

US EPA ARCHIVE DOCUMENT

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM**  
**FACT SHEET**  
**FINAL PERMIT**

**JUNE 25, 2012**

Permittee Name: Guam Power Authority  
Pruvient Energy Guam, Inc.

Mailing Address: P.O. Box 21029  
Barrigada, GU 96921

Facility Location: Tanguisson Point  
Municipality of Dededo, GU 96929

Contact Person(s): Michael J. Alvarez, Plant Manager

NPDES Permit No.: GU0000027

**I. STATUS OF PERMIT**

Guam Power Authority in conjunction with Pruvient Energy Guam, Inc. (the “permittee”) has applied for the renewal of their National Pollutant Discharge Elimination System (“NPDES”) permit to allow the discharge of once-through cooling water and low volume wastewater from Tanguisson Power Plant to Tanguisson Point and into the Philippine Sea. A complete application was submitted on November 30, 2005. On July 8, 2011, EPA requested an updated application from the permittee which was submitted by the permittee on August 25, 2011. EPA Region IX has developed this permit and fact sheet pursuant to Section 402 of the Clean Water Act, which requires point source dischargers to control the amount of pollutants that are discharged to waters of the United States through obtaining a NPDES permit.

The permittee is currently discharging under NPDES permit GU0000027 issued on December 28<sup>th</sup>, 2000. Pursuant to 40 CFR 122.21, the terms of the existing permit are administratively extended until the issuance of a new permit.

The facility was inspected on March, 10, 2010 by EPA contractor PG Environmental. On September 30, 2010, EPA issued an Administrative Order to the permittee for both this facility and for the Cabras Power Plant, located on Cabras Island, Guam, to take all necessary steps to come into compliance with their NPDES permits and with the Clean Water Act.

This permit has been classified as a Major discharger.

## II. GENERAL DESCRIPTION OF FACILITY

The Tanguisson Power Plant (“the facility”) has two generating units each with a rated output of 26.5 megawatts (MW). For each unit, two flows comprise a 48.96 MGD design flow: a non-contact turbine condenser flow of 41.62 MGD and a non-contact auxiliary water heat exchanger flow of 7.34 MGD. Between the two units, the facility’s total design output is 53 MW with a design flow of 97.92 MGD.

Both units share a common intake structure that is located on the shoreline just northwest of the facility and draws water from the Philippine Sea. The intake was developed with an intake velocity of 0.93 feet per second.

## III. DESCRIPTION OF RECEIVING WATER

Under Guam Water Quality Standards (GWQS), Tanguisson Beach is designated as category M-2 (“Good”) Marine Waters. M-2 waters are intended for mariculture activities, aesthetic enjoyment and related activities, with beneficial uses including: propagation and survival of marine organisms, particularly shellfish and other similarly harvested aquatic organisms, corals and other reef-related resources, and whole body contact recreation.

In 2008, Tanguisson Beach was listed under CWA Section 303(d) as impaired for enterococcus bacteria and in 2010 it was listed as under a toxic seafood advisory (for seaweed).

On March 17, 2010, a TMDL was approved for bacteria in the Guam northern watershed. A waste load allocation of 35/100mL geometric mean and 104/100mL instantaneous maximum was designated for Tanguisson Beach.

## IV. DESCRIPTION OF DISCHARGE

The permit allows for the discharge of non-contact cooling water through outfall 001 and certain low volume wastewaters through outfalls 001A. Form 2C, section II.B. of the application describes the following operations contributing to flow:

Outfall #	Description	Max Daily Flow <sup>(1)</sup>
001	Unit 1: Non-Contact Condensers	41.62 MGD
	Unit 1: Non-Contact Auxiliary Cooling	7.34 MGD
	Unit 2: Non-Contact Condensers	41.62 MGD
	Unit 2: Non-Contact Auxiliary Cooling	7.34 MGD
	<b>Outfall 001 Total</b>	<b>97.92 MGD</b>
001A	Reverse Osmosis Reject	15,000 GPD
	Water Treatment Area and Chemical Floor Drains	1,400 GPD
	Blow Down Drainage	55 GPD
	Miscellaneous Plant Drainage	5 GPD
	Boiler Washing	300 GPD
	<b>Outfall 001A Total</b>	<b>0.017 MGD</b>

<b>001B<sup>(2)</sup></b>	Traveling Screen Backwash	4,000 GPD
	<b>Outfall 001B Total</b>	<b>0.004 MGD</b>

<sup>(1)</sup>As reported in NPDES application.

<sup>(2)</sup>Outfall 001B was not listed in Form 2C, section 1.A. of the application and the permittee has indicated that the outfall is no longer in use. Discharge through Outfall 001B is therefore not authorized under the new permit.

