AKRF Engineering, P.C.

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October 31, 2011

Ms. Lee Guterman
Deputy Director, IEH Division
New York City School Construction Authority
30-30 Thomson Avenue
Long Island City, New York 11101

Re: 32-01 57th Street, Queens, NY
Phase II Environmental Site Investigation Summary
LLW No. 072144; SCA Job No. Q30B-39464

Dear Ms. Guterman:

AKRF Engineering, P.C. (AKRF) recently completed field work for a Phase II Environmental Site Investigation (ESI) of the property located at 32-01 57th Street in Queens, New York, legally defined as New York City Tax Block 1159, Lots 1 and 4 (hereafter referred to as the "Site"). The Site is approximately 22,500 square feet (SF) in area and includes a one-story brick and concrete warehouse building with a basement and adjacent parking lot on Lot 1, and an undeveloped area on Lot 14. The Phase II ESI was intended to determine whether Recognized Environmental Conditions (RECs) identified during a July 2011 Phase I Environmental Site Assessment (ESA) had affected the suitability of the Site for construction of a public school facility.

The Phase II ESI field activities were completed between August 1 and August 29, 2011, and included the following:

- A geophysical survey of accessible areas of the Site to clear proposed boring locations for subsurface utilities and to verify the location of two closed-in-place underground storage tanks (USTs) identified during the Phase I ESA;
- Advancement of ten (10) soil borings at locations originally proposed in our July 22, 2011 scope of work, including four (4) borings within the on-site building (SB-1, SB-2, SB-3, and SB-10), and six (6) borings in the east-adjacent parking lot and grassy area (SB-4 through SB-9);
- Advancement of three (3) additional soil borings (SB-7-2D, SB-7-3D, and SB-7-4D) located east, north, and west of SB-7 to further investigate field evidence of contamination observed in SB-7;
- Installation of one (1) temporary groundwater sampling point (TW-5);
- Installation of seven (7) soil vapor sampling points (SV-1 through SV-5, SV-9, and SV-10); and
- Collection and laboratory analysis of 17 soil samples, one (1) groundwater sample, and seven (7) soil vapor samples.

The attached Figure 1 depicts the soil boring, temporary well, and soil vapor sampling point locations.

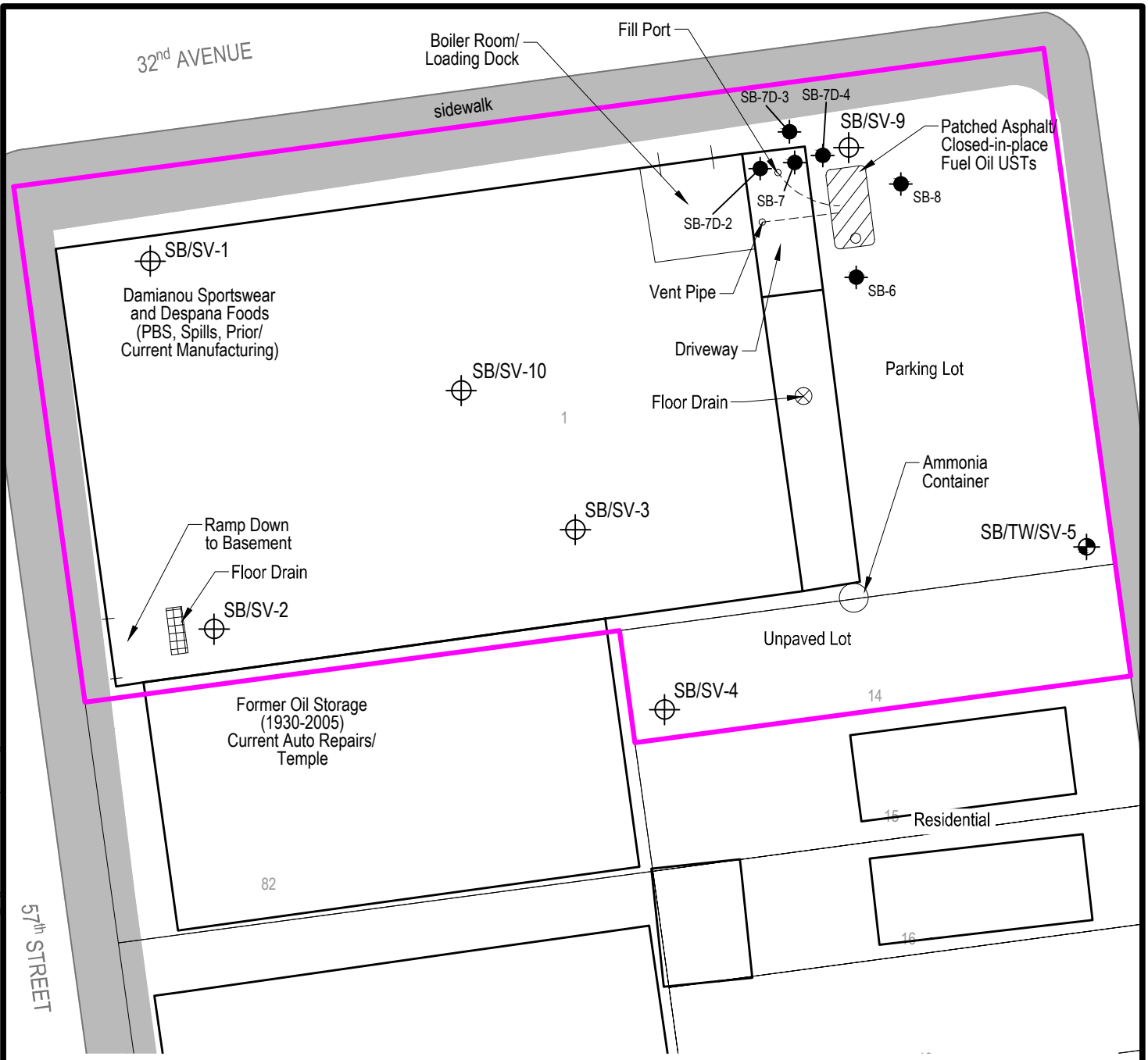
AKRF understands that the NYCSCA has decided not to acquire the property at this time, and will archive the due diligence documentation. Therefore, we have attached the following documentation from the Phase II ESI for the archive files:

- Attachment A: Photographic Log
- Attachment B: Geophysical Survey Report
- Attachment C: Soil Boring Logs
- Attachment D: Soil Vapor Sampling Logs
- Attachment E: Laboratory Data Reports

Please call me at 914-922-2362 or email rkinal@akrf.com if you have any questions or require additional information.

