



**CH2MHILL**

July 11, 2005  
184288

<b>DOCKET</b> <b>04-AFC-1</b>
DATE <u>JUL 11 2005</u>
RECD <u>JUL 11 2005</u>

CH2M HILL  
2485 Natomas Park Drive  
Suite 600  
Sacramento, CA 95833-2937  
Tel 916.920.0300  
Fax 916.920.8463

Mr. William Pfanner  
Siting Project Manager  
California Energy Commission  
1516 Ninth Street, MS-15  
Sacramento, CA 95814-5504

RE: Informal Data Response, Set 6A  
San Francisco Electric Reliability Project (04-AFC-1)

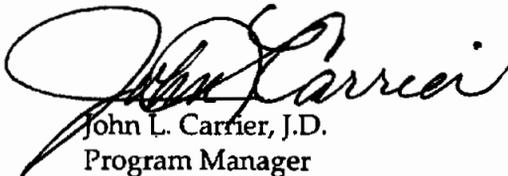
Dear Bill:

On behalf of the City of San Francisco, please find attached 12 copies and one original of Staff's Informal Data Response, Set 6A, in response to Staff's Informal Data Requests dated June 27, 2005. Copies of the data responses are being filed both electronically and in hard copy.

Please call me if you have any questions.

Sincerely,

CH2M HILL

  
John L. Carrier, J.D.  
Program Manager

c: Project File  
Proof of Service List

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**SAN FRANCISCO ELECTRIC  
RELIABILITY PROJECT  
(04-AFC-1)**

**INFORMAL DATA RESPONSE,  
SET 6A**

**(Responses to Informal Data Requests in the areas of: Air Quality and  
Soil and Water Resources)**

Submitted by  
**CITY AND COUNTY OF SAN FRANCISCO**

July 11, 2005



2485 Natomas Park Drive, Suite 600  
Sacramento, California 95833-2937

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**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT  
(04-AFC-01)  
Informal Data Request Set 6**

**Technical Area: Air Quality**

**Author: Susan Sanders**

**SFERP Author: Gary Rubenstein**

AQ6-1. How was the 8.6 tons of NH<sub>3</sub> calculated in Table BR-158 (Data Responses, Set 2A, page 3)?

**Response:** The 8.6 ton per year value is the estimate of ammonia emissions from PG&E's Hunters Point Boiler 7 based on the following assumptions:

- The unit operates at its historical average fuel consumption rate (2001-2003) of 4,318,875 MMbtu/yr.
- The unit is equipped with SCR
- The ammonia slip limit is 10 ppm @ 3% O<sub>2</sub>, or 0.004 lbs/MMbtu

The estimated ammonia emissions for this unit are calculated as follows:

$$4,318,875 \text{ MMbtu/yr} * 0.004 \text{ lbs/MMbtu} / 2000 \text{ lbs/ton} = 8.6 \text{ tons/yr}$$

AQ6-2. How will NH<sub>3</sub> from the project be mitigated?

**Response:** The City believes that the impacts of ammonia emissions from the project will be less than significant. Furthermore, as shown in the response to Data Request 158, there will be a net reduction in nitrogen emissions in the region under all reasonably foreseeable scenarios.

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT  
(04-AFC-01)  
Informal Data Request Set 6**

**Technical Area: Soil and Water Resources**

**Authors:** Mark Lindley and Vince Geronimo (PWA)

**SFERP Authors:** Mike Walkowiak and Steve Brock

**WATER SUPPLY**

**BACKGROUND**

In the SFERP – Water Balance Table provided on Figure 8.14-2 the Average Water Use was higher than the Maximum Water Use for CTG NOx and Sprint Injection, Ultra Filter Reject, and Ultra Filter Product.

**DATA REQUEST**

S&W6-1. Please explain why the Maximum Water Use for these plant processes are less than the Average Water Use.

**Response:** Due to a very slight variation in atmospheric conditions between the typical hot summer day, which is the plant maximum water consumption, and the average day, the gas turbine mass flow varies slightly. This variation results in a variation in the water injection of 0.50% and is the basis for the “average” gas turbine water injection being higher than the “maximum” (hot day) water injection.

**BACKGROUND**

One potential impact and LORS compliance issue that has not been fully evaluated is the use of potable water for a backup water supply. Staff cannot determine if the use of potable water is a waste or unreasonable use until the Applicant has provided an estimate of the amount of backup water the plant will require. Staff will most likely propose a Condition of Certification in the FSA that caps the amount of potable water the plant can use on an annual basis. Limiting the amount of potable water used by the project for backup process water will assure compliance with LORS and prevent a significant impact to potable water resources.

