

# Memorandum

Date : July 24, 2007  
Telephone: (916) 653-1639  
ATSS

<b>DOCKET</b>	
<b>00-AFC-1C</b>	
DATE	<b>JUL 24 2007</b>
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To : John L. Geesman, Commissioner and Presiding Member  
Jeffery D. Boyd, Commissioner and Associate Member

From : California Energy Commission - **Christopher Meyer**  
1516 Ninth Street Energy Commission Compliance Project Manager  
Sacramento, CA 95814-5512

Subject : **GATEWAY GENERATING STATION, 00-AFC-1C**  
**ERRATA TO THE STAFF ANALYSIS FOR THE DRY COOLING PETITION**

After publication of the Gateway Generating Station Dry Cooling petition Staff Analysis, Pacific Gas and Electric (PG&E) submitted comments that addressed concerns and also identified errors and omissions in the document (see attached list). The only comments received on the Staff Analysis were received from PG&E on July 16, 2007. Energy Commission staff reviewed and considered the comments on the Staff Analysis as well as identifying additional corrections in the Conditions of Certification to remain consistent with the current siting regulations.

Enclosed are staff's responses to comments, corrections to errors and omissions.

Enclosures

## AIR QUALITY

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### **PACIFIC GAS AND ELECTRIC (PG&E) COMMENTS DATED JULY 16, 2007**

**PG&E COMMENT-1:** The applicant (PG&E) requested that the reference to the wet surface air cooling (WSAC) system in the introduction to the Air Quality section be changes to clarified that the WSAC is only used for the closed cycle cooling water system when the fin fan cooler cannot meet the cooling load demand because of elevated ambient temperatures.

**STAFF RESPONSE:** Staff agrees that a change in the language is necessary and has made the following clarification:

#### **Page 4, first paragraph, Change**

From: “: update the construction conditions and the replacement of the once through cooling system with a dry cooling tower system and a wet surface air cooling system for added cooling capacity when air temperature and turbine load warrant”

To: “: update the construction conditions and the replacement of the once through cooling system with a dry cooling tower system. A wet surface air cooling (WSAC) system has been added to provide additional heat rejection capacity to the closed cycle cooling system when ambient temperatures exceed 80 degrees.”

**PG&E COMMENT-2:** PG&E clarified that the water balance is based on the WSAC only operating 750 hours per year, not the 4,000 hours per year stated under Proposed Modifications to the Original Cooling System (AQ-45 and AQ-46) on page 6 of the Staff Analysis.

**STAFF RESPONSE:** Staff agrees that a water balance was based on the WSAC operating only 750 hours per year and has made the following correction:

#### **Page 6, second paragraph from bottom, Change**

From: “The WSAC is proposed to operate no more than 4,000 hours per year and primarily in the months of August and September when temperatures and highest”

To: “Under the revised Water Balance provided by the applicant, the WSAC is proposed to operate no more than 750 hours per year and primarily in the months of August and September when temperatures and highest.”

**STAFF ERRATA:** The reference to the abandoned wet cooling tower was not replaced with the WSAC in the Verification of **AQ-45** and **AQ-46**. Staff has made the following correction to the Verification of **AQ-45** and **AQ-46**:

**AQ-45:**

From:

**Verification:** At least 30 days prior to commencement of cooling tower construction, the project owner/operator shall provide to the ~~District~~ and CEC CPM a copy of the cooling tower manufacturer's specifications demonstrating the 0.00053 percent drift rate. The project owner/operator shall submit the water sample test results with the Quarterly Emissions Report required by Condition of Certification AQ-14.

To:

**Verification:** At least 30 days prior to commencement of ~~cooling towers~~ WSAC construction, the project owner/operator shall provide to the ~~District~~ and CEC CPM a copy of the ~~cooling towers~~ WSAC manufacturer's specifications demonstrating the 0.00053 percent drift rate. The project owner/operator shall submit the water sample test results with the Quarterly Emissions Report required by Condition of Certification AQ-14.

**AQ-46:**

From:

**Verification:** The project owner/operator shall keep records of all tower inspections and shall make them available for the ~~District~~ and CEC CPM upon request. The project owner/operator shall report the calculated PM10 emissions from the WSAC to the CPM in the Quarterly Emissions Report required in Condition of Certification AQ-14.

To:

**Verification:** The project owner/operator shall keep records of all ~~tower~~ WSAC inspections and shall make them available for the ~~District~~ and CEC CPM upon request. The project owner/operator shall report the calculated PM10 emissions from the WSAC to the CPM in the Quarterly Emissions Report required in Condition of Certification AQ-14.

