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Environmental
Resources
Management

1777 Botelho Drive
Suite 260
Walnut Creek, CA 94596
(925) 946-0455
(925) 946-9968 (fax)

10 February 2005

Alameda County
FEB 15 2005
Environmental Health



Mr. Barney Chan
Alameda County Health Care Services
Environmental Health Services
Environmental Protection
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Subject: Workplan for Focused Soil Excavation and Refurbishment
Substation I, 1346 92nd Avenue, Oakland, California

Dear Mr. Chan:

On behalf of Pacific Gas and Electric Company (PG&E), ERM-West, Inc. (ERM) is pleased to provide you with this workplan to implement environmental restoration of impacted soils known to be present at the subject site in Oakland, California (Figure 1). This workplan describes focused soil excavation to be performed at areas identified in the *Phase I and Limited Phase II Environmental Site Assessment, Substation I, Oakland, California, USA* (ERM, 2003). The scope of work included herein addresses removal of soils that exceed the Environmental Screening Levels (ESLs) for commercial/industrial land use developed by the San Francisco Bay Regional Water Quality Control Board (RWQCB).

The workplan details the following:

- Site Background;
- Excavation health and safety;
- Excavation and confirmation sampling;
- Waste profiling and disposal;
- Backfill and surface restoration;
- Remediation report; and
- Schedule.



Site Background

The site has been used continuously as an electrical power distribution substation since 1925. PG&E constructed Substation I to supply electricity to the industrial areas of Oakland and Hayward, as well as the Key System, the local urban light-rail system. The subject property has two buildings, Building 2145 (used for storage only) and Building 2146 (used as an active substation). Types of operations conducted at the subject property have included the operation, storage, handling, and servicing of oil-containing electrical equipment. As previously stated, Building 2146 is still being used as an active substation, but operations in Building 2145 were discontinued in 1985. Prior to 1925, the subject property was a residential area. Neighboring properties are currently used for residential and retail purposes.

ERM collected 46 soil samples from 23 borings during the June 2003 investigation. The soil samples were analyzed for lead, arsenic, pesticides and polychlorinated biphenyls (PCBs). In addition, two samples collected near the former cooling tower were analyzed for total and hexavalent chromium. The results of these analyses are presented in Table 1 and on Figure 2. As seen in Table 1, one shallow soil sample contained dieldrin concentrations in excess of Commercial ESL set at 0.0023 milligrams per kilogram (mg/kg). One shallow soil sample contained lead concentrations in excess of Commercial ESL set at 750 milligrams per kilogram (mg/kg). In addition, seven shallow samples contained arsenic concentrations in excess of the Commercial ESL set at 5.5 mg/kg.

Excavation Health And Safety

Activities described in this work plan will be performed in accordance with the site-specific Health and Safety Plan (HASP). The procedures described in the plan will be implemented and enforced by an ERM representative during all activities. Compliance with the HASP will be required of all persons who enter restricted areas for the project.

The purpose of the HASP is to:

- Assign site personnel health and safety responsibilities;
- Establish process safety requirements for all equipment, including hazards associated with the excavation equipment, the excavation itself, and other hazards;
- Prescribe mandatory operating procedures;

- Establish personal protective equipment requirements for work activities;
- Establish emergency response procedures; and
- Provide information on the health and physical hazards of on-site activities.

Only ERM staff and approved subcontractors will be allowed in the work area. In addition, any excavations left open overnight will be covered and the work zone will be barricaded and surrounded by a caution tape.

Excavation and Confirmation Sampling Details

Eight locations have been identified at this site for excavation of soils containing arsenic and lead concentrations above Commercial ESLs. These areas are defined by soil borings B-11, B-12, B-14, B-18, B-19, B-20, B-21, and B-22. In addition, an area defined by soil boring B-5, which contained dieldrin concentrations above the Commercial ESL, will also be excavated. The locations of these borings are presented in Figure 2.

Seven of the nine areas are located along a fence or building. At these locations, soils from an area approximately 5 feet by 10 feet will be excavated with a backhoe and placed in storage bins. At the remaining two areas, soils from an area approximately 10 feet by 10 feet will be excavated and placed within the storage bins. Based on the analytical data, the anticipated depth of excavation will be between two and four feet for lead and arsenic impacted areas. The area defined by boring B-5 will be excavated to a depth of 4.5 feet. It is estimated that less than 100 cubic yards of soil will be excavated to address the impacted soils.

