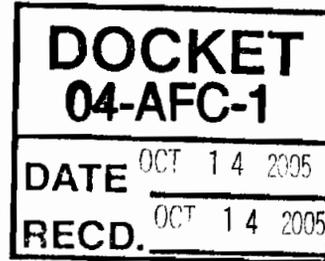




CH2MHILL

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

October 14, 2005
184288



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

RE: Informal Data Response, Set 6D
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 6D.

This data response is the soil sampling data for the site. Five hard copies of the soil data report will be provided to the CEC. Electronic copies of the report will be provided to all others on the proof-of-service list.

Please call me if you have any questions.

Sincerely,

CH2M HILL

for 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 6D**

**(Responses to: Informal Data Response Set 6, Sarvey Data Request Set
1A, and Preliminary Staff Assessment Soil and Water)**

Submitted by
CITY AND COUNTY OF SAN FRANCISCO

October 14, 2005



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

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

Technical Area: Soil and Water

REQUEST

Informal Data Request Set 6 (S&W 6-10): Please provide sample analysis results for soil borings performed on the new SFERP site.

Sarvey Set 1A (1-18): Please provide an analysis of soil samples and investigate the presence of asbestos contamination of the site.

Preliminary Staff Assessment (Conclusions p. 4.9-33): In order to complete the FSA, staff requires the following items to be submitted: Results from the soil and groundwater sampling compliant with the requirement for soil sampling and analysis of Article 22A of the San Francisco Public Health Code.

Response: Results from the soil sampling are provided on CD as Attachment S&W 6-10 (electronic copy). In addition five hard copies of the report will be provided to the CEC as Attachment S&W 6-10 (hard copy).

REQUEST

Preliminary Staff Assessment (P. 4.9-21, Storm Water, 2nd and 3rd paragraphs): Prior to publication of the FSA, staff requests that the applicant provide evidence from the Port of San Francisco and the SFBRWQCB that no peak attenuation of stormwater from the site will be required and that the proposed vegetated swales can convey the 100-year peak runoff from the SFERP site.

Preliminary Staff Assessment (Conclusions p. 4.9-33): In order to complete the FSA, staff requires the following items be submitted:

- Evidence from the Port of San Francisco and the SFBRWQCB that no peak attenuation of post-construction stormwater flow from the site will be required.
- Evidence from the Port of San Francisco stating that the SFERP will be covered under the Port's NPDES permit.
- Evidence that the proposed vegetated swales can convey the post-construction 100-year peak runoff from the SFERP site. A map showing the location, alignment and dimensions of the vegetated swale. Provide engineering details for the stabilization methods to be used to protect the vegetated swale at the point of outfall to the SF Bay.

Response: Please see the Initial Comments of the City and County of San Francisco on the Preliminary Staff Assessment, comments 52 and 60.

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

- A letter from the Port of San Francisco addressing that SFERP will be covered under the Port's NPDES permit is provided as Attachment S&W PSA Conclusion-1
- Drainage calculations for the Storm Water Collection System are provided as Attachment S&W PSA Conclusion-2.
- A figure identifying drainage and swale design for the Storm Water Collection System is provided as S&W PSA Conclusion-3.
- A description of the storm water collection system is provided below.

Description of the Storm Water Collection System.

Storm water collection system description

Post-construction treatment of storm water will be accomplished by directing sheet flow from both the power plant site and 25th Street in front of the power plant into a Best Management Practices (BMP) storm water treatment feature – a dry, vegetated swale. Both the plant site and the street are impervious surfaces so the runoff coefficient for collection is conservatively assumed to be 0.99. The swale will be vegetated with grass. The area between the plant site and the swale (as well as the area between the street and the swale) will be surfaced with vegetation similar to the grass in the swale. A membrane will be installed under the surface to ensure that no storm water percolates into the subsurface. Instead, stormwater will be transported to the swale. From the swale, the water will then be transported to the BCDC boundary where it will flow into the Bay.

The storm water swale will be designed to treat what is commonly referred to as the "Water Quality" storm - a less intense, more frequent storm that over time produces more total runoff than larger storms. The water quality runoff is computed from a rainfall event equal to at least two times the 85th percentile hourly rainfall intensity, which is equivalent to a rainfall intensity of 0.2 inches per hour. In addition, the swale has been designed with enough additional capacity to carry runoff from the 100-year frequency, one-hour duration storm, more commonly associated with flood events.

