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Spills - SP
ERP - E
VCP - V
BCP - C

DRAFT

Site Investigation Report

for the

Site Investigation / Remedial Alternative Report

for the property at 2560 Hamburg Turnpike
(Amadori Project Site SBL# 141.20-1-2.1)
Lackawanna, New York

Prepared for:

The City of Lackawanna

Prepared by

URS Greiner Consultants, Inc.
282 Delaware Avenue
Buffalo, New York 14202

September 1998

G2765A

DRAFT

SITE INVESTIGATION AND REMEDIAL ALTERNATIVE REPORT
SITE INVESTIGATION REPORT

AMADORI PROPERTY

SBL#141.20-1-2.1

2560 HAMBURG TURNPIKE

LACKAWANNA, NEW YORK

SEPTEMBER 1998

PREPARED FOR

THE CITY OF LACKAWANNA

LACKAWANNA ECONOMIC DEVELOPMENT ZONE

PREPARED BY

URS GREINER CONSULTANTS, INC.

282 DELAWARE AVENUE

BUFFALO, NY 14202

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EXECUTIVE SUMMARY

URS Greiner Consultants, Inc. conducted a site investigation at the Amadori property in the City of Lackawanna, New York. The purpose of the investigation was to define the site geology/hydrogeology, determine the extent and nature of contamination, assess the fate and transport of the contaminants, and identify potential receptors. Information supplied in this document will be utilized to prepare a Remedial Alternatives Report which will identify potentially applicable remedial alternatives necessary for the City of Lackawanna to redevelop the site.

The property, located at 2560 Hamburg Turnpike, is approximately 8.4 acres in size. Numerous debris and/or material storage piles or berms are present at several locations throughout the property that contain soil, wood, concrete, plastic and steel piping, tires, railroad ties, prefabricated concrete basins, and telephone poles. The site also contains remnants of concrete foundations from former row houses and a fenced equipment storage/laydown area located in the northwest portion of the property. Surrounding land use is chiefly light industrial with residential properties located further north and south of the site. Buffalo Brake Beam Company, located directly north and northeast of the site, is listed as a small quantity generator under RCRA. No violations have been reported. However, this operation has been located next to the Amadori property since at least 1927 and possible previous impacts may have occurred. A Erie County Sewer Authority sewage treatment facility is located east of the Amadori property, the property to the west is occupied by Timoney Technology, Inc. (the former Amadori building and maintenance garage). An abandoned railroad spur and Smokes Creek are located south of the property.

The site investigation involved excavating test trenches, advancing soil borings, and constructing monitoring wells. The site subsurface is characterized by a layer of fill material consisting of reworked native soils (clay, silt, gravel, and sand) intermixed with brick, metal, glass cinders and debris from the demolition of the row houses. Some of the fill material contained coal ash. The depth of the fill material ranges from less than 2 to 8 feet thick with an average depth of 3.7 feet. The test trench investigation also examined the possibility of buried tanks. No buried tanks were found. Native soils below the fill consists of a brown fine to medium sand which is underlain by a gray medium dense to very dense gray sandy to clayey silt. Bedrock was encountered in the well borings at an average depth of 8 feet below grade across most of the site. Groundwater was encountered 8 to 10 feet below grade

within the lower overburden and weathered shale bedrock contact across most of the property. This water-bearing zone does not exist in the northwest portion of the property. Groundwater flow direction is to the south-southeast towards Smokes Creek following the bedrock surface.

Surface soils at the property contain polycyclic aromatic hydrocarbons (PAHs) at concentrations exceeding State soil criteria. For the most part, the level of PAHs in the site surface soils are not greatly elevated above local background soils and can be considered typical of an urban/industrial setting. An isolated portion of the site was found to contain elevated chromium concentrations which are attributed to slag-containing cover material in this portion of the property. Subsurface soils/fill results showed PAHs and metals at concentrations exceeding State soil criteria. The concentrations of PAHs and metals detected in the subsurface soils and fill materials were generally consistent across the property.

Groundwater sample results showed the presence of benzene, toluene, ethylbenzene, and xylene (BTEX) compounds at concentrations slightly above NYSDEC Class GA groundwater standards. The location of the exceedances indicates an offsite contaminant source. The downgradient groundwater samples reported no exceedances for BTEX compounds at the current time. The only metals exceeding the groundwater standards were iron, magnesium, manganese, and sodium.

