



**SAMPLE REMEDIAL  
CORRECTIVE ACTION  
REPORT**

**COMMERCIAL PROPERTY  
123 ABC STREET  
ANYTOWN, NEW YORK 11111**

**PREPARED FOR:**

**NYSDEC, REGION 2  
DIVISION OF ENVIRONMENTAL REMEDIATION**

**AND**

**ACME CORPORATION, LLC  
345 ABC STREET  
ANY TOWN, NEW YORK 11111**

**PREPARED BY:**

**LAUREL ENVIRONMENTAL ASSOCIATES, LTD.  
53 WEST HILLS ROAD  
HUNTINGTON STATION, NEW YORK 11746**

**MONTH 00, 2010  
LEA PROJECT #10-000**

**LAUREL ENVIRONMENTAL ASSOCIATES, LTD.  
ENVIRONMENTAL CERTIFICATION**

**LEA Project No.**      **10-000**

**Report:**                      Sample Remedial Corrective Action Report

**Field Work Date:**      Month 00, 2010

**Report Date:**              Month 00, 2010

**Site:**                              123 ABC Street, Any Town, New York 11111  
Located on the north side of Any Street, east of Any Boulevard and west  
of Any Avenue

**Property Owner:**      Acme Corporation, LLC

**Weather Conditions:** 48°F, Intermittent light rain and clouds

**Client:**                              Ms. Client, Acme Corporation

***Report Prepared By:***

\_\_\_\_\_  
Brendan C. Moran  
Environmental Scientist

\_\_\_\_\_  
Carla M. Sullivan, QA/QC  
VP, Senior Geologist

***ENVIRONMENTAL PROFESSIONAL CERTIFICATION***

I declare that, to the best of my professional knowledge and belief, we meet the definition of *Environmental Professional* as defined in § 312.10 of 40 Code of Federal Regulations (CFR) 312.

The Environmental Professional who directed this project has the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

\_\_\_\_\_  
Scott A. Yanuck  
Hydrogeologist  
President

\_\_\_\_\_  
Date

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## REPORT SPECIFICATIONS

This report contains (8) pages of text.

Copies and circulation of this report are as follows:

- (1) Bound copy to the New York State Department of Environmental Conservation, Division of Environmental Remediation, Mr. State Engineer
- (2) Bound copies to Acme Corporation, Ms. Client
- (2) Copies in the confidential client file at *Laurel Environmental Associates, Ltd. (LEA)*

This report is prepared for the exclusive use of the principals noted above and is considered private and confidential. *LEA* shall not release this report or any of the findings of this report to any person or agency except with the authorization of the named principals.

## 1.0 INTRODUCTION

*Laurel Environmental Associates, Ltd.* was retained by Ms. Client as required by the New York State Department of Environmental Conservation (NYSDEC) to remove #6 fuel oil contaminated soil and recover floating product discovered during a Phase II Delineation Sampling Investigation conducted by *LEA* in Month 00, 2010 at the subject property, 123 ABC Street, Any Town, New York. Please see Figure 1.0, Site Location.

Findings of *LEAs* Phase II Delineation Sampling Investigation are as follows:

Initial remedial activities conducted by others at the subject site were insufficient and significant #6 fuel oil contamination remains in dry soils slightly above the water table and in saturated soils at and below the soil/water interface. Based upon the findings of this investigation, an area of at least 50' x 40' has been adversely impacted with #6 fuel oil contamination. Additional delineation sampling would be necessary to determine the full extent of residual contamination in the area.

## 1.1 SCOPE OF WORK

The following tasks were completed by *LEA* at the subject property:

1. Oversaw the removal of approximately 750 cubic yards of clean overburden soils. Said soils were set aside for reuse as backfill upon completion.
2. Oversaw the removal of 133.66 tons of petroleum contaminated soils.
3. Oversaw the recovery of 3,034 gallons of floating product from within the excavation.
4. Collected and analyzed endpoint samples in accordance with NYSDEC protocol.
5. Oversaw the installation of two (2) eight-inch recovery wells within the excavation.
6. Backfilled the excavation with pea gravel to the top of the water table and the remaining void with clean overburden soils and RCA blend to grade.
7. Reviewed results and produced a report.

## 2.0 REMOVAL OF CONTAMINATED SOIL AND FLOATING PRODUCT

On Month 00, 2010, *LEA* staff oversaw the removal of clean overburden soils, #6 fuel oil contaminated soils, recovery of floating product and backfilling of the excavation; as conducted by its subcontractor Anonymous Environmental Services on the southwest quadrant of the subject property. Please refer to Figure 2.0, Site Sketch. Prior to conducting the above-mentioned work, all required New York City permits were obtained.

Using an excavator, 133.66 tons of fuel oil contaminated soils from slightly above the water table (9.5' below grade) to two (2) feet below the water table (12' below grade) were removed. Further excavation of contaminated soils was prohibited due to the presence of natural gas and public water lines (to the west), public and private walkways (to the south and east) and the close proximity of the subject building (north). Contaminated soils from beneath the water table were placed onto a ledge and allowed to drain back into the excavation overnight. The following morning, said soils were loaded onto dump trucks for transport to *Clean Earth of Carteret*, Carteret New Jersey for treatment and disposal. In addition, floating product encountered within the excavation was recovered on Month 00, 2010 by Anonymous Environmental Services. Using a pump truck and absorbent booms, 3,034 gallons of floating product was removed, transported and properly disposed of. Please refer to Appendix C for waste manifests.

