Geomatrix

June 20, 2006
Project 12415.000

Ms. Nancy Katyl
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, California 94612

Subject: Supplemental Investigation Work Plan
San Francisco Electric Reliability Project Site
25th and Maryland Streets
San Francisco, California

Dear Ms. Katyl:

As requested by our client, the San Francisco Public Utilities Commission (SFPUC), Geomatrix Consultants, Inc. (Geomatrix), has prepared this Supplemental Investigation Work Plan (Work Plan) for the San Francisco Electric Reliability Project Site (the Site) for your review. The SFPUC is in the process of seeking approval from the California Energy Commission (CEC) for construction of a proposed peak-use, natural gas-fired power plant at the Site. As part of this process and as described below, the SFPUC previously conducted investigative activities to characterize environmental condition of the Site. The purpose of the investigation activities proposed in this work plan is to collect supplemental data to facilitate site-specific human health and ecological risk assessments. Additionally, data will be collected for the evaluation of potential remedial alternatives for identified site conditions for preparation of a site cleanup plan and a risk management plan. The site background and proposed investigation activities are presented below.

BACKGROUND

Site Description and History

The Site consists of approximately 4 acres of Port of San Francisco-owned land located at 25th and Maryland Streets in a reclaimed area in the Potrero Hill District of San Francisco, California (Figure 1). The surrounding land use is industrial and the Site is zoned for industrial use. The Site is located directly east of the San Francisco Municipal Railway (MUNI) Metro East Light Rail Vehicle Maintenance and Operations Facility (the MUNI Site, currently under construction), and directly west of a parcel of land also owned by the Port of San Francisco (the Port). The shoreline of San Francisco Bay is located approximately 100 feet to the northeast from the Site boundary.

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A portion of the Site was formerly operated as a switchyard by Western Pacific Railroad (WPRR) for rail cars brought across the bay on a ferry from Oakland. The former WPRR switchyard includes the Site, the adjacent Port-owned parcel to the east and the MUNI Site. Major railroad maintenance was not performed at the Site; however, a railroad engine house and a repair track building were present on site.[1] Most of the rail cars at the Site contained dry goods. Refueling operations for the train engines occurred reportedly at the adjacent, Port-owned parcel. No major spills from tank cars used at the Site were known to have occurred.[2] Railroad operations at the Site were reduced considerably in about 1975. No major operations have been conducted at the Site since the late 1970s. The site predominantly has been vacant or used for warehousing since most of the tracks and ties were removed in 1985 and 1986.

A concrete batch plant is located on the northern portion of the Site. Some temporary facilities are located on the southern portion of the property, including construction trailers, and a construction laydown area.

Geologic and Hydrogeologic Conditions

The Site is a reclaimed area of the Bay underlain by fill, the majority of which was placed at the property between 1930 and 1955. The source of the fill material is unknown. Similar to adjacent and other nearby properties, the fill is composed of a mixture of crushed serpentinite bedrock, building debris (concrete, bricks, rubble, and rocks), sand, silty sand, and silt typical of fill material along the San Francisco Bay. During investigation activities conducted during winter 2006, groundwater beneath the Site was encountered at depths between approximately 7.5 and 13.3 feet below ground surface (bgs). Groundwater flow generally is northeastward toward the Bay, although likely is tidally influenced and, as such, could be variable.

Previous Investigations

Environmental investigations conducted at the since 1987 have revealed that: 1) petroleum hydrocarbons, polynuclear aromatic hydrocarbons (PAHs), and chromium appear to be the primary compounds of concern in soil; 2) chlorinated volatile organic compounds (VOCs)

[1] AGS, Inc., 2000. Final Risk Management Plan and Site Management Plan, MUNI Metro East Light Rail Vehicle Maintenance and Operations Facility, San Francisco Municipal Railway, February.
[2] Dames & Moore, 1987. Site Characterization/Risk Assessment, 25th and Illinois Streets, San Francisco, California.

appear to be the primary compounds of concern in soil vapor; and 3) petroleum hydrocarbons, PAHs, and select metals appear to be the primary compounds of concern in groundwater.