1.0 INTRODUCTION

The City of Lackawanna, New York (the City) owns the property referred to as the Amadori project site located at 2560 Hamburg Turnpike in Lackawanna (Figure 1-1). Under a 1996 New York State Department of Environmental Conservation (NYSDEC) Clean Water/Clean Air Bond Act grant, the City retained the services of URS Greiner Consultants, Inc. (URSG) to prepare a Site Investigation/Remedial Alternative Report (SI/RAR) for the property. The intent of this report is 1) to define the geology/hydrogeology of the site, and determine the extent and nature of contamination; and 2) to assess the fate and transport of the contaminants in addition to identifying potential receptors. This information will provide the City and the Lackawanna Economic Development Zone with information necessary to select a remedial action, if required, necessary for the redevelopment of the property.

Panamerican Environmental, Inc. (PEI) assisted URSG in preparing this SI/RAR by performing a Phase I Environmental Site Assessment (ESA) and completing a SI/RAR Scoping Plan (PEI 1998). These tasks were conducted prior to the site investigation. The Phase I ESA /Scoping Plan was submitted with the SI/RAR Work Plan (URSG 1998) which defined the total scope, technical approach, and procedures utilized in completing this SI/RAR.

1.1 Site Background

1.1.1 Site Description

The property is a relatively flat vacant parcel, approximately 8.4 acres in size (Figure 1-2). A number of debris and/or storage piles are scattered at various locations within the property area. These piles contain soil, concrete, wood, various sized plastic and steel piping, prefabricated concrete catch basins, tires, railroad ties, and other debris. The northwestern end of the property is dominated by the remnants of a fenced-in equipment storage/laydown area and contains the majority of the material piles remaining on the site. The eastern end of the fenced area contains two small metal tanks on skids (empty and labeled water tanks). The northeastern area of the property is scattered with numerous large dimension concrete sewer conduits and catch basins. A few crushed and empty 55-gallon drums are also found in this area.