The following flow characteristics were reported in Form 2C, section V of their application for Outfall 001:

<b>Pollutant</b>	<b>Units</b>	<b>Max Daily</b>	<b>Average</b>	<b>No. of Analyses</b>
Biochemical Oxygen Demand	mg/l	1	1	1
Chemical Oxygen Demand	mg/l	83	83	1
Total Suspended Solids	mg/l	11	11	1
Ammonia (as N)	mg/l	0.10	0.10	1
Flow	MGD	97.92	71.31	24
Temperature (winter)	°C	38.9	30.7	24
Temperature (summer)	°C	36.7	31.6	24
Δ Temperature <sup>(1)</sup>	°C	6.94 <sup>(2)</sup>	4.29	36
pH	s.u.	7.67 min/ 8.36 max		N/A

<sup>(1)</sup> As calculated by EPA from supplemental application material.

<sup>(2)</sup> Average monthly maximum.

## V. DETERMINATION OF NUMERICAL EFFLUENT LIMITATIONS

EPA has developed effluent limitations and monitoring requirements in the permit based on an evaluation of the technology used to treat the pollutant (i.e., “technology-based effluent limits”) and the water quality standards applicable to the receiving water (i.e., “water quality-based effluent limits”). EPA has established the most stringent of applicable technology based or water quality based standards in the proposed permit, as described below.

### A. Applicable Technology-based Effluent Limitations

#### Effluent Limitations Guidelines

Technology-based effluent limitation guidelines for the Steam Electric Power Generating Point Source Category were promulgated on November 10, 1982 (40 CFR Parts 125 and 423). The following is a summary of applicable Best Practicable Technology (“BPT”) (423.12) limitations for existing units:

1. The pH of all discharges, except once through cooling water, shall be within the range of 6.0-9.0.
2. There shall be no discharge of polychlorinated byphenyl compounds such as those commonly used for transformer fluid.

- Neither free available chlorine nor total residual chlorine may be discharged from any unit for more than two hours in any one day and not more than one unit in any plant may discharge free available or total residual chlorine at any one time unless the utility can demonstrate to the Administrator that the units in a particular location cannot operate at or below this level of chlorination.
- The quantity of pollutants discharged from the following sources shall not exceed the quantity determined by multiplying the flow of the waste sources times the concentration listed in the following table:

Pollutant	Maximum for any 1 day (mg/l)	Average of daily values for 30 consecutive days (mg/l)
<b>Low Volume Waste Sources</b>		
TSS	100.0	30.0
Oil and Grease	20.0	15.0
<b>Once Through Cooling Water/ Cooling Tower Blowdown</b>		
Free available chlorine	0.5	0.2

In addition to the BPT requirements above, the following Best Available Technology (“BAT”)(423.13) limitations for existing units apply:

- There shall be no discharge of polychlorinated byphenyl compounds such as those commonly used for transformer fluid.
- Total residual chlorine may not be discharged from any single generating unit for more than two hours per day unless the discharger demonstrates to the permitting authority that discharge for more than two hours is required for macroinvertebrate control. Simultaneous multi-unit chlorination is permitted.
- The quantity of pollutants discharged from the following sources shall not exceed the quantity determined by multiplying the flow of the waste sources times the concentration listed in the following table:

Pollutant	Maximum for any 1 day (mg/l)	Average of daily values for 30 consecutive days (mg/l)
<b>Cooling Tower Blowdown</b>		
Free available chlorine	0.5	0.2
Any of the 126 priority pollutants (40 CFR 423 Appendix A) which may be contained in chemicals added for cooling tower maintenance except Cr and Zn	No detectable amount	No detectable amount
Chromium, total	0.2	0.2
Zinc, total	1.0	1.0
<b>Once Through Cooling Water<sup>1</sup></b>		
Free available chlorine	0.20	-

1. For facilities with a total electrical generating capacity of 25 or more MW.

## **B. Water Quality-Based Effluent Limitations ("WQBELs")**

Water quality-based effluent limitations, or WQBELS, are required in NPDES permits when the permitting authority determines that a discharge causes, has the reasonable potential to cause, or contributes to an excursion above any water quality standard. (40 CFR 122.44(d)(1))

When determining whether an effluent discharge causes, has the reasonable potential to cause, or contributes to an excursion above narrative or numeric criteria, the permitting authority shall use procedures which account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity) and, where appropriate, the dilution of the effluent in the receiving water (40 CFR 122.44(d)(1)(ii)).

When evaluating reasonable potential, EPA considers the following factors:

### **1. Applicable Standards, Designated Uses and Impairments of Receiving Water**

The Guam Environmental Protection Agency's ("GEPA") establish water quality objectives in the 2001 Revision of the Water Quality Standards ("GWQS") and identify impairments for the receiving water as described in Section III, above.

