water supply is used for broiler makeup, Reverse Osmosis (RO) system to produce deionized water, regeneration of ion exchange resins, and equipment cleaning and maintenance. Other process water uses include: boiler wet storage, hydrostatic testing, sanitary uses, and miscellaneous in-plant operations. Process wastewater is also generated as cooling tower blowdown and condensate discharges. Hydrostatic test is not a significant source of pollutant since well water is used. Storm water is discharged through each of the outfalls.

Summary of Permittee and Facility Information

Permittee	Puerto Rico Electric Power Authority
Facility contact, title, phone	Luisette X. Ríos Castañer, Environmental Compliance Supervisor, (787) 521-4966 email: L-RIOS@AEEPR.COM
Permittee (mailing) address	P.O. Box 364267, San Juan, Puerto Rico 00936-4267
Facility (location) address	Aguirre Power Plant Complex, State Road No. 3, Int. 705, Salinas, Puerto Rico 00751
Type of facility	Steam Electric Power Generating Station, SIC Code 4911
Pretreatment program	N/A
Facility maximum daily flow	$654.0 + 0.7 + 10.75 + 0.05 = 665.5$ = Sum Total of Maximum Daily Flow Outfalls 001, 002, 003, 004 in million gallons per day (MGD)
Facility classification	Major

B. Discharge Points and Receiving Water Information

Wastewater is discharged from Outfalls 001, 002, 003, 004, and 005 to Jobos Bay, a water of the United States. Jobos Bay is a National Estuarine Reserve, and is classified as "SC" (coastal waters intended for uses where the human body may come in indirect contact with the water (e.g. fishing and boating) and for use in propagation and preservation of desirable species) by the Puerto Rico Environmental Quality Board (EQB).

The draft permit authorizes the discharge from the following discharge point(s):

Outfall	Effluent description	Outfall latitude	Outfall longitude	Receiving water name and classification
001	Thermoelectric plant condensers cooling water, thermoelectric plant service water cooling towers blowdown, combined cycle plant sea water cooling towers make up and blowdown, thermoelectric plant tanks and condensers hydrostatic test waters, condensers screen wash water, reject water from ultra-filtration plant and storm water	17°, 56', 06.20" N	66°, 13', 40.19" W	Bahía de Jobos, Class SB
002	Condensate of the fuel heaters, floor and equipment drains, miscellaneous use water and storm water runoff	17°, 57', 04.75" N	66°, 13', 36.90" W	Bahía de Jobos, Class SB
003	Wastewater treatment plant effluent, storm water runoff and condenser screen wash water	17°, 57', 57.55" N	66°, 13', 34.05" W	Bahía de Jobos, Class SB
004	Combined cycle plant service water cooling towers blowdown, combined cycle equipment hydrostatic test waters, combined cycle plant miscellaneous use water, storm water from the fuel tank dikes, storm water runoff and groundwater	17°, 57', 46.86" N	66°, 14', 00.97" W	Bahía de Jobos, Class SB
005	Storm water runoff treated in an oil water separator prior to discharge	17°, 57', 57.91" N	66°, 13', 34.14" W	Bahía de Jobos, Class SB

Source and Receiving Water

As indicated in the Puerto Rico Water Quality Standards (PRWQS) Regulations, the designated uses for Class **SC** receiving waters include:

1. Primary and secondary contact recreation; and
2. Propagation and preservation of desirable species, including threatened and endangered species

Jobos Bay is not listed on the Puerto Rico Clean Water Act 303(d) list for impairments due to pollutants.

C. Mixing Zone/Dilution Allowance

A mixing zone or dilution allowance has not been authorized for the discharger.

D. Compliance Orders/Consent Decrees

A Consent Decree addressing all four NPDES permitted power plants has been in effect since 1999. The construction of all projects under Section VI, Park I, Item 2 of the CD, regarding the Aguirre (South Coast) Power Plant was completed. PREPA has maintained compliance with all continuing requirements of the Decree.

E. Summary of Basis for Effluent Limitations and Permit Conditions - General

The effluent limitations and permit conditions in the permit have been developed to ensure compliance with the following, as applicable:

1. Clean Water Act section 401 Certification
2. NPDES Regulations (40 CFR Part 122)
3. PRWQS (April 2016)
4. Technology-based limits are included based upon 40 CFR §122.45(h),
5. Effluent Limitation Guidelines (ELG) for the Steam Electric Generating Point Source Category at 40 CFR §423.12, and §423.13

6. Clean Water Act §316(b) Existing Facilities Final Rulemaking signed May 19, 2014, and implementing regulations at 40 CFR §125.94.

PART I. RATIONALE FOR EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

CWA section 301(b) and 40 CFR 122.44(d) require that permits include limitations more stringent than applicable technology-based requirements where necessary to achieve applicable water quality standards. In addition, 40 CFR 122.44(d)(1)(i) requires that permits include effluent limitations for all pollutants that are or may be discharged at levels that cause, have the reasonable potential to cause, or contribute to an exceedance of a water quality criterion, including a narrative criterion. The process for determining reasonable potential and calculating water quality-based effluent limits (WQBELs) is intended to protect the designated uses of the receiving water, and achieve applicable water quality criteria. Where reasonable potential has been established for a pollutant, but there is no numeric criterion for the pollutant, WQBELs must be established using (1) EPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in 40 CFR 122.44(d)(1)(vi).

The effluent limitations and permit conditions in the permit have been developed to ensure compliance with all federal and state regulations, including PRWQS. The basis for each limitation or condition is discussed below.

A. Effluent Limitations

The permit establishes both Technology-based Effluent Limitations (TBELs) and WQBELs for several pollutants and the basis for these limitations are discussed below.

Outfall 001

1. **Flow:** An effluent limitation for flow has been established in the permit. Monitoring conditions are applied pursuant to 40 CFR 122.21(j)(4)(ii) and the IWQC.
2. **Dissolved Oxygen.** The effluent limitation is based on the water quality criterion for Class **SC** waters as specified in Rule **1303.2** of PRWQS, and the IWQC.
3. **Narrative Effluent Limitations.**
 - a. **Color.** A narrative effluent limitation for color has been established based on Rule 1303.2 of the PRWQS and the IWQC. As required by the IWQC, monitoring for color shall occur at the effluent and the receiving water body.
 - b. **Oil and Grease.** A narrative condition for oil and grease has been established based on Rule 1303.1 of the PRWQS and the IWQC.
 - c. **Solids and Other Matter:** A narrative condition for solids and other matter has been established based on Rule 1303.1 of the PRWQS and the IWQC.
 - d. **Suspended, Colloidal or Settleable Solids.** A narrative condition for suspended, colloidal or settleable solids has been established based on Rule 1303.1 of the PRWQS and the IWQC.
 - e. **Taste and Odor Producing Substances.** A narrative effluent limitation for taste and odor producing substances has been established based on Rule 1303.2 of the PRWQS and the IWQC.
4. **pH.** The effluent limitation for pH is on the water quality criterion for Class SC based on Rule 1303.2 of the PRWQS and the IWQC.
5. **Turbidity.** The effluent limitation for turbidity is based on Rule 1303.2 of the PRWQS.
6. **Whole Effluent Toxicity (WET):** CWA section 101(a) establishes a national policy of restoring and maintaining the chemical, physical and biological integrity of the nation's waters. Specifically, CWQ section 101(a)(3) and PRWQS Rule 1303(l) prohibit the discharge of toxic pollutants in toxic amounts. Federal regulations at 40 CFR 122.44(d) also require that where the permitting authority determines, through the analysis of site-specific WET data, that a discharge causes, shows a reasonable potential to cause, or contributes to an excursion above a water quality standard, including a narrative water quality

criterion, the permitting authority must establish effluent limits for WET. To satisfy requirements of the CWA, its implementing regulations, and the PRWQS, a reasonable potential analysis for WET was conducted for this discharge.

PRWQS do not provide a numeric criterion for toxicity. Therefore, consistent with the recommendations of section 2.3.3 of EPA's *Technical Support Document (TSD) for Water Quality-Based Toxics Control* (EPA-505-2-90-001), values of 0.3 acute toxic unit (TU_a) and 1.0 chronic toxic unit (TU_c) were used to interpret the narrative water quality criteria for WET established in PRWQS Rule 1303(i). The toxicity data collected in quarterly in 2008 indicates the test results as "passing" for both discharges. As such, no WET testing limitation have been established in the permit. However, as the existing WET data is over 10 years old, the permit does establish monitoring requirements and an action level for acute WET to determine unacceptable toxicity.

- 7. Toxic Metals and Organic Compounds:** In accordance with 40 CFR 122.44(d), a WQBEL must be established if the discharge of a pollutant demonstrates that it is or might be discharged at a level that will cause, have the reasonable potential to cause, or contributes to an excursion above any state water quality standard. The need for WQBELs is based on the procedures specified in section 5 of EPA's TSD and by comparing effluent data and water quality criteria established in PRWQS Rule 1303 and the National Toxics Rule at 40 CFR 131.36(d)(4).

