CH2M HILL
2485 Natomas Park Dr.
Suite 600
Sacramento, CA 95833
Tel 916-920-0300
Fax 916-920-8463

CH2MHILL

January 13, 2006
184288

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

RE: Informal Data Response, Set 9
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 9.

This data response is in response to Staff's Water Resources Data Requests.

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 9

(Responses to Informal Data Request in: Soil and Water Resources)

Submitted by

CITY AND COUNTY OF SAN FRANCISCO

January 13, 2006

CH2MHILL

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

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

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&WR9-1. Provide a detailed description of the water supply connection; identify major construction constraints for the delivery pipeline to the site.

Response: Manhole (MH) #2 in the SEWWTP outfall pipe line actually consists of two manholes. The outer manhole is a 3 foot inside diameter reinforced concrete MH with a typical 3 foot manhole cover (non-pressurized). The inner manhole which is physically a part of the outfall pipe has a 2 foot inside diameter with walls constructed of coated steel. This inner MH has a cover that is bolted and gasketed in place to maintain a seal under pressurized conditions. The space between the outer manhole cover and the inner manhole cap is approximately 3 feet.

Conceptually, the design of the withdrawal line is as follows: The outer MH would be horizontally core drilled to accommodate the new piping. Inside the outer MH the piping would have an elbow and removable section to connect the horizontal pipe to a new manhole cover. This new cover would have the vertical withdrawal pipe attached to it and the withdrawal pipe would extend down to within one foot of the bottom of the 60 inch outfall line. An isolation valve would be installed in the line with the exact location to be determined during detail design.

Construction constraints are minimal. As described in Supplement B, the decision on how to cross the rail line on Illinois Street (open cut or bore-and-jack) would be made during the detailed design phase.

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. Because the water supply is much cleaner than before (secondary treated effluent rather than raw wastewater), some constituents from Table 8.14-8 in Supplement A (e.g., BOD and dissolved sulfides) have been removed from consideration.

TABLE 1
SEWWTP Secondary Effluent Physical and Chemical Characteristics

Constituent	Average Concentration (µg/L except as noted)	Maximum Concentration (µg/L except as noted)
4,4 DDE	0.0042	<0.0059
Arsenic	2.04	5.1
Barium	See Note 1	See Note 1
Cadmium	0.26	5.21
Chromium	1.29	9.2
Copper	13.3	33.3
Cyanide	2.35	6.92
Dieldrin	0.0022	<0.0024
Lead	2.49	14.95
Mercury	0.02	0.169
Nickel	4.0	17.0
Phenols	1.62	7.1
pH, (pH units)	See Note 1	See Note 1

TABLE 1
SEWWTP Secondary Effluent Physical and Chemical Characteristics

Polynuclear aromatic hydrocarbons (PAHs)	0.161	<0
Polychlorinated biphenyls	See Note 1	See Note 1
Selenium	0.55	1.9
Silver	1.03	3.6
Total Suspended Solids	See Note 1	See Note 1
Zinc	61.77	364.77
Temperature (degrees Fahrenheit)	See Note 1	See Note 1

Note 1- Values for this constituent will be provided the week of 1/16/06

S&WR9-3 Provide the Average and Maximum Daily and Annual Water Demand from the SEWWTP source.

Response: SFERP's average daily water demand from SEWWTP will be 318 gpm, with a maximum daily demand of 409 gpm. Annual recycled water usage is estimated at 162 acre feet.

S&WR9-4 Provide the estimated the annual maximum and minimum peak flowrate in the SEWWTP effluent line discharging to the Bay?

Response: Effluent is pumped to a deep-water outfall located at Pier 80. Flow in the effluent pipeline, which is the SFERP water source, ranges from around 30 mgd to over 110 mgd in wet weather. (Discharges from facilities such as the SEWWTP are typically measured in daily rather than annual rates.) The SEWWTP also discharges directly to Islais Creek through a shallow outfall, but this occurs only in wet-weather conditions and is not connected to the SFERP.

S&WR9-5 Provide a description of the hydraulic pressure and pressure fluctuations anticipated at the connection to the SEWWTP effluent forcemain?

Response: The hydraulic pressure in the pipe at that point ranges from open channel flow within the pipe at low tide and low flow, and at times when there is zero pressure, to about twenty to twenty-five feet of water column at high tide and high flow, most likely during wet weather operation.