### **2. Dilution in the Receiving Water**

Zones of mixing in the receiving water may only be granted by GEPA. The permittee has currently not applied for a zone of mixing for any pollutant.

An exception to this is made under Section 5104.E.2.b. of the GWQS for Tanguisson Power Plant. The GWQS grant the following mixing zone for the facility:

The zone of mixing for the Tanguisson Power Plant is defined as a rectangle of approximately 10,000 sq.m. with the following reference points:

- i. Northern boundary- north side of intake channel;
- ii. South boundary- 1969 ft (600 m) south of intake channel;
- iii. Eastern boundary- shoreline; and
- iv. Western boundary- 591 ft (180 m) off-shore to a depth beyond the reef margin of about one meter which is the top of the zone of passage.

### **3. History of Compliance Problems and Toxic Impacts**

The facility was inspected on March, 10, 2010 by EPA contractor PG Environmental. On September 30, 2010, EPA issued an Administrative Order ("AO") (CWA 309(a)-10-025) to the permittee to take all necessary steps to come into compliance with its NPDES permits and with the Clean Water Act.

The AO revealed over 250 occurrences in which the discharger exceeded the effluent limitations during the period beginning July 2005 and continuing through June 2010 for Outfalls 001 and 001A. Violations are summarized below:

Outfall	Parameter	No. of Instances	Max % Over Limit
001	pH	1	-
	Nitrogen, ammonia total (as N)	5	520 %
001A	Nitrogen, ammonia total (as N)	63	33,962 %
	Iron, total recoverable	130	5,433 %
	Copper, total recoverable	64	4,100 %
	Solids, total suspended	2	20 %

Additionally, the AO and inspection report revealed that none of the required combined outfall toxicity tests or influent temperature monitoring was being reported to EPA. The AO also revealed a series of findings pertaining to inadequate Best Management Practices and Operation & Maintenance.

**4. Existing Data on Toxic Pollutants**

Other than for pH, temperature, nitrogen, iron and copper, EPA does not have an adequate amount of data on priority pollutants to conduct a reasonable potential analysis. Increased monitoring in the new permit will allow for a more rigorous future analysis. All limits from the previous permit are retained in addition to any technology-based limits that may be appropriate.

**C. Rationale for Effluent Limits**

EPA evaluated the typical pollutants expected to be present in the effluent and selected the most stringent of applicable technology-based standards or water quality-based effluent limitations. Where effluent concentrations of toxic parameters are unknown or are not reasonably expected to be discharged in concentration that have the reasonable potential to cause or contribute to water quality violations, EPA may establish monitoring requirements in the permit. Where monitoring is required, data will be re-evaluated and the permit may be re-opened to incorporate effluent limitations as necessary.

Effluent Limitations Applicable to Both Outfalls:

*Flow.*

No limits established for flow, but flow rates must be monitored and reported. If no flow meter is available, volume of discharge is required to be calculated based on pump run times.

*Total Suspended Solids*

Because no ambient water data for TSS has been presented to EPA, and suspended solids are pollutants commonly present in industrial waste streams, a TSS limit has been adopted based on the water quality goal of 20 mg/l for M-2 waters in Guam.

### *Oil & Grease.*

Limits for Oil & Grease were developed based on best professional judgment (BPJ) and are consistent with EPA-issued permits in Guam and throughout the region.

### *Nitrate- Nitrogen*

Nitrate limits have been retained from the previous permit and are consistent with the GWQS.

### *pH*

pH limits are based on the GWQS for marine discharges. The pH limits for both outfalls require the discharge to remain within the range of 6.5-8.5 standard units.

### *Enterococcus*

Tanguisson Beach is impaired for enterococcus, however there is nothing to suggest that this facility contributes to the impairment. Because data does not exist to establish reasonable potential, only monitoring is required.

### *Chronic Toxicity*

Chronic Toxicity monitoring has been adjusted to annually. Limits have been removed in lieu of a special toxicity study.

### *Priority Pollutants*

Priority Pollutants listed in 40 CFR 401.15 are to be monitored annually. Information gathered from annual priority pollutant scans will provide EPA with data to make more rigorous reasonable potential determinations in future permit issuances.

### Effluent Limitations Applicable to Outfall 001 Only:

#### *Temperature*

The GWQS incorporate a temperature mixing zone specifically for the cooling water discharge from the Tanguisson facility. The permittee must demonstrate that their discharge meets the conditions set forth in the GWQS by conducting receiving water monitoring as required in the permit. The permittee must also continuously monitor influent and effluent temperature.

#### *Chlorine, Total Recoverable*

Table IV of the GWQS include a standard for total residual chlorine of .0075 mg/l. Because chlorine is a pollutant of concern for once through cooling water, the standard has been incorporated into the permit as a limit. The permittee is not required to conduct chlorine monitoring during months when no chlorination occurs at the facility.