These constituents are commonly found in artificial fill along the San Francisco Bay margin. Thus, the source of these chemicals likely can be attributed to fill material or possibly, historical railroad operations.

PROPOSED INVESTIGATION ACTIVITIES

Sampling Objectives

As stated above, the purposes of the investigation activities proposed in this work plan are to collect supplemental data to facilitate site-specific human health and ecological risk assessments, and for the evaluation of potential remedial alternatives for identified site conditions for preparation of a site cleanup plan and a risk management plan. As such, the investigation is designed to address the items listed below.

Soil samples will be collected from twelve soil borings to:

- evaluate whether chromium detected at the site is present in the trivalent and/or hexavalent state;
- assess the distribution of petroleum hydrocarbons in soil near SB-24;
- confirm the presence of PAHs near SB-28, and if present at elevated concentrations, evaluate the PAH distribution in soil in this area.

Soil vapor samples will be collected from eight soil borings to assess the distribution of vinyl chloride in soil vapor in the southeast area of the site.

Grab groundwater samples will be collected from six soil borings to:

- evaluate concentrations of dissolved petroleum and PAHs in groundwater;
- evaluate the presence of certain metals in groundwater (dissolved) at the site perimeter.

Sampling Program

To meet the sampling objectives stated above, a sampling program will be performed, which will consist of advancing twenty-two soil borings (Figure 1) and collecting soil, soil vapor and groundwater samples. Specific sampling depths, media to be sampled and chemical analyses to be performed are presented in Table 1. The sampling program is generally described below.

Soil

Total chromium was detected in soil samples previously collected from the Site. To assess whether the total chromium reported is in the trivalent and/or hexavalent state, soil samples will be collected from approximately 1 and 5 feet bgs from six soil borings (SB-36, SB-37, SB-39, and SB-43 through SB-45) advanced across the Site and analyzed for hexavalent and total chromium.

To assess the lateral and vertical extent of elevated total petroleum hydrocarbons (TPH) and PAH concentrations reported in soil samples from boring SB-24, four borings will be advanced approximately 10 feet from boring SB-24 to the northeast, southeast, southwest and northwest. If petroleum-related staining is observed during drilling, a temporary well point will be placed in the borehole of the soil boring exhibiting this characteristic, which will consist of one-inch-diameter Schedule 40 polyvinyl chloride (PVC) casing with 10 feet of factory-slotted well screen. Temporary well points will be allowed to recharge overnight, then gauged using an oil/water interface probe to assess whether mobile, light non-aqueous phase liquid (LNAPL) is present. If LNAPL is present, an additional boring will also be placed approximately 10 feet from the boring exhibiting LNAPL in the same direction from SB-24. All additional soil borings will be screened for the presence of LNAPL using the above-described methodology and soil samples will be collected from each additional soil boring.

To confirm elevated PAH concentrations previously detected in soil samples from soil boring SB-28, one boring (SB-38) will be placed adjacent to the previous boring location. Three additional borings will be advanced approximately 10 feet to the northeast, south and southwest of SB-28. Soil samples collected from additional borings will be collected, but will be placed on hold with the analytical laboratory pending the results of the soil samples from SB-38.

Soil Vapor

Elevated concentrations of select chlorinated VOCs were detected in soil vapor samples collected from the southeastern corner of the Site. To further assess the presence and distribution of these VOCs in soil vapor in this portion of the Site, soil vapor samples will be collected from approximately 5 feet bgs from eight borings (SB-46 through SB-53) in this area.

Groundwater

To assess whether dissolved constituents are migrating off site, grab groundwater samples will be collected from six soil borings (SB-32 through SB-37) from the first-encountered water-bearing zone. Based on groundwater flow to the northeast, the groundwater borings will be located along the north and eastern Site boundary.

Soil and Grab Groundwater Sampling Methodology

Prior to conducting field activities, Geomatrix will prepare a site-specific health and safety plan, obtain necessary drilling permits, notify Underground Service Alert (USA), and contract with a private utility locator to clear proposed location of underground utilities. Geomatrix will work with the Port to coordinate access to the Site.

