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January 19, 2006
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DOCKET
04-AFC-1
DATE JAN 19 2006
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Mr. William Pfanner
Siting Project Manager
California Energy Commission
1516 Ninth Street, MS-15
Sacramento, CA 95814-5504

RE: Informal Data Response, Set 9B
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 Informal Data Response, Set 9B.

This data response revises prior responses to Staff's Informal Soil and Water Resources Data Requests S&W9-2 and 9-17.

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

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

INFORMAL DATA RESPONSE, SET 9B

(Revised Responses to S&W9-2 and 9-17)

Submitted by

CITY AND COUNTY OF SAN FRANCISCO

January 19, 2006

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SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
(04-AFC-01)
Informal Data Request, Set 9B

Informal Data Request - January 4, 2006
Technical Area: **Soil and Water Resources**
Authors: **Mark Lindley and Vince Geronimo (PWA)**

BACKGROUND

The City of San Francisco has proposed a change to the supply source for treatment process water and cooling water identified in Supplement A of the San Francisco Electric reliability Project (04-AFC-1) in a letter to the CEC on 12/20/05. The new supply source will be treated secondary effluent from the Southeast Waste Water Treatment Plant (SEWWTP). The amendment resulted in a change to the on-site treatment requirements from primary, secondary, and tertiary treatment to a system that requires only tertiary treatment. The process will still result in the production of Title 22-quality recycled water.

The secondary effluent from the SEWWTP has been identified as having high levels of salinity as a result of infiltration of Bay waters into the sewers and box structures near the water (Informal Data Response, Set 6A Questions S&W 6-3 & 6-4). The facility description, in the 12/20/05 CCSF letter, does not provide sufficient information to address the high levels of salinity in the effluent. Staff requires a more in depth description of the linear facilities, effluent-water supply constituents and demand, tertiary treatment process, discharge requirements, and regulations.

DATA REQUESTS

Supply

S&WR9-2 Provide the physical and chemical characteristics of the treated secondary effluent from the SEWWTP – Provide a table similar to the Estimate of Wastewater Water Quality (Table 8.14-8 in Supplement A). Provide the range of expected Wastewater Water Quality in the table.

Response: Table 1 summarizes the physical and chemical characteristics of the treated secondary effluent accessed from the SEWWTP for SFERP's process water supply. The constituents presented are based on City requirements for industrial discharges as described in Article 4.1 of the San Francisco Public Works Code and Order No. 158170 of the San Francisco Public Works Department. These local requirements have been established to ensure compliance with NPDES permits based on the City's ability to remove constituents at its treatment facilities.

The description of influent water quality in Supplement A (Table 8.14-8) was based on using raw wastewater for SFERP cooling and gas turbine water injection, and constituent data was collected for purposes other than regulatory compliance (e.g., SFERP design standards). Accordingly, some of the constituents in Table 8.14-8 of Supplement A are not necessary for the assessment of regulatory compliance and therefore do not appear in Table 1.

Article 4.1 of the San Francisco Public Works Code and Order No. 158170 of the San Francisco Public Works Department include some requirements for which data is not available. These constituents are dissolved sulfides, hydrocarbon oil and grease, and total recoverable oil and grease. These are constituents of general concern for industrial discharges into the wastewater system (e.g., the ability of the SEWWTP to effectively treat the influent, industrial pretreatment requirements designed to ensure that industrial discharges do no cause an upset at the SEWWTP), but are not of concern for SEWWTP effluent discharges and are therefore not monitored. SFERP wastewater quality and expected compliance with these standards is described in S&WR9-17 (Table 4) below.

TABLE 1
SEWWTP Secondary Effluent Physical and Chemical Characteristics

Constituent	Average Concentration (mg/L except as noted)	Maximum Concentration (mg/L except as noted)
pH (standard units)	6.92	7.93
Dissolved sulfides	Not available	Not available
Temperature (degrees Fahrenheit)	71.6	80.6
Hydrocarbon oil and grease	Not available	Not available
Total recoverable oil and grease	Not available	Not available
Arsenic, as total	0.0021	0.0100
Cadmium, as total	0.0002	0.0052
Chromium, as total	0.0013	0.0092
Copper, as total	0.0125	0.0333
Lead, as total	0.0024	0.0197
Mercury, as total	0.00002	0.00017
Nickel, as total	0.0040	0.0170
Silver, as total	0.0008	0.0036
Zinc, as total	0.0590	0.3648
Phenols	0.0025	0.0071
Cyanide, as total	0.0024	0.0069

S&WR9-17 Provide a description of the wastewater discharge location and requirements of the tertiary treatment facility. Describe the method of disposal and verify that the wastewater water quality meets the SFERP planned discharge permit requirements.