SITE LOCATION MAP

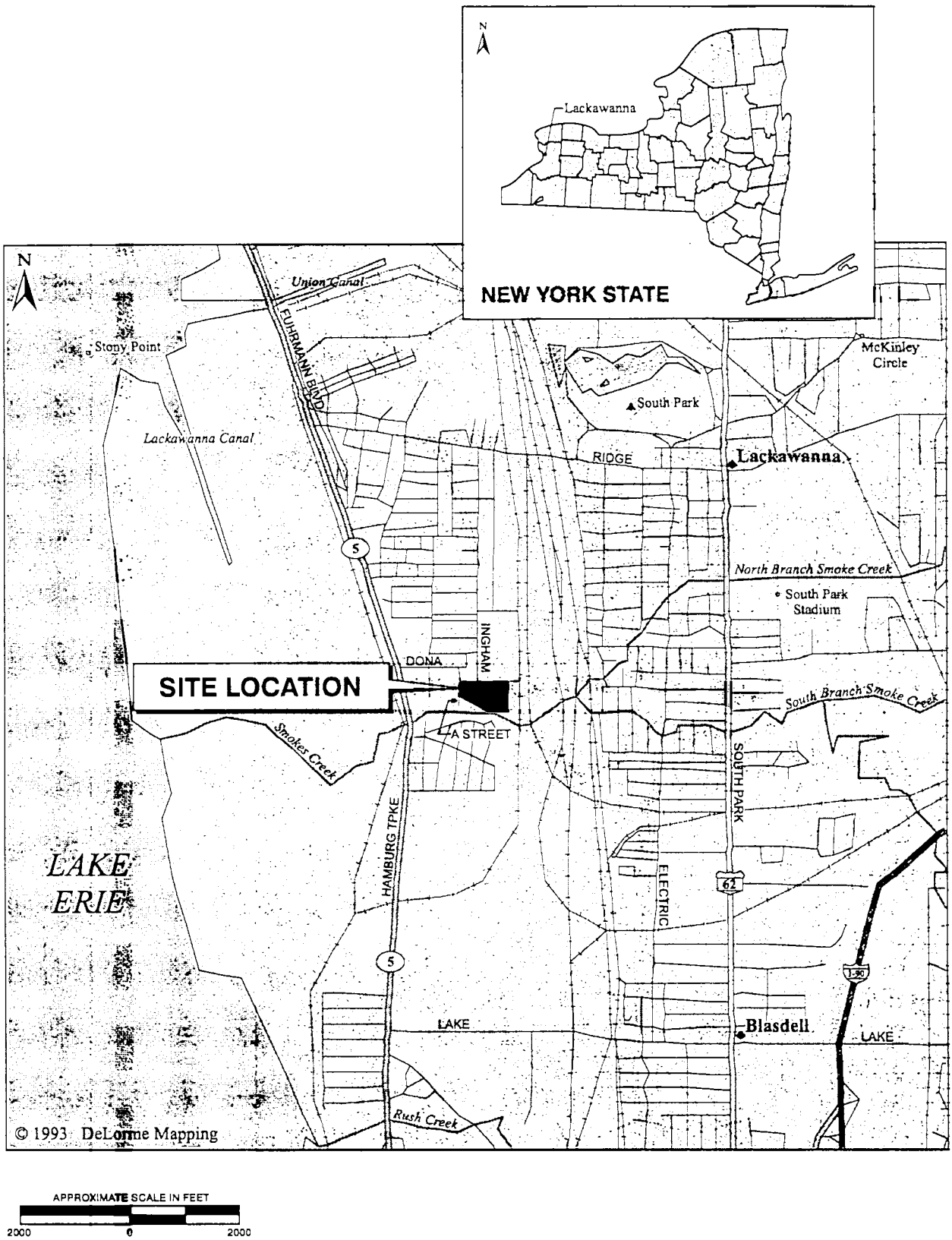

Figure 1-1

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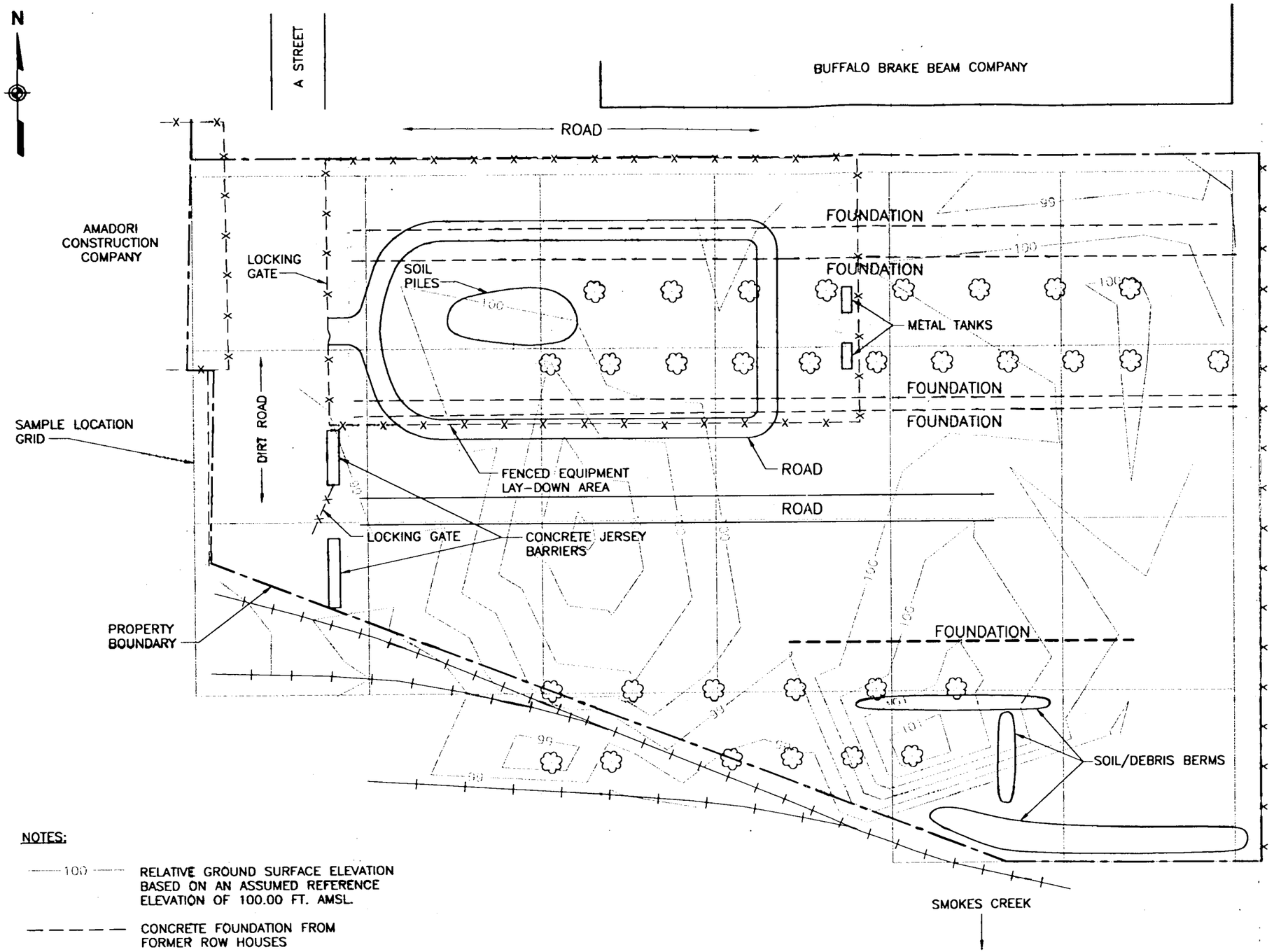