All soil borings will be advanced with a direct-push drill rig to between approximately 5 and 15 feet bgs to allow for the collection of groundwater, soil, and/or soil vapor samples. All soil borings, with the exception of the soil vapor sampling locations, will be continuously cored from ground surface to the total depth drilled using a dual-tube soil sampler. Lithologic logs will be prepared by a Geomatrix field geologist, under the supervision of a Geomatrix California Professional Geologist or Engineer, using visual-manual procedures of American Society of Testing and Materials (ASTM) Standard D 2488 for guidance, which is based on the Unified Soil Classification System.

Grab groundwater samples will be collected through the dual-tube soil sampler, or equivalent, with an outer casing that can be retracted to isolate the interval to be sampled and prevent hydraulic communication with possible water-bearing units above the specified interval. Based on previous water level measurements at the Site, it is anticipated that the grab groundwater samples will be collected from a 5-foot interval at approximately 10 to 15 feet bgs. The exact depth of the water-bearing unit to be sampled will be determined by assessing the lithology and moisture content of soil encountered during drilling. The grab groundwater samples will be collected by placing a temporary well point in the borehole

consisting of one-inch-diameter Schedule 40 polyvinyl chloride (PVC) casing and lowering new, clean polyethylene tubing into the bore hole. The polyethylene tubing then will be connected to a peristaltic pump with new, clean polyethylene and silicone tubing. The sample will be collected by decanting the groundwater from the outlet of the peristaltic pump directly into laboratory-supplied sample containers. Groundwater samples to be analyzed for dissolved metals will be filtered in the field using a 0.45-micron (µm) filter and decanted into a properly preserved sample container.

Soil samples will be collected in new, clean, butyrate liners and sealed at each end with Teflon® sheets, plastic end caps, and silicone tape. Recovered soil will be screened with an organic vapor meter equipped with a photoionization detector (PID) or equivalent device. Samples will be labeled and stored in an ice-chilled cooler prior to delivery to the laboratory under Geomatrix chain-of-custody procedures. After the collection of soil samples from soil borings SB-42 through 45, a temporary well point will be placed in the borehole consisting of one-inch-diameter Schedule 40 polyvinyl chloride (PVC) casing with 10 feet of factory-slotted well screen. Screen will be installed across the interface of the saturated/unsaturated zone. These temporary well points will be allowed to recharge overnight, then gauged using an oil/water interface probe to assess whether mobile, light non-aqueous phase liquid (LNAPL) is present.

Following the completion of sampling activities, each boring will be grouted to ground surface according to the requirements specified by the permitting agency. Non-dedicated down hole sampling equipment will be steam cleaned between each soil boring location and prior to reuse. A California-licensed land surveyor will be retained to survey all accessible boring locations. Investigation-derived waste will be stored on site in appropriate, labeled containers pending analytical results.

Soil and Groundwater Analytical Methods

Select soil and groundwater samples will be analyzed for the following chemical analyses:

- TPH quantified as diesel (TPHd), TPH quantified as motor oil (TPHmo) and TPH quantified as bunker C oil (TPHbunker) by U.S. Environmental Protection Agency (EPA) Method 8015M with laboratory filtration and silica gel cleanup preparation;
- PAHs by EPA Method 8270C SIM;

- Select metals by EPA Methods 6010/7000.

Select soil samples will be analyzed for the following physical properties:

- Effective porosity by ASTM Method D2325M;
- Moisture content by ASTM Method D2216;
- Particle size analysis by ASTM Method D422;
- Bulk density by ASTM Method D2937;
- Specific gravity by ASTM Method D854;
- Total organic carbon by EPA Method 415.2;
- Hydraulic conductivity by ASTM Method D5084.

Select soil collected from below the water table (saturated zone) will be analyzed for all of the above-mentioned physical properties. Select soil samples collect from above the water table (vadose zone) will be analyzed for all of the above-mentioned physical properties with the exception of total organic carbon and hydraulic conductivity. Specific soil sample depths and rationale for each boring location are presented in Table 1.