The following water quality based limits and monitoring conditions are as included in the June 14, 2018 Intent to issue a Water Quality Certificate from the Puerto Rico Environmental Quality Board:

Effluent Flow; 1,2-Diphenylhydrazine; 3,3-Dichlorobenzidine; Acrolein; Acylonitrile; Benzidine; Benzo(a)Anthracene; Benzo(a)Pyrene; Benzo(k)Fluoranthene; Chrysene; Color; Copper; Dibenzo(a,h)Anthracene; Dissolved Oxygen; Hexachlorobenzene; Indeno(1,2,3-cd)Pyrene; Lead; Nickel; Pentachlorophenol; pH; Solids and Other Matter; Suspended, Colloidal or Settleable Solids; Taste and Other Odor Producing Substances; Temperature; Thallium; Whole Effluent Toxicity; Zinc

- 8. Free Available Chlorine, Total Residual Chlorine, Chromium, Iron, Zinc, Polychlorinated Biphenyls (PCBs), Total Suspended Solids** are based on Steam Electric Power Generating Point Source Category cooling tower blowdown waste sources effluent guideline, representing the degree of effluent reduction attainable by the application of BAT (40 CFR 423.13(d)(1)). This guideline also includes a requirement that no detectable amount of the 126 Priority Pollutants be discharged, and a prohibition on the discharge of PCBs. The prohibition of the discharge of Polychlorinated Biphenyls (PCBs) was included in place of the WQBEL of 0.00064 as the no discharge limitation is more stringent than the allowable numeric discharge.
- 9. Temperature**

The EQB has established an interim thermal mixing zone for the discharge from Outfall 001, where rapid mixing occurs in Jobos Bay. The Mixing zone requires monitoring within the receiving water at the edge of the mixing zone and at a background station within Jobos Bay, and requires that the Puerto Rico temperature standard of 90 degrees Fahrenheit be met at the edge of the mixing zone. After a one year period of monitoring, the EQB will use this data to calculate a final mixing zone and permit limit. Mixing Zone conditions and monitoring requirements are outlined in Special Condition IV.B.2 of the permit.

Internal Waste Streams

IWS 001a: Table A-1a

IWS 001a discharges Thermoelectric Plant condenser cooling water which is ultimately discharged through Outfall 001. The limitation for Total Residual Chlorine, and the accompanying conditions are based upon the Steam Electric Power Generating Point Source Category 40 CFR §423.13(b), representing the degree of effluent reduction attainable by the application BAT.

IWS 001b: Table A-1b

IWS 001b discharges Thermoelectric Service Water Cooling Tower Blowdown which ultimately is discharge to Outfall 001. The discharge from this waste stream occurs approximately twice per year, according to the NPDES permit application. The limitations for Free Available Chlorine, Chromium, and Zinc are based on Steam Electric Power Generating Point Source Category cooling tower blowdown waste sources effluent guideline, representing the degree of effluent reduction attainable by the

application of BAT (40 CFR 423.13(d)(1)). This guideline also includes a requirement that no detectable amount of the 126 Priority Pollutants be discharged.

IWS 001c: Table A-1c

IWS 001c discharges Combined Cycle Plant Condenser Water Cooling Tower Blowdown from Unit No. 1, which ultimately is discharged through Outfall 001. The limitations for Free Available Chlorine, Chromium, and Zinc are based on Steam Electric Power Generating Point Source Category cooling tower blowdown waste sources effluent guideline, representing the degree of effluent reduction attainable by the application of BAT

IWS 001d: Table A-1d

IWS 001d discharges Combined Cycle Plant Condenser Water Cooling Tower Blowdown from Unit No. 2, which ultimately is discharged through Outfall 001. The limitations for Free Available Chlorine, Chromium, and Zinc are based on Steam Electric Power Generating Point Source Category cooling tower blowdown waste sources effluent guideline, representing the degree of effluent reduction attainable by the application of BAT (40 CFR 423.13(d)(1)). The mass based limitations were calculated using the maximum flow per blowdown occurrence. This guideline also includes a requirement that no detectable amount of the 126 Priority Pollutants be discharged.

Outfall 002

1. **Flow:** An effluent limitation for flow has been established in the permit. Monitoring conditions are applied pursuant to 40 CFR 122.21(j)(4)(ii) and the IWQC.
2. **Dissolved Oxygen.** The effluent limitation is based on the water quality criterion for Class **SC** waters as specified in Rule **1303.2** of PRWQS, and the IWQC.
3. **Narrative Effluent Limitations.**
 - a. **Color.** A narrative effluent limitation for color has been established based on Rule 1303.2 of the PRWQS and the IWQC. As required by the IWQC, monitoring for color shall occur at the effluent and the receiving water body.
 - b. **Oil and Grease.** A narrative condition for oil and grease has been established based on Rule 1303.1 of the PRWQS and the IWQC.
 - c. **Solids and Other Matter:** A narrative condition for solids and other matter has been established based on Rule 1303.1 of the PRWQS and the IWQC.
 - d. **Suspended, Colloidal or Settleable Solids.** A narrative condition for suspended, colloidal or settleable solids has been established based on Rule 1303.1 of the PRWQS and the IWQC.
 - e. **Taste and Odor Producing Substances.** A narrative effluent limitation for taste and odor producing substances has been established based on Rule 1303.2 of the PRWQS and the IWQC.
4. **pH.** The effluent limitation for pH is on the water quality criterion for Class SC based on Rule 1303.2 of the PRWQS and the IWQC.
5. **Turbidity.** The effluent limitation for turbidity is based on Rule 1303.2 of the PRWQS.
6. **Toxic Metals and Organic Compounds:** In accordance with 40 CFR 122.44(d), a WQBEL must be established if the discharge of a pollutant demonstrates that it is or might be discharged at a level that will cause, have the reasonable potential to cause, or contributes to an excursion above any state water quality standard. The need for WQBELs is based on the procedures specified in section 5 of EPA's TSD and by comparing effluent data and water quality criteria established in PRWQS Rule 1303 and the National Toxics Rule at 40 CFR 131.36(d)(4).

The following water quality based limits and monitoring conditions are as included in the June 14, 2018 Intent to issue a Water Quality Certificate from the Puerto Rico Environmental Quality Board:

Effluent Flow; 1,2-Diphenylhydrazine; 3,3-Dichlorobenzidine; Acrolein; Acylonitrile; Benzidine; Benzo(a)Anthracene; Benzo(a)Pyrene; Benzo(k)Fluoranthene; Chrysene; Color; Copper; Dibenzo(a,h)Anthracene; Dissolved Oxygen; Hexachlorobenzene; Indeno(1,2,3-cd)Pyrene; Lead; Nickel; Pentachlorophenol; pH; Solids and Other Matter; Suspended, Colloidal or Settleable Solids; Taste and Other Odor Producing Substances; Temperature; Thallium; Whole Effluent Toxicity; Zinc

Free Available Chlorine, Total Residual Chlorine, Chromium, Iron, Zinc, Polychlorinated Biphenyls

7. **Free Available Chlorine, Total Residual Chlorine, Chromium, Iron, Zinc, Polychlorinated Biphenyls (PCBs), Total Suspended Solids, and monitoring requirements for 126 Priority Pollutants** are based on Steam Electric Power Generating Point Source Category cooling tower blowdown waste sources effluent guideline, representing the degree of effluent reduction attainable by the application of BAT (40 CFR 423.13(d)(1)). This guideline also includes a requirement that no detectable amount of the 126 Priority Pollutants be discharged, and a prohibition on the discharge of PCBs.

8. **Temperature**

The WQBEL for temperature at Outfall 002 requires compliance with the EQB water quality standard of 90 degrees Fahrenheit at the end of the pipe prior to discharge.

Outfall 003

1. **Flow:** An effluent limitation for flow has been established in the permit. Monitoring conditions are applied pursuant to 40 CFR 122.21(j)(4)(ii) and the IWQC.
2. **Dissolved Oxygen.** The effluent limitation is based on the water quality criterion for Class **SC** waters as specified in Rule **1303.2** of PRWQS, and the IWQC.
3. **Narrative Effluent Limitations.**
 - a. **Color.** A narrative effluent limitation for color has been established based on Rule 1303.2 of the PRWQS and the IWQC. As required by the IWQC, monitoring for color shall occur at the effluent and the receiving water body.
 - b. **Oil and Grease.** A narrative condition for oil and grease has been established based on Rule 1303.1 of the PRWQS and the IWQC.
 - c. **Solids and Other Matter:** A narrative condition for solids and other matter has been established based on Rule 1303.1 of the PRWQS and the IWQC.
 - d. **Suspended, Colloidal or Settleable Solids.** A narrative condition for suspended, colloidal or settleable solids has been established based on Rule 1303.1 of the PRWQS and the IWQC.
 - e. **Taste and Odor Producing Substances.** A narrative effluent limitation for taste and odor producing substances has been established based on Rule 1303.2 of the PRWQS and the IWQC.
4. **pH.** The effluent limitation for pH is on the water quality criterion for Class SC based on Rule 1303.2 of the PRWQS and the IWQC.
5. **Turbidity.** The effluent limitation for turbidity is based on Rule 1303.2 of the PRWQS.
6. **Toxic Metals and Organic Compounds:** In accordance with 40 CFR 122.44(d), a WQBEL must be established if the discharge of a pollutant demonstrates that it is or might be discharged at a level that will cause, have the reasonable potential to cause, or contributes to an excursion above any state water quality standard. The need for WQBELs is based on the procedures specified in section 5 of EPA's TSD and by comparing effluent data and water quality criteria established in PRWQS Rule 1303 and the National Toxics Rule at 40 CFR 131.36(d)(4).
7. **Free Available Chlorine, Total Residual Chlorine, Chromium, Iron, Zinc, Polychlorinated Biphenyls (PCBs), Total Suspended Solids, and monitoring requirements for 126 Priority Pollutants** are based on Steam Electric Power Generating Point Source Category cooling tower blowdown waste sources effluent guideline, representing the degree of effluent reduction attainable by the application of

BAT (40 CFR 423.13(d)(1)). This guideline also includes a requirement that no detectable amount of the 126 Priority Pollutants be discharged, and a prohibition on the discharge of PCBs.