S&WR9-6 Provide a description of the SEWWTP effluent to provide continuous service to SFERP? Are interruptions in service expected due to annual maintenance or other expected or unexpected conditions?

Response: Interruptions in service from the SEWWTP to the SFERP are expected to be infrequent and limited to 12 hours or less in duration during construction-driven shutdowns. The SEWWTP operates continuously.

Shutdowns are generally scheduled during the summertime to do maintenance. Shutdowns generally do not exceed twelve hours in duration. Administrative procedures will be in place to ensure communication between SEWWTP and SFERP staff of any expected or unexpected interruptions in service. The SFERP has onsite water storage capacity, that provides the ability to operate continuously for 48 hours with no new influent water. In addition, the SFERP has access to a backup potable water supply.

S&WR9-7 During extreme runoff events, the SEWWTP may discharge untreated or partially treated runoff and wastewater that may not meet secondary treatment standards to San Francisco Bay. Will SFERP receive partially treated effluent during these events? If so, how will SFERP treat water from SEWWTP that does not meet the secondary treatment standards?

Response: See Table 2 for information on how SEWWTP effluent is treated during normal and wet-weather conditions. During wet weather conditions (between the months of October to May), flow in the Pier 80 effluent pipeline (the source of SFERP water) is blended primary and secondary wastewater. The water source would not meet SFERP water quality design standards. On average this flow occurs approximately 400 to 600 hours per year. In this case, the SFERP would not accept influent water, but rather will rely on recycled water stored onsite and, if necessary, the alternate water supply. The SFERP operators will maintain close contact with SEWWTP staff to ensure that no primary-treated effluent is being discharged into the Pier 80 outfall.

TABLE 2
Southeast Water Pollution Control Plant Discharges

Condition	Pier 80 Deep Water Outfall		Islais Creek Shallow Outfall	
	Flow Rate	Treatment Level	Flow Rate	Treatment Level
Normal	30-110 mgd	Secondary	n/a	n/a
Wet Weather	110 mgd	Blended primary and secondary	140 mgd	Secondary

S&WR9-8 Provide a revised estimate for annual back-up water anticipated as a result of the change in source water and change to the treatment process.

Response: Revised water demands, based on the changed water source and treatment process, are presented in the Water Balance figure - 318 gpm average demand and 409 gpm peak demand. This would also apply to emergency backup water use. The source for emergency backup water is the City's potable water system, which is the same as previously described in Supplement A, subsection 8:14, page 8.14-15. The point of connection to the City's potable water system remains at Cesar Chavez Street, where there is an existing water supply pipeline of sufficient capacity to serve emergency demands as well as normal potable water uses.

The need to use potable water as a backup supply is expected to be infrequent. Although we cannot predict the frequency and duration of these conditions, use of backup water supplies typically would occur when secondary treated effluent is not available for an extended period of time (i.e., beyond SFERP's 48-hour onsite storage capacity). Other emergency conditions could result in the use of the backup supply. Condition of Certification SOIL & WATER-11 from the Preliminary Staff Assessment, which limits use of potable water to 50 acre-feet per year during any consecutive 3-year period, remains acceptable.

S&WR9-9 Will fresh supplies be blended with product water?

Response: No.

S&WR9-10 Provide a new Will-Serve Letter from SFPUC that identifies the new supply source. The letter should acknowledge the point of connection to existing SFPUC infrastructure.

Response: The new Will-Serve Letter is attached.

Tertiary Treatment Process

S&WR9-11 Provide a detailed description of the ultra-filtration and disinfection pretreatment system.

Response: The ultra filtration (UF) system will be designed around the use of hollow fiber membranes which will filter the water to a standard that meets Title 22 requirements. These membranes will be housed in membrane housings which will be bundled together in modular arrays. It is expected that the pressurized, vertical or horizontal arrangement will be utilized although there are other vendor specific variations that will provide similar levels of filtration. The UF system will include a pre-screen or inlet filter, the membrane modules with

interconnecting piping, supply pumps, a back wash system with pumps and chemical addition, and instrumentation. The system will be fully automated requiring minimal operator intervention. Depending upon the final design, an air scouring system may be included to enhance the backwash operation. Back wash frequency will be based on pressure differential across the membranes or time intervals. Backwash will be drained to plant wastewater tank where it will then be pumped to the City combined sewer system.