Field quality assurance/quality control (QA/QC) samples for chemical analysis will include the collection of one groundwater matrix spike/matrix spike duplicate (MS/MSD), one groundwater blind field duplicate per every ten primary samples, one equipment blank per day, and one trip blank per sample cooler.

Soil Vapor Sampling Methodology

Soil vapor sampling will be conducted in general accordance with applicable agency guidance, including the revised February 7, 2005 *Guidance for the Evaluation and Migration of Subsurface Vapor Intrusion to Indoor Air, Interim Final*, authored by the California Department of Toxic Substances Control (DTSC) and the January 28, 2003 *Advisory - Active Soil Gas Investigations (Advisory)*, jointly issued by DTSC and the Los Angeles Regional Water Quality Control Board.

Soil vapor samples will be collected at a depth of approximately 5 feet bgs at each sampling location using a stainless steel probe that will be inserted into each borehole. Disposable

Teflon® tubing will be inserted through the drill rods into the borehole. The rods will then be pulled back slightly (approximately 6 inches), and hydrated bentonite will be used to seal around the direct-push rod at ground surface. The probe will be allowed to equilibrate for a minimum of 20 minutes following placement of the temporary probe (as suggested for the direct push advancement method) prior to the collection of a soil vapor sample.

Soil vapor samples will be collected using Advisory-approved small-diameter inert tubing. Non-dedicated down hole sampling equipment will be steam cleaned between each sampling location and prior to use. Leak tests will be conducted using Advisory-approved tracers at each sampling point.

One blind duplicate soil gas sample will be collected per day that soil vapor sampling is conducted. These samples are intended to evaluate the sampling and analytical variability between samples. The blind duplicate will be collected using the same sampling procedures for both the primary sample and duplicate. The soil gas blind duplicate will be sampled immediately following the original sample.

Drilling and sampling equipment will be cleaned prior to use at each boring. Following completion of sampling, all borings will be grouted to ground surface.

Soil Vapor Analytical Methods

Soil vapor samples will be analyzed for select chlorinated VOCs, including tetrachloroethene, trichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene and vinyl chloride using EPA Method TO-15. Quality assurance/quality control (QA/QC) samples for VOCs collected in the field will consist of one ambient sample per each sampling day. The ambient air sample will be collected using a 6-liter evacuated SUMMA™ canister over an 8-hour period from an up-wind location at ground level. The soil vapor samples will be submitted to an on-site California-certified analytical laboratory for analysis; the QA/QC samples will be analyzed for the same constituents as the primary soil vapor samples using U.S. EPA Method TO-15. On-site laboratory QA/QC analyses will include a method blank and laboratory control samples. The ambient air sample will be delivered to an off-site, California-certified analytical laboratory under Geomatrix chain-of-custody procedures for analysis for the same VOC constituents as the primary soil vapor samples.

Data Validation

Data validation is the process of reviewing data and accepting, qualifying, or rejecting data on the basis of sound criteria using established EPA guidelines. Data from this investigation will be validated according to applicable guidelines set forth in the U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, EPA540/R-94/012, developed by the EPA in October 1999 and U.S. EPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, EPA540/R-94/013, developed by the EPA in October 2004. These two documents are collectively referred to as the National Functional Guidelines.

Data validation will include a data completeness check of each data package, a transcription check for sample results, and a thorough review of all laboratory reporting forms. In addition, each data validation will include a comprehensive review of the following QA/QC parameters as indicated in the National Functional Guidelines. Based on this data review, sample results are then qualified as appropriate, following the National Functional Guidelines. Samples that do not meet the acceptance limit criteria are annotated with a qualifying flag, which is a one- or two-letter abbreviation. Once reviewed, and flagged as appropriate, the data are evaluated to determine whether the data are suitable for use.

Reporting

The above-described investigation activities will be documented in a separate Supplemental Investigation Report or incorporated in the site-specific human health and ecological risk assessment. The documentation of the investigation activities will include a description of the field methodology, lithology observed during sampling, and analytical results. Analytical laboratory reports and the results of the analytical data validation also will be included.