Response: All onsite wastewater would be routed to the wastewater sump (Item 29 on the revised Plot Plan). The SFERP wastewater sump would discharge to the City's combined system at a connection point on Cesar Chavez Street, the same as previously proposed (see Supplement A, Section 2.2.9.3). The onsite pretreatment facility would be designed to treat the influent water (the SEWWTP effluent) to meet the SFERP design standards, using an ultrafiltration and reverse osmosis system as described in the responses to S&WR9-11 and 9-12).

Table 4 presents the expected SFERP discharge water quality, and demonstrates that all constituents of concern will meet the City's industrial discharge requirements. As discussed in the response to S&WR9-2, the City does not collect data from the SEWWTP effluent for dissolved sulfides, hydrocarbon oil and grease, and total recoverable oil and grease. Because this data is not available for the SFERP water source (SEWWTP effluent), it is not possible to estimate SFERP effluent concentrations for these constituents. However, SFERP effluent is expected to meet these requirements for the following reasons.

- Oil and grease are expected to be fully removed during the SEWWTP primary and secondary treatment processes, and are therefore expected to be absent from the SEWWTP effluent. SFERP processes would not add oil and grease to the City's combined sewer system. The stormwater controls are expected to treat the discharge of surface oil and grease to insignificant levels prior to discharge into the Bay.
- High levels of dissolved sulfide in influent wastewater streams can cause odor, but most dissolved sulfide is removed during the primary and secondary treatment processes. Although the dissolved sulfide concentration in the SEWWTP effluent is unknown, it is expected to be very low. The SFERP processes would not add dissolved sulfide to the system.

TABLE 4
Estimated SFERP Wastewater Water Quality & Limitations for Industrial Discharges to San Francisco Combined Sewer System

Constituent	Average Concentration (mg/L except as noted)*	Maximum Concentration (mg/L except as noted)*	Discharge Limit Concentration (mg/L except as noted)
pH (standard units)[a,b]	6.92[f]	7.93[f]	6.0 to 9.5
Dissolved sulfides[a,b]	Not available	Not available	0.5
Temperature (degrees Fahrenheit)[a,b]	71.6 [f]	80.6 [f]	125
Hydrocarbon oil and grease[a,b]	Not available	Not available	100
Total recoverable oil and grease[a,c]	Not available	Not available	300
Arsenic, as total[d,e]	0.0050	0.0240	4.0
Cadmium, as total[d,e]	0.0005	0.0125	0.5
Chromium, as total[d,e]	0.0031	0.0221	5.0
Copper, as total[d,e]	0.0300	0.0799	4.0
Lead, as total[d,e]	0.0058	0.0473	1.5
Mercury, as total[d,e]	0.00005	0.00041	0.05
Nickel, as total[d,e]	0.0096	0.0408	2.0
Silver, as total[d,e]	0.0019	0.0086	0.6
Zinc, as total[d,e]	0.1416	0.8755	7.0
Phenols[d,e]	0.0060	0.0170	23.0
Cyanide, as total[d,e]	0.0058	0.0166	1.0

Notes:
* Effluent concentration factor of 2.4 based on approximately 5 cycles of the cooling tower blowdown.
[a] Article 4.1 of the San Francisco Public Works Code, Section 123.
[b] Limitation based on any grab sample. Wastewater shall not at any time exceed the specified numerical limitation.
[c] The limitation for total recoverable oil and grease is based on a composite sample of wastewater discharge generated over a production week.
[d] City and County of San Francisco, Department of Public Works Order No. 158170.
[e] Limit based on any 24-hour representative, composite sample.
[f] SFERP processes would not alter the influent pH and water temperatures.

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Revised 8-03-05

SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
APPLICATION FOR CERTIFICATION,
DOCKET NO. 04-AFC-1

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I declare that I transmitted the foregoing document via e-mail, or as indicated by first class postal mail, to the above named on the date indicated thereby. I declare under penalty of perjury that the foregoing is true and correct.

John L. Carrier, J.D.
Program Manager
CH2M HILL