### Effluent Limitations Applicable to Outfall 001A Only:

#### *Copper*

Due to a lack of data to conduct a reasonable potential analysis, copper limits have been retained in the permit from the previous permit.



### *Iron*

Due to a lack of data to conduct a reasonable potential analysis, iron limits have been retained in the permit from the previous permit.

### **D. Anti-Backsliding.**

Section 402(o) of the CWA prohibits the renewal or reissuance of an NPDES permit that contains effluent limits less stringent than those established in the previous permit, except as provided in the statute.

The permit establishes less stringent effluent limits for pH allowing an instantaneous minimum of 6.5 s.u. instead of the previously permitted 7.0 s.u. The new effluent limit is consistent with both the GWQS and applicable ELGs. CWA 402(o)(2) allows for specific exceptions to the general prohibition against antibacksliding. Specifically, it provides that relaxed limitations may be allowed where new information is available that was not available at the time of previous permit issuance or technical mistakes or mistaken interpretations of the law were made in issuing the previous permit. Because the 6.5 s.u. limit is consistent with both the water quality standards and all applicable ELGs, backsliding is allowable in order to replace the previous limit which is inconsistent with the current technology-based and water quality standards.

The permit also establishes less stringent effluent limits for toxicity since the limit has been removed. A special study has replaced the limits in order to determine if the current toxicity violations are beyond the permittee's control, as they may be attributed to the source water. Such an exemption is allowable under CWA 402(o)(2).

### **E. Antidegradation Policy**

EPA's antidegradation policy at 40 CFR 131.12 and Guam antidegradation policy in GWQS Section 5101.B. require that existing water uses and the level of water quality necessary to protect the existing uses be maintained.

As described in this document, the permit establishes effluent limits and monitoring requirements to ensure that all applicable water quality standards are met. With the exception of temperature, the permit does not include a mixing zone, therefore these limits will apply at the end of pipe without consideration of dilution in the receiving water. The mixing zone for temperature is specifically granted in the GWQS and therefore is not expected to degrade receiving water quality.

On January 29, 2008, the applicant submitted a nitrogen mixing zone request for outfall 001a to Guam EPA. In their June 13, 2012 401 certification, Guam EPA issued a tentative denial to the mixing zone request. In their denial, Guam EPA described what information would be required for the applicant to submit in order to receive the requested mixing zone. If Guam EPA authorizes a mixing zone for the facility, an adjusted permit limit will be incorporated into the next permit or into the existing permit, should EPA deem it necessary to reopen the permit and revise the limit.

This permit issuance does not authorize any new or increased flow or significantly relax any effluent limitations from the previous permit. The discharge is also not expected to adversely affect receiving water bodies.

Therefore, it is determined that this discharge meets the antidegradation policy set forth in the GWQS.

## **VI. NARRATIVE WATER QUALITY-BASED EFFLUENT LIMITS**

Section 5103 of the Guam WQS contains narrative water quality standards applicable to the receiving water. Therefore, the permit incorporates applicable narrative water quality standards.

## **VII. MONITORING AND REPORTING REQUIREMENTS**

The permit requires the permittee to conduct monitoring for all pollutants or parameters where effluent limits have been established, at the minimum frequency specified. Additionally, where effluent concentrations of toxic parameters are unknown or where data is insufficient to determine reasonable potential, monitoring may be required for pollutants or parameters where effluent limits have not been established.

### **A. Effluent Monitoring and Reporting**

The permittee must conduct effluent monitoring to evaluate compliance with the proposed permit conditions. The permittee must perform all monitoring, sampling and analyses in accordance with the methods described in the most recent edition of 40 CFR 136, unless otherwise specified in the proposed permit. All monitoring data must be reported on monthly DMR forms and submitted quarterly as specified in the proposed permit.

### **B. Priority Toxic Pollutants Scan**

A Priority Toxics Pollutants scan must be conducted annually to ensure that the discharge does not contain toxic pollutants in concentrations that may cause a violation of water quality standards. The permittee must perform all effluent sampling and analyses for the priority pollutants scan in accordance with the methods described in the most recent edition of 40 CFR 136. 40 CFR 131.36 provides a complete list of Priority Toxic Pollutants. For Outfall 001, the scan must be conducted during the application of antifoulants in order to capture any pollutants contributed by the antifoulants.

### **C. Whole Effluent Toxicity Testing**

Chronic toxicity testing measures a sub-lethal effect (e.g. reduced growth) to test organisms exposed to an effluent compared to that of control organisms. The permit establishes annual testing for chronic toxicity to ensure that the facility's effluent presents no adverse impact on sensitive marine species. For Outfall 001, toxicity testing must be conducted during antifoulant application to ensure the anti-fouling agents do not have a toxic effect on local organisms.