SCHEDULE

The work described herein will be conducted in late June 2006, according to the schedule agreed upon by the SFPUC, Water Board, and CEC staff. A report documenting the field program and results will be submitted to the Water Board by August 7, 2006, as required by the established schedule.

We appreciate your expeditious review of this work plan. Please feel free to call Robert Cheung of our office or either of the undersigned if you have any questions or comments.

Sincerely yours,
GEOMATRIX CONSULTANTS, INC.

Jonathan M. Skaggs, PG
Project Geologist

Susan M. Gallardo, PE
Principal Engineer

Attachments: Table 1 – Proposed Sampling and Analysis Table
Figure 1 – Site Location Map
Figure 2 – Proposed Sampling Locations

cc: Randall Smith, SFPUC
Karen Kubick, SFPUC
John Mundy, Port of San Francisco
Michael Stephens, California Energy Commission

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TABLE 1

Proposed Sampling and Analysis Table
San Francisco Eleetric Reliability Project
25th and Maryland Streets, San Francisco

Boring ID	Sampling Medium	Sample Depth (ft bgs)	Select Metals	PAHs	TPHd, TPHmo, TPHbunker	Total Chromium and Hexavalent Chromium	Chlorinated VOCs	Saturated Zone Physical Properties	Vadose Zone Physical Properties	Rationale
SB-32	Groundwater	-	X	X	X	-	-	-	-	Evaluate the presence of certain metals in groundwater (dissolved) at the site perimeter
	Soil	5	-	-	-	-	-	-	X	Physical properties for evaluating migration potential
		15				-	-	X	-	
SB-33	Groundwater	-	X	X	X	-	-	-	-	Evaluate the presence of certain metals in groundwater (dissolved) at the site perimeter
SB-34	Groundwater	-	X	X	X	-	-	-	-	Evaluate the presence of certain metals in groundwater (dissolved) at the site perimeter
	Soil	15	-	-	-	-	-	X	-	Physical properties for evaluating migration potentia
SB-35	Groundwater	-	X	X	X	-	-	-	-	Evaluate the presence of certain metals in groundwater (dissolved) at the site perimeter
SB-36	Groundwater	-	X	X	X	-	-	-	-	Evaluate the presence of certain metals in groundwater (dissolved) at the site perimeter
	Soil	1	-	-	-	X	-	-	-	Evaluate whether chromium detected at the site is present in the trivalent and/or hexavalent state
		5	-	-	-	-	-	-	-	
SB-37	Groundwater	-	X	X	X	-	-	-	-	Evaluate the presence of certain metals in groundwater (dissolved) at the site perimeter
	Soil	1	-	-	-	X	-	-	-	Physical properties for evaluating migration potential; evaluate whether chromium detected at the site is present in the trivalent and/or hexavalent state
		5	-	-	-	X	-	-	-	
		15	-	-	-	-	-	X	-	
SB-38	Soil	1	-	X	-	-	-	-	-	Confirm elevated PAHs are present
		5								
		10								
		15								
SB-39	Soil	1	-	X	X	X	-	-	-	Assess lateral and vertical extent of elevated TPH and PAHs in soil; evaluate whether chromium deteeted at the site is present in the trivalent and/or hexavalent state
		5	-	-	-	X	-	-	-	
		10	-	-	-	-	-	-	-	
		15	-	-	-	-	-	-	-	
SB-40	Soil	1	-	X	X	-	-	-	-	Assess lateral and vertical extent of elevated TPH and PAHs in soil
		5								
		10								
		15								
SB-41	Soil	1	-	X	X	-	-	-	-	
		5								
		10								
		15								
SB-42	Soil	1	-	X	X	-	-	-	-	
		5								
		10								
		15								

