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October 3, 2001

OCT 05 2001

Mr. Scott O. Seery
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Subject: Texaco Gasoline Service Station (Formerly Freedom ARCO Station)
Site Address: 15101 Freedom Avenue, San Leandro, California

Dear Mr. Seery:

As you requested in your letter of August 23, 2001, enclosed for your review is SOMA's report entitled "Work Plan to Conduct Soil and Groundwater Investigation" at the subject site.

Thank you for your time in reviewing this report. If you have any questions or comments, please call me at (925) 244-6600.

Sincerely,

Mansour Sepehr, Ph.D., P.E.
Principal Hydrogeologist

REGISTERED PROFESSIONAL ENGINEER
MANSOUR SEPEHR
No. C042928
Exp. 3-31-04
CIVIL
STATE OF CALIFORNIA

Enclosure

cc: Mr. Mohammed Pazdel w/enclosure
Mr. Farrokh Hosseinyoun w/enclosure

ENVIRONMENTAL ENGINEERING, INC
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WORKPLAN TO CONDUCT SOIL AND GROUNDWATER INVESTIGATION AT THE TEXACO GASOLINE SERVICE STATION 15101 FREEDOM AVENUE SAN LEANDRO, CALIFORNIA

October 2, 2001

Project 2550

Prepared for

Mr. Mohammad Pazdel
35840 Alcazar Court
Fremont, California 94536

Prepared By

SOMA Environmental Engineering, Inc.
2680 Bishop Drive, Suite 203
San Ramon, California 94583

CERTIFICATION

This report has been prepared by SOMA Environmental Engineering, Inc. on behalf of Mr. Mohammed Pazdel, for the property located at 15101 Freedom Avenue, San Leandro, California to comply with the Alameda County Health Care Services Agency' s requirements.

Mansour Sepehr, Ph.D., P.E.
Principal Hydrogeologist

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1.0 INTRODUCTION

This workplan has been prepared by SOMA Environmental Engineering, Inc., (SOMA) on behalf of Mr. Mohammad Pazdel, the property owner. Formerly, the property was known as Freedom ARCO Station located at 15101 Freedom Avenue, between 151st Street and Fairmont Boulevard, just west of the 580 Freeway in San Leandro, California (the "Site"). Currently, the Site is an operating service station under the brand name of Texaco. This workplan has been prepared based on the Alameda County Health Care Services Agency (ACHCS)'s request dated August 23, 2001.

Since the 1960's, the Site has been used as a gasoline service station. In 1985, Mr. Mohammad Pazdel purchased the business and in 1992 he purchased the property from Mr. Mohammad Mashhoon. From 1985 until 1997 when Mr. Pazdel sold the business, the site was operated under "Freedom ARCO Station". To comply with underground storage tank (UST) upgrade regulation, in 1999 three 10,000-gallon single walled underground storage tanks (USTs) were removed and replaced by new double-walled fuel tanks. During the USTs upgrade petroleum chemicals were detected in subsurface soils beneath the old underground storage tanks.

This report presents the current status of the Site's environmental conditions, and proposes additional field investigation to further characterize the extent of soil and groundwater contamination beneath the Site, as requested by the ACHCS.

1.1 Previous Activities

On May 20, 1999, Geo-Logic oversaw the removal of three10,000-gallon USTs, approximately 250 feet of product piping, and 6 dispensers at the Site. Paradiso Mechanical, Inc. removed and over-excavated the old USTs. The on-site participating agency was ACHCS.