## **SOIL AND WATER RESOURCES**

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### **PG&E COMMENTS DATED JULY 16, 2007**

**PG&E COMMENT-3:** The City of Antioch will be providing water for the project under a will serve letter and PG&E will be complying with any City of Antioch Laws, Ordinances, Regulations, and Standards (LORS) related to water use. PG&E has requested that the City of Antioch be added to the LORS table on page 25 of the Staff Analysis.

**STAFF RESPONSE:** The City of Antioch did not respond with a list of applicable LORS.

**PG&E COMMENT-4:** The site elevation has been corrected from the figures found in the original AFC and the December 19, 2006 petition. The elevation of the site has been surveyed at 14'6".

**STAFF RESPONSE:** Corrected elevation noted and updated on pages 26 and 30 of the Staff Analysis.

**STAFF ERRATA:** The references to the replacement of the evaporative cooling system with a WSAC system and the relationship between the WSAC and the close cycle water cooling system in paragraph 1 on page 24 and in paragraphs 2 and 4 on page 27 are incorrect and have been clarified as follows:

**Page 24, paragraph 1, Change**

From:

Pacific Gas & Electric (PG&E) Company proposes to eliminate the use of approximately 8,000 acre-feet per year (AFY) of San Joaquin River water for evaporative cooling in their redesigned Gateway Generating Station (GGS). In lieu of San Joaquin River water, PG&E proposes to use a hybrid dry cooling system that will be augmented with water from the City of Antioch (City) when ambient temperatures are above 80°F.

To:

Pacific Gas & Electric (PG&E) Company proposes to eliminate the use of approximately 8,000 acre-feet per year (AFY) of San Joaquin River water for evaporative cooling in their redesigned Gateway Generating Station (GGS). In lieu of San Joaquin River water, PG&E proposes to use an air cooled condenser to replace the wet cooling tower. A hybrid dry cooling system will be used for the close cycle cooling system and will be augmented with water from the City of Antioch (City) when ambient temperatures are above 80°F.

**Page 27, paragraph 2, Change**

From:

PG&E evaluated a number of cooling alternatives for the close cycle water cooling system before deciding on the WSAC system, which is a hybrid between an evaporative cooling tower and fin-fan air cooled condenser (ACC). The WSAC system uses water sprayed over the heat transfer bundles to increase the cooling capability of the system. The WSAC is expected to operate when ambient temperatures are above 80°F, or when additional cooling capability is required beyond the capability of the fin-fan heat exchanger or evaporative precooling systems. Water demand for the project will be significantly lower than that of the originally licensed CCPP-8 due to replacement of the evaporative cooling system using a cooling tower with the ACC and a WSAC system (PG&E 2006, Sections 2.1.2 & .6; PG&E 2007a and PG&E 2007d).

To:

PG&E evaluated a number of cooling alternatives before deciding on the WSAC system, which is a hybrid between an evaporative cooling tower and fin-fan air cooled condenser (ACC). The WSAC system uses water sprayed over the heat transfer bundles to increase the cooling capability of the system. The WSAC is expected to operate when ambient temperatures are above 80°F, or when additional cooling capability is required beyond the capability of the fin-fan heat exchanger or evaporative precooling systems. Water demand for the project will be significantly lower than that of

the originally licensed CCPP-8 due to replacement of the evaporative cooling system using a cooling tower with the WSAC system (PG&E 2006, Sections 2.1.2 & .6; PG&E 2007a and PG&E 2007d).

#### **Page 27, paragraph 4, Change**

From:

The proposed elimination of the evaporative cooling tower required a redesign of the closed cycle water cooling system. The closed cycle water cooling system is independent from the WSAC system and is a much smaller closed loop system that provides cooling water to various plant equipment. PG&E has determined that a fin-fan heat exchanger, in combination with a small WSAC heat exchanger system will be used to provide the required heat rejection capability. The proposed fin-fan system is similar to an ACC system (PG&E 2006, Section 2.1.6).

To:

The proposed elimination of the evaporative cooling tower required a redesign of the closed cycle water cooling system. The closed cycle water cooling system also includes the WSAC system and is a much smaller closed loop system that provides cooling water to various plant equipment. PG&E has determined that a fin-fan heat exchanger, in combination with a small WSAC heat exchanger system will be used to provide the required heat rejection capability. The proposed fin-fan system is similar to an ACC system (PG&E 2006, Section 2.1.6).