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TABLE 1

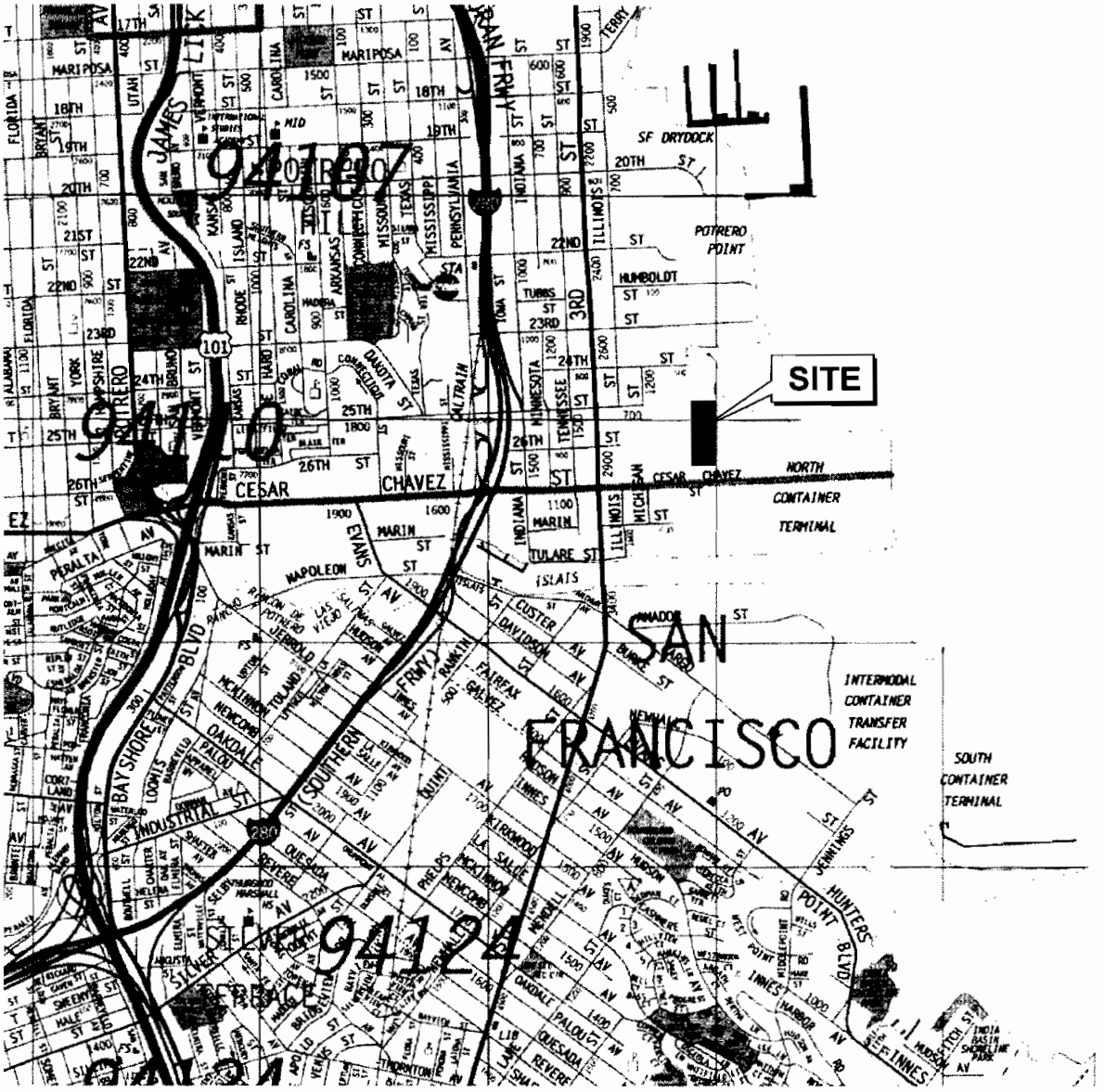
Proposed Sampling and Analysis Table
San Francisco Electric Reliability Project
25th and Maryland Streets, San Francisco