NOTES:

100 — RELATIVE GROUND SURFACE ELEVATION BASED ON AN ASSUMED REFERENCE ELEVATION OF 100.00 FT. AMSL.

— — — — CONCRETE FOUNDATION FROM FORMER ROW HOUSES

+—+—+ RAILROAD LINE

ROW OF COTTONWOOD TREES

—— - —— PROPERTY LINE

80' 0 80'

SCALE: 1"= 80'

SITE PLAN
AMADORI PROPERTY, LACKAWANNA, N.Y.

URS Greiner Consultants, Inc.

FIGURE 1-2

CC-5587

The eastern and eastern-central portion of the property is characterized by open meadow containing little to no surface materials. Based on the Phase I review of historical aerial photographs, this area was the previous location of a ballfield used by the City during the 1960s and 1970s. Along the northern and southern sides of the site are two parallel stands of mature trees that appear to have been associated with the former residential row housing and First and Second Streets which previously existed between these homes. Remnants of the row house concrete foundations are visible on the ground surface at various locations across the property.

On the southern-central portion of the site, a large debris pile containing tires, wood, old automobile gas tanks, and assorted other materials and trash. The South Buffalo Railway and Smokes Creek are adjacent to the southern property border. Large railroad ties, telephone poles, and large wooden and concrete slabs were observed to be within the bermed area, as well as along the southern portion of the property.

1.1.2 Site History

The Phase I ESA included detailed record searches, interviews, and interpretations of historic mapping and aerial photographs to document and describe the historical uses of the property. Information contained in the Phase I ESA is summarized below.

Title and tax assessor information from City offices and historical accounts housed in the library indicate that the Lackawanna Steel Company (predecessor to the Bethlehem Steel Company) built company houses on the property around 1902. This residential area was called Smokes Creek Village or Old Village. The 1927 Sanborn map showed the Buffalo Brake Beam facility, as well as four rows of parallel housing units running east to west occupied the property. These housing units continued to the west of A Street and a perpendicular row existed east of the property across B Street on what is now property occupied by a Erie County Sewer Authority sewage treatment plant. First and Second Streets ran between these row housing units and extended to Hamburg Turnpike. The row houses are not depicted on the 1950 Sanborn map and it has been reported that these housing units were demolished in the 1930s, although the exact date could not be verified.

Information, maps, and photographs located at the City of Lackawanna Steel Plant Museum revealed that coal and wood may have been used to heat the row houses. This inference was reinforced by long-time area residents who recalled that coal bins and coal were used in area homes until the 1950s when furnaces were converted to natural gas. Historic period maps also illustrated two swampy areas north- northwest of the property on either side of Ridge Road. In addition, a survey—"General Plan of Smokes Creek Village"—indicated that three hundred five 25-foot and one hundred forty nine 30-foot brick houses with slate roofs were located in the village.