**DATA REQUEST**

S&W6-2. Please estimate the potential quantity of potable water that could be used as backup process water under reasonable scenarios for interruptions in the supply of disinfected tertiary recycled water.

**Response:** The recycle water treatment process is expected to be highly reliable and it is not anticipated that the supply of tertiary water will be interrupted. However, there exists the slight possibility that the biology of the system will be totally lost. Under this scenario it could take a month to have the system fully functional and the biology stable. If the upset condition were to occur during the

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT  
(04-AFC-01)  
Informal Data Request Set 6**

summer months when the units are required to operate 24/7, the potable water consumed for backup process water could be on the order of 11.1 million gallons for that month. Another unlikely scenario would be a regulation or other problem which would prevent the use of the tertiary recycled water for the cooling towers. Under this scenario the potable water usage for process water would be 8.4 million gallons per year. Under normal circumstances where the tertiary system operated properly except for some minor upsets (such as hosing down certain areas), the potable water usage for backup process water would be on the order of 6,000 gallons per year.

**BACKGROUND**

The project as proposed would utilize recycled wastewater treated onsite as the primary water source and potable water as a backup water source. Nearby the project site, SF PUC discharges effluent through a force main at Pier 80. This effluent stream may have a sufficient quantity of recycled water for use at SFERP.

**DATA REQUESTS**

S&W6-3. Has the Applicant considered using treated effluent from the SF PUC's water treatment plant discharge at Pier 80 as a primary source of recycled water?

**Response:** Raw wastewater from the Marin Street Box Sewer was selected as the source of water because it has lower salinity than the combined flow that is treated at the SEWPCP. Salinity is expensive to remove and can be detrimental to processes in the power plant.

The treated effluent from the SEWPCP is high in salinity because of infiltration of bay water into sewers and box structures near the water. The Marin Street Box Sewer, which collects wastewater from higher elevations, is not subject to bay water infiltration.

S&W6-4. Has the Applicant considered using treated effluent from the Pier 80 discharge point as a source for the SF ERP backup water supply?

**Response:** See response to Data Request S&W 6-3, above. The high salinity of the treated effluent from the SEWPCP also makes it problematic to use as the backup water supply.

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT  
(04-AFC-01)  
Informal Data Request Set 6**

**WASTEWATER TREATMENT FACILITY**

**BACKGROUND**

The AFC indicates that the onsite wastewater treatment plant will operate continuously. The secondary treatment depends upon biological activity in an anoxic/aerobic tank. The biologic oxidation reactions in this secondary treatment process may not respond well to treatment plant shutdowns or extreme changes in flow through rates.

**DATA REQUESTS**

S&W6-5. Describe all ordinary and non-ordinary situations that would cause operation of the Water Treatment Process facility to fail or to shut down.

**Response:**

**Ordinary situations:** No ordinary situations exist that would cause the water treatment process to shut down or fail. Production of recycled water may be reduced at times when demand for water is low. However, it is expected that the plant will continue operating at all times. The plant will even continue operating when there is no demand for water because continuous flow is required to maintain the biological mass that provides biological treatment.

**Non-ordinary Situations:** In general, the water treatment plant is being designed with redundancy that will allow the plant to continue operating even when certain elements fail. It is anticipated that these redundant features will allow the plant to continue operating under nearly all conditions. Extreme, non-ordinary situations that may lead to a failure or shut down of the plant include:

- **A power failure at the offsite Feedwater Pump Station:** the FWPS will be powered by an electrical feed from PG&E's power grid. In the event of a power failure, the pump station will stop operating. A receptacle and appropriate switchgear will be provided at the FWPS to allow connection of a portable engine generator that can be used to operate the FWPS temporarily until power is restored.
- **Unusually high loads of grit (i.e., sandy and gravelly material) or large debris** received at the FWPS may disrupt flow for a short period of time. The FWPS and water treatment plant will be designed to handle normal grit and debris loads, but high loads, which sometimes occur during large storms, may cause temporary outages.

Grit is a normal component of wastewater and stormwater collected in the City's sewer system. It is present at all times of the year, but large storms can transport grit that accumulates during dry weather to places where it can be trapped, such as the FWPS wet well. When such events occur, operators can use sewer cleaning equipment to remove the

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT  
(04-AFC-01)  
Informal Data Request Set 6**

impediments and restore operation. Cleaning of sewers and pump station wet wells after storm events to clear grit and debris is a standard operating procedure used to keep the system operational during and after storm events.