Prior to excavation activities, ERM will mark the areas requiring soil excavation and subcontract a utility locating firm to identify underground utilities to prevent inadvertent damage during soil removal. In addition, ERM will contact Underground Service Alert a minimum of 48 hours prior to excavation to inform local utility companies of the impending work. During excavation activities, ERM will provide oversight of the excavation contractor to ensure that the scope of work is carried out as planned and will document the remediation progress by keeping daily field logs.

Following excavation of each location, ERM will collect verification soil samples from the sidewalls and bottom of the excavations. These samples

will be used to characterize the soil surrounding the excavated area. Five samples will be collected at each excavation; one floor sample and one sample on each of the four sidewalls. Samples will be collected from the excavated surface into pre-cleaned stainless steel tubes or glass sample jars. Collected samples will be placed in an ice cooler, cooled to four degrees Celsius, and maintained under chain-of-custody control until delivery to Torrent Laboratory, a California-certified laboratory in Milpitas, California. Samples collected from the B-5 and B-11 excavations will be analyzed for lead using United States Environmental Protection Agency (USEPA) Method 6010B. Samples collected from the B-5 excavation will also be analyzed for pesticides (USEPA Method 8081). Samples collected from the remaining excavations will be analyzed for arsenic using graphite furnace method (USEPA Method 7060A) to eliminate any potential for interference by iron and aluminum that can occur when analyzing samples using inductively coupled plasma (ICP) methods. Samples will be analyzed on a 24-hour turnaround to ensure that the excavation activities are completed in a reasonable timeframe.

At the completion of the excavation activities, a California-licensed surveyor will survey the excavations to provide a record of the excavated areas.

Waste Profiling and Disposal

Excavated material will be stored onsite inside covered storage bins until waste profiling is completed. Following characterization and profiling of the excavated soil, arrangement will be made for waste disposal under appropriate manifests to an off-site landfill location.

Backfill and Surface Restoration

Upon completion of excavation activities, ERM will oversee the backfilling of the excavations and compaction of the backfill to specified levels. A subcontractor will be retained to perform compaction testing to ensure that the backfill is compacted to the appropriate level. In addition, ERM will work with PG&E to pre-certify the potential source of backfill material to ensure that the imported soil does not contain detectable concentrations of any volatile organic compounds, petroleum hydrocarbons, and pesticides or any significant concentrations of naturally occurring inorganic compounds such as arsenic or lead.

Remediation Report

At the completion of the field activities, a summary report will be generated outlining the methodology of the excavation, confirmation sampling, and backfilling, as well as the results of the confirmation sampling and pre-certification of backfill soil. The report will also contain an accurate base map with the locations of the excavations and the associated confirmation samples.

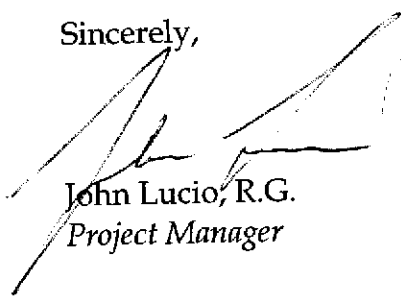
Schedule

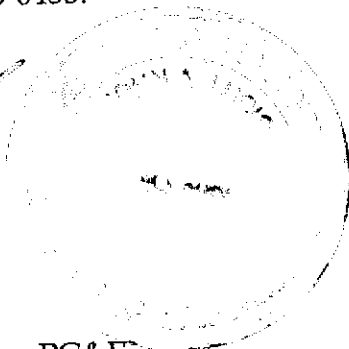
ERM will commence performance of the activities described in this workplan upon receipt Alameda County Environmental Health approval. Below is a brief outline of the anticipated schedule:

- Field work commencement: Approximately 2 weeks following workplan approval.
- Excavation, confirmation sampling, and backfilling: Within approximately 2 weeks after commencement of the fieldwork.
- Waste profiling and disposal: Approximately 2 weeks following the completion of all field activities.
- Reporting: Approximately 2 weeks after waste disposal.

On behalf of PG&E, we look forward to working with you on this project. If you have any questions or comments regarding this submittal, please contact me at (925) 946-0455.