In previous testing, the permittee has found toxicity in its effluent. The permittee suspects that the toxicity is attributable to the source water which, in this case, is also the receiving water. The permittee is required to do a Special Toxicity Study as well as develop a Toxicity Reduction Evaluation Work Plan to address the elevated toxicity. If the permittee is unable to identify the source of the toxicity, EPA may request further testing, including a potential Toxicity Identification Evaluation, in order to evaluate and reduce sources of toxicity.

### VIII. 316(b) DETERMINATION

Section 316(b) of the CWA requires that the "...location, design, construction, and capacity of cooling water intake structures reflect the best technology available ("BTA") for minimizing adverse environmental impact." EPA published a final rule regulating large existing electric generating plants (Phase II) in July 2004. EPA suspended the rule in July 2007 and issued a memorandum with subject: "Implementation of the Decision in *Riverkeeper, Inc. v EPA*, Remanding the Cooling Water Intake Structures Phase II Regulation." The memo states, "...all permits for Phase II facilities should include conditions under section 316(b) of the Clean Water Act developed on a Best Professional Judgment basis. See 40 C.F.R. § 401.14."

In November 2010, EPA signed a Settlement Agreement with Riverkeeper regarding rulemaking dates to set new 316(b) technology standards. EPA agreed to propose standards by March 14, 2011, and after considering public comments, to take final action by July 27, 2012. On April 20, 2011, EPA proposed a new Phase II rule. EPA is currently considering comments received during the comment period, which closed August 18, 2011.

Currently, 316(b) determinations of best technology available for existing facilities are done on a case-by-case, Best Professional Judgment (BPJ) basis.

#### A. Report Summary and Current Cooling Water Technology

In March 2005, the applicant submitted the report "Environmental Impact of the Cooling Water Intake Structure, Tanguisson Power Plant Section 316B Study, Phase I" conducted by the University of Guam Marine Laboratory. The purpose of this study was to 1) determine a potential zone of influence for the intake structure and 2) establish preliminary biological monitoring within the zone of influence. The analysis concluded:

"...the zone of influence of the Cooling Water Intake Structure extends 13 m onto the bench on the west side of the channel, 60 meters onto the outer reef flat platform on the east side of the channel, and about 60 m seaward of the mouth of the channel."

The report also describes the intake structure and channel:

"The plant's cooling water intake structure is located adjacent to the shore line northwest of the facility and draws water from the Philippine Sea. It has been designed to accommodate the required cooling water volume with a low intake velocity of 0.93 ft/sec in the channel and 1.55 ft/sec in the intake pipes. The cooling water is drawn through an intake channel cut through the reef margin and reef flat. The intake channel is 14 m wide

and 2 m below the mean tide level. A retaining wall on either side of the channel flanks a portion of the intake, thus separating it from the sections of the reef flat.”

On March 10, 2010, EPA contractor PG Environmental, LLC (“PG”) visited the facility to conduct a compliance evaluation inspection and gather additional information to be used for the renewal of this permit. The results from the information collection were summarized by PG in a memorandum included in this fact sheet (See Appendix A). Of note, the report describes the existing power generating units:

“Units 1 and 2 share a common intake structure on the shoreline of the Philippine Sea. Cooling water for Units 1 and 2 is provided by four pumps (two per unit; however, only one pump is operated at a time for each unit). Each pump has a rated pumping capacity of 17,500 gallons per minute (gpm) (for a total of up to 25.2 MGD per pump). The maximum permitted cooling water flow is 97.92 MGD; however, based upon review of recent DMRs the average monthly intake flow appears to be between 25 and 65 MGD.”

The report goes on to discuss the current intake controls:

Water entering the intake structure first passes through bar racks. The bar racks were below the water line and could not be observed; however, a design drawing provided by the Discharger indicated that the bar racks have a height of 7’4” and a width of 6’6”. The bar rack assemblies are constructed of 3/8” bar stock placed 5.577” apart. Behind each bar screen is a traveling water screen with 3/8” mesh screens.”