Sincerely,

Rebecca A. Kinal, P.E.
Sr. Technical Director



0' 20' 40' 80'

SCALE IN FEET

LEGEND:

- PROJECT SITE BOUNDARY
- SB-8 — SOIL BORING
- SB/TW/SV-3 — SOIL BORING/TEMPORARY WELL/SOIL VAPOR POINT
- SB/SV-10 — SOIL BORING/SOIL VAPOR POINT
- 8 — TAX LOT NUMBER
- UST — UNDERGROUND STORAGE TANK

Source:
NYCDCP (NYC Dept. of City Planning) GIS database

32-01 57th Street

QUEENS, NEW YORK

SAMPLING LOCATIONS

AKRF

Environmental Consultants

440 Park Avenue South, New York, N.Y. 10016

DATE 10.28.2011

PROJECT No. 82264

SCALE as shown

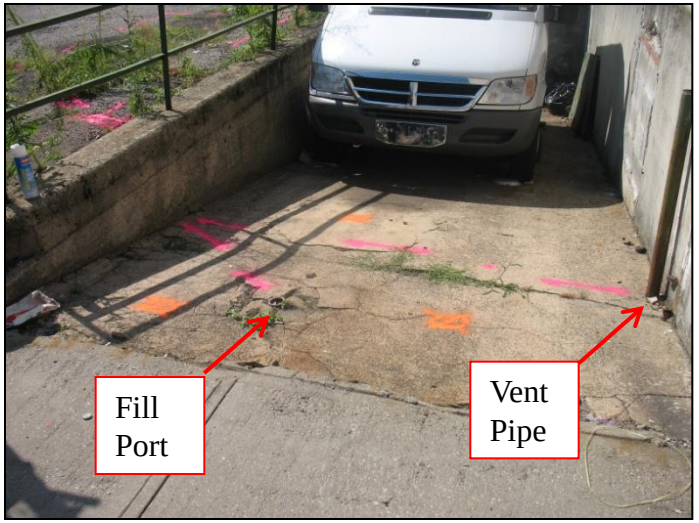
FIGURE 1

© 2011 AKRF, Inc. Environmental Consultants M:\AKRF Project Files\82264 - 32-01 57th Street\APPENDICES\82264 Fig 1 PH II SOW site plan.dwg

Attachment A

Photographic Log

Photograph 1: Underground storage tank locations as identified during geophysical survey (in pink spray paint).



Photograph 2: Fill port/pipe with vent pipe (in pink spray paint) as identified during geophysical survey.

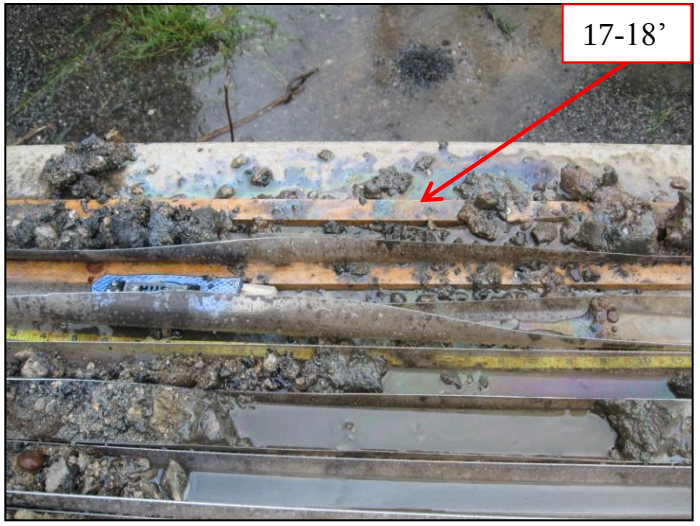
Photograph 3: Geoprobe drill rig advancing SB-5.

Photograph 4: Soil vapor point installation at SV-9.

Photograph 5: Silt and sand observed in SB-5. Typical in borings throughout project site.

Photograph 6: Soil Boring SB-7 (5-6').

Photograph 7: Soil Boring SB-7 (5-6') – empty liner with suspect petroleum contamination.



Photograph 8: Soil Boring SB-7D (17-18') with suspect petroleum contamination in sample material and sheen on water.

Photograph 9: Soil vapor point at SV-10.

Photograph 10: Soil vapor sample summa canister.

Attachment B

Geophysical Survey Report

ENVIROPROBE SERVICE INCORPORATED

GEOPHYSICAL INVESTIGATION REPORT

PERFORMED AT:

32-01 57th Street
Queens, NY

PREPARED FOR:

Liz Baird
AKRF
440 Park Avenue South
New York, NY 10016

PREPARED BY:

Matt Heaney
Geophysicist
Enviroprobe Service, Inc.
908 N Lenola Road
Moorestown, NJ 08057
(856) 858-8584
(800) 596-7472

August 11, 2011

1.0 INTRODUCTION

Enviroprobe Service, Inc. (Enviroprobe) is an environmental investigation services firm which provides monitoring well installation (HSA), Geoprobe (DPT) drilling services and Environmental & Engineering Geophysics (EEG) services to the environmental consulting and engineering community.

Enviroprobe conducted a subsurface geophysical investigation at the subject property within client-specified areas of concern. Due to conditions and objectives, the investigation utilized a Sensors and Software N250Plus cart-mounted Ground Penetrating Radar (GPR) unit with a 250 MHz antenna, a Radiodetection 4000T3 multi-frequency transmitter, a Radiodetection 4000 receiver, and a Fisher TW-6 metallic locator.