S&WR9-12 Provide a detailed description of the single stage reverse osmosis system.

Response: Following the UF system the water will be passed through a first pass, 2 stage RO system. In the production of DI water with the second pass RO system, the reject will be a better quality than the supply to the UF and will therefore be blended with the UF water in feeding the first pass RO system. The RO system will consist of booster pumps, RO modules, interconnecting piping, and instrumentation. This process will be fully automated to require minimal operator intervention. RO reject will be sent to the plant wastewater tank where it will then be pumped to the City combined sewer system.

Following the first pass RO system, the water will be disinfected with a UV system and then stored in the recycle water storage tank.

S&WR9-13 Provide a description of the chemicals required for onsite tertiary treatment of the treated secondary effluent from the SEWWTP not otherwise identified in Supplement A. Attach MSDS if necessary.

Response: The change in water treatment will allow for the removal of one water treatment chemical (sodium aluminate, a coagulant) from the chemical inventory identified in Supplement A. There are no further modifications to the SFERP chemical inventory.

S&WR9-14 Provide the following revised figures based on the change to the onsite treatment process:

- Site Layout
- Water Balance Diagram

Response: Revised Site Layout and Water Balance figures are attached.

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

Wastewater

S&WR9-15 Provide an estimate of the Average and Maximum Daily and Annual and Maximum Annual Operational Wastewater Discharge from SFERP. Provide a table similar to the Table 8.14-7 in Supplement A.

Response: See Table 3 for information on operational wastewater discharges from SFERP.

TABLE 3
Operational Wastewater Discharges from SFERP

Waste Discharge Stream	Discharge Location	Daily Discharge (gpm[a])		Annual Discharge (MGY[b])	
		Average	Maximum	Average	Maximum
Plant wastewater sump (discharge from process and cooling water, backwash water from ultra filters, and reject from reverse osmosis unit)	City combined sewer system	135	184	32.4	44.2
Wash water and plant drainage (e.g., equipment wash water, oil/water separator system, transfer pump water)	City combined sewer system	2	4	0.48	0.96
Sanitary sewage	City combined sewer system	2	4	0.48	0.96

[a] gpm = gallons per minute
[b] MGY = million gallons per year based on 4,000 hours of maximum annual output.

S&WR9-16 As a result of the high salinity levels in the effluent: Provide a description of the method to be used to dispose of desalting concentrates and brines resulting from the reverse osmosis system and discuss the regulatory requirements.

Response: Cooling tower blowdown will be discharged to the plant wastewater sump, as required to maintain the level of dissolved solids of the cooling water within acceptable ranges. In addition, backwash water from ultra filters, reject water from the reverse osmosis unit and wash water and plant drainage will be discharged to the wastewater sump. This wastewater would then be discharged to the combined sewer system as permitted under the discharge permit to be obtained from the City under Article 4.1 of the San Francisco Public Works Code. SFERP will comply with all permit conditions for discharge of industrial wastewater.

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

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). Permit discharge requirements are addressed in response to Data Request S&WR9-19.

TABLE 4
Estimated SFERP Wastewater Water Quality

Constituent	Average Concentration (µg/L except as noted) [1]	Maximum Concentration (µg/L except as noted) [2]
4,4 DDE	0.0101	<0.0142
Arsenic	4.90	12.2
Barium	See Note 2	See Note 2
Cadmium	0.62	12.50
Chromium	3.10	22.1
Copper	31.9	79.9
Cyanide	5.64	16.61
Dieldrin	0.0053	<0.0058
Lead	5.98	35.88
Mercury	0.05	0.406
Nickel	9.6	40.8
Phenols	3.89	17.0
pH (pH units)	See Note 2	See Note 2
Polynuclear aromatic hydrocarbons (PAHs)	0.386	<0
Polychlorinated biphenyls	See Note 2	See Note 2
Selenium	1.32	4.6
Silver	2.47	8.6
Total Suspended Solids	See Note 2	See Note 2
Zinc	148.25	875.45
Temperature (degrees Fahrenheit)	See Note 2	See Note 2

TABLE 4
Estimated SFERP Wastewater Water Quality

Constituent	Average Concentration (µg/L except as noted) [1]	Maximum Concentration (µg/L except as noted) [2]

Note 1: Effluent concentration factor of 2.4 based on approximately 5 cycles of the cooling tower blowdown.
Note 2: Values for this constituent will be provided the week of 1/16/06.