Sincerely,

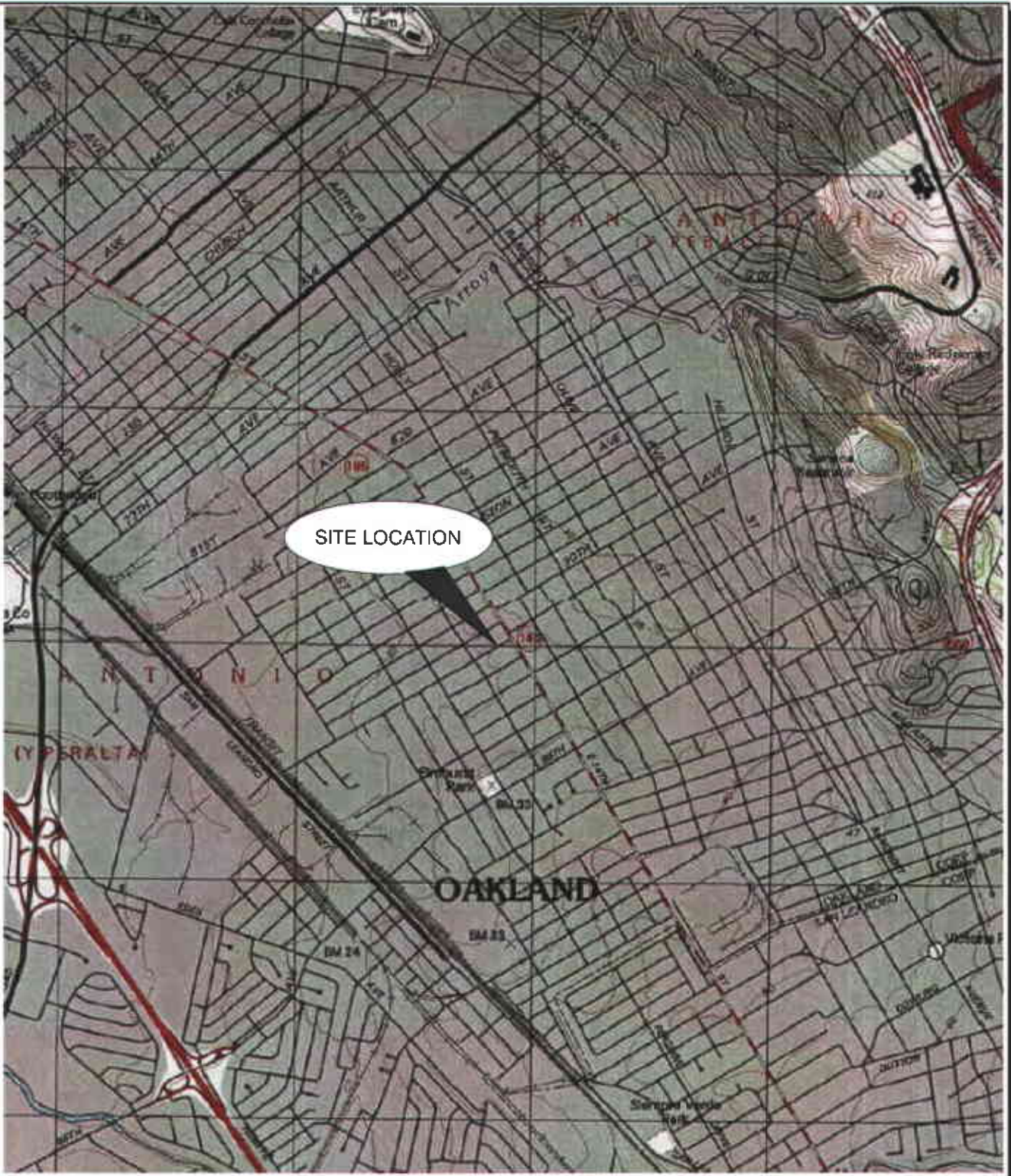

John Lucio, R.G.
Project Manager



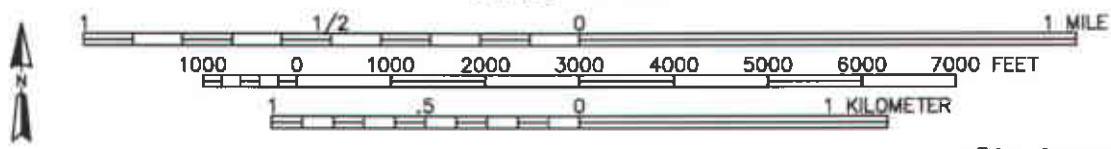
cc: Mr. Robert Gray, PG&E

Attachment: Figures 1 and 2
Table 1

CAD File: g:\5353\00\53530002.dwg
Drawn By: J. Estrada
Date: 07/02/03
Project No: 5354.00