8. **Temperature**

The WQBEL for temperature at Outfall 002 requires compliance with the EQB water quality standard of 90 degrees Fahrenheit at the end of the pipe prior to discharge.

WS 003a: Table A-3a

IWS 003a discharges Central Waste Treatment Effluent which ultimately is discharged through Outfall 003. Effluent limitations for Oil and Grease and TSS limitations are based on Steam Electric Power Generating Point Source Category low volume waste sources effluent guideline. The limitations for Copper and Zinc are based on Steam Electric Power Generating Point Source Category metal cleaning waste sources effluent guideline (40 CFR 423.12(e)(5)).

Outfall 004

1. **Flow:** An effluent limitation for flow has been established in the permit. Monitoring conditions are applied pursuant to 40 CFR 122.21(j)(4)(ii) and the IWQC.
2. **Dissolved Oxygen.** The effluent limitation is based on the water quality criterion for Class **SC** waters as specified in Rule **1303.2** of PRWQS, and the IWQC.
3. **Narrative Effluent Limitations.**
 - a. **Color.** A narrative effluent limitation for color has been established based on Rule 1303.2 of the PRWQS and the IWQC. As required by the IWQC, monitoring for color shall occur at the effluent and the receiving water body.
 - b. **Oil and Grease.** A narrative condition for oil and grease has been established based on Rule 1303.1 of the PRWQS and the IWQC.
 - c. **Solids and Other Matter:** A narrative condition for solids and other matter has been established based on Rule 1303.1 of the PRWQS and the IWQC.
 - d. **Suspended, Colloidal or Settleable Solids.** A narrative condition for suspended, colloidal or settleable solids has been established based on Rule 1303.1 of the PRWQS and the IWQC.
 - e. **Taste and Odor Producing Substances.** A narrative effluent limitation for taste and odor producing substances has been established based on Rule 1303.2 of the PRWQS and the IWQC.
4. **pH.** The effluent limitation for pH is on the water quality criterion for Class SC based on Rule 1303.2 of the PRWQS and the IWQC.
5. **Turbidity.** The effluent limitation for turbidity is based on Rule 1303.2 of the PRWQS.
6. **Toxic Metals and Organic Compounds:** In accordance with 40 CFR 122.44(d), a WQBEL must be established if the discharge of a pollutant demonstrates that it is or might be discharged at a level that will cause, have the reasonable potential to cause, or contributes to an excursion above any state water quality standard. The need for WQBELs is based on the procedures specified in section 5 of EPA's TSD and by comparing effluent data and water quality criteria established in PRWQS Rule 1303 and the National Toxics Rule at 40 CFR 131.36(d)(4).
7. **Free Available Chlorine, Total Residual Chlorine, Chromium, Iron, Zinc, Polychlorinated Biphenyls (PCBs), Total Suspended Solids, and monitoring requirements for 126 Priority Pollutants** are based on Steam Electric Power Generating Point Source Category cooling tower blowdown waste sources effluent guideline, representing the degree of effluent reduction attainable by the application of BAT (40 CFR 423.13(d)(1)). This guideline also includes a requirement that no detectable amount of the 126 Priority Pollutants be discharged, and a prohibition on the discharge of PCBs.
8. **Temperature**

The WQBEL for temperature at Outfall 002 requires compliance with the EQB water quality standard of 90 degrees Fahrenheit at the end of the pipe prior to discharge.

IWS 004a: Table A-4a

IWS 004a discharges Combined Cycle Plant Condenser Water Cooling Tower Blowdown from Unit No. 2, which ultimately is discharged through Outfall 001. The limitations for Free Available Chlorine, Chromium, and Zinc are based on Steam Electric Power Generating Point Source Category cooling tower blowdown waste sources effluent guideline, representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT). The mass based

limitations were calculated using the maximum flow per blowdown occurrence. This guideline also includes a requirement that no detectable amount of the 126 Priority Pollutants be discharged.

Outfall 005

1. **Dissolved Oxygen.** The effluent limitation is based on the water quality criterion for Class **SC** waters as specified in Rule **1303.2** of PRWQS, and the IWQC.
2. **Narrative Effluent Limitations.**
 - a. **Color.** A narrative effluent limitation for color has been established based on Rule 1303.2 of the PRWQS and the IWQC. As required by the IWQC, monitoring for color shall occur at the effluent and the receiving water body.
 - b. **Oil and Grease.** A narrative condition for oil and grease has been established based on Rule 1303.1 of the PRWQS and the IWQC.
 - c. **Solids and Other Matter:** A narrative condition for solids and other matter has been established based on Rule 1303.1 of the PRWQS and the IWQC.
 - d. **Suspended, Colloidal or Settleable Solids.** A narrative condition for suspended, colloidal or settleable solids has been established based on Rule 1303.1 of the PRWQS and the IWQC.
 - e. **Taste and Odor Producing Substances.** A narrative effluent limitation for taste and odor producing substances has been established based on Rule 1303.2 of the PRWQS and the IWQC.
3. **pH.** The effluent limitation for pH is on the water quality criterion for Class SC based on Rule 1303.2 of the PRWQS and the IWQC.
4. **Turbidity.** The effluent limitation for turbidity is based on Rule 1303.2 of the PRWQS.
5. **Toxic Metals and Organic Compounds:** In accordance with 40 CFR 122.44(d), a WQBEL must be established if the discharge of a pollutant demonstrates that it is or might be discharged at a level that will cause, have the reasonable potential to cause, or contributes to an excursion above any state water quality standard. The need for WQBELs is based on the procedures specified in section 5 of EPA's TSD and by comparing effluent data and water quality criteria established in PRWQS Rule 1303 and the National Toxics Rule at 40 CFR 131.36(d)(4).
6. **Temperature**

The WQBEL for temperature at Outfall 002 requires compliance with the EQB water quality standard of 90 degrees Fahrenheit at the end of the pipe prior to discharge.

C. Monitoring Requirements

NPDES regulations at 40 CFR 122.48 require that all permits specify requirements for recording and reporting monitoring results. The Part III of the Permit establishes monitoring and reporting requirements to implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements for this facility.

1. Influent Monitoring Requirements

This facility is not subject to influent monitoring requirements.

2. Effluent Monitoring Requirements

Effluent monitoring frequency and sample type have been established in accordance with the requirements of 40 CFR 122.44(i) and recommendations in EPA's TSD. Consistent with 40 CFR Part 136 monitoring data for toxic metals must be expressed as total recoverable metal.

D. Compliance with Federal Anti-Backsliding Requirements and Puerto Rico's Anti-Degradation Policy

Federal regulations at 40 CFR 131.12 require that state water quality standards include an anti-degradation policy consistent with the federal policy. The discharge is consistent with the anti-degradation provision of 40 CFR 131.12, 72 Federal Register 238 (December 12, 2007, pages 70517-70526) and EQB's *Anti-Degradation Policy Implementation Procedure* in Attachment A of PRWQS. In addition, CWA sections 402(o)(2) and 303(d)(4) and federal regulations at 40 CFR 122.44(l) prohibit backsliding in NPDES permits. Further, the Region 2 Antibacksliding Policy provides guidance regarding relaxation of effluent limitations based on water quality for Puerto Rico NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit with some exceptions where limitations may be relaxed. The effluent limitations in the permit are at least as stringent as the effluent limitations in the existing permit, with the exception of effluent limitations for Copper at Outfalls 002 and 003. The effluent limitations for these pollutants are less stringent than those in the existing permit. This relaxation of effluent limitations is consistent with the anti-backsliding requirements of CWA section 401(o), 40 CFR 122.44(l), EPA Region 2's Anti-backsliding Policy dated August 10, 1993, and Puerto Rico's Anti-Degradation Policy Implementation Procedure established in PRWQS, as the revision from 3.1 ug/L to 3.73 ug/L is the result of revisions to the Puerto Rico water quality criterion for Copper.