## **B. EPA Determination**

EPA is required to consider location, design, construction, and capacity when determining BTA for minimizing adverse environmental impact. EPA has considered the following factors in making its determination:

1. The permittee employs bar racks and traveling screens to minimize impingement and entrainment. The traveling water screen uses 3/8” mesh screens which are designed to catch and remove aquatic wildlife in addition to any ambient debris.
2. The location of the permittee’s ocean intake minimizes impingement by limiting the zone of influence. Although the intake impacts extend 13 m to the west of the intake channel, 60 m to the east and 60 m seaward, flows outside this zone of influent exhibit a predominant westerly to southerly movement away from the intake.
3. The design intake velocity of 0.93 ft/sec, while high relative to certain national metrics indicating .5 feet/second to be BTA, is consistent with local current velocities which vary from 0.02 to 0.5 m/sec (0.07 to 1.64 ft/s).
4. Although the permittee has a design flow intake capacity of 97.92 MGD, the permittee adjusts intake volume daily according to electricity demand. In a review of data over the past three years, the permittee’s average intake volume was 51.9 MGD, with monthly average flow volumes ranging between 28.1 and 91.6 MGD. These flows are

considerably below the design intake of the facility minimizing entrainment and impingement proportional to the flow reduction.

5. No threatened or endangered species were observed within the zone of influence by the University of Guam during their intake structure study (University of Guam, 2005).

After consideration of the above factors, and without basis to make a determination to the contrary, EPA determines that the permittee implements the Best Technology Available to minimize adverse environmental impact.

EPA is expected to release a final determination of BTA for Phase II 316(b) facilities by July 27, 2012. The final rule will likely specify short and long-term monitoring requirements and studies to be conducted by the permittee. The permittee is required to conduct all such monitoring and studies in accordance with and by the dates prescribed by the new rule. After receipt of new data and implementation of new BTA standards, EPA will reconsider its determination of BTA for the Tanguisson facility.

### **C. BTA Requirements**

In order to maintain compliance with EPA's determination of BTA, the permittee must continue to implement best management practices consistent with the design of the intake system and demand associated with electrical generation. The permittee must:

1. Regularly maintain the intake in order to meet the design intake velocity of 0.93 ft/sec.
2. Minimize flow intake volume to only that which is necessary. This includes shutting off units which are not actively involved in power generation and maximizing cooling water efficiency by maintaining or upgrading heat pumps, pipes, heat exchangers and any other part of the cooling water or electrical generating system.
3. Regularly maintain traveling screens and other equipment and areas associated with the cooling water intake structure to ensure design performance. The permittee must develop and implement a manual to identify necessary Standard Operating Procedures and ensure regular maintenance of the intake structure.
4. Complete all monitoring, studies and requirements of the pending EPA rule by the dates prescribed.

## **IX. SPECIAL CONDITIONS**

### **A. Development and Implementation of Best Management Practices**

Pursuant to 40 CFR 122.44(k)(4), EPA may impose Best Management Practices ("BMPs") which are "reasonably necessary...to carry out the purposes of the Act." The pollution prevention requirements or BMPs proposed in the permit operate as technology-based limitations on effluent discharges that reflect the application of Best Available Technology and Best Control Technology. Therefore, the draft permit requires that the permittee develop (or update) and

implement a Best Management Practices Plan (“BMPP”) with appropriate pollution prevention measures or BMPs designed to prevent pollutants from entering the Philippine Sea and other surface waters while performing normal processing operations at the facility.

The permittee has not applied for the discharge of stormwater through any outfall. Stormwater has been previously disposed of on-site according to the BMPP. If the permittee requires a permit for discharges of stormwater, EPA recommends that they file a Notice of Intent for coverage under EPA’s Multi-Sector General Permit.

### **B. Anti-Fouling Reporting**

Cooling water intake systems often require anti-fouling agents, including biocides, chlorine and other chemicals, to deter or kill organisms that grow on equipment and reduce the equipment’s performance and reliability.

The permittee is required to record and report all antifouling agents used on the intake system as described in the permit. The permittee must also conduct toxicity monitoring concurrent with antifoulant application as described in the permit.

### **C. Receiving Water Monitoring**

In order to ensure compliance with temperature standards specific to the Tanguisson facility, the permittee must monitor for temperature monthly at the edge of the thermal zone of mixing granted in the GWQS. The monitoring includes two locations immediately to the west and south of the thermal zone of mixing and one reference point located to the north of the intake channel. At each location, the permittee must take three discrete samples at the surface, mid-depth and bottom of the Philippine Sea resulting in a total of nine sampling points.

Comparison of temperature from the edge of the zone of mixing to the ambient will ensure that effluent from the facility does not cause receiving water temperature to increase more than +1 °C from ambient conditions post-dilution.

## **X. OTHER CONSIDERATIONS UNDER FEDERAL LAW**

### **A. Impact to Threatened and Endangered Species**

Section 7 of the Endangered Species Act of 1973 (16 U.S.C. § 1536) requires federal agencies to ensure that any action authorized, funded, or carried out by the federal agency does not jeopardize the continued existence of a listed or candidate species, or result in the destruction or adverse modification of its habitat.