After excavation and removal, the three USTs and product piping were transported to the ECI facility in Richmond, California for proper disposal. Soil samples were collected from beneath the USTs, product piping, and dispensers by Geo-Logic from May 20 to May 21, 1999. On May 20, 1999, seven soil samples were collected from the west and east sides of the tank excavation pit (T1W, T2W, T3W, T1E, T2E, T3E, and an additional soil sample at T1W) ranging in depth from 12 to 14 feet bgs. In addition, six soil samples were collected from beneath the dispensers (P1, P2, P4, P5, P6, and P7) ranging in depth from 2.5 to 3 feet bgs. One soil sample was collected beneath the product lines (P3) at 2.5 feet bgs. On May 21, 1999, eight additional soil samples (P8, P9, P10, P11, P12, P13, P14, and P15) were collected beneath the product piping and in the area of the dispensers at depths ranging from 3 to 3.5 feet bgs. Stockpile soil samples were collected on May 21, 1999. Soil sample locations are shown in Appendix A.

On June 2, 1999, additional soil samples were collected during over-excavation activities from beneath the product piping and bottom of tank excavation pit. An additional soil sample (P12) was collected beneath the product piping at a depth of 5 feet bgs. Three additional soil samples were collected in the western portion of the tank cavity and ranged in depth from 16.5 to 24.5 feet bgs to define the vertical extent of hydrocarbon contamination. Soil sample locations are shown in Appendix A.

The soil samples collected during removal and over-excavation activities were submitted to Calcoast Analytical in Emeryville, California. Soil samples were analyzed for total petroleum hydrocarbons as gasoline (TPHg) by EPA Method 8015, BTEX compounds and MtBE by EPA Method 8020 and total lead by 6010A.

The presence of MTBE was confirmed by EPA Method 8260. The concentration of TPH-g in soil samples ranged between 0.76 mg/kg (P3-2.5 ft bgs) and 4,000

mg/kg (T1W-24.5 ft bgs). Benzene concentrations ranged between 28 mg/kg (T1W-13.5 ft bgs) and non-detectable levels (P2 through P6, and P14) at depths ranging from 2.5 to 3 feet bgs. MtBE concentrations ranged between 0.93 mg/kg (P12-3.5 feet bgs) and non-detectable levels (T3W, T3E, P2 through P6, P10, P14), and stockpile soil sample S1. Summary of soil analytical results are shown on Table 1 in Appendix A.

On July 7, 1999, a 20,000-gallon gasoline UST, a 8,000-gallon gasoline UST, and a 6,000-gallon diesel tank were installed in the tank cavity by Paradiso Mechanical, Inc.

In July 2001, CSS Environmental Services of San Rafael, California (CSS) at the request of ACHCS conducted additional soil and groundwater investigation to further investigate potential petroleum hydrocarbon contamination discovered during the removal and upgrade of USTs at the Site. During this investigation, CSS drilled five hydropunches (SB-1 through SB-5) using the direct-push method. Figure-1 shows the locations of soil borings drilled by CSS. The soil borings were advanced to the maximum depth of 31 feet. It appeared that groundwater beneath the Site is semi-confined so that after drilling, groundwater stabilized at depths of 17 to 20 feet below ground surface (bgs). The results of this investigation indicated that petroleum-impacted soils are generally encountered below a 19-foot depth interval and they are predominantly present within the capillary fringe, just above saturated zone. The maximum concentrations of TPH-g and BTEX in soil samples collected between 19 and 25.5 feet bgs were 470, 2.6, 16, 12, and 73 mg/kg, respectively. MtBE was not detected in any of soil samples at the analytical method reporting limit of 0.005 mg/kg. The maximum concentrations of TPH-g and BTEX in groundwater samples collected from the soil borings were 83, 19, 1.8, 1.5, and 73 mg/l, ppm respectively. MtBE was detected in groundwater at each of the borings except SB-4. The maximum reported concentration was 87 mg/l at SB-2. ppm

2.0 SCOPE OF WORK

The ACHCS on its letter dated August 23, 2001, requested a workplan to conduct a subsurface investigation that will include collection and testing of soil and groundwater samples in and around the location of the former USTs. Based on the ACHCS 's request, the scope of work will include delineation of horizontal extent of MtBE in the soil and groundwater beneath the Site. SOMA proposes to perform the following tasks:

Task 1: **Permit Acquisition and Preparation of Site Health and Safety Plan**

Task 2: **Installation of Groundwater Monitoring Wells and Groundwater Sampling**

Task 3: **Laboratory Analysis**

Task 4: **Report Preparation**

The following is a brief description of the above tasks.