A review of aerial photographs indicated that after the housing units were removed, the property remained relatively vacant until the late 1950s. Long-time area residents reported that during this time, the property was used by local residents for gardens. The 1958 aerial showed that clearing had taken place within the eastern and southeastern area. A ball field was depicted in this area in both the 1978 and an undated (Dorrance Avenue Project) map. City records indicated that this area of the property was graded, seeded, and was actively used by the City in 1973 as a recreation area that included a mini-bike trail and ballfield (called the "Old Village Ballfield"). The exact date of first use by the City for these purposes could not be ascertained.

Records showed that in 1968, the Amadori Construction Co., Inc., began leasing the property from the Bethlehem Steel Company (BSC) and constructed the Amadori building. In February 1973, Amadori purchased the property from BSC and sold it to their associated company, Mark Robert Construction. The Amadori/Mark Roberts Construction Company were engaged in renting construction equipment and performing general construction services (these companies also were reportedly sewer construction contractors.) Records indicated that the property, including the Amadori building site, was used to store, repair, and maintain construction equipment. According to tax assessor records, an area measuring 196 by 396 feet was fenced on the property in 1975. The undated aerial photograph associated with the 1980 Nussbaumer & Clark map showed that construction equipment storage and debris piles were present primarily within the fenced area on the northeast part of the site, to the east of the fenced area along the border with Buffalo Brake Beam, and to the north of the ballfield.

1.1.3 Surrounding Land Uses

The Amadori project site is located in an area which is utilized chiefly for light industrial purposes. The Buffalo Brake Beam Company is located directly north of the site. In addition, a former school building, residential homes, and St. Mary's Zion Church are located to the north and northwest. The site is bounded on the east by a Erie County Sewer Authority sewage treatment plant and a South Buffalo Railroad line. A vacant parcel, abandoned railroad spurs, and Smokes Creek are located south of the site. Residential areas exist directly south of Smokes Creek. Located at the west of the site is Timoney Technology, Inc. (the former Amadori building and maintenance garage). Other industrial facilities are located farther west and southwest include Bethlehem Steel and Bethlehem Steel Reclamation office.