PART II. RATIONALE FOR STANDARD AND SPECIAL CONDITIONS

A. Standard Conditions

In accordance with 40 CFR 122.41, standard conditions that apply to all NPDES permits have been incorporated by reference in Part IV.A.1 of the permit and expressly in Attachment B of the permit. The Permittee must comply with all standard conditions and with those additional conditions that are applicable to specified categories of permits under 40 CFR 122.42 and specified in Part IV.A.2 of the Permit.

B. Special Conditions

In accordance with 40 CFR 122.42 and other regulations cited below, special conditions have been incorporated into the permit. This section addresses the justification for special studies, additional monitoring requirements, Best Management Practices, Compliance Schedules, and/or special provisions for POTWs as needed. The special conditions for this facility are as follows:

1. Special Conditions from the Water Quality Certificate

In accordance with 40 CFR 124.55, the EPA has established Special Conditions from the IWQC in the permit that EQB determined were necessary to meet PRWQS. The Special Conditions established in this section are only those conditions from the IWQC that have not been established in other parts of the permit.

2. Storm Water Pollution Prevention Plan (SWPPP) / Best Management Practices (BMP) Plan

In accordance with 40 CFR 122.2 and 122.44(k), a SWPPP is a plan that includes BMPs, which are schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution to waters of the United States. The Permittee is required to develop a SWPPP in Part IV.B.4 of the permit to control or abate the discharge of pollutants.

3. Clean Water Act §316(b)

The permit includes a schedule of submittals in compliance with the Clean Water Act §316(b) Existing Facilities Final Rulemaking. The permittee has requested an alternate schedule in a letter dated April 9, 2018 to submit the requirements of 122.21(r) applicable to this facility. EPA has granted this alternate schedule and is requiring all application materials to be submitted by [EDP + 4.5 years].

Best Technology Available.

The design, location, construction, and capacity of the permittee's cooling water intake structures (CWISs) shall reflect the best technology available (BTA) for minimizing adverse environmental impacts from the impingement and entrainment of various life stages of fish (e.g., eggs, larvae, juveniles, adults) by the CWISs. In accordance with the biological opinion issued by the Services, EPA has included the following statement in the permit condition:

Nothing in this permit authorizes take for the purposes of a facility's compliance with the Endangered Species Act.

EPA has determined the following requirements as an interim BTA as required by 125.98(b)(6):

- 1) To minimize entrainment mortality and impingement mortality, the permittee shall operate the existing technology and operational measures which consist of
 - i. Combined cycle units designed with closed cycle cooling (resulting in a flow reduction from once-through cooling)
 - ii. Smooth ¼ inch square mesh dual-flow traveling screens with a fish return system;
 - iii. Cooling Water Intake Structure designed with low approach velocities
 - iv. Period scheduled maintenance shutdowns of Units 1 and 2;
 - v. Continuous operation of the dual-flow traveling screens

- 2) The permittee must properly operate and maintain the technologies identified above as described in the permit application and represented as BTA. No change in the location, design, construction or capacity of the present structure, unless specified by this permit, can be made without prior approval by EPA.

- 3) The permittee must conduct weekly visual inspections or employ remote monitoring devices to ensure that any technologies established as the BTA are maintained and operated to function as designed.

- 4) The permittee must submit the annual certification statement required by 125.97(c) that BTA has been properly operated and maintained and that no changes to the facility have been made unless documented.

- 5) The Permittee must keep records consistent with 125.97(d).

- 6) The permittee shall submit all Information Submittals listed below as required by 122.21(r) by EDP + 4.5 Years.

The NPDES renewal application information submittals required at for CFR 122.21(r) are outline below:

a. Source Water Physical Data

- i. A narrative description and scaled drawings showing the physical configuration of all source water bodies used by the facility, including areal dimensions, depths, salinity and temperature regimes, and other documentation that supports a determination of the water body type where each cooling water intake structure is located;
- ii. Identification and characterization of the source waterbody's hydrological and geomorphological features, as well as the methods used to conduct any physical studies to determine the intake area of influence within the waterbody and the results of such studies; and
- iii. Locational maps.

b. Cooling Water Intake Structure Data.

The owner or operator of the facility must submit:

- i. A narrative description of the design and configuration of each cooling water intake structure and where it is located in the water body and in the water column;
- ii. Latitude and longitude in degrees, minutes, and seconds for each cooling water intake structure;
- iii. A narrative description of the operation of each of cooling water intake structure, including design intake flows, daily hours of operation, number of days of the year in operation and seasonal changes, if applicable;
- iv. A flow distribution and water balance diagram that includes all sources of water to the facility, recirculating flows, and discharges; and
- v. Engineering drawings of the cooling water intake structure including the fish return.

c. Source Water Baseline Biological Characterization Data.

This information is required to characterize the biological community in the vicinity of the cooling water intake structure and to characterize the operation of the cooling water intake structures. This supporting information must include existing data (if they are available). However, the permittee may supplement the data using newly conducted field studies. Information already submitted may be cross referenced to the title and submittal date or resubmitted. The permittee must include:

- i. A list of the data in paragraphs (ii) through (vi) of this section that are not available and efforts made to identify sources of the data;
- ii. A list of species (or relevant taxa) for all life stages and their relative abundance in the vicinity of each cooling water intake structure;
- iii. Identification of the species and life stages that would be most susceptible to impingement or entrainment. Species evaluated should include the forage base as well as those most important in terms of significance to commercial and recreational fisheries;
- iv. Identification and evaluation of the primary period of reproduction, larval recruitment, and period of peak abundance for relevant taxa;
- v. Data representative of the seasonal and daily activities (e.g., feeding and water column migration) of biological organisms in the vicinity of the cooling water intake structure;
- vi. Identification of all threatened, endangered, and other protected species that might be susceptible to impingement or entrainment at cooling water intake structures. Identification of all threatened, endangered, and other protected species whose range of habitat or designated critical habitat includes

the waters where the facility's intakes are located. The permittee must provide this information in (i) through (v) of this section. The permittee must coordinate with the appropriate US Fish and Wildlife Service and National Marine Fisheries Service office to determine what threatened or endangered species may be present;

- vii. Documentation of any public participation or consultation with Federal or State agencies undertaken in development of the source water biological characterization for an existing facility; and
- viii. Should the permittee supplement the information requested in paragraph (i) of this section with data collected using field studies, supporting documentation for the Source Water Baseline Biological Characterization must include a description of all methods and quality assurance procedures for sampling and monitoring, and/or data analysis including a description of the study area; taxonomic identification of sampled and evaluated biological assemblages (including all life stages of fish and shellfish); and sampling and data analysis methods. The sampling, and/or data analysis methods must be appropriate for a quantitative survey and based on consideration of methods used in other biological studies performed within the same source water body. The study area should include, at a minimum, the area of influence of the cooling water intake structure.
- ix. Identification of protective measures and stabilization activities that have been implemented, and a description of how these measures and activities affected the baseline water condition in the vicinity of the intake.
- x. A list of fragile species, as defined [in Attachment A], at the facility. The permittee need only identify those species not already identified as fragile at [in Attachment A].
- xi. If the intake is within the range of habitat of one or more federally listed threatened or endangered species, a certification that the information at 122.21(r)(4)(vi) was sent directly to the relevant regional offices of the U.S. Fish and Wildlife Service or National Marine Fisheries Service.

d. Cooling Water System Data.

The owner or operator of the facility must submit the following information for each cooling water intake structure used or intended to be used:

- i. A narrative description of the operation of the cooling water system and its relationship to cooling water intake structures; the proportion of the design intake flow that is used in the system; the number of days of the year the cooling water system is in operation and seasonal changes in the operation of the system, if applicable; the proportion of design intake flow for contact cooling, non-contact cooling, and process uses; a distribution of water reuse to include cooling water reused as process water, process water reused for cooling, and the use of gray water for cooling; for existing facilities, a description of reductions in total water withdrawals including cooling water intake flow reductions already achieved through minimized process water withdrawals; a description of any cooling water that is used in a manufacturing process either before or after it is used for cooling, including other recycled process water flows; the proportion of the source waterbody withdrawn (on a monthly basis);
- ii. Design and engineering calculations prepared by a qualified professional and supporting data to support the description required by paragraph (i) of this section; and
- iii. Description of existing impingement and entrainment technologies or operational measures and a summary of their performance, including but not limited to reductions in impingement mortality and entrainment due to intake location and reductions in total water withdrawals and usage.

e. Chosen Method of Compliance with Impingement Mortality Standard.