Ground penetrating radar (commonly called GPR) is a geophysical method that has been developed over the past thirty years for shallow, high-resolution, subsurface investigations of the earth. GPR uses high frequency pulsed electromagnetic waves (generally 10 MHz to 2,000 MHz) to acquire subsurface information. An EM wave is propagated downward into the ground by a transmitting antenna. Where abrupt changes in electrical properties occur in the subsurface, a portion of the energy is reflected back to the surface. This reflected wave is detected by a receiver antenna and transmitted to a control unit for real time processing and display. The penetration depth of the N250Plus unit varies from several inches to tens of feet according to site-specific conditions. The penetration depth decreases with increased soil conductivity. The penetration depth is the greatest in ice, dry sands, and fine gravels. Clayey, highly saline or saturated soils, areas covered by concrete, foundry slag, or other highly conductive materials greatly reduce GPR penetration. GPR is a method that is commonly used for environmental, engineering, archaeological, and other shallow investigations.

The Radiodetection (RD) transmitter and receiver are commonly used for pipe and cable locating. The multi-frequency transmitter can be directly connected, clamped, or used to induce a signal in a target line while the multi-frequency receiver is used to measure the signal from energized lines.

The Fisher TW-6 metallic locator is designed to find pipes, cables and other metallic objects such as underground storage tanks (USTs). The TW-6 transmitter generates an electromagnetic field that induces electrical currents in the subsurface. These currents produce a secondary electromagnetic field that is measured by the TW-6 receiver. One surveyor can carry both the transmitter and receiver together to search for underground metallic objects, although the TW-6 response can also be affected by the electrical properties of non-metallic materials in the subsurface.

2.0 SCOPE OF WORK

On August 1, 2011, a geophysicist from Enviroprobe Service Inc. was mobilized to the subject property to perform a geophysical investigation. The purpose of this investigation was to detect possible USTs, designate underground conduits/utilities, and investigate proposed boring locations within client-specified portions of the subject property. The survey included the parking lot of a commercial building and portions of the interior basement level. The ground surface of the survey area consisted of paved, concrete, and landscaped surfaces.

3.0 SURVEY RESULTS

The survey was conducted using a cart-mounted GPR unit, a Fisher TW-6 metallic locator, and a RD unit. The RD unit was used to trace common utilities from sources in and around the survey area. The RD receiver was also used in the passive mode to search for live underground electrical power cables and other utilities emitting 60Hz electromagnetic signals. When possible, the locations of utilities were confirmed with the GPR. Whenever possible and necessary, the manhole covers in and around the survey area were opened and the manholes were visually inspected for underground utilities. A GPR survey was also performed in a grid pattern in at least two orthogonal directions to search for underground utilities. Designated utilities were marked on-site with spray paint using the following colors; green – drain lines and pink – vent, fill, and unknown utility lines.

The GPR and TW-6 were used in a grid pattern over all client-specified areas of the property. Based on the results of the GPR and TW-6 surveys, a metallic anomaly consistent with an UST was identified [Figure 1]. This rectangular anomaly measured approximately 5 ft by 15 ft and was located at a depth of approximately 3-4 ft. The approximate extent of this anomaly was designated on-site with pink spray paint.

Proposed boring locations were investigated with the GPR, TW-6, and RD receiver. When possible, an area of approximately 10 ft by 10 ft surrounding each boring location was scanned. In some cases, obstructions prevented an investigation of the entire 10 ft by 10 ft area. All designated anomalies were marked on-site with spray paint.

4.0 LIMITATIONS

The client-selected areas of the property contained obstructions including fence lines, parked vehicles, pallets, and miscellaneous debris. These objects prevented a thorough investigation of the spaces beneath and immediately adjacent to them.

Due to surface conditions and subsurface content, the GPR signal penetration was estimated at 4 feet in the majority of the survey area. This penetration was reduced in areas of concrete cover.

The TW-6 survey was kept up to 6 feet away from aboveground objects containing metals depending on the sizes, shapes and positions of the metal objects. The TW-6 survey was not effective in areas with reinforced concrete.

Due to the dielectric properties of the subsurface, plastic polymer and fiberglass utilities may not have been detected.

All field services were conducted in compliance with the industry standard of care guidelines found in ASCE 38-02 (Level B).

5.0 WARRANTIES

The field observations and measurements reported herein are considered sufficient in detail and scope for this project. Enviroprobe Service, Inc. warrants that the findings and conclusions contained herein have been promulgated in accordance with generally accepted environmental engineering methods. There is a possibility that conditions may exist which could not be identified within the scope of this project and were not apparent during the site activities performed for this project.

Enviroprobe represents that the services were performed in a manner consistent with that level of care and skill ordinarily exercised by environmental consultants under similar circumstances. No other representations to Client, express or implied, and no warranty or guarantee is included or intended in this agreement, or in any report, document, or otherwise.

Enviroprobe Service, Inc. believes that the information provided in this report is reliable. However, Enviroprobe cannot warrant or guarantee that the information provided by others is complete or accurate. No other warranties or guarantees are implied or expressed.

GPR data is subject to signal anomalies and operator interpretation. The GPR data is intended to provide the locations of areas of concern requiring additional investigation or the approximate location of underground structures and utilities. Great care must be utilized when excavating and/or drilling around underground structures and utilities since GPR data can only be used for estimation purposes and GPR data is subject to misinterpretation. Enviroprobe can not guarantee that utilities, post-tension cables, and/or rebar will not be incurred during drilling, cutting, coring, or excavating activities.

This report was prepared pursuant to the contract Enviroprobe has with the Client. That contractual relationship included an exchange of information about the property that was unique and between Enviroprobe and its client and serves as the basis upon which this report was prepared. Because of the importance of the communication between Enviroprobe and its client, reliance or any use of this report by anyone other than the Client, for whom it was prepared, is prohibited and therefore not foreseeable to Enviroprobe.

Reliance or use by any such third party without explicit authorization in the report does not make said third party a third party beneficiary to Enviroprobe contract with the Client. Any such unauthorized reliance on or use of this report, including any of its information or conclusions, will be at the third party's risk. For the same reasons, no warranties or representations, expressed or implied in this report, are made to any such third party.

Figure 1 – Metallic anomaly consistent with an UST designated with pink paint. Proposed boring locations are marked in orange.