2.1 Permit Acquisition and Preparation of Site Health and Safety Plan

For drilling and the installation of groundwater monitoring wells, necessary permits will be obtained from the Alameda County Public Works Agency, Water Resources Section.

Prior to the commencement of field activity, a site-specific health and safety plan will be prepared by SOMA. The health and safety plan (HASP), is designed to address safety provisions during field activities. It provides procedures to protect the field crew from physical and chemical hazards resulting from drilling, well installation, and groundwater monitoring and sampling. The HASP establishes personnel responsibilities, general safe work practices and field procedures, personal protective equipment standards, decontamination procedures, and emergency action plans.

2.2 Installation of Groundwater Monitoring Wells

We propose to install five groundwater monitoring wells of MW-1 through MW-5 to evaluate groundwater flow gradient and extent of petroleum hydrocarbons and MtBE contamination beneath the Site. Based on the results of the previous investigation conducted by CSS it appears that the plume of petroleum chemical concentration has already migrated beyond the Site's boundaries. However, due to the unknown nature of the site-specific groundwater flow direction, no off-site groundwater monitoring wells will be installed during this investigation. However, based on the high levels of the petroleum hydrocarbon contamination reported in the on-site area, we are proposing to install five 4-inch diameter on-site groundwater monitoring wells. The wells will be installed to a maximum depth of 20-feet bgs. We are planning to use hollow-stem augers to drill the boreholes. During the drilling operation, soil samples will be collected at 5-foot depth intervals and will be logged continuously by SOMA's geologist. The wells will be developed and sampled following well installation. The newly installed wells will be surveyed by a California registered surveyor. The results will be used for determination of groundwater flow direction beneath the Site, and evaluation of the extent of groundwater MtBE and BTEX plumes, as requested by the ACHCS. Figure-3 shows the location of the proposed groundwater monitoring wells.

The monitoring wells will be cased with a 4-inch diameter threaded, factory-perforated and blank schedule 40 PVC pipe. The perforated interval will consist of slotted casing, generally 0.01 to 0.04 inch wide by 1.5-inch long slot size with 42 slots per foot. A PVC cap will be fastened to the bottom of the casing (no solvents, adhesive, or cements will be used), the well casing will be thoroughly washed and steam cleaned.

After setting the casing inside the borehole, kiln-dried sand or gravel filter material will be poured into the annular space to fill from the bottom of the boring to two-feet above the perforated interval. A one to two feet thick bentonite plug

will be placed above this filter material to prevent grout from infiltrating down into the filter material. Approximately one to two gallons of distilled water will be added to hydrate the bentonite pellets. The wells will be sealed from the top of the bentonite seal to the surface with concrete or neat cement containing about 5% bentonite.

To protect the well from vandalism and surface water contamination, a well box with a special type of Allen screw will be installed around the wellhead.

2.3 Laboratory Analysis

The soil and groundwater samples will be analyzed for BTEX, MTBE and total petroleum hydrocarbons as gasoline (TPH-g) using EPA Methods 8020 and 8015 Modified followed by 8260 for confirmation of presence of MTBE. The groundwater samples will be analyzed for lead using EPA analysis Method 6010. The soil samples will also be analyzed for total organic carbon content and bulk density. The data will be used in chemical fate and transport modeling, if warranted.

2.4 Report Preparation

A technical report will be prepared to document soil and groundwater conditions and the extent of on-site petroleum chemical contamination and groundwater gradient and its direction. The technical report will include figures and tables and a detailed description of field investigation procedures and results of soil and groundwater evaluation as well as our recommendation for additional site characterization to address the extent of groundwater contamination in off-site areas, if warranted.