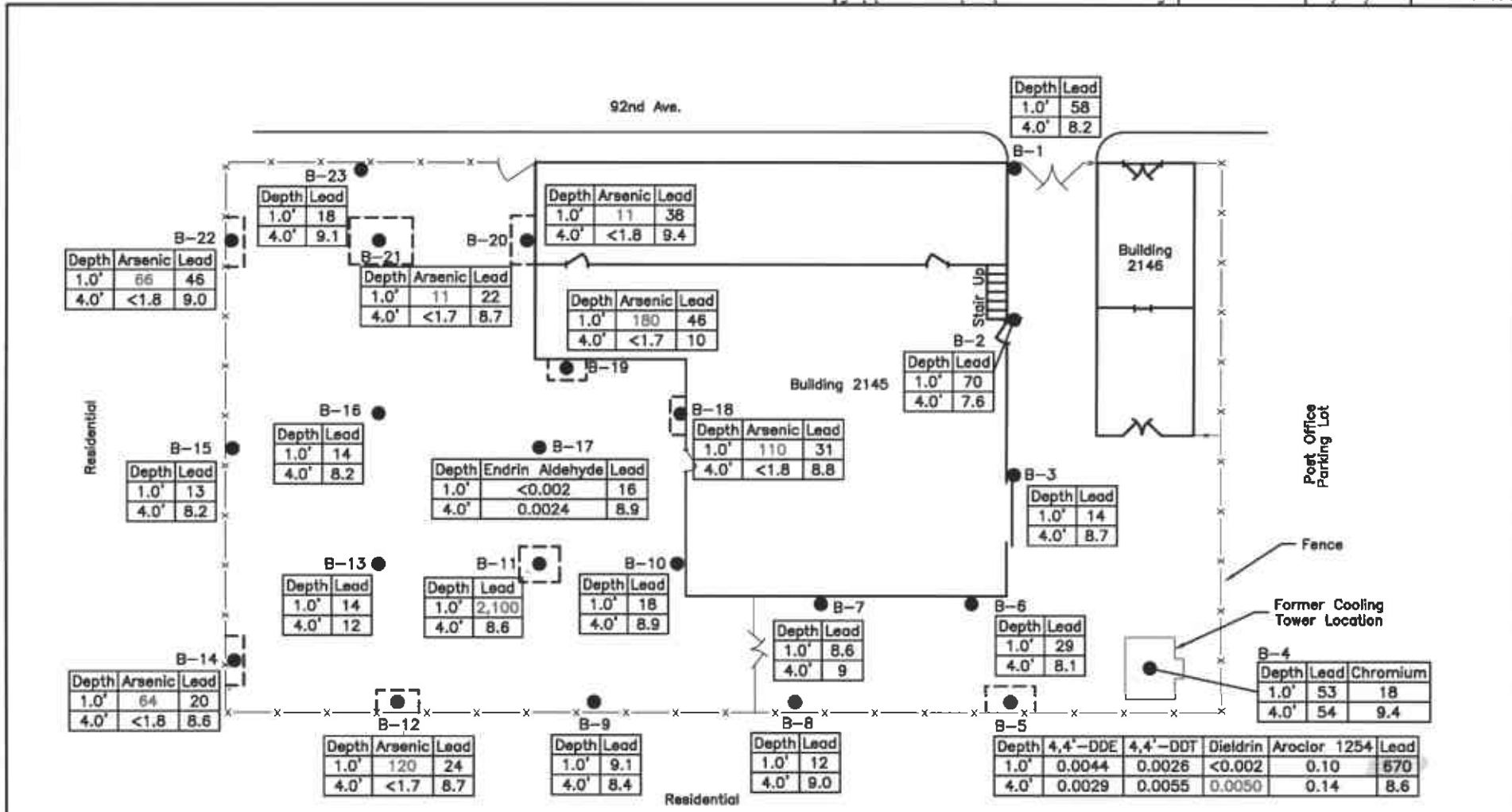


SCALE 1:24,000



References:
TOPOI Software, Version 2.6.8
U.S.G.S. 7.5 Minute Series (Topographic) Quadrangle,
San Leandro, California, 1993

Figure 1
Site Location Map
PG&E Substation "I"
Oakland, California



LEGEND

- Soil Sample Location
- Proposed Excavation
- | Depth | Lead |
|-------|------|
| 1.0' | 44 |
| 4.0' | 100 |