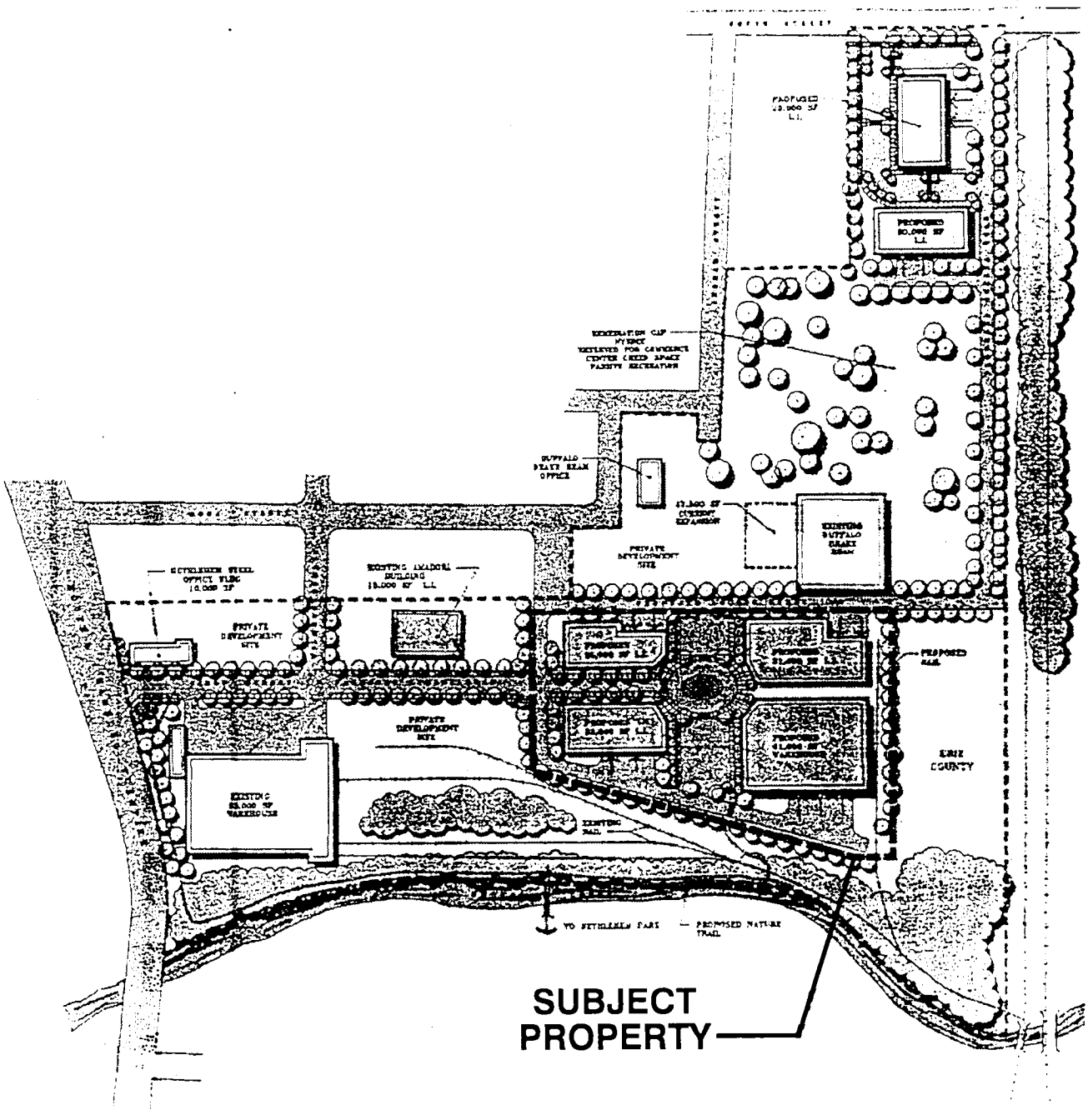
1.1.4 Proposed Property Redevelopment

The City of Lackawanna Economic Development Zone has drafted concept plans for the redevelopment of the Amadori property which is part of a larger commercial corridor development for this area of Lackawanna (Figure 1-3).

1.2 Report Organization

This report consists of four major sections: The site investigation field activities; analytical results; physical characteristics of the site; and the nature and extent of contamination, fate and transport of the contaminants detected, and its potential receptors.

Information in this document will be used to prepare a Remedial Alternatives Report which will identify potentially applicable remedial alternatives.



URS Greiner

AMADORI PROPERTY
LACKAWANNA, NEW YORK
PROPERTY REDEVELOPMENT PLAN

FIGURE 1-3

AG13141.35566.03.000198.GCM

2.0 SITE INVESTIGATION FIELD ACTIVITIES

2.1 Introduction

Field investigation activities at the Amadori project site included the following tasks:

- Discrete and composite surface soil sampling
- Buried tank survey
- Test trench excavation and subsurface soil sampling
- Soil boring and monitoring well installation
- Monitoring well development
- Groundwater sampling
- Surveying

Field activities were completed during the weeks of June 22 and 29, 1998. American Auger of Constantia, New York, under a subcontract agreement with URSG, excavated test trenches and installed monitoring wells.

In addition to the above tasks, URSG assisted the City in securing a contractor to characterize and dispose of material found in three 55-gallon drums identified during the Phase I site walkover. Two of the drums contained paint and the third drum contained stained soil. Environmental Products and Services of Tonawanda, New York, under a separate contract agreement with the City, sampled the drum contents during the field investigation and subsequently removed them from the property. The material in the drums was classified as nonhazardous waste. Analytical data and disposal/transport manifests associated with the drum disposal are provided in Appendix A.

All field activities were generally conducted in accordance with the project Work Plan which included a Field Sampling Plan, a Quality Assurance/Quality Control Plan Health and Safety Plan, and Community Participation Plan (URSG 1998). All sample locations were approved by NYSDEC oversight personnel prior to sample collection. Modifications to the Work Plan required due to site-specific conditions are summarized in Table 2-1.