By [EDP + 4.5 Years], the permittee shall submit a Status Report indicating its progress toward choosing its preferred IM Standard compliance method under 40 CFR §125.94(c). If it has chosen a preferred method, predicated on an assumed entrainment compliance method, it must preliminarily document the basis of the selection and include:

- i. Requested timeframe needed to install and optimize the IM compliance method during the upcoming permit renewal term, justifying why this requested time is "as soon as practical" as required by 40 CFR §125.94(b)(1); and
- ii. Planned scope of work and requested timeframe to perform any of the required compliance monitoring during the permit renewal term, including the Impingement Technology Performance Optimization Study if the preliminarily chosen IM Standard compliance method includes either modified traveling screens (40 CFR 125.94(c)(5)) or a proposed alternative system of technologies (40 CFR 125.94(c)(6)).

f. Impingement Technology Performance Optimization Study

The owner or operator that chooses to comply via 40 CFR 125.94 (c)(5) or (6) must also submit an *impingement technology performance optimization study* as described below:

- i. If the permittee chooses to comply with 40 CFR 125.94(c)(5), the impingement technology performance optimization study must include two years of biological monitoring measuring the reduction in impingement mortality achieved by the modified traveling screens as defined at 40 CFR 125.92 and demonstrating that the operation has been optimized to minimize impingement mortality. The permittee must include a complete description of the traveling screens and associated equipment, including, for example, type of mesh, mesh slot size, pressure sprays and fish return mechanisms. The permittee must also provide a description of any monitoring and monitoring approach used in measuring impingement mortality, including:
 - (a) For this demonstration, the permittee must sample no less frequently than monthly. The Director may establish more frequent monitoring;
 - (b) Biological monitoring. Biological monitoring must be representative of the impingement and the impingement mortality at the intakes subject to this provision;
 - (c) A taxonomic identification to the lowest taxon possible of all organisms to be monitored;
 - (d) The method in which naturally moribund organisms are identified and taken into account;
 - (e) The method in which mortality due to holding times is taken into account;
 - (f) If the facility entraps fish or shellfish, the permittee must count the entrapment of organisms as impingement mortality;
 - (g) The percent impingement mortality reflecting optimized operation of the modified traveling screen and all supporting calculations.
- ii. If the permittee chooses to comply with 40 CFR 125.94(c)(6), the impingement technology performance optimization study must include biological monitoring measuring the reduction in impingement mortality achieved by operation of the system of technologies, operational measures and best management practices and demonstrating that operation of the system has been optimized to minimize impingement mortality. This system of technologies, operational measures and best management practices may include flow reductions, seasonal operation, unit closure, credit for intake location, and behavioral deterrent systems. The permittee must document how each system element contributes to the system's performance. The permittee must include a minimum of two years of biological monitoring measuring the reduction in impingement mortality achieved by the system. The permittee must also include a description of any sampling or monitoring approach used in measuring the rate of impingement, impingement mortality, or flow reductions.
 - (a) *Rate of Impingement*. If the demonstration relies in part on a credit for reductions in the rate of impingement in the system, the permittee must provide an estimate of those reductions to be used as

credit towards reducing impingement mortality, and any relevant supporting documentation, including previously conducted performance studies not already submitted to the Director as part of (7). The permittee must accompany studies more than 10 years old with an explanation of why the data is still relevant and representative of conditions at the facility and explain how the data should be interpreted using the definitions of impingement and entrapment at 40 CFR 125.92. The estimated reductions in rate of impingement must be based on a comparison of the system to a once-through cooling system with a traveling screen whose point of withdrawal from the surface water source is located at the shoreline of the source waterbody. In addition, the permittee must include two years of biological monitoring demonstrating the rate of impingement resulting from the system. For this demonstration, the permittee must monitor no less frequently than monthly. The Director may establish more frequent monitoring.

- (b) *Impingement Mortality*. If the demonstration relies in part on a credit for reductions in impingement mortality already obtained at the facility, the permittee must include two years of biological monitoring demonstrating the level of impingement mortality the system is capable of achieving. The permittee must provide a description of any sampling or monitoring approach used in measuring impingement mortality. In addition, for this demonstration the permittee must:

Monitor no less frequently than monthly. The Director may establish more frequent monitoring;

- (1) Conduct biological monitoring that is representative of the impingement and the impingement mortality at an intake subject to this provision. In addition, the permittee must describe the location of the cooling water intake structure in the water body and the water column in relation to monitoring locations;
 - (2) Include a taxonomic identification to the lowest taxon possible of all organisms to be monitored;
 - (3) Describe the method in which naturally moribund organisms are identified and taken into account;
 - (4) Describe the method in which mortality due to holding times is taken into account; and
 - (5) If the facility entraps fish or shellfish, the permittee must count the entrapment of organisms as impingement mortality.
- (c) *Flow reduction*. If the demonstration relies in part on flow reduction to reduce impingement, the permittee must include two years of intake flows, measured daily, as part of the demonstration, and describe the extent to which flow reductions are seasonal or intermittent. The permittee must document how the flow reduction results in reduced impingement. In addition, the permittee must describe how the reduction in impingement has reduced impingement mortality.
- (d) *Total system performance*. The permittee must document the percent impingement mortality reflecting optimized operation of the total system of technologies, operational measures, and best management practices and all supporting calculations. Total system performance is the combination of the impingement mortality performance reflected in (A), (B), and (C) of this paragraph.

Entrainment Performance Studies.

The owner or operator of the facility must submit any previously conducted studies or studies obtained from other facilities addressing technology efficacy, through-plant entrainment survival, and other entrainment studies. Any such submittals must include a description of each study, together with underlying data, and a summary of any conclusions or results. Any studies conducted at other locations must include an explanation as to why the data from other locations are relevant and representative of conditions at the facility. If studies are more than 10 years old, the permittee must explain why the data is still relevant and representative of conditions at the facility.

h. Operational Status.

The owner or operator of the facility must submit a description of the operational status of each generating, production, or process unit, including but not limited to:

- i. Descriptions of individual generating unit operating status including age of each unit, capacity utilization (or equivalent) for the previous 5 years (including any extended or unusual outages that significantly affect current data for flow, impingement, entrainment, or other factors, including identification of any operating unit with a capacity utilization of less than 8 percent for each of the previous 5 years and maintained solely to generate power for emergency purposes), and any major upgrades completed within the last 15 years, including but not limited to boiler replacement, condenser replacement, turbine replacement, or changes to fuel type;
- ii. For processes other than power or steam generation, descriptions of individual production processes and product lines, operating status including age of each line, seasonal operation, including any extended or unusual outages that significantly affect current data for flow, impingement, entrainment, or other factors, any major upgrades completed within the last 15 years, and plans or schedules for decommissioning or replacement of process units or production processes and product lines; and
- iii. Descriptions of plans or schedules for any new units planned within the next 5 years.

Before [EDP + 4.5 Years], submit the information required below related to entrainment characterization.

i. Entrainment Characterization Study.

Develop for submission to the Director an *Entrainment Characterization Study* that includes a minimum of two years of entrainment monitoring. The Entrainment Characterization Study must include the following components:

- i. *Entrainment Monitoring Method.* Identification and documentation of the monitoring period and frequency. Identification and documentation of organisms monitored to the lowest taxon possible of all life stages of fish and shellfish that are in the vicinity of the cooling water intake structure(s) and are susceptible to entrainment, including any other organisms identified by the Director, and any species protected under Federal, State, or Tribal Law, including threatened or endangered species with a habitat range within the vicinity of the cooling water intake structure. Biological monitoring must be representative of the entrainment at the intakes subject to this provision. The owner or operator of the facility must identify and document how the location of the cooling water intake structure in the water body and the water column are accounted for by the monitoring locations;
- ii. *Biological Entrainment Characterization.* Characterization of all life stages of fish, shellfish, and any species protected under Federal, State, or Tribal Law (including threatened or endangered species), including a description of their abundance and their temporal and spatial characteristics in the vicinity of the cooling water intake structure(s), based on sufficient data to characterize annual, seasonal, and diel variations in entrainment, including but not limited to variations related to climate and weather differences, spawning, feeding, and water column migration. This characterization may include historical data that are representative of the current operation of the facility and of biological conditions at the site. Identification of all life stages of fish and shellfish shall include identification of any surrogate species used, and identification of data representing both motile and non-motile life-stages of organisms;
- iii. *Analysis and Supporting Documentation.* Documentation of the current entrainment of all life stages of fish, shellfish, and any species protected under Federal, State, or Tribal Law (including threatened or endangered species). The documentation may include historical data that are representative of the current operation of the facility and of biological conditions at the site. Entrainment monitoring to support

the facility's calculations must be collected during periods of representative operational flows for the cooling water intake structure, and the flows associated with the monitoring must be documented. The method used to determine latent mortality along with data for specific organism mortality or survival that is applied to other life-stages or species must be identified. The owner or operator of the facility must identify and document all assumptions and calculations used to determine the total entrainment and entrainment mortality for that facility together with all methods and quality assurance/quality control procedures for monitoring and data analysis. The proposed monitoring and data analysis methods must be appropriate for a quantitative survey.

j. Comprehensive Technical Feasibility and Cost Evaluation Study.