 120 Exceeds SF RWQCB ESL

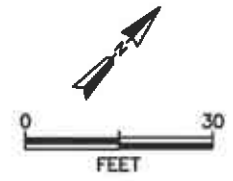


Figure 2
Soil Sample Analytical Results
PG&E Substation "I"
Oakland, California

Table 1
Pesticides, PCBs and Metals in Soils
PG&E Substation I
Oakland, California

Sample ID	Sample Depth (feet bgs)	Date Sampled	Organochlorine Pesticides				PCBs		Metals		
			4,4'-DDE	4,4'-DDT	Dieldrin	Endrin Aldehyde	Aroclor 1254	Arsenic	Lead	Chromium	Hexavalent Chromium
B-1	1.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	<1.7	58	NA	NA
B-1	4.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	<1.6	8.2	NA	NA
B-2	1.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	<1.6	70	NA	NA
B-2	4.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	<1.7	7.6	NA	NA
B-3	1.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	<1.7	14	NA	NA
B-3	4.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	<1.7	8.7	NA	NA
B-4	1.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	<1.7	53	18	<0.10
B-4	4.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	<1.7	54	9.4	<0.10
B-5	1.0'	6/18/2003	0.0044	0.0026	<0.0020	<0.0020	0.10	<1.7	670	NA	NA
B-5	4.0'	6/18/2003	0.0029	0.0055	0.0050	<0.0020	0.14	<1.7	8.6	NA	NA
B-6	1.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	<1.6	29	NA	NA
B-6	4.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	<1.7	8.1	NA	NA
B-7	1.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	<1.7	8.6	NA	NA
B-7	4.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	<1.7	9.0	NA	NA
B-8	1.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	<1.7	12	NA	NA
B-8	4.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	<1.7	9.0	NA	NA
B-9	1.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	<1.6	9.1	NA	NA
B-9	4.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	<1.7	8.4	NA	NA
B-10	1.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	<1.7	18	NA	NA
B-10	4.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	<1.7	8.9	NA	NA
B-11	1.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	<1.7	2,100	NA	NA
B-11	4.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	<1.8	8.6	NA	NA
B-12	1.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	120	24	NA	NA
B-12	4.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	<1.7	8.7	NA	NA
B-13	1.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	<1.7	14	NA	NA
B-13	4.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	<1.8	12	NA	NA
B-14	1.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	64	20	NA	NA
B-14	4.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	<1.8	8.6	NA	NA
B-15	1.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	<1.8	13	NA	NA
B-15	4.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	<1.8	8.2	NA	NA
B-16	1.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	<1.7	14	NA	NA
B-16	4.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	<1.8	8.2	NA	NA
B-17	1.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	<1.8	16	NA	NA
B-17	4.0'	6/18/2003	<0.0020	<0.0020	<0.0020	0.0024	<0.10	<1.7	8.9	NA	NA
B-18	1.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	110	31	NA	NA
B-18	4.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	<1.8	8.8	NA	NA

*Table 1
Pesticides, PCBs and Metals in Soils
PG&E Substation I
Oakland, California*

Sample ID	Sample Depth (feet bgs)	Date Sampled	Organochlorine Pesticides				PCBs	Metals			
			4,4'-DDE	4,4'-DDT	Dieldrin	Endrin Aldehyde	Aroclor 1254	Arsenic	Lead	Chromium	Hexavalent Chromium
B-19	1.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	#	46	NA	NA
B-19	4.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	<1.7	10	NA	NA
B-20	1.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	11	38	NA	NA
B-20	4.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	<1.8	9.4	NA	NA
B-21	1.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	11	22	NA	NA
B-21	4.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	<1.7	8.7	NA	NA
B-22	1.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	66	46	NA	NA
B-22	4.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	<1.8	9.0	NA	NA
B-23	1.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	<1.7	18	NA	NA
B-23	4.0'	6/18/2003	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	<1.7	9.1	NA	NA
Residential ESL (mg/kg)*			1.7	1.7	0.0023	NS	0.22	5.5	200	58	1.8
Commercial/Industrial PRG (mg/kg)*			4.0	4.0	0.0023	NS	0.74	5.5	750	58	1.8

Notes:

Sample concentrations reported in milligrams per kilogram (mg/kg)

ESL = Environmental Screening Levels (RWQCB).

feet bgs = feet below ground surface

Bold values indicate concentrations detected above the laboratory method detection limit.

< 0.5 Compound not detected at or above the laboratory method detection limit

Concentration detected above the Commercial/Industrial ESL.

NS ESL not established

NA Not Analyzed

* ESL is given for shallow soils where Groundwater is not a potential Drinking water source