Attachment C

Soil Boring Logs

SOIL BORING LOG

32-01 57th Street
AKRF Project Number: 82264

Boring No. **SB-1**
Sheet 1 of 1

AKRF
440 Park Avenue South, New York, NY 10016
Phone (212) 696-0670 Fax (212) 726-0942

Drilling Method: Geoprobe
Sampling Method: Macrocore
Driller : Zebra
Sampler: E. Baird

Drilling
Start Time 9:27 **Finish Time** 10:15
Date 8/26/2011
Weather: sunny, approx. 80 degrees F

Depth (feet)	Recovery (Inches)	Soil Type	Surface Condition: Concrete Slab	Odor	Moisture	PID	NAPL	Samples Collected for Lab Analysis
1 2 3 4	3		0-3": CONCRETE and GEOTEXTILE FABRIC.	ND	Dry	ND	ND	
5 6 7 8	48		Grey-brown SILT, some grey-brown Sand and fine Gravel.	ND	Dry	ND	ND	SB-1 (4-5')
9 10 11 12	48		Grey-brown SILT, some grey-brown Sand and fine Gravel (Cobble Fragments/Pulverized Cobble).	ND	Dry	ND	ND	
13 14 15 16	16		Grey-brown SILT, some grey-brown Sand and fine Gravel. Refusal at 13.5' below grade.	ND	Dry	ND	ND	

Notes:
Groundwater not enountered in boring. Soil sample SB-1 (4-5') collected at 09:44 to be analyzed for TCL/STARS VOCs, TCL/STARS SVOCs, select TAL metals, Pesticides, PCBs, DRO/GRO TPHs, Cyanide, and Hex. Chromium.

ND = Non-detect.

ppm = parts per million.

SOIL BORING LOG

32-01 57th Street

AKRF Project Number: 82264

Boring No. **SB-2**

Sheet 1 of 1

AKRF
440 Park Avenue South, New York, NY 10016
Phone (212) 696-0670 Fax (212) 726-0942

Drilling Method: Geoprobe
Sampling Method: Macrocore
Driller : Zebra
Sampler: E. Baird

Drilling
Start Time 12:00 **Finish Time** 12:55
Date 8/26/2011
Weather: sunny, approx. 80 degrees F

Depth (feet)	Recovery (Inches)	Soil Type	Surface Condition: Concrete Slab	Odor	Moisture	PID	NAPL	Samples Collected for Lab Analysis
1	23		0-6": CONCRETE and GEOTEXTILE FABRIC.	ND	Dry	ND	ND	SB-2 (1-2')
2			6-23": Brown SILT and brown fine to medium SAND, trace fine Gravel.	ND	Dry	ND	ND	
3								
4								
5	37		Grey-brown SILT and grey-brown SAND, some fine Gravel.	ND	Dry	ND	ND	
6								
7								
8								
9	48		Red-brown SILT and red-brown SAND, some fine Gravel.	ND	Dry	ND	ND	
10								
11								
12								
13	48		Grey-brown SAND and grey-brown SILT, some fine Gravel.	ND	Dry	ND	ND	
14								
15								
16								
17	48		Grey-brown SAND and grey-brown SILT, some fine Gravel.	ND	Dry	ND	ND	
18								
19								
20			Refusal at 20' below grade.					

Notes:
Groundwater not encountered in boring. Refusal at 20' below grade. Soil sample SB-2 (1-2') collected at 12:14 to be analyzed for TCL/STARS VOCs and SVOCs, select TAL metals, Pesticides, PCBs, GRO/DRO, Cyanide and Hex. Chromium.

ND = Non-detect.

ppm = parts per million.

SOIL BORING LOG

32-01 57th Street

AKRF Project Number: 82264

Boring No. **SB-3**

Sheet 1 of 1

AKRF
440 Park Avenue South, New York, NY 10016
Phone (212) 696-0670 Fax (212) 726-0942

Drilling Method: Geoprobe
Sampling Method: Macrocore
Driller : Zebra
Sampler: E. Baird

Drilling
Start Time 12:30
Finish Time 14:30
Date 8/25/2011
Weather: rain, approx. 80 degrees F

Depth (feet)	Recovery (Inches)	Blows	Surface Condition: Concrete Slab	Odor	Moisture	PID	NAPL	Samples Collected for Lab Analysis
1	39		0-6": CONCRETE and GEOTEXTILE FABRIC.	ND	Dry	ND	ND	SB-3 (1-2')
2			6-23": Brown SILT, some brown Sand, little fine Gravel.	ND	Dry	ND	ND	
3			23-36": Brown SILT, little brown fine Sand.	ND	Dry	ND	ND	
4			36-39": Yellow-brown fine SAND.	ND	Dry	ND	ND	
5	48		Brown SILT and yellow-brown SAND, little fine Gravel.	ND	Dry	ND	ND	
6								
7								
8								
9	48		Brown SILT and yellow-brown SAND, little fine Gravel.	ND	Dry	ND	ND	
10								
11								
12								
13	48		0-46": Brown SILT and yellow-brown SAND, little fine Gravel.	ND	Dry	ND	ND	
14			46-48": Fine GRAVEL (Pulverized Cobble).	ND	Dry	ND	ND	
15								
16								
17	48		Brown SILT and yellow-brown SAND, some fine Gravel.	ND	Dry	ND	ND	
18								
19								
20								

Notes:
Boring advanced to 37' below grade with no sampling to attempt to reach groundwater. Refusal at 37' below grade. Groundwater not encountered in boring. Soil sample SB-3 (1-2') collected at 12:47 to be analyzed for TCL/STARS VOCs and SVOCs and select TAL metals.
ND = Non-detect
ppm = parts per million.

SOIL BORING LOG

32-01 57th Street
AKRF Project Number: 82264

Boring No. **SB-4**
Sheet 1 of 1

AKRF
440 Park Avenue South, New York, NY 10016
Phone (212) 696-0670 Fax (212) 726-0942

Drilling Method: Geoprobe
Sampling Method: Macrocore
Driller : Zebra
Sampler: E. Baird

Drilling
Start Time 9:00 **Finish Time** 10:52
Date 8/24/2011
Weather: sunny, approx. 80 degrees F