Regulations

S&WR9-18 Title 22 of the CCR - Verify implementation procedures by DHS & RWQCB's Water Reuse Permit Program (General Water Reuse Order 96-011) will be established through sampling, testing, and reporting.

Response: Recycled water for cooling will be disinfected tertiary recycled water in conformance with Title 22 requirements. All DHS and RWQCB implementing procedures under the Water Reuse Permit Program will be followed.

S&WR9-19 If the treatment process will discharge to the CCSF Combined Sewer System, verify that the discharge will meet the discharge permit requirements of Article 4.1 of the City's Public Works Code.

Response: Limitations, as set forth in Article 4.1 of the San Francisco Public Works Code and Order No. 158170 of the San Francisco Public Works Department, for industrial waste discharges to the City's combined sewer system were previously identified in Supplement A (see Section 8.14.3.3). SFERP will comply with all implementation procedures and permit conditions for discharge of industrial wastewater.

S&WR9-20 Has DHS been notified of the change to the proposed water supply and planned treatment facility? Verify that the Engineer's Report will be completed for the new purification system?

Response: DHS has not been notified of the change to the proposed water supply and planned treatment facility. An Engineer's Report will be prepared during the design phase and submitted to DHS at the appropriate time.

Construction SWPPP

Staff has not reviewed the revised SWPPP. Discharge of eroded soils impacted by hazardous levels of Arsenic, TPH, and PAHs during construction at the site could result in potentially significant water quality impacts to the Bay. Previous estimates of soil erosion from the site during construction provided in the AFC indicate that there is a potential for 16 to 18 tons of soil to erode from the site during construction.

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

The recently updated stormwater management plans for the site include use of a vegetated swale to discharge runoff directly to San Francisco Bay. A properly designed and maintained vegetated swale should be a sufficient post-construction stormwater quality BMP. However, during construction more extensive erosion control and treatment control BMPs will be required to prevent discharge of eroded soils to the Bay. In addition, the construction SWPPP should also provide details for how excavated soils and groundwater pumped while dewatering excavations will be handled during construction to prevent discharge to the Bay. Treatment control measures including a sediment basin and/or a multi-stage tank with media filtration may be required to prevent discharge of eroded soils and groundwater with hazardous levels of Arsenic, TPH, and PAHs.

S&WR9-21 Please submit a revised SWPPP that presents detailed construction BMPs that will limit soil erosion and provide effective treatment control to prevent discharge of hazardous soils and groundwater from the site.

Response: During construction, the Applicant will be required to develop and submit for review to the City, Bureau of Environmental Regulation and Management and the CPM, an Erosion and Sediment Control Plan (ESCP) and Construction SWPPP to prevent the offsite migration of sediment and other pollutants and to reduce the effects of runoff from the construction site. It is currently anticipated that stormwater will be discharged to the Bay following a filtration BMP. Details of the Erosion and Sediment Control Plan will be finalized following the complete characterization of the site and the dismantling and removal of the cement batch plant facilities and waste materials. These activities will take place in sufficient time prior to the start of construction of the SFERP that details of the specific BMPs to be used will be fully addressed in the Draft ESCP and Draft SWPPP to be submitted in compliance with Conditions of Certification SOIL&WATER-1 and -2. A revised Stormwater Pollution Prevention Plan was filed on January 11, 2006. See new Attachment SW-187.

SFPUC
WATER
HETCH HETCHY
WATER & POWER
CLEAN WATER

SAN FRANCISCO PUBLIC UTILITIES COMMISSION

1155 Market St., 11th Floor, San Francisco, CA 94103 • Tel. (415) 554-3155 • Fax (415) 554-3161 • TTY (415) 554.3488

January 10, 2006

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

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

Dear 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 Third Street to provide process water supply for the SFERP recycled water treatment plant. The Southeast Water Pollution Control Plant can accept the discharge from the recycled water treatment plant; our discharge (and/or supply) will be less than 1% of the daily average flow.