This methodology is outlined within the California Stormwater Quality Association "Stormwater Best Management Practice Handbook".



October 13, 2005

Ms. Karen Kubick, Manager
Infrastructure Development – Power Enterprise
San Francisco Public Utilities Commission
1155 Market Street, 4th Floor

Dear Karen,

Thank you for providing Port of San Francisco (Port) staff the opportunity to review design calculations for storm water treatment swales proposed to meet the Port Storm Water Management Program (Program) post-construction control requirement for new facility construction. We are pleased to note the swales were designed to convey a 100 year storm of 1.28"/hour, and as such comply with and exceed design criteria required by the Program.

Based on discussions with your project staff it is our understanding that the proposed generation facility will employ gas turbines rather than steam, and will not be subject to the requirements of the California Statewide General Permit for Storm Water Discharges Associated with Industrial Facilities. Thus your facility's operation would be addressed under various requirements of the Port's Municipal NPDES permit, including the requirement for post-construction control installation cited above.

Please contact me at 274-0256 if you require further assistance with this matter.

Sincerely,

John Mundy, Utility Specialist
Port of San Francisco
Engineering Division

CC: Noreen Ambrose, City Attorney
Jeanne Sole, City Attorney
John Roddy, City Attorney
Brad Benson, Port
Carol Bach, Port

13607A San Francisco ERP Drainage Calculations MUNI Site 10-13-05

Vegetated Swale 100-year, 1-hour Storm Capacity Calculations

Calculations have been requested to illustrate that the vegetated swale has been sized to not only treat the water quality storm but to carry the post-construction 100-year peak runoff from the SFERP site. The following steps were taken to do so:

1. Identify the "Drainage Area" that drains to the proposed swale. This includes all areas that will contribute runoff.
2. Determine rainfall intensity criteria to apply and the corresponding design rainfall intensity.
 - a. The rainfall intensity duration used for this calculation are based on the rainfall information collected by the Department of Water Resources rain gauge at the San Francisco International Airport. An empirical equation has been developed based on rainfall data collected over an almost fifty-year period. The equation is:

$$I = A * D^B$$

Where:

A is a constant based on the rainfall frequency

For 10 year frequency A = 0.88

For 25 year frequency A = 1.04

For 100 year frequency A = 1.28

D is the rainfall duration in hours

B is the site specific constant (-0.484)

I is the intensity for the designed rainfall frequency/duration (in/hr)

A plot of this IDF curve is attached, which indicates that for a 100-year frequency and 1-hour duration storm the Intensity "I" = 1.28

3. Calculate the composite runoff coefficient "C" for the "Drainage Area" identified in Step 1.
4. Apply the Rational Formula to calculate the Design Flow
 - a. Using the "Drainage Area" from Step 1, the "Rainfall Intensity" from Step 2a, and "C" from Step 3, apply the Rational Formula. The result is the "Design Flow."

This method used the Rational Method equation:

$$Q = CIA$$

Where:

Q is the design flow in cubic feet per second (cfs),
C is the drainage area runoff coefficient,
I is the design intensity (in/hr), and
A is the drainage area to the swale (acres)

Step 1. Determine the drainage area for the BMP, A = 5.23 acres

Step 2. Determine the runoff coefficient, C = 0.99

The Manning's coefficient has been increased to 0.99 to reflect total imperviousness at the site.

Step 3. Use a design intensity of **1.28 in/hr** for "I" in the Q = CIA equation

$$I = \underline{1.28 \text{ in/hour}}$$

Step 4. Determine the design flow (Q) using Q = CIA

$$Q = C * I * A$$

$$Q = (\text{Step 2}) * (1.28 \text{ in/hr}) * (\text{Step 1})$$

$$Q = \underline{0.94 \text{ cfs}}$$

Design Flow, Q = 6.63 cfs

Therefore, the vegetated swale must be sized to not only treat the water quality storm but to carry this post-construction 100-year peak runoff.

Attached please find a spreadsheet detailing that the swale will carry in excess of the 100-year peak runoff at a depth of 0.90 feet.