Depth (feet)	Recovery (inches)	Soil Type	Surface Condition: Topsoil	Odor	Moisture	PID	NAPL	Samples Collected for Lab Analysis
1	36		0-6": Brown SILT and ORGANICS (roots, vegetation), some Glass Fragments [TOPSOIL].	ND	Moist	ND	ND	
2			6-36": Brown SILT, some fine Gravel, trace brown fine Sand.	ND	Moist	ND	ND	
3								SB-4 (3-4')
4								
5								
6	13		White and brown SAND and brown SILT, some fine Gravel.	ND	Moist	ND	ND	
7								
8								
9								
10								
11	44		0-24": White and brown SILT, some white-brown Sand, some fine Gravel.	ND	Moist	ND	ND	
12			24-44": White and brown SAND, some fine Gravel, little brown Silt.	ND	Moist	ND	ND	
13								
14								
15								
16	60		0-43": Yellow-brown SILT, some yellow-brown Sand and fine Gravel.	ND	Moist	ND	ND	
17			43-60": Fine GRAVEL, little yellow-brown Sand and Silt.	ND	Moist	ND	ND	
18								
19								
20								
21	39		White and brown SAND and brown SILT, some fine Gravel, trace Organics (roots).	ND	Moist	ND	ND	
22								
23								
24								
25								
26	48		Fine GRAVEL, some white and brown Sand and brown Silt.	ND	Moist	ND	ND	
27								
28								
29			Refusal at 29' below grade.					
30								

Notes:
Groundwater not encountered in boring. Soil sample SB-4 (3-4') was collected at 09:24 to be analyzed for TCL/STARS VOCs and SVOCs and select TAL metals.

ND = Non-detect.
ppm = parts per million.

SOIL BORING LOG

32-01 57th Street
AKRF Project Number: 82264

Boring No. **SB-5**
Sheet 1 of 1

AKRF
440 Park Avenue South, New York, NY 10016
Phone (212) 696-0670 Fax (212) 726-0942

Drilling Method: Geoprobe
Sampling Method: Macrocore
Driller : Zebra
Sampler: E. Baird

Drilling
Start Time 9:00 **Finish Time** 10:52
Date 8/24/2011
Weather: sunny, approximately 80 degrees F

Depth (feet)	Recovery (Inches)	Soil Type	Surface Condition: Asphalt	Odor	Moisture	PID	NAPL	Samples Collected for Lab Analysis
1	36		0-7": ASPHALT.	ND	Dry	ND	ND	SB-5 (1-2')
2			7-9": WOOD [TREE ROOT].	ND	Moist	ND	ND	
3			9-27": Brown SILT, little fine Gravel, trace brown Sand and Organics (roots).	ND	Moist	ND	ND	
4								
5								
6	17		0-4": Brown SILT and ASPHALT (SLOUGH).	ND	Dry	ND	ND	
7			4-17": Red-brown SILT, some fine Gravel, little white and brown Sand.	ND	Dry	ND	ND	
8								
9								
10								
11	60		0-11": Brown SILT, some fine Gravel, little white and brown Sand.	ND	Dry	ND	ND	
12			11-42": Red-brown SAND.	ND	Moist	ND	ND	
13			42-55": Brown SILT, little fine Gravel, trace white-brown fine to medium Sand.	ND	Moist	ND	ND	
14			55-60": White-brown fine to medium SAND.	ND	Moist	ND	ND	
15								
16	60		Yellow-brown SAND, some brown Silt and fine Gravel.	ND	Dry Moist at 24-34"	ND	ND	
17								
18								
19								
20								
21	51		Yellow-brown SAND, some fine Gravel, little brown Silt.	ND	Dry	ND	ND	
22								
23								
24								
25								

Notes:
Boring advanced from 25 to groundwater at 38' below grade without continuous sampling. Soil sample SB-5 (1-2') was collected at 11:46 to be analyzed for TCL/STARS VOCs and SVOCs and select TAL metals.
ND = Non-detect.
ppm = parts per million.

SOIL BORING LOG

32-01 57th Street
AKRF Project Number: 82264

Boring No. **SB-6**
Sheet 1 of 1

AKRF
440 Park Avenue South, New York, NY 10016
Phone (212) 696-0670 Fax (212) 726-0942

Drilling Method: Geoprobe
Sampling Method: Macrocore
Driller : Zebra
Sampler: E. Baird

Drilling
Start Time 15:20 **Finish Time** 15:40
Date 8/24/2011
Weather: sunny, approx. 85 degrees F

Depth (feet)	Recovery (Inches)	Soil Type	Surface Condition: Asphalt	Odor	Moisture	PID	NAPL	Samples Collected for Lab Analysis
1	34		0-9": ASPHALT.	ND	Dry	ND	ND	
2			9-34": Red-brown SILT, some yellow-brown Sand and fine Gravel.	ND	Moist	ND	ND	
3								
4								
5								
6	35		Red-brown SILT, some fine Gravel, trace yellow-brown Sand.	ND	Dry	ND	ND	SB-6 (5-6')
7								
8								
9								
10								
11	44		0-15": Yellow-brown fine to medium SAND.	ND	Dry	ND	ND	
12			15-44": Brown SILT, some fine Gravel and yellow-brown Sand.	ND	Moist	ND	ND	
13								
14								
15								
16	53		Red-brown SILT and yellow-brown SAND, some fine Gravel.	ND	Dry	ND	ND	
17								
18								
19								
20								

Notes:
Groundwater not encountered in boring. Soil sample SB-6 (5-6') was collected at 15:31 to be analyzed for TCL/STARS VOCs and SVOCs, select TAL metals, Pesticides, PCBs, Cyanide, GRO/DRO, and Hex. Chromium.
ND = Non-detect.
ppm = parts per million.

SOIL BORING LOG

32-01 57th Street

AKRF Project Number: 82264

Boring No. **SB-7**

Sheet 1 of 1

AKRF
440 Park Avenue South, New York, NY 10016
Phone (212) 696-0670 Fax (212) 726-0942

Drilling Method: Geoprobe
Sampling Method: Macrocore
Driller : Zebra
Sampler: E. Baird

Drilling
Start Time 9:00 **Finish Time** 10:52
Date 8/24/2011
Weather: rain, approx. 80 degrees F

Depth (feet)	Recovery (Inches)	Soil Type	Surface Condition: Concrete Driveway	Odor	Moisture	PID	NAPL	Samples Collected for Lab Analysis
1	25		0-4": CONCRETE.	ND	Dry	ND	ND	
2			4-25": Brown SILT, some brown fine to medium Sand, little fine Gravel, trace Brick Fragments (FILL).	ND	Dry	ND	ND	
3								
4								
5								
6	8		White-brown SAND and brown SILT, some fine Gravel.	Petro-like odor	Moist	157.1	Within Soil Matrix	SB-7 (5-6')
7			Refusal at 6' below grade. Boring relocated approximately 3' west of original location for a second attempt (SB-7D-2).					
8								
9								
10								

Notes:
Groundwater not encountered in boring. Refusal at 6' below grade. Soil sample SB-7 collected at 11:00 to be analyzed for TCL/CP-51 VOCs only (due to limited sample volume).