3.0 REFERENCES

Geo-logic , Geotechnical and Environmental Consulting Services, June 11, 1999 "Report of Soil Sampling During Tank Removal and Station Upgrade"

CSS Environmental Services, Inc. August 15, 2001 'Preliminary Site Assessment for the Property Located at 15101 Freedom Avenue, San Leandro, California"

Alameda County Health Care Services, August 23, 2001 a Letter in Connection with Request for Conducting Subsurface Investigation.

FIGURES

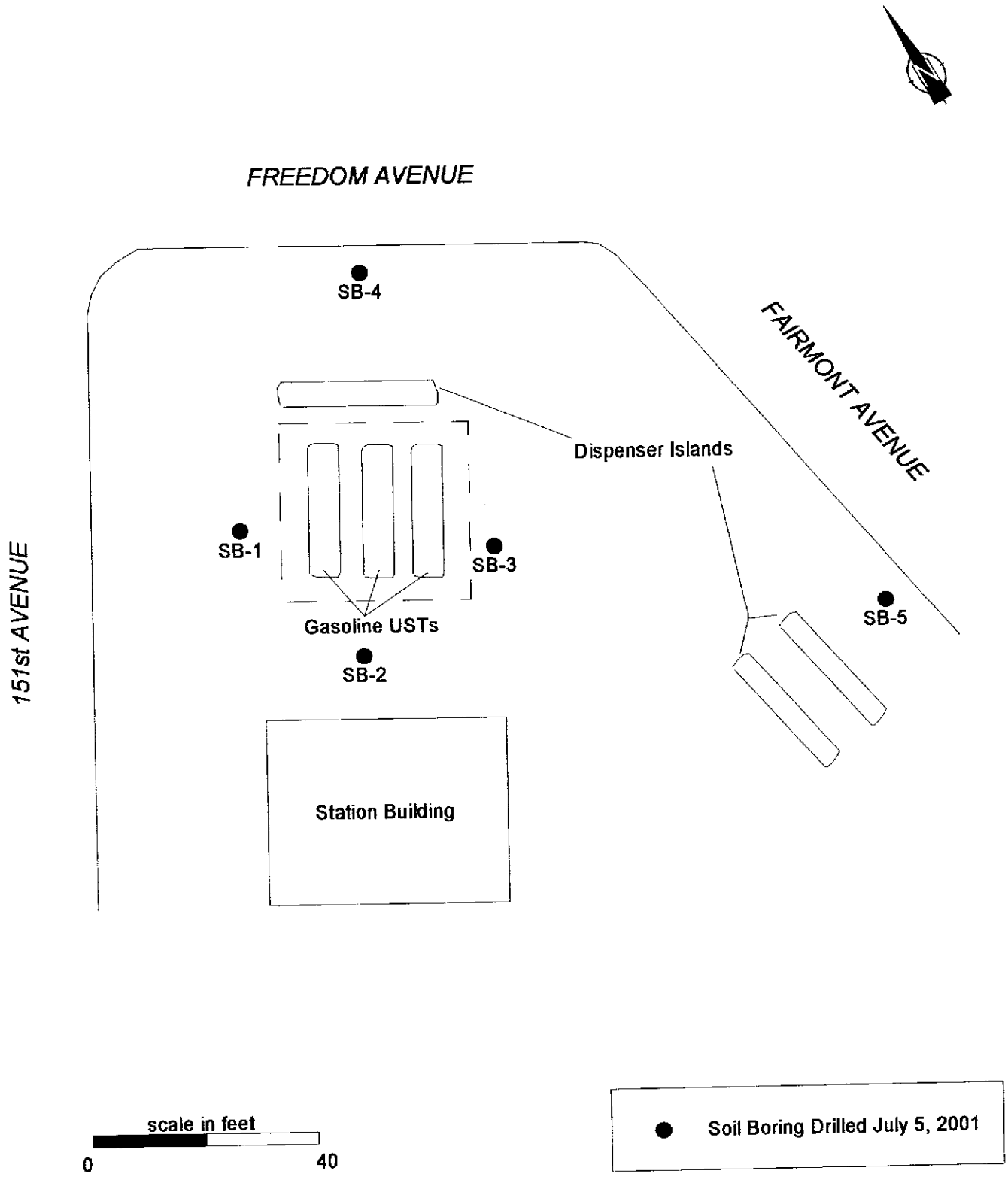


Figure-1 Site Map and Locationd Old Borings