As a matter of protocol, the NYSDEC was notified of the impending work and Department representative Mr. Anonymous conducted a site visit on January 30<sup>th</sup>. In accordance with NYSDEC protocol, endpoint samples were collected from nine (9) feet below grade (slightly above the water table) from two (2) locations along each of the north and southern walls of the excavation and from one (1) location along each of the east and western walls.

Samples were placed into appropriate laboratory containers, stored on ice and delivered via laboratory courier to *SGS Environmental Services Inc.* (NYSDOH ELAP #11685) of Wilmington, North Carolina. As required by the NYSDEC, samples were analyzed for USEPA Methods 8260 and 8270 to test for volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs), respectively and for Method 8015 Diesel Range Organics to test for Total Petroleum Hydrocarbons (TPH) concentrations.

Laboratory analysis of the samples showed elevated levels of SVOCs in the samples **North Wall-1**, **North Wall-2**, **East Wall** and **South Wall-2**, at concentrations above TAGM Recommended Soil Cleanup Objectives (RSCOs). No VOCs were detected in the remaining samples **West Wall-1** and **South Wall-1**. No VOCs were detected in any of the samples. With the exception of the sample **North Wall-1**, elevated levels of TPH were detected in all samples. There is no guidance value issued by the NYSDEC for TPH concentrations, though 500 parts per million (ppm) is widely used throughout the industry. Analytical results are included in Appendix A and the NYSDEC TAGM #4046 RSCOs can be found in Appendix D.

**TABLE I**  
**Tabulated VOC and SVOC Endpoint Sampling Analytical Results**  
**Endpoint Soil Samples Collected Month 00, 2010**  
**123 ABC Street, Any Town, New York**

Analyte/Location	West Wall	North Wall-1	North Wall-2	East Wall	South Wall-1	South Wall-2	NYSDEC TAGM RSCOs
Depth	9'	9'	9'	9'	9'	9'	
<b>SVOCs</b>							
Benzo[a]anthracene	<50	<b>384</b>	<50	<50	<50	<50	224
Benzo[a]pyrene	<50	<b>412</b>	<50	<50	<50	<50	61
Benzo[b]fluoranthene	<50	623	<50	<50	<50	<50	1,100
Chrysene	<50	<b>447</b>	<50	<50	<50	<50	400
Fluoranthene	<50	715	<50	<50	<50	<50	50,000
Fluorene	<50	BQL	16,300	<50	<50	<50	50,000
2-Methylnaphthalene	<50	419	<b>98,800</b>	<b>54,600</b>	<50	<b>310,000</b>	36,400
Phenanthrene	<50	500	38,900	24,900	<50	<b>114,000</b>	50,000
Pyrene	<50	662	<50	<50	<50	<50	50,000
<b>TPH</b>	<b>92,700</b>	239	<b>39,800</b>	<b>14,500</b>	<b>114,000</b>	<b>110,000</b>	NA (500)

SVOC concentrations are in parts per billion (ppb)

TPH concentrations are in parts per million (ppm)

NA =Not Applicable or Not Analyzed

**Bold and shaded** = Concentrations above NYSDEC TAGM #4046 RSCOs or elevated TPH concentration

Upon collection of endpoint samples, the excavation was backfilled with pea gravel to the top of the water table and the remaining void was filled with clean overburden soils and RCA blend to grade.

## 2.1 PRODUCT RECOVERY WELL INSTALLATIONS

On Month 00, 2010, **LEA** oversaw the installation of eight-inch product recovery wells in the west and east sides of the excavation as required by the NYSDEC and conducted by XYZ Environmental Services. Using an excavator, the wells, designated **RW-1** (west) and **RW-2** (east), were set at 12.5 and 13.5 feet below grade, respectively with five (5) feet of 0.020" slot screen. Please refer to Figure 2.0, Site Sketch. Pea gravel was packed around the screened intervals to maximize product recovery events. Both wells were finished with locking plugs and bolt-down manhole covers set in concrete. A site visit conducted by **LEA** on Month 00, 2010 showed a sheen in **RW-1** and one (1) inch of product in **RW-2**.

### 3.0 CONCLUSIONS

Based on the remedial activities conducted at the subject site, *Laurel Environmental Associates, Ltd.* has found the following:

1. A total of 133.66 tons of petroleum contaminated soil were removed from 9.5' below grade to 12' below grade throughout the excavation. Groundwater was encountered at approximately 10' below grade throughout the excavation. Contaminated soils were transported by a licensed waste hauler and disposed of at an approved facility.
2. Approximately 3,034 gallons of floating product was removed from the excavation through the use of a pump truck and absorbent booms. Recovered product were transported by a licensed waste hauler and disposed of at an approved facility.
3. Laboratory analysis of endpoint samples collected from slightly above the water table showed elevated levels of SVOCs and/or TPH in each sample. Further excavation of contaminated soils was prohibitive due to the presence of natural gas and public water lines, public and private walkways and the close proximity of the subject building.
4. Eight-inch recovery wells were installed into shallow groundwater approximately 15 feet from the eastern and western walls of the excavation. A site visit conducted by *LEA* on Month 00, 2010 showed a sheen in the recovery well **RW-1** (west) and one (1) inch of product in the recovery well **RW-2** (east).

### 4.0 RECOMMENDATIONS

1. Submit the findings of this investigation to the NYSDEC for review and comment. Bi-weekly site visits to monitor the recovery wells, with monthly pumping of product planned until floating product is not present for at least three consecutive months.
2. The client should forego restoration of the excavated area until NYSDEC review and comment is complete.