ND = Non-detect.
ppm = parts per million

SOIL BORING LOG

32-01 57th Street
AKRF Project Number: 82264

Boring No. **SB-7(D-2)**
Sheet 1 of 1

AKRF
440 Park Avenue South, New York, NY 10016
Phone (212) 696-0670 Fax (212) 726-0942

Drilling Method: Geoprobe
Sampling Method: Macrocore
Driller : Zebra
Sampler: E. Baird

Drilling
Start Time 11:10 **Finish Time** 15:00
Date 8/25/2011 8/26/2011
Weather: heavy rain, approx. 80 degrees F

Depth (feet)	Recovery (Inches)	Soil Type	Surface Condition: Concrete Driveway	Odor	Moisture	PID	NAPL	Samples Collected for Lab Analysis
1	20"		0-4": CONCRETE.	ND	Dry	ND	ND	
2			4-20": Brown SILT, some brown fine to medium Sand, little fine Gravel, trace Brick Fragments (FILL).	ND	Dry	ND	ND	
3								
4								
5								
6	24"		Fine GRAVEL, some brown Silt and brown Sand, little Asphalt (FILL).	ND	Dry	ND	ND	
7								
8								
9								
10								
11	48"		0-23": Fine GRAVEL, some Asphalt, little brown Silt, brown Sand, and Brick Fragments (FILL). Little staining.	Petro-like odor	Dry	173	Smear on liner	
12			23-48": Brown SILT, some brown Sand and fine Gravel.	ND	Dry	ND	ND	
13								
14								
15								
16	53"		0-15": Brown SILT, some brown Sand and fine Gravel.	ND	Dry	ND	ND	
17			15-29": Brown SILT and brown fine SAND, little fine Gravel (black staining).	Petro-like odor	Moist	197.3	NAPL w/in soil matrix	SB-7(17-18')
18			29-53": Brown SILT, some brown Sand and fine Gravel (Cobble Fragments). Silt more compact than previous material.	ND	Dry	ND	ND	SB-7(18-19')
19								
20								
21	58"		0-30": Brown SILT and fine GRAVEL, some brown coarse Sand (black staining).	Petro.-like odor	Moist	12.3	Smear on liner	
22			30-58": Brown SILT, some fine Gravel (Cobble Fragments), little brown Sand.	ND	Dry	ND	ND	
23								
24								SB-7D-2 (24-25')
25			Refusal at 25' below grade.					

Notes:
Groundwater not encountered in boring. Evidence of suspect petroleum contamination (staining, NAPL, elevated PID readings, and odor) observed 10-11' and 17-18' below grade. Soil sample collected at 17-18' to be analyzed for TCL/STARS VOCs and SVOCs, select TAL metals, PCBs, Pests, Hexavalent Chromium, Cyanide, and DRO/GRO. SB-7 (18-19') to be analyzed for TCL/STARS VOCs and SVOCs and select TAL metals. SB-7D-2 (24-25') to be analyzed for TCL/STARS VOCs and SVOCs and select TAL metals.

ND = Non-detect.
ppm = parts per million

SOIL BORING LOG

32-01 57th Street

AKRF Project Number: 82264

Boring No. **SB-7(D-3)**

Sheet 1 of 1

AKRF
440 Park Avenue South, New York, NY 10016
Phone (212) 696-0670 Fax (212) 726-0942

Drilling Method: Geoprobe
Sampling Method: Macrocore
Driller : Zebra
Sampler: E. Baird

Drilling
Start Time 15:40 **Finish Time** 16:00
Date 8/26/2011
Weather: sunny, approx. 85 degrees F

Depth (feet)	Recovery (Inches)	Soil Type	Surface Condition: Topsoil	Odor	Moisture	PID	NAPL	Samples Collected for Lab Analysis
1	27		0-4": Brown SILT and Organics (TOPSOIL).	ND	Dry	ND	ND	
2			4-22": Brown SILT, some fine Gravel, little brown fine Sand.	ND	Dry	ND	ND	
3			22-27": Fine GRAVEL (Cobble Fragments).	ND	Dry	ND	ND	
4								
5								
6	47		Brown SILT, some fine Gravel (Cobble Fragments), little brown Sand.	ND	Dry	ND	ND	
7								
8								
9								
10								
11	48		0-3": Brown SILT, some fine Gravel, little brown Sand (SLOUGH.)	ND	Dry	ND	ND	
12			3-5": Fine GRAVEL (Cobble Fragments).	ND	Dry	ND	ND	
13			5-14": Brown SILT.	ND	Dry	ND	ND	
14			14-48": Brown SILT, some fine Gravel, little grey-brown Sand.	ND	Dry	ND	ND	
15								
16	48		Grey-brown SILT, some fine Gravel (Cobble Fragments/Pulverized Cobble).	ND	Dry	ND	ND	
17								
18								
19								SB-7D-3 (19-20')
20			Refusal at 20.5' below grade.					

Notes:
Groundwater not encountered in boring. Refusal at 20.5' below grade. Soil sample SB-7D-3 (19-20') collected at 15:34 to be analyzed for TCL/STARS VOCs and SVOCs and select TAL metals.
ND = Non-detect.
ppm = parts per million

SOIL BORING LOG

32-01 57th Street

AKRF Project Number: 82264

Boring No. **SB-7(D-4)**

Sheet 1 of 1

AKRF
440 Park Avenue South, New York, NY 10016
Phone (212) 696-0670 Fax (212) 726-0942

Drilling Method: Geoprobe
Sampling Method: Macrocore
Driller : Zebra
Sampler: E. Baird

Drilling
Start Time 16:00 **Finish Time** 16:40
Date 8/26/2011
Weather: sunny, approx. 85 degrees F