**STAFF ERRATA:** The requirement for a Water Supply Agreement for the long-term supply of potable water to the project in the proposed changes to **SOIL & WATER-7** is inconsistent with Energy Commission and City of Antioch policy. Staff has replaced "Water Supply Agreement" with "will-serve letter" in the proposed changes to the Condition of Certification and Verification of **SOIL & WATER-7** on page 44 of the Staff Analysis.

**STAFF ERRATA:** The timing requirements for the installation of the metering devices in the proposed new Condition of Certification **SOIL & WATER-10** have been clarified to address the current status of construction on the project. Staff has made the following changes to proposed Condition of Certification **SOIL & WATER-10** on page 45 of the Staff Analysis:

From:

**SOIL & WATER 10** The project owner shall use potable water supplied by the City of Antioch for construction and operation of the GGS. Potable water consumption shall not exceed 120 acre feet (AF) for any consecutive 12-month period of operation. The initial 12-month period will start on the first full month of commercial operation. Prior to the use of potable water for plant construction, the project owner shall install and maintain metering devices as part of the water supply and distribution system to monitor and record in gallons per day the total volume of potable water supplied to the GGS. Those metering devices shall be operational for the life of the project.

The project owner shall prepare an annual Water Use Summary, which will include the monthly range and monthly average of daily potable water usage in gallons per day, and total water used by the project on a monthly and annual basis in acre-feet. Any use of potable water that exceeds 100-AFY shall be documented in the Water Use Summary, along with an explanation of the necessity for the excess potable water use. In addition, the CPM shall be notified within 48 hours if the potable water use for the project exceeds 100-AFY. On-site potable water use shall be recorded on a monthly basis and reported in the next monthly compliance report or annual compliance report. For subsequent years, the annual Water Use Summary shall also include the yearly range and yearly average potable water use by the project. The annual Water Use Summary shall be submitted to the CPM as part of the Annual Compliance Report.

**Verification:** At least 30 days prior to installation of the potable water line to the City's water main, the project owner shall submit to the CPM evidence that metering devices have been installed and are operational on the potable water supply and distribution system.

The GGS project owner shall submit a Water Use Summary to the CPM in the next monthly compliance report or annual compliance report. Potable water consumption for the 12 month period identified in the annual compliance report shall not exceed 120-AF. The project owner shall provide a report on the servicing, testing and calibration of the metering devices in the annual compliance report. The CPM shall be notified within 48 hours of the project exceeding 100-AFY of potable water use.

To:

**SOIL & WATER 10** The project owner shall use potable water supplied by the City of Antioch for construction and operation of the GGS. Potable water consumption shall not exceed 120 acre feet (AF) for any consecutive 12-month period of operation. The initial 12-month period will start on the first full month of commercial operation. The project owner shall install and maintain metering devices as part of the water supply and distribution system to monitor and record in gallons per day the total volume of potable water supplied to the GGS during construction and operation. Those metering devices shall be operational for the life of the project.

The project owner shall prepare an annual Water Use Summary, which will include the monthly range and monthly average of daily potable water usage in gallons per day, and total water used by the project on a monthly and annual basis in acre-feet. Any use of potable water that exceeds 100-AFY shall be documented in the Water Use Summary, along with an explanation of the necessity for potable water use in excess of 100-AFY. In addition, the CPM shall be notified within 48 hours if the potable water use for the project exceeds 100-AFY. On-site potable water use shall be recorded on a monthly basis and reported in the next monthly compliance report or annual compliance report. For subsequent years, the annual Water Use Summary shall also include the yearly range and yearly average potable water use by the project. The annual Water

Use Summary shall be submitted to the CPM as part of the Annual Compliance Report.

**Verification:** At least 30 days prior to connection of the potable water line to the City's water main, the project owner shall submit to the CPM evidence that metering devices have been installed and are operational on the potable water supply and distribution system.

The GGS project owner shall submit a Water Use Summary to the CPM in the next monthly compliance report or annual compliance report. Potable water consumption for the 12 month period identified in the annual compliance report shall not exceed 120-AF. The project owner shall provide a report on the servicing, testing and calibration of the metering devices in the annual compliance report. The CPM shall be notified within 48 hours of the project exceeding 100-AFY of potable water use.

## **FACILITY DESIGN**

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**PG&E COMMENT-5:** The ammonia storage tank is not double walled as stated in the revised Table 1: Major Equipment List provided for Condition of Certification **GEN-1** on page 60 of the Staff Analysis. Only the below grade piping to each vaporizer skid is double walled.

**STAFF RESPONSE:** Staff has removed "Double walled" reference for ammonia storage tank from the Remarks column on the Major Equipment List in the Staff Analysis.