Before [EDP + 4.5 Years], submit the information required below related to technical feasibility and cost, benefits, and non-water quality impacts. Develop for submission to the Director an engineering study of the technical feasibility and incremental costs of candidate entrainment control technologies. In addition, the study must include the following:

- i. *Technical feasibility.* An evaluation of the technical feasibility of closed-cycle recirculating systems (cooling towers), fine mesh screens with a mesh size of 2mm or smaller, and water reuse or alternate sources of cooling water. In addition, this study must include:
 - (a) A description of all technologies and operational measures considered (including alternative designs of closed-cycle recirculating systems such as natural draft cooling towers, mechanical draft cooling towers, hybrid designs, and compact or multi-cell arrangements);
 - (b) A discussion of land availability, including an evaluation of adjacent land and acres potentially available due to generating unit retirements, production unit retirements, other buildings and equipment retirements, and potential for repurposing of areas devoted to ponds, coal piles, rail yards, transmission yards, and parking lots;
 - (c) A discussion of available sources of process water, grey water, waste water, reclaimed water, or other waters of appropriate quantity and quality for use as some or all of the cooling water needs of the facility; and
 - (d) Documentation of factors other than cost that may make a candidate technology impractical or infeasible for further evaluation.
- ii. *Other entrainment control technologies.* An evaluation of additional technologies for reducing entrainment may be required by the Director.
- iii. *Cost evaluations.* The study must include engineering cost estimates of all technologies considered in paragraphs (i) and (ii) of this section. Facility costs must also be adjusted to estimate social costs. All costs must be presented as the net present value (NPV) and the corresponding annual value. Costs must be clearly labeled as compliance costs or social costs. The permittee must separately discuss facility level compliance costs and social costs, and provide documentation for the following:
 - (a) Compliance costs are calculated as after-tax, while social costs are calculated as pre-tax. Compliance costs include the facility's administrative costs, including costs of permit application, while the social cost adjustment includes the Director's administrative costs. Any outages, downtime, or other impacts to facility net revenue, are included in compliance costs, while only that portion of lost net revenue that does not accrue to other producers can be included in social costs. Social costs must also be discounted using social discount rates of 3 percent and 7 percent. Assumptions regarding depreciation schedules, tax rates, interest rates, discount rates and related assumptions must be identified;

- (b) Costs and explanation of any additional facility modifications necessary to support construction and operation of technologies considered in paragraphs (i) and (ii) of this section, including but not limited to relocation of existing buildings or equipment, reinforcement or upgrading of existing equipment, and additional construction and operating permits. Assumptions regarding depreciation schedules, interest rates, discount rates, useful life of the technology considered, and any related assumptions must be identified; and
- (c) Costs and explanation for addressing any non-water quality environmental and other impacts identified in paragraph IV.B.5.k. of this section. The cost evaluation must include a discussion of all reasonable attempts to mitigate each of these impacts.

k. Benefits Valuation Study.

Develop for submission to the Director an evaluation of the magnitude of benefits, both monetized and non-monetized, of the candidate entrainment reduction technologies and operational measures evaluated in paragraph IV.B.5.i and using the entrainment characterization study completed in IV.B.5.h of this section, including but not limited to:

- i. Incremental changes in the numbers of fish and shellfish, for all life stages, lost due to impingement mortality and entrainment;
- ii. Identification of basis for any monetized or qualitatively assessed values assigned to changes in commercial and recreational species, forage fish, and shellfish, and to any other ecosystem or non-use benefits;
- iii. A discussion of prior mitigation efforts including how long they have been in effect and how effective they have been;
- iv. Identification of other benefits to the environment and local communities, including but not limited to improvements for mammals, birds, and other organisms and aquatic habitats; and
- v. Estimates of benefits resulting from any reductions in thermal discharges from entrainment technologies.

l. Non-water Quality Environmental and Other Impacts Study.

Develop for submission to the Director a detailed facility specific discussion of the changes in non-water quality environmental and other impacts attributed to each technology and operational measure considered in paragraph IV.B.5.i of this section, including both impacts increased and impacts decreased. The study must include the following:

- i. Estimates of changes to energy consumption, including but not limited to auxiliary power consumption and turbine backpressure energy penalties;
- ii. Estimates of air pollutant emissions and of the human health and environmental impacts associated with such emissions;
- iii. Estimates of changes in noise;
- iv. A discussion of impacts to safety, including documentation of the potential for plumes, icing, and availability of emergency cooling water;
- v. A discussion of facility reliability, including but not limited to facility availability, production of steam, impacts to production based on process unit heating or cooling, and reliability due to cooling water availability;
- vi. Significant changes in consumption of water, including a facility-specific comparison of the evaporative losses of both once-through cooling and closed-cycle recirculating systems, and documentation of impacts attributable to changes in water consumption;
- vii. A discussion of all reasonable attempts to mitigate each of these factors.

o. Peer Review.

At the time of the submittal of items IV.B.5.j, IV.B.5.k, and IV.B.5.l above, the permittee must conduct an external peer review of these items. The permittee must select peer reviewers and notify the Director in advance of their identity and qualifications by [EDP + 3 Years]. The Director may disapprove of a peer reviewer or require additional peer reviewers within two months of receipt. If the Director does not disapprove a peer reviewer in writing by this date, the proposed peer reviewer is deemed approved and permittee may proceed to have the peer review performed.

The Director may confer with the EPA, Federal, State and Tribal fish and wildlife management agencies with responsibility for fish and wildlife potentially affected by the cooling water intake structure, independent system operators, and state public utility regulatory agencies, to determine which peer review comments must be addressed. The permittee must provide an explanation for any significant reviewer comments not accepted. Peer reviewers must have appropriate qualifications and their names and credentials must be included in the peer review report.

4. Chemical Usage

EPA has included a provision that establishes a process for the use and testing of chemicals in at the APPC. The permittee is permitted to use chemicals to control biofouling in the service cooling towers, or for fire protection foam, provided that they meet the following conditions:

- a. The discharge shall not cause a violation of any permit limit or cause or contribute to an exceedance of any applicable water quality standard for the receiving water.
- b. Notification to the EPA of the optimum product dosage necessary to ensure no deleterious effects to the effluent aquatic toxicity. PREPA shall also document that adequate process controls are in place to ensure that excessive levels of the chemical products are not subsequently discharged.
- c. The EPA may request that PREPA perform toxicity testing of the outfall discharges, or pilot test waste streams, to ensure that the use of chemicals does not contribute to effluent toxicity.
- d. The EPA has prohibited the discharge of plastic pellets or rockets utilized in Condenser Cleaning Systems.
- e. The EPA has included a requirement that PREPA use best management practices to prevent and minimize any discharges of fire protection foam.
- f. The EPA has included a procedure for pilot testing of materials and chemicals to ensure that permit limitations are met at all times.

The EPA recommends the following pollution prevention practices during future chemical useage pilot tests:

- Utilize alternative firefighting foam products that exhibit high biodegradability, and that do not contain flourosurfactants;
- Conduct pilot tests in bermed areas away from storm drain inlets, drainage facilities or water bodies;
- Configure the discharge area with a sump to allow collection and disposal of foam to the sanitary sewer system; and
- Discharge foam waste to a sanitary sewer to the maximum extent practicable.

PART III. COMPLIANCE WITH APPLICABLE PROVISIONS OF OTHER FEDERAL LAWS OR EXECUTIVE ORDERS

A. Coastal Zone Management Act

Under 40 CFR 122.49(d), and in accordance with the Coastal Zone Management Act of 1972, as amended, 16 *United States Code* (U.S.C.) 1451 *et seq.* section 307(c) of the act and its implementing regulations (15 CFR Part 930), EPA may not issue an NPDES permit that affects land or water use in the coastal zone until the Permittee certifies that the proposed activity complies with the Coastal Zone Management Program in Puerto Rico, and that the discharge is certified by the Commonwealth of Puerto Rico to be consistent with the Commonwealth's Coastal Zone Management Program. The Permittee has indicated that the outfall is in a coastal area managed by the Commonwealth's Coastal Zone Management Program. The Puerto Rico Planning Board issued has certified that the discharge complies with its Coastal Zone Management Plan.

B. Endangered Species Act

Under 40 CFR 122.49(c), EPA is required pursuant to section 7 of the Endangered Species Act (ESA), 16 U.S.C. 1531 *et seq.* and its implementing regulations (50 CFR Part 402) to ensure, in consultation with the National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) that the discharge authorized by the permit is not likely to jeopardize the continued existence of any endangered or threatened species or adversely affect its critical habitat. EPA has determined that endangered or threatened species might occur in the vicinity of the discharge, and will commence consultation with NMFS and USFWS to identify whether impacts to threatened or endangered species might occur as a result of the intake or discharge from this facility.

The ESA requires the Regional Administrator to ensure, in consultation with the Secretary of the Interior or Commerce, that any action authorized by EPA is not likely to jeopardize the continued existence of any endangered or threatened species or adversely affect its critical habitat.

In a May 2000 memo to the Regions, EPA Headquarters provided guidance to the Regions in making a determination as to whether a final permit may be issued while waiting for consultation to be concluded. As part of this permit action, if consultation has not been completed by final permit issuance and EPA has concluded that permit issuance is consistent with section 7 prior to the conclusion of consultation, EPA will re-issue the final permit before consultation is concluded and will document this decision in the Administrative Record. At the time consultation is completed, EPA may decide that changes to the permit are warranted after permit issuance based on the results of the consultation. Therefore, a reopener provision to this effect has been included in the Permit Part IV.A.1.b.