Depth (feet)	Recovery (Inches)	Soil Type	Surface Condition: Asphalt	Odor	Moisture	PID	NAPL	Samples Collected for Lab Analysis
1	20		0-5": ASPHALT.	ND	Dry	ND	ND	
2			5-20": Brown SILT, some fine Gravel, little brown Sand.	ND	Dry	ND	ND	
3								
4								
5								
6	18		0-3": SLOUGH.	ND	Dry	ND	ND	
7			3-18": ASPHALT, some brown Silt, little brown Sand, trace fine Gravel.	ND	Dry	ND	ND	
8								
9								
10								
11	32		0-5": Brown SILT and fine GRAVEL, little brown Sand.	ND	Moist	ND	ND	
12			5-12": Brown SILT, little brown Sand and fine Gravel.	ND	Moist	ND	ND	
13			12-15": Fine GRAVEL (Cobble Fragments).	ND	Moist	ND	ND	
14			15-32": Brown SILT, little brown Sand and fine Gravel.	ND	Moist	ND	ND	
15								
16	48		0-6": SLOUGH.	ND	Moist	ND	ND	
17			6-48': Brown SILT, little brown Sand and fine Gravel.	ND	Moist	ND	ND	
18								SB-7D-4 (18-19')
19			Refusal at 19.5' below grade.					
20								

Notes:
Groundwater not encountered in boring. Refusal at 19.5' below grade. Soil sample SB-7D-4 (19-20') collected at 16:41 to be analyzed for TCL/STARS VOCs and SVOCs and select TAL metals.
ND = Non-detect.
ppm = parts per million

SOIL BORING LOG

32-01 57th Street

AKRF Project Number: 82264

Boring No. **SB-8**

Sheet 1 of 1

AKRF
440 Park Avenue South, New York, NY 10016
Phone (212) 696-0670 Fax (212) 726-0942

Drilling Method: Geoprobe
Sampling Method: Macrocore
Driller : Zebra
Sampler: E. Baird

Drilling
Start Time 15:40 **Finish Time** 16:15
Date 8/24/2011
Weather: sunny, approx. 85 degrees F

Depth (feet)	Recovery (Inches)	Soil Type	Surface Condition: Asphalt	Odor	Moisture	PID	NAPL	Samples Collected for Lab Analysis
1	39		0-6": ASPHALT.	ND	Dry	ND	ND	
2			6-39": Brown SILT, some fine gravel, little brown Sand.	ND	Dry	ND	ND	
3								SB-8 (3-4')
4								
5								
6	17		Brown SILT and fine GRAVEL, little brown Sand.	ND	Dry	ND	ND	
7								
8								
9								
10								
11	23		Brown SILT, some fine Gravel, trace brown Sand.	ND	Dry	ND	ND	
12								
13								
14								
15								
16	40		0-36": Brown SILT, some fine Gravel, trace brown Sand.	ND	Dry	ND	ND	
17			36-40": Fine GRAVEL (Cobble Fragments).	ND	Dry	ND	ND	
18								
19								
20								

Notes:
Groundwater not encountered in boring. Soil sample SB-8 (3-4') was collected at 16:41 to be analyzed for TCL/STARS VOCs and SVOCs.

ND = Non-detect.
ppm = parts per million.

SOIL BORING LOG

32-01 57th Street
AKRF Project Number: 82264

Boring No. **SB-9**
Sheet 1 of 1

AKRF
440 Park Avenue South, New York, NY 10016
Phone (212) 696-0670 Fax (212) 726-0942

Drilling Method: Geoprobe
Sampling Method: Macrocore
Driller : Zebra
Sampler: E. Baird

Drilling
Start Time 8:40 **Finish Time** 10:45
Date 8/25/2011
Weather: overcast, 80 degrees F

Depth (feet)	Recovery (Inches)	Soil Type	Surface Condition: Asphalt	Odor	Moisture	PID	NAPL	Samples Collected for Lab Analysis
1	36		0-5": ASPHALT.	ND	Dry	ND	ND	
2			5-36": Red-brown SILT, some yellow-brown Sand and fine Gravel (Cobble Fragments), trace Brick Fragments (FILL).	ND	Dry	ND	ND	SB-9 (2-3')
3								
4								
5								
6	36		0-5": SLOUGH.	ND	Dry	ND	ND	
7			5-36": White-brown SILT and brown SAND, some fine Gravel.	ND	Dry	ND	ND	
8								
9								
10								
11	48		0-3": SLOUGH.	ND	Dry	ND	ND	
12			3-17": White-brown SILT and brown SAND, some fine Gravel.	ND	Dry	ND	ND	
13			17-25": Brown fine SAND.	ND	Moist	ND	ND	
14			25-48": Brown SILT and red-brown SAND.	ND	Dry	ND	ND	
15								
16	49		Brown SILT, some red-brown Sand, some fine Gravel.	ND	Dry	ND	ND	
17								
18								
19								
20			Refusal at 20' below grade.					

Notes:
Groundwater not encountered in boring. Soil sample SB-9 (2-3') was collected at 9:13 to be analyzed for TCL/STARS VOCs and SVOCs, select TAL metals, Pesticides, PCBs, Cyanide, GRO/DRO, and Hex. Chromium.
ND = Non-detect.
ppm = parts per million.

SOIL BORING LOG

32-01 57th Street
AKRF Project Number: 82264

Boring No. **SB-10**
Sheet 1 of 1

AKRF
440 Park Avenue South, New York, NY 10016
Phone (212) 696-0670 Fax (212) 726-0942

Drilling Method: Geoprobe
Sampling Method: Macrocore
Driller : Zebra
Sampler: E. Baird

Drilling
Start Time 15:00 **Finish Time** 16:44
Date 8/25/2011
Weather: rain, approx. 80 degrees F

Depth (feet)	Recovery (Inches)	Blows	Surface Condition: Concrete Slab	Odor	Moisture	PID	NAPL	Samples Collected for Lab Analysis
1	27		0-6": CONCRETE and GEOTECH. FABRIC.	ND	Dry	ND	ND	
2			6-27": White-brown fine SAND, some brown Silt, little fine Gravel.	ND	Dry	ND	ND	SB-10 (2-3')
3								
4								
5	39		Brown SAND and brown SILT, some fine Gravel (Cobble Fragments).	ND	Dry	ND	ND	
6								
7								
8								
9	48		Brown SAND and brown SILT, some fine Gravel (Cobble Fragments).	ND	Dry	ND	ND	
10								
11								
12								
13	27		Gray-brown SILT, some fine Gravel, little gray-brown Sand.	ND	Dry	ND	ND	
14								
15								
16								
17	39		Gray-brown SILT, some fine Gravel and gray-brown Sand.	ND	Dry	ND	ND	
18								
19								
20								

Notes:
Groundwater not encountered in boring. Soil sample SB-10 (2-3') at 15:42 to be analyzed for TCL/STARS VOCs and SVOCs and select TAL metals.