The following species are listed as endangered or threatened in Guam by the Pacific Islands Fish and Wildlife Services (“FWS”) Office:

#### **Mammals:**

- Bat, little Mariana fruit (*Pteropus tokudae*)
- Bat, Mariana fruit (*Pteropus mariannus*)

**Birds:**

- Crow, Mariana (aga) (*Corvus kubaryi*)
- Kingfisher, Guam Micronesian (*Halcyon cinnamomina cinnamomina*)
- Moorhen, Mariana common (*Gallinula chloropus guami*)
- Rail, Guam except Rota (*Rallus owstoni*)
- Swiftlet, Mariana gray (*Aerodramus vanikornsis bartschi*)
- White-eye, birdled (*Zosterops conspicillatus conspicillatus*)

**Sea Turtles:**

- Sea turtle, hawksbill (*Eretmochelys imbricata*)
- Sea turtle, green except where endangered (*Chelonia mydas*)
- Sea turtle, leatherback (*Dermochelys coriacea*)
- Sea turtle, loggerhead (*Caretta caretta*)

**Plants:**

- Iagu, Hayun (*Serianthes nelsonii*)

Of the species listed above, only the sea turtles have any geographic nexus, other than speculative incidental contact, with the Tanguisson Power Plant effluent or Cooling Water Intake Structure ("CWIS"). According to the FWS website, the leatherback and loggerhead sea turtle do not occur in Guam.

FWS's 1998 Recovery Plan for the hawksbill turtle identified directed take and coastal construction as the primary threats to the hawksbill in Guam. The plan also notes that the hawksbill was virtually extirpated from Guam prior to U.S. involvement and that there has only been one confirmed record of hawksbill nesting on the island of Guam. Additionally, in Table 1 the plan states that "power plant entrapment" is not a current problem in Guam.

In their 1998 Recovery Plan for the green turtle, FWS identified directed take, increased human presence, coastal construction, nest predation and algae/seagrass/reef degradation as the primary threats to the green turtle in Guam. The plan also notes in Table 1 that "power plant entrapment" is not a current problem in Guam.

The Guam WQS are written in order to, among other things, allow for the propagation and survival of marine organisms. This permit incorporates effluent limitations and narrative conditions to ensure that the discharge meets Guam WQS without any additional mixing zones. In consideration of the above, EPA believed that the proposed discharge is not likely to affect endangered species in Guam.

In 2005, the University of Guam noted in its study on the impact of Tanguisson's CWIS, that no threatened or endangered species were observed within the zone of influence of the intake structure during their study. Furthermore, as determined by EPA, the permittee's CWIS reflects Best Technology Available for minimizing adverse environmental impact. In consideration of the above, EPA believed that the permittee's CWIS is not likely to affect endangered species in Guam.

EPA has provided U.S. Fish and Wildlife Service with copies of this fact sheet and the draft permit for review.

## **B. Impact to Coastal Zones**

The Coastal Zone Management Act ("CZMA") requires that Federal activities and licenses, including Federally permitted activities, must be consistent with an approved State or Territory Coastal Management Plan (CZMA Sections 307(c)(1) through (3)). Section 307(c) of the CZMA and implementing regulations at 40 CFR 930 prohibit EPA from issuing a permit for an activity affecting land or water use in the coastal zone until the applicant certifies that the proposed activity complies with the State (or Territory) Coastal Zone Management program, and the State (or Territory) or its designated agency concurs with the certification. In Guam, the Guam Bureau of Statistics & Plans (Guam BSP) is the designated agency.

On April 27, 2012, Guam BSP issued a concurrence with the Consistency Certification previously proposed by the applicant.

## **C. Impact to Essential Fish Habitat**

The 1996 amendments to the Magnuson-Stevens Fishery Management and Conservation Act ("MSA") set forth a number of new mandates for the National Marine Fisheries Service, regional fishery management councils and other federal agencies to identify and protect important marine and anadromous fish species and habitat. The MSA requires Federal agencies to make a determination on Federal actions that may adversely impact Essential Fish Habitat ("EFH").

The proposed permit contains technology-based effluent limits and numerical and narrative water quality-based effluent limits as necessary for the protection of applicable aquatic life uses. The proposed permit does not directly discharge to areas of essential fish habitat. EPA has also determined that the cooling water intake structure reflects Best Technology Available. Therefore, EPA has determined that the proposed permit is not likely to adversely affect essential fish habitat.

EPA has provided the National Marine Fisheries Service with copies of this fact sheet and the draft permit for review.

## **D. Impact to National Historic Properties**

Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to consider the effect of their undertakings on historic properties that are either listed on, or eligible for listing on, the National Register of Historic Places. Pursuant to the NHPA and 36 CFR § 800.3(a)(1), EPA is making a determination that issuing this proposed NPDES permit does not have the potential to affect any historic properties or cultural properties. As a result, Section 106 does not require EPA to undertake additional consulting on this permit issuance.