C. Environmental Justice

EPA has performed an Environmental Justice (EJ) Analysis for the discharge in accordance with Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Population and Low-Income Populations*, and EPA's Plan EJ 2014. EJ is the right to a safe, healthy, productive and sustainable environment for all, where "environment" is considered in its totality to include the ecological, physical, social, political, aesthetic and economic environments. The NPDES permitting provides opportunities to address EJ concerns through appropriate avenues for public participation, seeking out and facilitating involvement of those potentially affected, and, when relevant, including public notices in more than one language where appropriate. EPA **did** conduct EJ screening as this permit **is** a Regional priority permit action. Based on the EPA Region 2 Environmental Justice Assessment Tool, the facility is in an area characterized as overburdened and therefore subject to the *EPA Region 2 Regional Implementation Plan to Promote Meaningful Engagement of Overburdened Communities in Permitting Activities*. As a result, the EPA has taken steps to minimize the impacts on the Community of Concern affected by the discharge. These steps include:

- 1) providing public notice in both English and Spanish of the availability of the draft permit for public comment,
- 2) ensuring that all supporting documents will be available in a repository at the EPA Caribbean Environmental Protection Division in San Juan, Puerto Rico,
- 3) If a public hearing is held, bi-lingual EPA staff will be made available to meet with the community before and after the public meeting,

If determined necessary, EPA will have simultaneous translation at the public hearing and public availability session to facilitate the participation of both English and Spanish speaking participants.

D. National Historic Preservation Act

Under 40 CFR 122.49(b), EPA is required to assess the impact of the discharge authorized by the permit on any properties listed or eligible for listing in the National Register of Historic Places (NRHP) and mitigate any adverse effects when necessary in accordance with the National Historic Preservation Act, 16 U.S.C. 470 *et seq.* EPA's analysis indicates that no soil disturbing or construction-related activities are being authorized by approval of this permit; accordingly, adverse effects to resources on or eligible for inclusion in the NHRP are not anticipated as part of this permitted action.

E. Magnuson-Stevens Fishery Conservation and Management Act

Under 40 CFR 122.49, EPA is required to ensure that the discharge authorized by the permit will not adversely affect Essential Fish Habitat (EFH) as specified in section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), 16 U.S.C. 1801 *et seq.* EPA has included a reopener provision to the permit for the purpose of establishing permit conditions should the facility adversely affect EFH.

F. Clean Water Act, Section 403 Ocean Discharge

CWA Section 403 requires EPA to consider guidelines for determining potential degradation of the marine environment when issuing NPDES permits. These Ocean Discharge Criteria (40 CFR 125, Subpart M) are intended to "prevent unreasonable degradation of the marine environment and to authorize imposition of effluent limitations, including a prohibition on discharge, if necessary, to ensure this goal". Based on the available information, EPA has determined that the discharge will not cause unreasonable degradation of the marine environment. A reopener provision has been included in the permit Part IV.B.5 that provides EPA the right to modify or revoke the permit based on any new data.

PART IV. PUBLIC PARTICIPATION

The procedures for reaching a final decision on the draft permit are set forth in 40 CFR Part 124 and are described in the public notice for the draft permit, which is published in *El Vocero*. Included in the public notice are requirements for the submission of comments by a specified date, procedures for requesting a hearing and the nature of the hearing, and other procedures for participation in the final agency decision. EPA will consider and respond in writing to all significant comments received during the public comment period in reaching a final decision on the draft permit. Requests for information or questions regarding the draft permit should be directed to

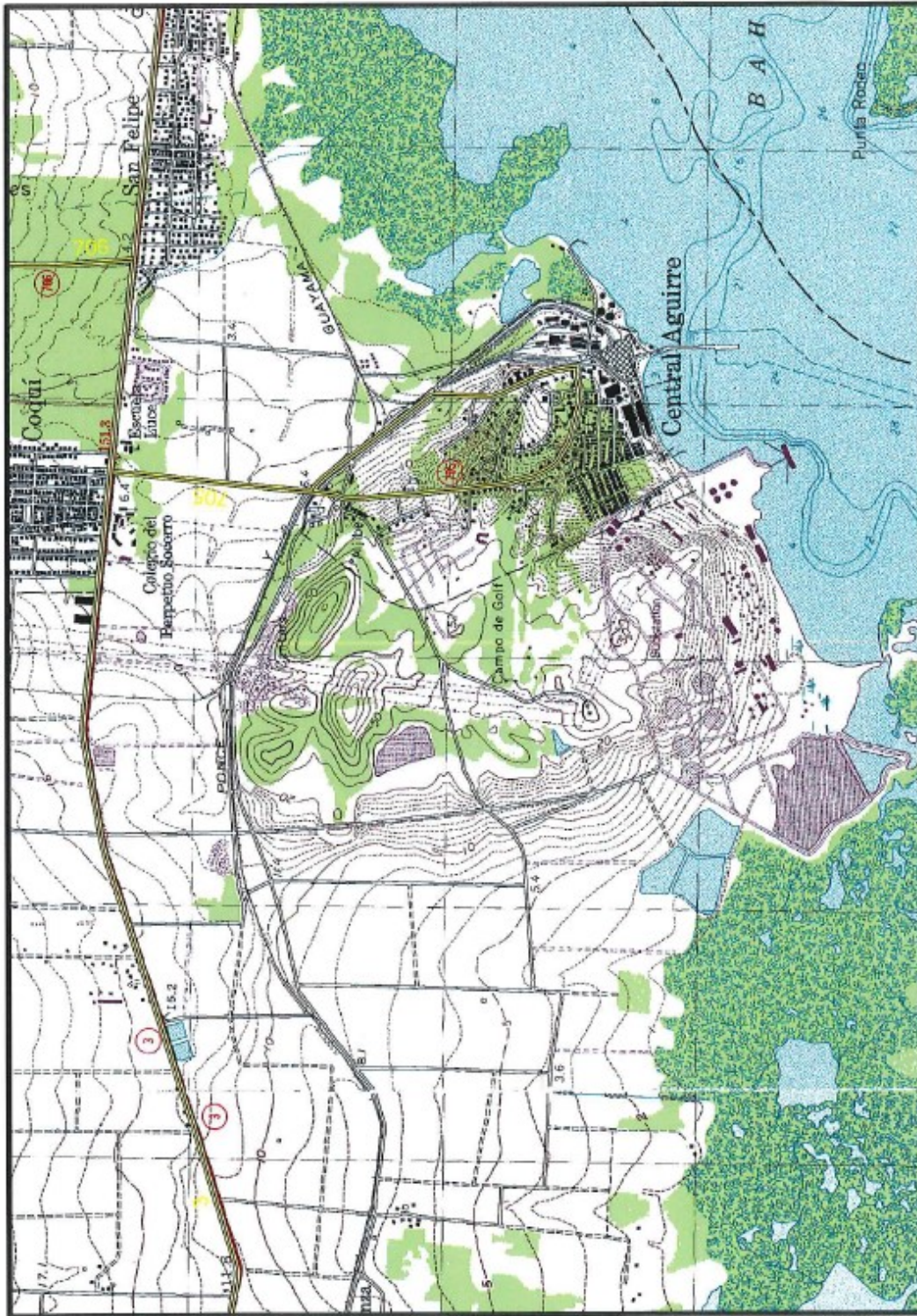
Karen O'Brien
EPA Region 2, Clean Water Division
Permit Writer Phone: 212-637-3717
Permit Writer Email: obrien.karen@epa.gov

A copy of the draft permit is also available on EPA's website at www.epa.gov/region02/water/permits.html.