ND = Non-detect
ppm = parts per million.

Attachment D

Soil Vapor Sampling Logs

AKRF, Inc.
Environmental Consultants

Soil Vapor Sampling Log

Job No: 82264 **Client:** NYCSCA

Project Location: 32-01 57th Street **Sampled By:** E. Baird

Date: 08/29/2011

Sample ID: SV-1

Canister ID: 3374

Flow Controller ID: 3051

Purging

Time Started: 12:31

Time Stopped: 12:32

Vol. Purged: 0.5 liters

Flow Rate: 0.5 L/min

Laboratory Sample (Summa Canister)

Time Started: 13:30 **Vacuum:** -14 inHg

Time Stopped: 13:57 **Vacuum:** -2 inHg

Field Sample

PID Calibration: 101.2 ppm

Time Started: 12:00

Time Stopped: 12:02

PID Reading: 0 ppm

He Reading 0 %

AKRF, Inc.
Environmental Consultants

Soil Vapor Sampling Log

Job No:	82264	**Client:**	NYCSCA
Project Location:	32-01 57th Street	**Sampled By:**	E. Baird
Date:	08/29/2011		

Sample ID: SV-2

Canister ID: 4458

Flow Controller ID: 3991

Purging

Time Started: 13:02

Time Stopped: 13:03

Vol. Purged: 0.5 liters

Flow Rate: 0.25 L/min

Laboratory Sample (Summa Canister)

Time Started:	13:07	**Vacuum:**	-27 inHg
Time Stopped:	14:07	**Vacuum:**	-4.5 inHg

Field Sample

PID Calibration: 101.2 ppm

Time Started: 12:00

Time Stopped: 12:02

PID Reading: 0 ppm

He Reading 0 %

AKRF, Inc.
Environmental Consultants

Soil Vapor Sampling Log

Job No:	82264	**Client:**	NYCSCA
Project Location:	32-01 57th Street	**Sampled By:**	E. Baird
Date:	08/29/2011		

Sample ID: SV-3

Canister ID: 4007

Flow Controller ID: 4240

Purging

Time Started: 12:39

Time Stopped: 12:40

Vol. Purged: 0.5 liters

Flow Rate: 0.5 L/min

Laboratory Sample (Summa Canister)

Time Started:	13:15	**Vacuum:**	-27 inHg
Time Stopped:	14:15	**Vacuum:**	-4.5 inHg

Field Sample

PID Calibration: 101.2 ppm

Time Started: 12:00

Time Stopped: 12:02

PID Reading: 0 ppm

He Reading 0 %

AKRF, Inc.
Environmental Consultants

Soil Vapor Sampling Log

Job No:	82264	**Client:**	NYCSCA
Project Location:	32-01 57th Street	**Sampled By:**	E. Baird
Date:	08/29/2011		

Sample ID: SV-4

Canister ID: 4066

Flow Controller ID: 3126

Purging

Time Started: 12:04

Time Stopped: 12:06

Vol. Purged: 0.5 liters

Flow Rate: 0.25 L/min

Laboratory Sample (Summa Canister)

Time Started:	13:37	**Vacuum:**	-26 inHg
Time Stopped:	14:37	**Vacuum:**	-4 inHg

Field Sample

PID Calibration: 101.2 ppm

Time Started: 12:00

Time Stopped: 12:02

PID Reading: 0 ppm

He Reading 0 %

AKRF, Inc.
Environmental Consultants

Soil Vapor Sampling Log

Job No:	82264	**Client:**	NYCSCA
Project Location:	32-01 57th Street	**Sampled By:**	E. Baird
Date:	08/29/2011		

Sample ID: SV-5

Canister ID: 3313

Flow Controller ID: 3699

Purging

Time Started: 12:10

Time Stopped: 12:11

Vol. Purged: 0.5 liters

Flow Rate: 0.5 L/min

Laboratory Sample (Summa Canister)

Time Started:	13:44	**Vacuum:**	-24 inHg
Time Stopped:	14:40	**Vacuum:**	-2 inHg

Field Sample

PID Calibration: 101.2 ppm

Time Started: 12:00

Time Stopped: 12:02

PID Reading: 0 ppm

He Reading 0 %

AKRF, Inc.
Environmental Consultants

Soil Vapor Sampling Log

Job No: 82264 **Client:** NYCSCA

Project Location: 32-01 57th Street **Sampled By:** E. Baird

Date: 08/29/2011

Sample ID: SV-9

Canister ID: 5060

Flow Controller ID: 2774

Purging

Time Started: 12:16

Time Stopped: 12:17

Vol. Purged: 0.5 liters

Flow Rate: 0.5 L/min

Laboratory Sample (Summa Canister)

Time Started: 13:36 **Vacuum:** -30 inHg

Time Stopped: 14:36 **Vacuum:** -6 inHg

Field Sample

PID Calibration: 101.2 ppm

Time Started: 12:00

Time Stopped: 12:02

PID Reading: 0 ppm

He Reading 0 %

AKRF, Inc.
Environmental Consultants

Soil Vapor Sampling Log

Job No:	82264	**Client:**	NYCSCA
Project Location:	32-01 57th Street	**Sampled By:**	E. Baird
Date:	08/29/2011		

Sample ID: SV-10

Canister ID: 3423

Flow Controller ID: 3378

Purging

Time Started: 12:51

Time Stopped: 12:52

Vol. Purged: 0.5 liters

Flow Rate: 0.5 L/min

Laboratory Sample (Summa Canister)

Time Started:	13:19	**Vacuum:**	-29 inHg
Time Stopped:	14:19	**Vacuum:**	-6 inHg

Field Sample

PID Calibration: 101.2 ppm

Time Started: 12:00

Time Stopped: 12:02

PID Reading: 0 ppm

He Reading 0 %

Attachment E

Laboratory Data Report