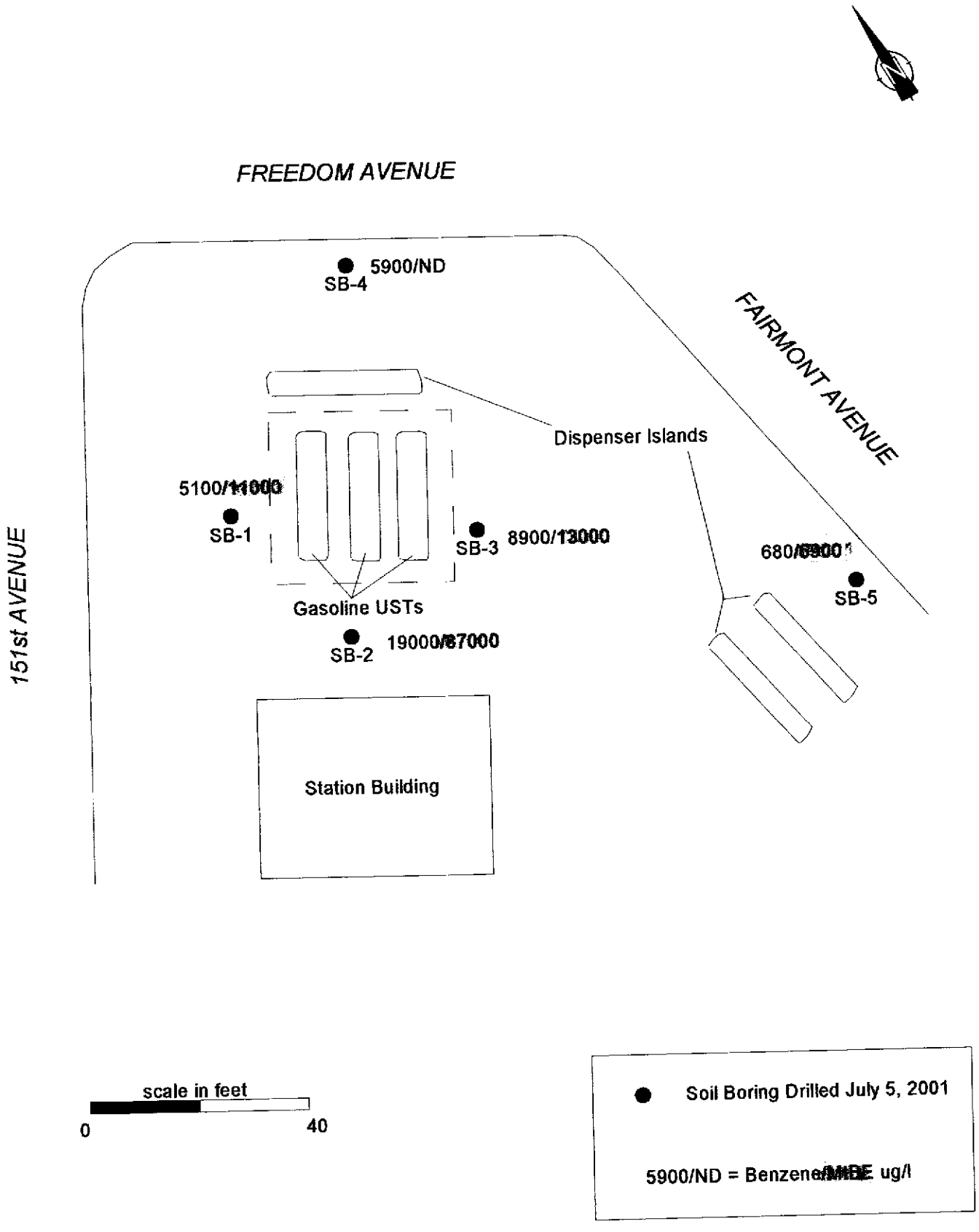


Figure -2 Boring Locations and Groundwater Benzene & MtBE Concentrations

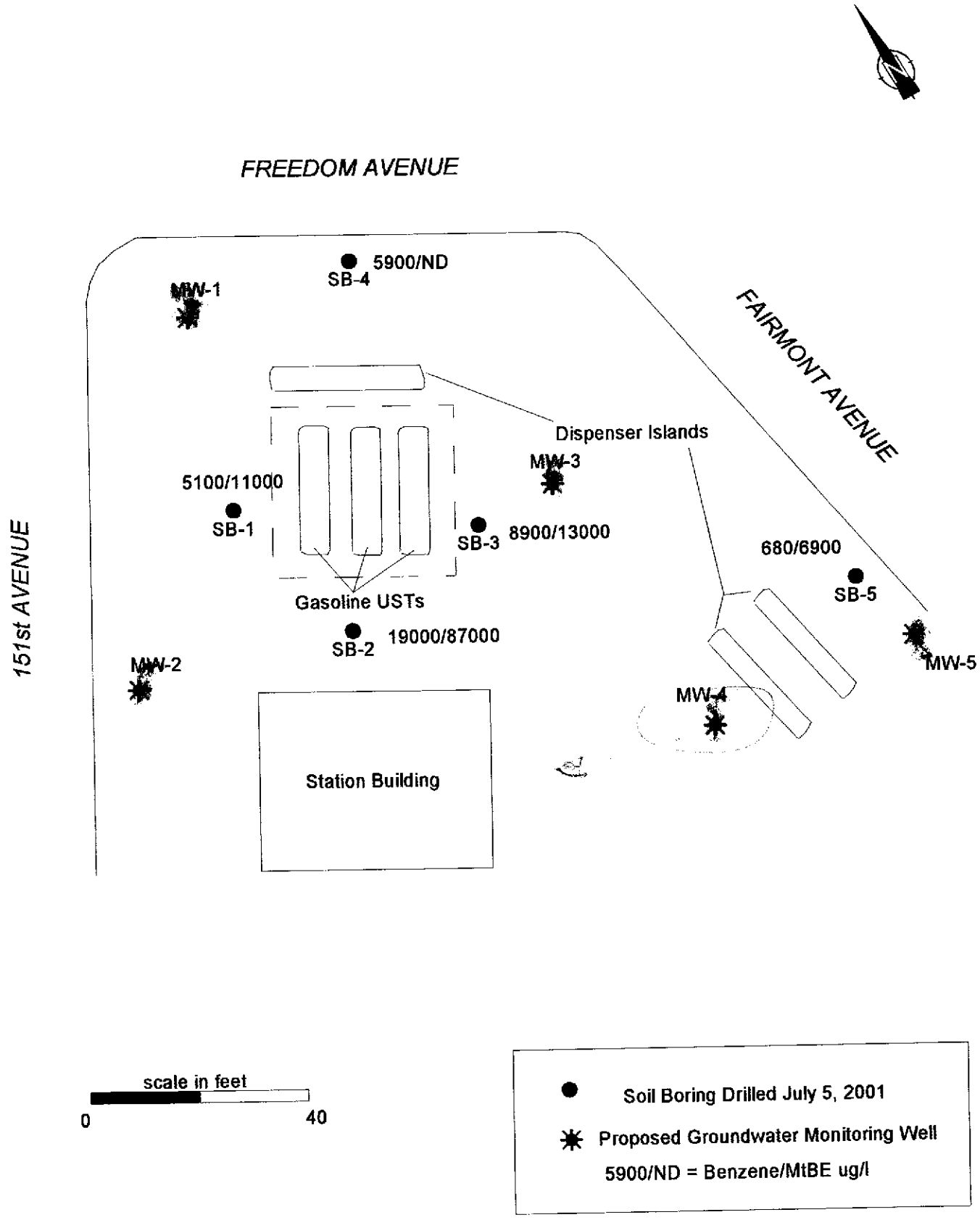
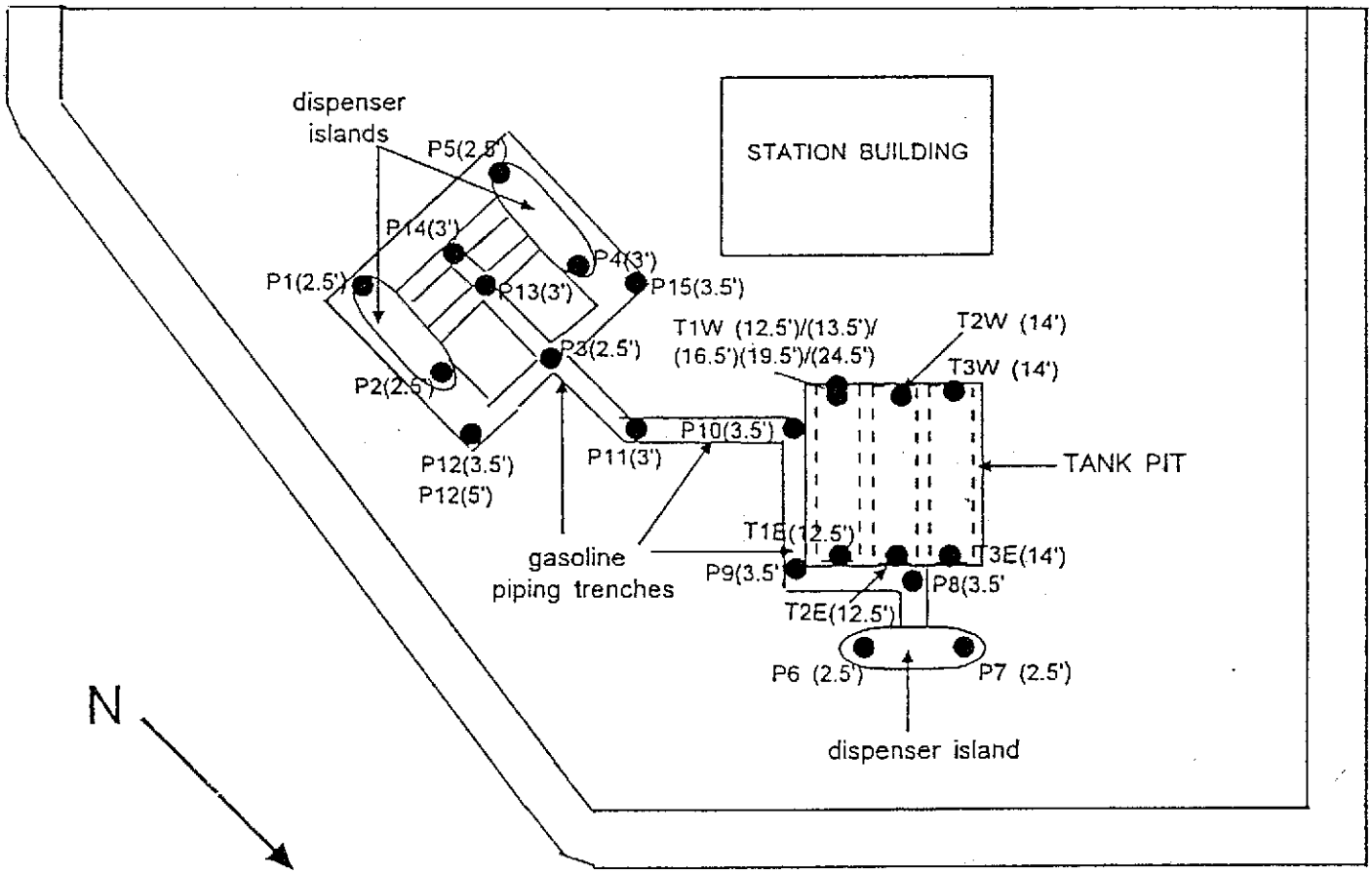