ATTACHMENT A — FACILITY MAP AND FLOW SCHEMATIC

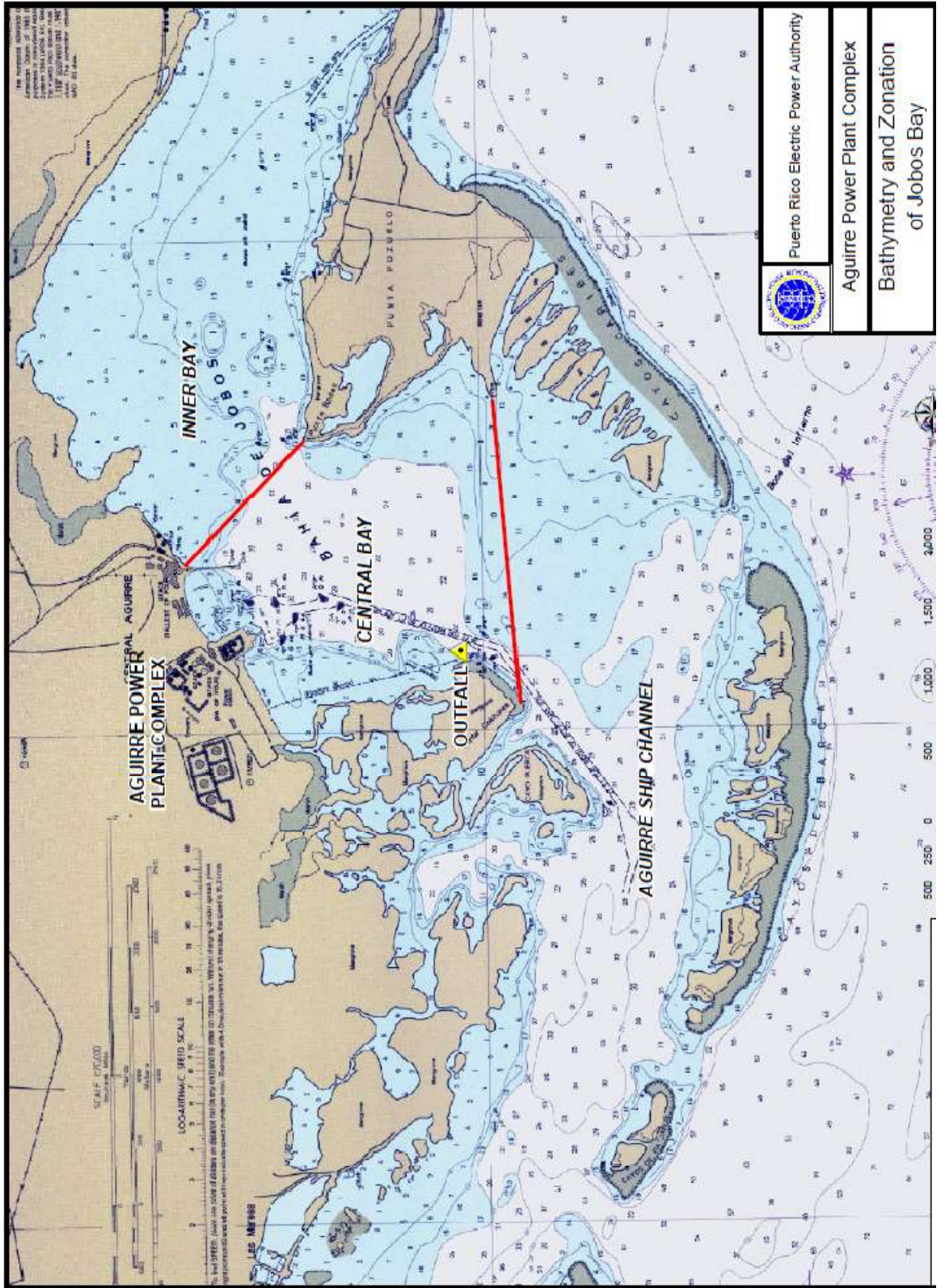
The facility map and flow schematic are attached as provided by the discharger in the application.

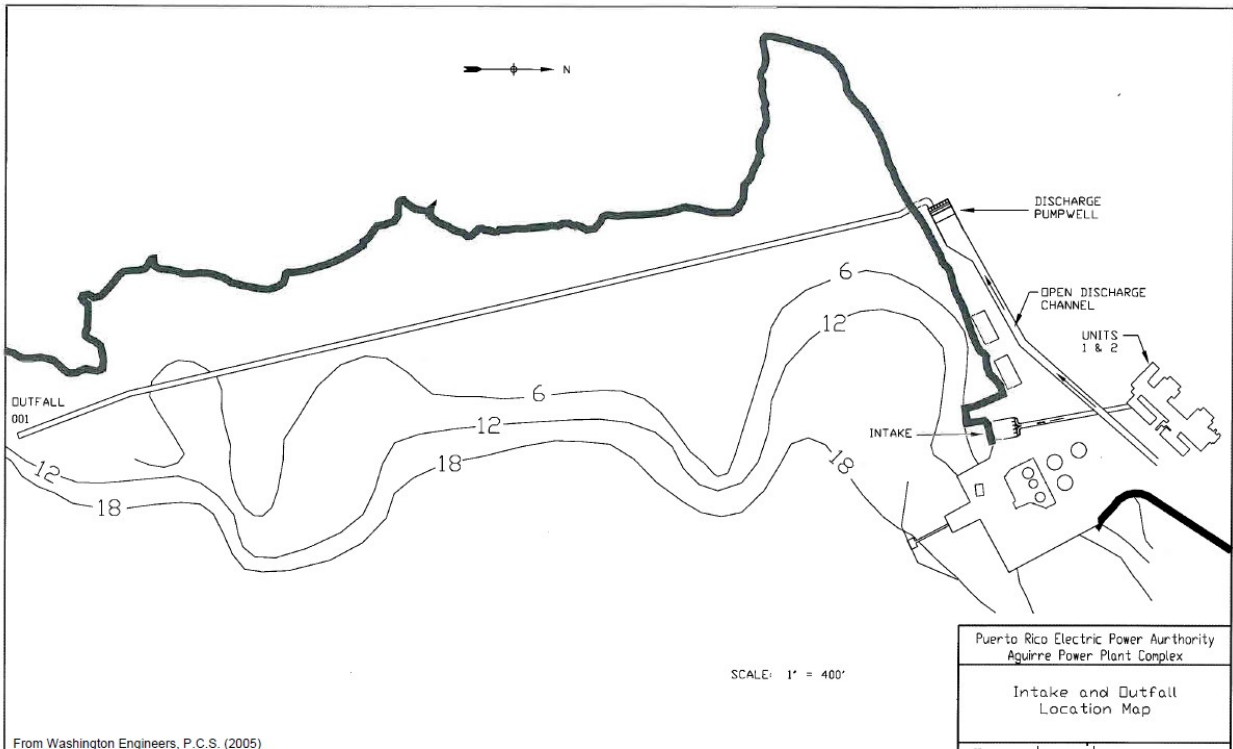
Aguirre Power Complex Location Plan



1:20,000

Figure 2-1





PREM AGUIRRE POWER COMPLEX
WATER BALANCE DIAGRAM 2015

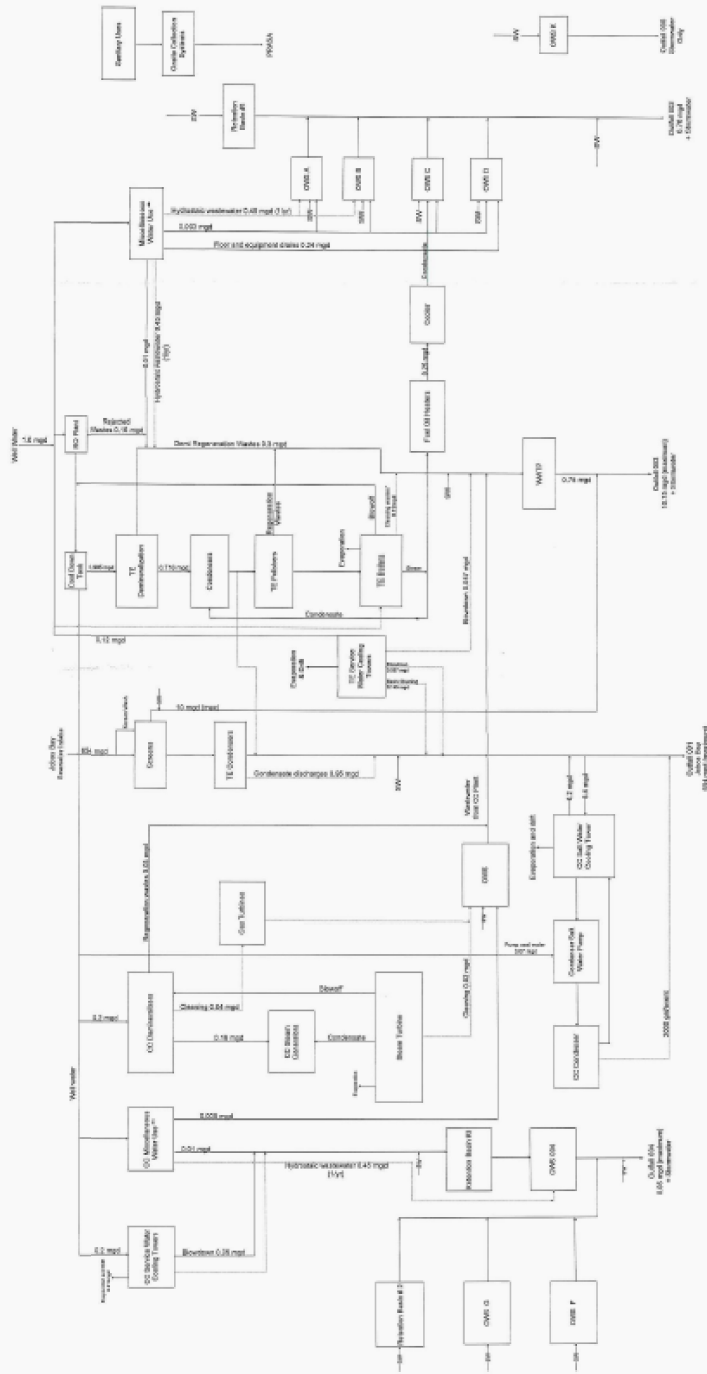


Figure 2-4