Boring ID	Sampling Medium	Sample Depth (ft bgs)	Select Metals	PAHs	TPHd, TPHmo, TPHbunker	Total Chromium and Hexavalent Chromium	Chlorinated VOCs	Saturated Zone Physical Properties	Vadose Zone Physical Properties	Rationale
SB-43	Soil	1	-	-	-	X	-	-	-	Evaluate whether chromium detected at the site is present in the trivalent and/or hexavalent state
		5								
SB-44	Soil	1	-	-	-	X	-	-	-	
		5								
SB-45	Soil	1	-	-	-	X	-	-	-	Physical properties for evaluating the migration potential; evaluate whether chromium detected at the site is present in the trivalent and/or hexavalent state
		5	-	-	-	X	-	-	X	
SB-46	Soil Vapor	5	-	-	-	-	X	-	-	Assess the distribution of Chlorinated VOCs
SB-47										
SB-48										
SB-49										
SB-50										
SB-51										
SB-52										
SB-53										

Analysis

Select Metals (As, Cu, Hg, Ni, Pb, Se, Vn, and Zn) by EPA Method 6010/7000
Polynuclear aromatic hydrocarbons (PAHs) by EPA Method 8270 SIM
TPH by EPA Method 8015M (laboratory filtration and silica gel prepation will be performed on groundwater samples)
Chlorinated herbicides by EPA Method 8151
Total Chromium and Hexavalent Chromium by EPA Method 7196
Chlorinated VOCs by EPA Method TO-15
Saturated zone physical properties samples will be analyzed for effective porosity by ASTM Method D2325M; moisture content by ASTM Method D2216; particle size analysis by ASTM Method D422, bulk density by ASTM Method D2937; specific gravity by ASTM Method D854; total organic carbon by EPA Method 415.2; and hydraulic conductivity by ASTM Method D5084.
Vadose zone physical properties samples will be analyzed for effective porosity by ASTM Method D2325M; moisture content by ASTM Method D2216; particle size analysis by ASTM Method D422; bulk density by ASTM Method D2937; and specific gravity by ASTM Method D854

Notes:
- = Not Analyzed
X = Analyze for selected constituent



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0 2000 Feet

SITE LOCATION MAP
San Francisco Electric Reliability Project
25th and Maryland Streets
San Francisco, California

By: JS	Date: 06/14/06	Project No. 12415
Geomatrix		Figure 1

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Explanation

- Proposed soil sampling location
- Proposed grab groundwater sampling location
- Proposed soil and grab groundwater sampling location
- Proposed soil vapor sampling location
- Soil sampling location (Dames & Moore, 1987 and 1989)
- Sampling location (GTC, 2005)
- Sampling location (CH2M Hill, 2006)
- Approximate site boundary

0 30 60 120 Feet

PROPOSED SAMPLING LOCATIONS
San Francisco Electric Reliability Project
25th and Maryland Streets
San Francisco, California

By:	Date:	Project No. 12415.000
Geomatrix		Figure 2

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TABLE 1

Proposed Sampling and Analysis Table
San Francisco Electric Reliability Project
25th and Maryland Streets, San Francisco

Boring ID	Sampling Medium	Sample Depth (ft bgs)	Select Metals	PAHs	TPHd, TPHmo, TPHbunker	Total Chromium and Hexavalent Chromium	Chlorinated VOCs	Saturated Zone Physical Properties	Vadose Zone Physical Properties	Rationale
SB-32	Groundwater	-	X	X	X	-	-	-	-	Evaluate the presence of certain metals in groundwater (dissolved) at the site perimeter
	Soil	5	-	-	-	-	-	-	X	Physical properties for evaluating migration potential
		15				-	-	X	-	
SB-33	Groundwater	-	X	X	X	-	-	-	-	Evaluate the presence of certain metals in groundwater (dissolved) at the site perimeter
SB-34	Groundwater	-	X	X	X	-	-	-	-	Evaluate the presence of certain metals in groundwater (dissolved) at the site perimeter
	Soil	15	-	-	-	-	-	X	-	Physical properties for evaluating migration potential
SB-35	Groundwater	-	X	X	X	-	-	-	-	Evaluate the presence of certain metals in groundwater (dissolved) at the site perimeter
SB-36	Groundwater	-	X	X	X	-	-	-	-	Evaluate the presence of certain metals in groundwater (dissolved) at the site perimeter
	Soil	1	-	-	-	X	-	-	-	Evaluate whether chromium detected at the site is present in the trivalent and/or hexavalent state
		5	-	-	-	-	-	-	-	
SB-37	Groundwater	-	X	X	X	-	-	-	-	Evaluate the presence of certain metals in groundwater (dissolved) at the site perimeter
	Soil	1	-	-	-	X	-	-	-	Physical properties for evaluating migration potential; evaluate whether chromium detected at the site is present in the trivalent and/or hexavalent state
		5	-	-	-	X	-	-	-	
		15	-	-	-	-	-	X	-	
SB-38	Soil	1	-	X	-	-	-	-	-	Confirm elevated PAHs are present
		5								
		10								
		15								
SB-39	Soil	1	-	X	X	X	-	-	-	Assess lateral and vertical extent of elevated TPH and PAHs in soil; evaluate whether chromium detected at the site is present in the trivalent and/or hexavalent state
		5	-			X	-	-	-	
		10	-			-	-	-	-	
		15	-			-	-	-	-	
SB-40	Soil	1	-	X	X	-	-	-	-	Assess lateral and vertical extent of elevated TPH and PAHs in soil
		5								
		10								
		15								
SB-41	Soil	1	-	X	X	-	-	-	-	
		5								
		10								
		15								
SB-42	Soil	1	-	X	X	-	-	-	-	
		5								
		10								
		15								