Figure -3 Proposed Groundwater Monitoing Well Location

APPENDIX A

Figure 1-A and Table –1

151st Street



Fairmount Blvd.

LEGEND

● Sample (depth)

Samples collected on May 20-21 and June 2, 1999

SCALE: 1" = 30'

ARCO STATION 15101 FREEDOM BLVD. SAN LEANDRO, CALIFORNIA	Figure No: 1-A	Date: June 11, 1999 Drawn By: JG/Geo-Logic

Sample Location Map

TABLE 1-A SUMMARY OF LABORATORY ANALYSES - SOIL

Sample/depth	TPH Gas	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE
(Collected on May 20 and May 21, 1999)						
T1W (12.5')	1,700	11	13	22	19	0.22
T1W (13.5')	3,900	28	34	34	41	0.71/0.58
T1E (12.5')	2,000	15	12	19	20	0.28
T2W (14')	1,300	7.7	6.5	10	13	0.14
T2E (12.5')	1,800	20	17	23	26	0.19
T3W (14')	990	5.9	5.7	6.4	6.8	<0.005
T3E (14')	960	5.0	4.3	5.2	5.1	<0.005
P1 (2.5)	5.2	0.015	0.009	0.019	0.021	0.009
P2 (2.5')	1.4	<0.005	<0.005	0.011	0.020	<0.005
P3 (2.5')	0.76	<0.005	<0.005	<0.005	0.017	<0.005
P4 (3')	0.88	<0.005	<0.005	0.010	0.019	<0.005
P5 (2.5')	1.1	<0.005	<0.005	0.016	0.023	<0.005
P6 (2.5')	0.90	<0.005	<0.005	0.022	0.018	<0.005
P7 (2.5')	11	0.037	0.018	0.042	0.044	0.020/0.031
P8 (3.5)	6.1	0.041	0.040	0.052	0.062	0.011
P9 (3.5')	13	0.090	0.077	0.094	0.12	0.052
P10 (3.5')	7.2	0.038	0.044	0.061	0.058	<0.005
P11 (3')	48	0.42	0.27	0.38	0.56	0.28
P12 (3.5')	370	2.6	1.4	3.0	2.9	0.93/0.70
P13 (3')	20	0.14	0.096	0.15	0.22	0.17
P14 (3')	2.9	<0.005	<0.005	0.017	0.030	<0.005
P15 (3.5')	13	0.079	0.049	0.099	0.16	0.066
Comp S1*	5.7	0.036	0.029	0.037	0.048	<0.005
(Collected on June 2, 1999)						
T1W (16.5')	390	1.0	0.73	1.1	1.7	0.089
T1W (19.5')	340	1.1	0.66	0.84	1.3	0.12
T1W (24.5')	4,000	12	9.7	12	15	0.78/0.55
P12 (5')	110	0.26	0.15	0.23	0.33	0.026
Det. Limit/ Method Blank	<0.1	<0.005	<0.005	<0.005	<0.005	<0.005

Total lead was detected at a concentration of 42 mg/kg.
The concentrations of MTBE detected by EPA Method 8020 in T1W(13.5'), T1W(24.5'), P7(2.5'), and P12(3.5') were confirmed by EPA Method 8260.

Results are in milligrams per kilogram (mg/kg).