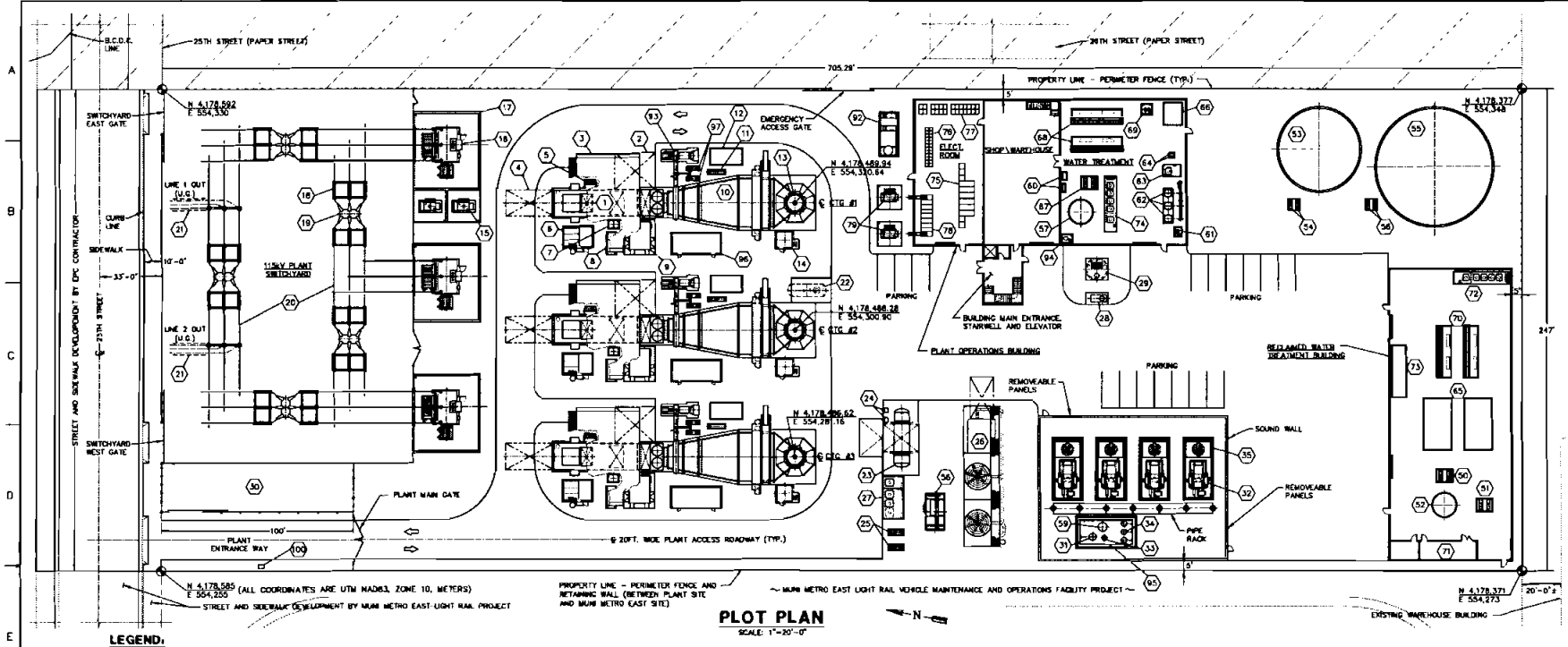
Sincerely,

Tom Franza
AGM-Wastewater Enterprise

Attachment

TF/ez

cc: Jon Loiacono
Mee-Lih Ahmad
Humphrey Ho



PLOT PLAN

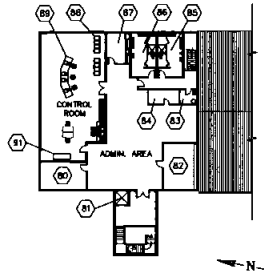
SCALE: 1"=20'-0"

N

LEGEND:

TYPICAL FOR THREE UNITS

1. LM6000 COMBUSTION TURBINE GENERATOR
2. TURBINE REMOVAL/MAINTENANCE AREA
3. CTG AIR INTAKE FILTER SYSTEM
4. GENERATOR ROTOR REMOVAL AREA
5. CTG FIRE PROTECTION SKID
6. GENERATOR BREAKER SWITCHGEAR
7. SPRINT SYSTEM SKID
8. NOx WATER INJECTION SKID
9. AUXILIARY SKID
10. SCR/CO CATALYST SYSTEM
11. AMMONIA FLOW BALANCE SKID
12. AMMONIA VAPORIZATION SKID
13. STACK
14. CEMS
15. 5kV AUXILIARY TRANSFORMER (TYP. 2)
16. 13.8kV/115kV GSU (TYP. 3)
17. FIRE WALL (TYP.)
18. 115kV SWITCH (TYP. 10)
19. 115 kV BREAKER (TYP.5)
20. SWITCHYARD BUS WORK
21. 115kV DUCT BANK
22. TURBINE WASH WATER DRAIN TANK (UG)
23. AQUEOUS AMMONIA STORAGE TANK
24. AQUEOUS AMMONIA FORWARDING PUMPS
25. AUXILIARY COOLING PUMPS
26. CHILLER/COOLING TOWER PACKAGE
27. COOLING TOWER CHEMICAL SYSTEM
28. OIL/WATER SEPARATOR (UG)
29. WASTE WATER SUMP AND LIFT STATION
30. 100'x25' PG&E GAS METERING STATION
31. NATURAL GAS INLET SCRUBBER
32. FUEL GAS COMPRESSOR (TYP. 4)
33. HYDROCARBON DRAIN TANK
34. DISCHARGE FILTER SCRUBBER (TYP. 2)
35. FUEL GAS COOLING RADIATOR (TYP.4)
36. (NOT USED)
50. ULTRA FILTERS FEED PUMPS
51. SECONDARY EFFLUENT WATER SUPPLY PUMPS
52. SECONDARY EFFLUENT WATER SURGE TANKS
53. TREATED WATER STORAGE TANK
54. TREATED WATER PUMPS
55. DI WATER STORAGE TANK
56. DI WATER PUMPS
57. RO BREAK TANK
58. ANTI-ICING HEATER PACKAGE
59. FUEL GAS ACCUMULATOR
60. DI SYSTEM CONTROL PANELS
61. RESIN FILTERS
62. LEASED DEMINERALIZER VESSELS
63. SODIUM HYPOCHLORITE METERING SYSTEM
64. DOMESTIC NON-POTABLE WATER PUMPS
65. ULTRA FILTERS
66. RO CLEAN IN PLACE SKID
67. 2nd PASS RO FEED PUMP SKID
68. RO TRAINS
69. RO CARTRIDGE FILTER SKID
70. 1st STAGE RO UNITS
71. ELECTRICAL ROOM
72. CHEMICAL FEED TOTES
73. UV DISINFECTION
74. CHEMICAL FEED TOTES
75. 5kV SWITCHGEAR
76. 480V MCC'S
77. BATTERIES
78. 480V SWITCHGEAR
79. 480V STATION SERVICE TRANSFORMERS
80. PRIVATE OFFICE
81. ELEVATOR
82. CONFERENCE/TRAINING ROOM
83. JANITOR'S STORAGE
84. OFFICE SUPPLY STORAGE
85. MEN'S LOCKERS/SHOWER
86. WOMEN'S LOCKERS/SHOWER
87. LUNCH ROOM
88. PCS I/O CABINETS
89. HUMAN/MACHINE INTERFACE
90. CTG CONTROL PANELS
91. SWITCHYARD CONTROL PANEL
92. AIR COMPRESSOR SKID
93. PURGE AIR FAN (TYP. AT EACH SCR)
94. TEMPERED WATER SKID
95. FUEL GAS CONDITIONING SKID
96. POWER AND CONTROL CAB (PCC) (TYP. EA. CTG)
97. DAMPER SEAL AIR FANS (TYP. AT EACH SCR)
98. (NOT USED)
99. (NOT USED)
100. COMMUNICATION INTERFACE BOX



PLANT OPERATIONS BUILDING
2ND FLOOR - PLAN

SCALE: 1"=20'-0"

GRAPHIC SCALE
1" = 20'-0"