- **If toxic material is discharged into the sewer system** and subsequently pumped to the water treatment plant, the biological mass used to provide treatment within the treatment process might be impaired. Such events are not common, but they can occur. In such an event, the treatment process may not operate properly until the biomass is restored. Restoration can take anywhere from 24 hours to a few weeks in extreme events. Such events are generally not controllable.
- **Catastrophic events** such as earthquakes may damage the water treatment plant. The facilities will be designed to withstand earthquakes of a certain magnitude, but extreme events may cause the water treatment plant to shut down.

**S&W6-6.** Describe the methods to be used to maintain the functionality of the biological oxidation reactions in the secondary treatment during shut downs and changes in flow through rates.

**Response:** The Feedwater Pump Station will be designed to limit flow to the water treatment plant, so large fluctuations are not anticipated.

**Maintenance of Biomass in the Water Treatment Plant:** Water treatment will include a biological process that depends on a cultivated population of microorganisms to oxidize and remove waste from the water. As with all life, the population of microorganisms (or biomass) will require a food source to remain viable. Therefore, it will be necessary to operate the water treatment plant continuously to maintain the biomass.

When water demand is low, it will be possible to reduce the amount of biomass by shutting down redundant process trains and reducing flow to the plant. The reduced treatment rate can be maintained indefinitely. Because of the need to maintain the biomass, if treated water is produced in excess of the plant's demand, the excess water will be discharged back to the sanitary sewer system.

When demand increases, flow can be increased and the redundant process trains can be restarted. It is expected that restarting a process train to increase processing capacity may take about one week. Therefore, it will be necessary to anticipate increased demand in advance of when it will occur.

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT  
(04-AFC-01)  
Informal Data Request Set 6**

**WASTEWATER DISCHARGE**

**BACKGROUND**

The project description in the AFC and Data Response No. 99 indicate that 1) the onsite wastewater treatment plant will operate continuously, 24/7, while the turbines will not operate 24/7 and 2) treated wastewater may be diverted directly to the combined sewer system when the 600,000-gallon storage tank is full. Also, the AFC does not provide a discharge location or a pipeline route to the intended tie-in with the combined sewer system

**DATA REQUESTS**

S&W6-7. When the 600,000-gallon storage tank is full, and treated wastewater is discharged directly to the combined sewer system:

- a) How often will wastewater discharge rate be above 164-179 gpm indicated in the AFC?

**Response:** When the water treatment plant and power plant are operating, there will be a nearly continuous discharge of wastewater back to the city's wastewater collection system. Sources of wastewater from the treatment plant will include normal waste streams such as removal of excess biological solids and normal drainage from water used to clean and operate various processes. These flows will total approximately 100,000 gallons per day when the water treatment plant is operating at full capacity.

During certain events, the discharge from the water treatment plant may increase. Such events may include periods of low water demand when the plant continues operating to maintain the biological treatment process. Wastewater discharges from the water treatment plant may also increase when tanks are drained for maintenance or to reduce treatment capacity. The water treatment plant will be designed to allow the flow rate to be controlled to avoid overloading the drain system. Therefore, the frequency of exceeding the 179 gpm discharge rate would only occur during an unexpected upset, so the frequency cannot be predicted.

- b) What is the anticipated maximum wastewater discharge rate?

**Response:** The maximum wastewater discharge rate from the water treatment plant will occur when the water treatment plant is operating but demand for water is low. During such times, the wastewater discharge rate will be the difference between the water production rate and water usage at the power plant. The discharge rate could be as much as 610,000 gallons per day when the water treatment plant is operating at full capacity and no water is being used by the power plant.

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT  
(04-AFC-01)  
Informal Data Request Set 6**

Additional wastewater discharges (approximately 100,000 gallons per day) will occur from the treatment plant as part of normal operation.

S&W6-8. Provide a site map that shows the location of the wastewater discharge pipeline from the SFERP site wastewater sump to the terminus connection with the existing City sewer line.

**Response:** Please see attached Figure S&W6-8.

## **WILL SERVE LETTERS**

### **BACKGROUND**

In response to Data Request 51, "will serve" letters were provided for Potable Water, Industrial Wastewater and Stormwater Discharge, and Process Wastewater Supply were provided from SFPUC for the original SFERP site location near 23<sup>rd</sup> Street.