# **XI. STANDARD CONDITIONS**

## **A. Reopener Provision**

In accordance with 40 CFR 122 and 124, this permit may be modified by EPA to include effluent limits, monitoring, or other conditions to implement new regulations, including EPA-



approved water quality standards; or to address new information indicating the presence of effluent toxicity or the reasonable potential for the discharge to cause or contribute to exceedances of water quality standards.

**B. Standard Provisions**

The permit requires the permittee to comply with EPA Region IX Standard Federal NPDES Permit Conditions, dated July 1, 2001.

**XII. ADMINISTRATIVE INFORMATION**

**A. Public Notice (40 CFR 124.10)**

The public notice is the vehicle for informing all interested parties and members of the general public of the contents of a draft NPDES permit or other significant action with respect to an NPDES permit or application.

**B. Public Comment Period (40 CFR 124.10)**

Notice of the draft permit will be placed in a daily or weekly newspaper within the area affected by the facility or activity, with a minimum of 30 days provided for interested parties to respond in writing to EPA. After the closing of the public comment period, EPA is required to respond to all significant comments at the time a final permit decision is reached or at the same time a final permit is actually issued.

**C. Public Hearing (40 CFR 124.12(c))**

A public hearing may be requested in writing by any interested party. The request should state the nature of the issues proposed to be raised during the hearing. A public hearing will be held if EPA determines there is a significant amount of interest expressed during the 30-day public comment period or when it is necessary to clarify the issues involved in the permit decision.

**D. Water Quality Certification Requirements (40 CFR 124.53 and 124.54)**

For States, Territories, or Tribes with EPA approved water quality standards, EPA must receive a certification from the affected State, Territory, or Tribe that the proposed permit will meet all applicable water quality standards. Certification under section 401 of the CWA shall be in writing and shall include the conditions necessary to assure compliance with referenced applicable provisions of sections 208(e), 301, 302, 303, 306, and 307 of the CWA and appropriate requirements of Territory law.

On May 10, 2012, Guam EPA issued a conditional 401 certification denial. After working with EPA to ensure compliance with Guam WQS would be met through this permitting action, Guam EPA issued a final 401 certification on June 13, 2012.

### **XIII. CONTACT INFORMATION**

Comments submittals and additional information relating to this proposal may be directed to:

Jamie Marincola  
[Marincola.Jamespaul@epa.gov](mailto:Marincola.Jamespaul@epa.gov)  
415-972-3520

EPA Region IX  
75 Hawthorne Street (WTR-5)  
San Francisco, California 94105

#### XIV. REFERENCES

EPA. 1991. *Technical Support Document for Water Quality-based Toxics Control*. Prepared by EPA, Office of Water Enforcement and Permits, in March 1991. EPA/505/2-90-001.

EPA. 1996a. *Regions IX & X Guidance for Implementing Whole Effluent Toxicity Testing Programs*, Interim Final, May 31, 1996.

EPA. 1996b. *U.S. EPA NPDES Basic Permit Writers Manual*. EPA. EPA-833-B-96-003.

EPA. 2002a. *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms - Fifth Edition*. Office of Water, EPA. EPA-821-R-02-012.

EPA. 2002b. *National Recommended Water Quality Criteria*. Office of Water, EPA. EPA-822-R-02-047.

EPA. 2008. *Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (MSGP)*. National Pollutant Discharge Elimination System (NPDES), EPA.

EPA. 2009. *Development of Guam Northern Watershed Bacteria TMDL*. U.S., EPA Region 9 and Guam EPA. 12/16/09.

EPA. 2010. *U.S. EPA NPDES Permit Writers' Manual*. EPA. EPA-833-K-10-001. Sep 2010.

FWS. 1998a. *Recovery Plan for U.S. Pacific Populations of the Hawksbill Turtle*. U.S. National Oceanic and Atmospheric Administration and U.S. Fish and Wildlife Service. 1/12/98

FWS. 1998b. *Recovery Plan for U.S. Pacific Populations of the Green Turtle*. U.S. National Oceanic and Atmospheric Administration and U.S. Fish and Wildlife Service. 1/12/98

FWS. 2011. U.S. Fish & Wildlife Service. *Species Report. Listing and Occurrences for Guam*. 9/12/11.

University of Guam. 2005. *Environmental Impact of the Cooling Water Intake Structure, Tanguisson Power Plant Section 316b Study, Phase I*. Mar 2005.

University of Guam. 2005. *Environmental Impact of the Cooling Water Intake Structure, Tanguisson Power Plant Section 316b Study, Phase I, A Screening Analysis*. May 2005.

# **APPENDIX A**

## **Permit Site Visit**

Tanguisson Power Plant (NPDES Permit No. GU0000027)

PG Environmental, LLC

March 2010