PRELIMINARY
01-10-06

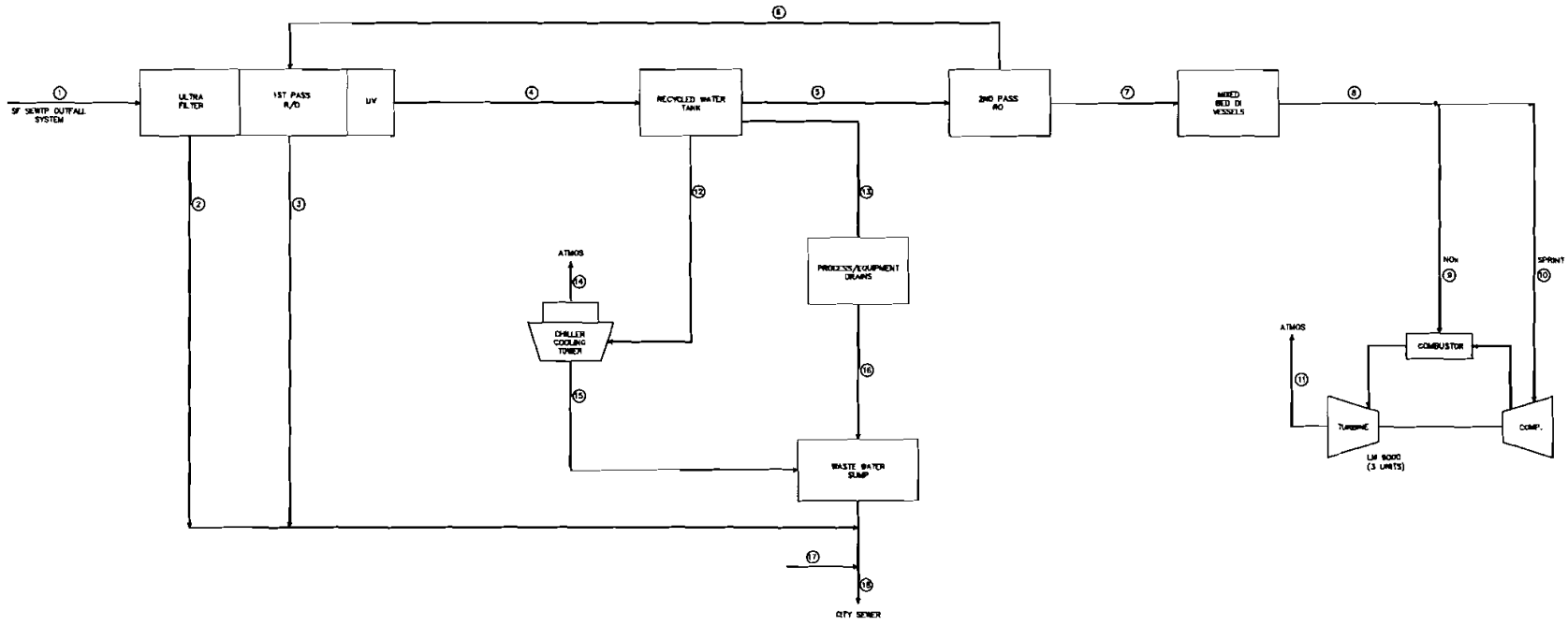
H	01-10-06	REVISED RECLAIMED WTB
G	12-20-05	ITEM 100 ADDED
F	10-11-05	REVISED PER 10-6-05 COMMENTS
E	9-30-05	WATER TREATMENT AND RECLAIMED WATER AREAS REVISED
D	6-8-05	ITEMS 86 (MPU 90 ADDED AND ITEM 29 RELOCATED
C	6-3-05	EMERG. GATE & SECT. E ADDED
B	5-20-05	GAS METERING STATION RELOCATED
A	4-14-05	PRELIMINARY ISSUE

PB Power
A Pacific Enterprises Company
[illegible] STREET, SUITE 700 NORTH, SAN FRANCISCO, CALIFORNIA 94107

SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
SAN FRANCISCO, CALIFORNIA

MUNI SITE
PLOT PLAN

DR.	JJB	DRAWING NO.	REV
DES.	JJB	G1.2	H
CHK.	SB		



SFPUC Electric Reliability Project - Water Balance

Rev G

Point No	From	To	Average Water Use (3 CTG's in Operation) GPM	Maximum Water Use (3 CTG's in Operation) GPM	Notes
1	SF SEWTP Outfall system	Ultra Filter Inlet	318	409	
2	Ultra Filter Reject	Plant Waste Water Sump	32	41	
3	RO Reject	Plant Waste Water Sump	95	119	
4	UV	Recycled water tank	221	278	
5	Reclaimed water tank	2nd Pass RO Inlet	195	194	
6	2nd Pass RO reject	1st Pass RO Inlet	29	29	
7	RO Product	Mixed Bed DI Vessel Inlet	166	165	
8	Mixed Bed DI Vessel (DI Water)	CTG NOx & SPRINT Injection	166	165	
9	DI Water	CTG NOx Injection	141	140	@ 25 ppm NOx
10	DI Water	CTG SPRINT Injection	25	25	
11	DI Water Evaporation	Atmosphere	166	165	
12	Recycled Water Tank	Cooling Tower Makeup	24	80	
13	Recycled water tank	Plant / equipment drains	2	4	
14	Cooling Tower Evaporation	Atmosphere	19	64	
15	Cooling Tower Blowdown	Plant Waste Water Sump	5	16	(@ 5 cycles of conc)
16	Plant / equipment drains	Plant Waste Water Sump	2	4	
17	Domestic	Plant wastewater system	2	4	
18	Plant wastewater system	City Sanitary Sewer	135	184	

Annual recycled water usage: 53,050,588 gallons
(based on 12,000 turbine-hours) 162 acre-feet

G	10-11-05	REVISED WATER FLOWS
F	10-20-05	REVISED FOR NEW WATER SUPPLY
E	2-18-04	WATER BALANCE CHART ADJUSTED
D	2-18-04	REVISED FOR 3 CTG'S
C	1-27-04	REVISED PRELIMINARY ISSUE
B	1-5-04	PRELIMINARY ISSUE FOR REVIEW
A	11-18-03	PRELIMINARY ISSUE FOR REVIEW

PB Power, Inc.
A Parsons Brinckerhoff Company

SAN FRANCISCO PUBLIC UTILITIES COMMISSION
SAN FRANCISCO, CALIFORNIA

ELECTRIC RELIABILITY PROJECT
WATER BALANCE DIAGRAM

DRAWING NO. M2.2 REV G

CALIFORNIA
ENERGY
COMMISSION

1516 Ninth Street
Sacramento, CA 95825-5512
800-822-6228
www.energy.ca.gov

ELECTRONIC PROOF OF SERVICE LIST
Revised 8-03-05

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

docket@energy.state.ca.us	Energy Commission Docket Unit
sharris@energy.state.ca.us	Commissioner Boyd's Office
lbeckstr@energy.state.ca.us	Lana Beckstrom, Executive Assistant
	Adviser to Commissioner Boyd
cgraber@energy.state.ca.us	Cathy Graber, Commissioner Geesman Office
jgeesman@energy.state.ca.us	Commissioner Geesman
pao@energy.state.ca.us	Margaret J. Kim, Public Adviser
svalkosk@energy.state.ca.us	Stan Valkosky, Hearing Officer
gfay@energy.state.ca.us	Gary Fay, Hearing Officer
Bpfanner@energy.state.ca.us	Bill Pfanner, Project Manager
Bwesterf@energy.state.ca.us	Bill Westerfield, Staff Counsel
DRatliff@energy.state.ca.us	Dick Ratliff, Staff Counsel
BHale@sfwater.org	Barbara Hale, Power Policy Manager SFPUC
kkubick@sfwater.org	Karen Kubick, Project Manager
steve4155@astound.net	Steve De Young, Consultant
Jeanne.Sole@sfgov.org	Jeanne Sole, SF City Attorney
Jacqueline.Minor@sfgov.org	Jacqueline Minor, SF City Attorney
drp.gene@sbcglobal.net	Emilio E. Varanini, Counsel for California Power Authority
djordan@caiso.com	Donna Jordan, Independent System Operator
no email address provided	Dave Alexander, Dept. of Water Resources, SERS
Jeffrey.russell@mirant.com	Jeffrey S. Russell, Mirant California, Intervenor
Michael.carroll@lw.com	Michael J. Carroll, Latham & Watkins LLP, Intervenor
Joeboss@joeboss.com	Joseph Boss, Potrero Boosters Neighborhood Assoc, Intervenor
steven@sfpower.org	San Francisco Community Power, Steven Moss
SarveyBob@aol.com	Bob Sarvey, Intervenor
michaelboyd@sbcglobal.net	Michael E. Boyd, CARE, Intervenor
L_brown123@yahoo.com	Lynn D. Brown, CARE, Intervenor

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.

Anar Bhimani
CH2M HILL