### **DATA REQUEST**

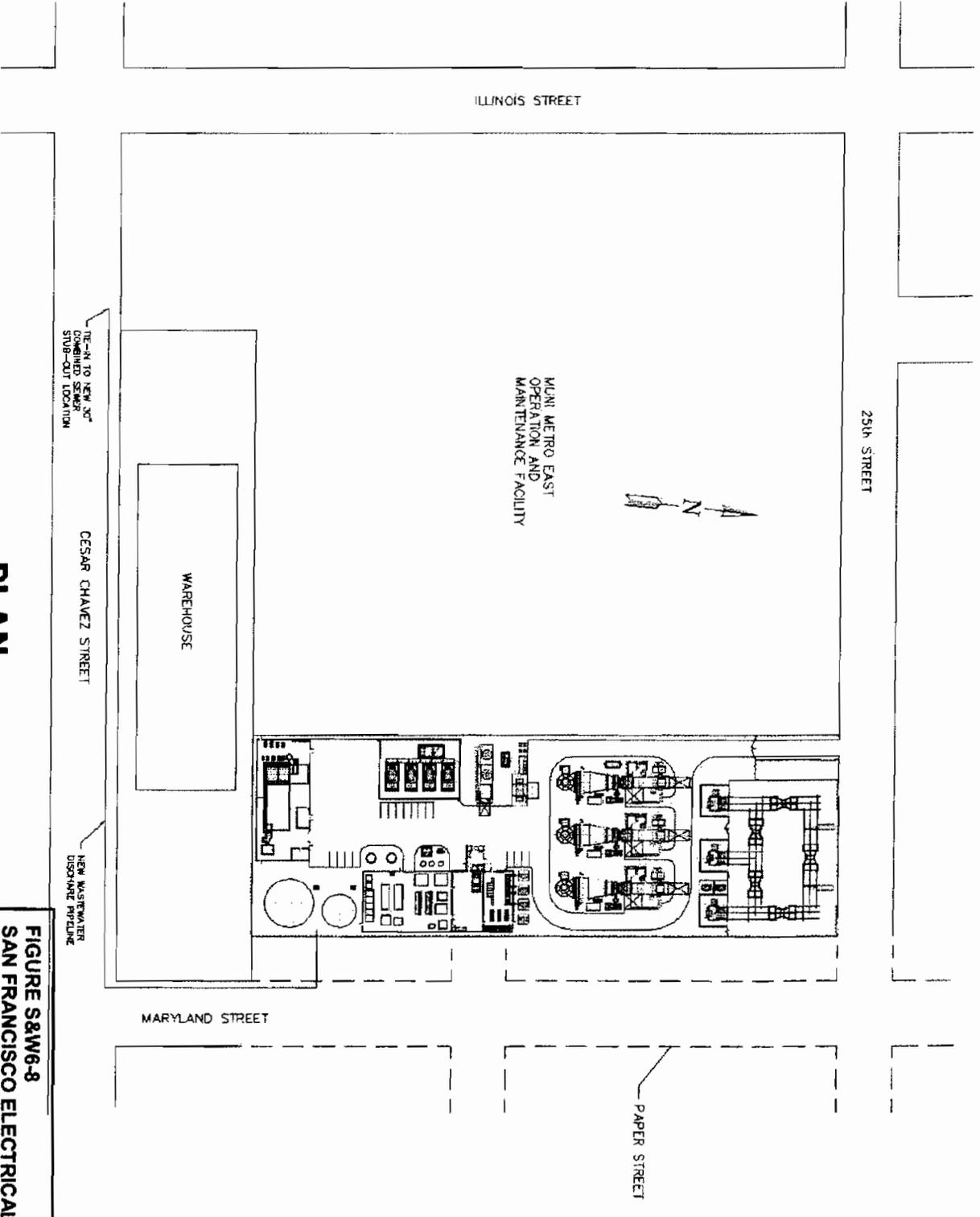
S&W6-9 Provide similar "will serve" letters for Potable Water, Industrial Wastewater and Stormwater Discharge, and Process Wastewater Supply for the new SFERP site location between 25<sup>th</sup> Street and Cesar Chavez.

**Response:** Will serve letters for potable water and process wastewater supply are attached as Attachments S&W6-9A and B. The City is in the process of obtaining an Industrial Wastewater and Stormwater Discharge letter and will forward it as soon as it is available.

## **ARTICLE 22A**

### **BACKGROUND**

The project site is located on filled land adjacent to San Francisco Bay that is prone to hazardous materials impacts. Article 22A of the San Francisco Public Health Code, formerly known as the Maher Ordinance, provides requirements testing and reporting soil and groundwater impacts from hazardous materials. In response to Data Request 48 soil sample analysis results were submitted for the original SFERP site. Data Requests 188 and 189, a site characterization report for the Muni Metro site adjacent to the new SFERP site was submitted that included some groundwater and soil results for samples collected in the vicinity of the site. The Supplemental AFC indicates that the Applicant intends to extend the Muni RMP/SMP to the new SFERP site. However, data collected on the new SFERP site has not been submitted to date. This data and the SMP/RMP is required to analyze potential impacts from wind borne erosion and water erosion.