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TABLE 1

Proposed Sampling and Analysis Table
San Francisco Electric Reliability Project
25th and Maryland Streets, San Francisco

Boring ID	Sampling Medium	Sample Depth (ft bgs)	Select Metals	PAHs	TPHd, TPHmo, TPHbunker	Total Chromium and Hexavalent Chromium	Chlorinated VOCs	Saturated Zone Physical Properties	Vadose Zone Physical Properties	Rationale
SB-43	Soil	1	-	-	-	X	-	-	-	Evaluate whether chromium detected at the site is present in the trivalent and/or hexavalent state
		5								
SB-44	Soil	1	-	-	-	X	-	-	-	
		5								
SB-45	Soil	1	-	-	-	X	-	-	-	Physical properties for evaluating the migration potential; evaluate whether chromium detected at the site is present in the trivalent and/or hexavalent state
		5	-	-	-	X	-	-	X	
SB-46	Soil Vapor	5	-	-	-	-	X	-	-	Assess the distribution of Chlorinated VOCs
SB-47										
SB-48										
SB-49										
SB-50										
SB-51										
SB-52										
SB-53										

Analysis:

Select Metals (As, Cu, Hg, Ni, Pb, Se, Vn, and Zn) by EPA Method 6010/7000

Polynuclear aromatic hydrocarbons (PAHs) by EPA Method 8270 SIM

TPH by EPA Method 8015M (laboratory filtration and silica gel prepation will be performed on groundwater samples)

Total Chromium and Hexavalent Chromium by EPA Method 7196

Chlorinated VOCs by EPA Method 8260B

Saturated zone physical properties samples will be analyzed for: effective porosity by ASTM Method D2325M; moisture content by ASTM Method D2216; particle size analysis by ASTM Method D422; bulk density by ASTM Method D2937; specific gravity by ASTM Method D854; total organic carbon by EPA Method 415.2; and hydraulic conductivity by ASTM Method D5084.

Vadose zone physical properties samples will be analyzed for effective porosity by ASTM Method D2325M; moisture content by ASTM Method D2216; particle size analysis by ASTM Method D422; bulk density by ASTM Method D2937; and specific gravity by ASTM Method D854.

Notes:

- = Not Analyzed

X = Analyze for selected constituent

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 2/17/06

DOCKET UNIT

Instructions: *Send an original signed document plus 12 copies* ***or*** *an electronic copy plus one original paper copy to the address below:*

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

Also send a printed ***or*** *electronic copy of all documents to each of the following:*

APPLICANT

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DECLARATION OF SERVICE

I, **Dora Gomez**, declare that on **June 22, 2006**, I deposited copies of the attached **RE: Supplemental Investigation Work Plan San Francisco Electricity Reliability Project Site**, 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.

[signature]

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