Flow Rate Calculation			
Power Plant, Swale and 25th Street.	<u>Area</u> 227,819 sf = 5.23 Ac.	<u>C</u> 0.99	<u>A*C</u> 5.18
		Sum A*C	5.18
	Area volumetric flow rate		6.63 cfs ($A*C*rainfall\ intensity\ "i"$)
	Upstream flow		0.00 cfs
	Total volumetric flow rate		6.63 cfs
Swale Design Calculations			
	Variables	Design Flow Rate	6.63 cfs
	<i>i</i>	1.28	
	<i>n</i>	0.25	Flow Depth 0.90 ft
	R	0.95	Manning's Equation 6.83 cfs
	S	0.5%	
	A	16.8	Flow Velocity 0.39 ft/s
	Z	3	Min. Length 236 ft
	b	16	
	DT	10	

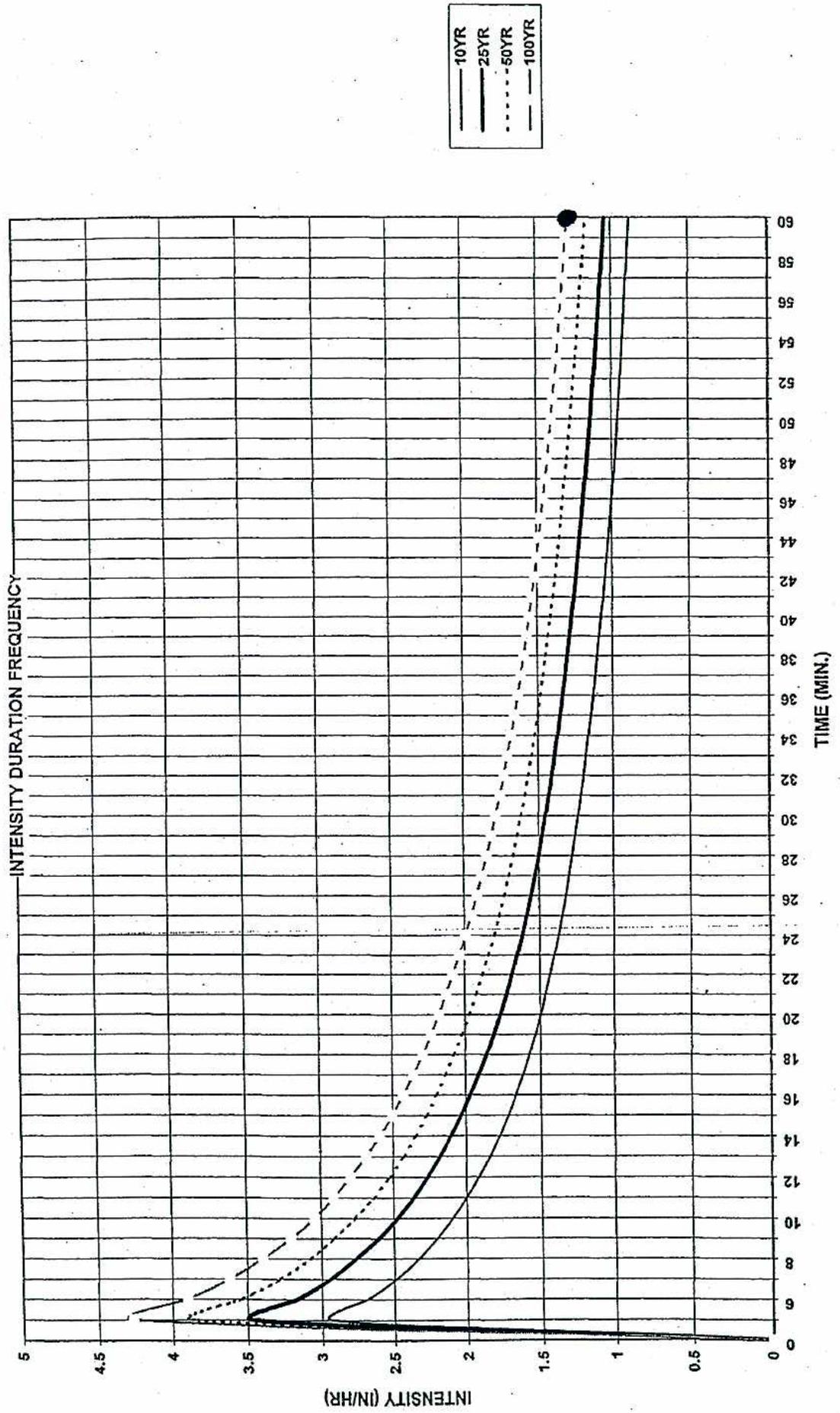
C = runoff coefficient
i = rainfall intensity (inches per hour)
n = Manning's Roughness Coefficient
 R = hydraulic radius
 S = hydraulic slope of swale
 A = swale cross-section area (square feet)
 z = swale side slope ratio (x:1)
 b = width of bottom of swale (feet)
 Q = volumetric flow rate (cubic feet per second)
 DT = detention time (minutes)
 cfs = cubic feet per second
 ft/s = feet per second

$$A = (b+z*y)*y$$

$$R = A/(b+2*(y^2+y^2*z^2)^{0.5})$$

$$Q = 1.49/n(A*R^{2/3}*S^{1/2})$$

Rainfall Intensity Duration Frequency (IDF) Curve
 Department of Water Resources Rain Gauge
 San Francisco International Airport



BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE
STATE OF CALIFORNIA

APPLICATION FOR CERTIFICATION
FOR THE SAN FRANCISCO ELECTRIC
RELIABILITY PROJECT

Docket No. 04-AFC-01
PROOF OF SERVICE
**Revised 8/03/05*

DOCKET UNIT

*Send the original signed document plus
12 copies to the following address:*

**CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 04-AFC-01
DOCKET UNIT, MS-4
1516 Ninth Street
Sacramento, CA 95814-5512**

*In addition to the documents sent to the
Commission Docket Unit, also send
individual copies of all documents to:*

APPLICANT

Barbara Hale, Power Policy Manager
San Francisco Public Utilities
Commission
1155 Market Street, 4th Floor
San Francisco, CA 94102
BHale@sfgwater.org

Applicant Project Manager
Karen Kubick
SF Public Utilities Commission
1155 Market St., 8th Floor
San Francisco, CA 94103
kkubick@sfgwater.org

APPLICANT'S CONSULTANTS

Steve De Young
De Young Environmental Consulting
4155 Arbolado Drive
Walnut Creek, CA 94598
steve4155@astound.net

John Carrier
CH2MHill
2485 Natomas Park Drive, Suite 600
Sacramento, CA 95833-2943
jcarrier@ch2m.com

COUNSEL FOR APPLICANT

Jeanne Sole
San Francisco City Attorney
City Hall, Room 234
1 Dr. Carlton B. Goodlet Place
San Francisco, CA 94102-4682
Jeanne.sole@sfgov.org

INTERESTED AGENCIES

Emilio Varanini III
Special Counsel
California Power Authority
717 K Street, Suite 217
Sacramento, CA 95814
drp.gene@spcglobal.net

Electricity Oversight Board
770 L Street, Suite 1250
Sacramento, CA 95814

*** Donna Jordan**
CA Independent System Operator
151 Blue Ravine Road
Folsom, CA 95630
djordan@caiso.com

*** Dept. of Water Resources**
SERS
Dave Alexander
3301 El Camino Avenue, Ste. 120
Sacramento, CA 95821-9001

INTERVENORS

Jeffrey S. Russell
Vice President, West Region Operations
Mirant California, LLC
1350 Treat Blvd., Suite 500
Walnut Creek, CA 94597
Jeffrey.russell@mirant.com

Michael J. Carroll
Latham & Watkins LLP
650 Town Center Drive, Suite 2000
Costa Mesa, CA 92626
michael.carroll@lw.com

Potrero Boosters Neighborhood
Association
Dogpatch Neighborhood Association
Joseph Boss
934 Minnesota Street
San Francisco, CA 94107
joeboss@joeboss.com

Robert Sarvey
501 West Grantline Road
Tracy, CA 95376
sarveyBob@aol.com

San Francisco Community Power
c/o Steven Moss
2325 Third Street # 344
San Francisco, CA 94107
steven@sfpower.org

Californians for Renewable Energy, Inc.
(CARE)
Michael E. Boyd, President
5439 Soquel Drive
Soquel, California 95073
michaelboyd@sbcglobal.net

Lynne Brown – Member, CARE
Resident, Bayview Hunters Point
24 Harbor Road
San Francisco, California 94124
L_brown123@yahoo.com

I, Anar Bhimani, declare that on October 14, 2005 I deposited copies of the attached Informal Data Request Set 6D in the United States mail at Sacramento, California with first class postage thereon fully prepaid and addressed to those identified on the Proof of Service list above. Transmission via electronic mail was consistent with the requirements of California Code of Regulations, title 20, sections 1209, 1209.5, and 1210. I declare under penalty of perjury that the foregoing is true and correct.

A handwritten signature in black ink, appearing to read "Anar Bhimani", written over a horizontal line.

Anar Bhimani