**PLAN**

SCALE: NONE

**FIGURE S&W6-8**  
**SAN FRANCISCO ELECTRICAL**  
**RELIABILITY PROJECT**  
 APPLICATION FOR CERTIFICATION

**PB** PB Power, Inc.

**SAN FRANCISCO ELECTRIC RELIABILITY PROJECT  
(04-AFC-01)  
Informal Data Request Set 6**

**DATA REQUESTS**

S&W6-10. Please provide sample analysis results for soil borings performed on the new SFERP site.

**Response:** It is anticipated that soil borings will be completed on August 5th. Applicant expects to get the laboratory results within a month following completion of the borings. Once received, the laboratory results will be provided to the CEC and interested parties.

S&W6-11. Please provide the information required by Article 22A of the San Francisco Public Health Code including a site history report, soil and groundwater analysis report, and site mitigation report if contamination is identified on site. Does SFERP intend to remediate any soil or groundwater impacts that may currently exist onsite prior to construction?

**Response:** A copy of the Article 22A report will be provided when completed. The report cannot be completed until after receipt of the sample analysis results as set forth in Data Response S&W6-10. Once the sampling results are available, the Applicant will determine if it intends to remediate soil and/or groundwater impacts prior to construction.



**ATTACHMENT S&W6-9A**

**SAN FRANCISCO PUBLIC UTILITIES COMMISSION**

Kevin Barry, Division Manager, City Distribution Division



July 7, 2005

**GAVIN NEWSOM**  
MAYOR

**RICHARD SKLAR**  
PRESIDENT

**ANN MOLLER CAEN**  
VICE PRESIDENT

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**ADAM WERBACH**  
**RYAN L. BROOKS**

**SUSAN LEAL**  
GENERAL MANAGER

**Subject: Availability of Water**  
**1251 Illinois Street**  
**Block 4175, Lot 003**

**Ms. Karen Kubick, Manager**  
**Infrastructure Development**  
**Power Enterprise**  
**1155 Market Street, 4<sup>th</sup> Floor**  
**San Francisco, Ca. 94103**

Dear Ms. Kubick,

This is in response to your request for a will serve letter for your project at the above referenced address.

We have an existing 8-inch main in Illinois Street and an 8-inch main in 23<sup>rd</sup> Street. Our records show two existing standard domestic water services for block 4175, lot 003: a 1-inch standard service and a 6-inch standard service.

We can provide additional domestic and fire services upon request. Before installation of potable water service(s) may begin, application must be made with our Customer Service Bureau, New Installations Section, 1155 Market Street, 1st Floor, San Francisco, Ca, 94104.

Fire service size, if required, must be approved by the Department of Building Inspection.

Potable water will be furnished subject to Water Department rules and regulations governing water service to customers.

Sincerely,

*Kevin Barry*  
 for Kevin Barry  
 Manager, CDD

KB:lr  
cc: CDD File, Chron.

RECEIVED

JUL 08 2005

H.H.V.V.F.



**ATTACHMENT S&W6-9B**

**SAN FRANCISCO PUBLIC UTILITIES COMMISSION**

1155 Market St., 11th Floor, San Francisco, CA 94103 - Tel. (415) 554-3166 • Fax (415) 554-3161 • TV (415) 554.3488



July 7, 2005

Karen Kubick, Manager  
 Infrastructure Development, Power Enterprise  
 1155 Market Street, 4<sup>th</sup> Floor  
 San Francisco, CA 94103

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SUSAN LEAL  
GENERAL MANAGER

**Subject: Process Water Supply to Recycled Water Plant for the Proposed Power Plant**

Dear Ms. ~~Kubick~~ *Karen*:

This is in response to your request for a will serve letter for your project at the location shown on Figure I attached hereto.

Up to 500 gallons/minute of wastewater can be withdrawn from the combined sewer system at Marin Street to provide process water supply for the SFERP recycled water treatment plant.

Sincerely,

Tom Franza  
AGM-Wastewater Enterprise

TF/ez

cc: Jon Loiacono  
Mee-Lih Ahmad  
Humphrey Ho

RECEIVED  
 JUL 08 2005  
 H.H.W.F.