TABLE 2-1

JUSTIFICATIONS FOR WORK PLAN DEPARTURES
AMADORI PROPERTY

WORK PLAN TASK	DEPARTURE	JUSTIFICATION
Collection of soil samples based on a 100-foot by 100-foot grid	Sample collection based a 130-foot x 130-foot grid	Property survey mapping received after preparation of the Work Plan showed the property to be larger than anticipated
Submittal of background surface soil samples for standard laboratory turnaround time	Analysis of background surface soil samples accelerated to receive results in 10 days from submittal to coincide within onsite sample turnaround time	Background and onsite soil data required concurrently to perform additional onsite sampling without delaying project schedule
Analysis of two surface soil samples for PCB analysis based on site findings	PCB analysis not performed on surface soil samples	No evidence of PCB discharge (e.g., oil stained oils and/or odor) observed. NYSDEC concurred with departure from Work Plan
Installation of two upgradient monitoring wells	Installation of one upgradient monitoring well	Shallow bedrock depth and the absence of groundwater in the overburden prevented the installation of an upgradient well in the northwest portion of the property as proposed. Two attempts (borings B-1 and B-2) were made to install a well in this portion of the property.
Collection of eight surface soils samples	Collection of seven surface soil samples	After consultation with the onsite NYSDEC representative, it was agreed that the collection of seven composite surface soils would adequately characterize the site surface soils.

2.2 Sample Grid Layout

Prior to starting field investigative activities, URSG surveyors established a 130-foot by 130-foot grid across the property using conventional survey methods. The grid was referenced to the property corners, and was utilized during the investigation to located surface soil sample and test trench/subsurface soil sample locations (Figure 2-1).

2.3 Surface Soil Sampling

A total of seven composite surface soil samples (AP-SS-1 through AP-SS-7) were collected at the locations shown in Figure 2-1. The composite samples consisted of four aliquots collected from the grid nodes. The samples were analyzed target analyte list (TAL) metals and for target compound list (TCL) semivolatiles and volatiles (the portion of the sample for TCL volatile organic analysis was a discrete grab sample collected at a grid node location). To establish local surface soil background chemistry, two background grab samples (AP-SS-BG-1 and AP-SS-BG-2) were collected at the former school north of the site. The sample locations are shown in photographs provided in Appendix B. The samples were analyzed for TCL semivolatiles and TAL metals.

The background and onsite surface soils samples were submitted for accelerated analysis to determine if additional on site sampling was required as described in the Work Plan. A review of the first round data indicated the need for additional analysis at grid node locations of composite samples which reported exceedances of criteria established in *Determination of Soil Cleanup Objectives and Cleanup Levels* (TAGM 4046) (NYSDEC 1994). Additional sampling was conducted at the grid nodes of composite sample location AP-SS-2 for polycyclic aromatic hydrocarbon (PAH) analysis and the grid nodes of composite sample location AP-SS-7 for chromium analysis. Results of the composite and additional discrete surface soil sampling is discussed in Section 3.2

2.4 Subsurface Investigation

To characterize and assess subsurface materials at the site, American Auger excavated 26 test trenches and six borings. Four of the six borings were completed as groundwater monitoring wells as described in Section 2.5. Test trench, boring, and monitoring well locations are shown in Figure 2-1.

Also, a magnetometer was used to evaluate shallow subsurface anomalies, which could indicate buried tanks as described below.

2.4.1 Buried Tank Assessment

Utilizing a Schonstedt Model GA-72 CV hand-held magnetometer, the shallow subsurface was surveyed to identify metal anomalies which could represent buried fuel oil tanks associated with the former row house locations. The survey was conducted adjacent to the exposed concrete remnants of the row house foundations and along the presumed foundation alignments where exposed foundations were absent. Test trenches were excavated at locations where metallic anomalies were identified as described in Section 2.4.2.

2.4.2 Test Trench Installation and Subsurface Soil Sampling

Test trenches were excavated at 26 locations to evaluate magnetic anomalies (possible buried tanks) and characterize the site (Figure 2-1). Trenches also were excavated at locations requested by NYSDEC. Test trench logs and photos are provided in Appendix C.

As indicated in Table 2-2, eight subsurface soil samples collected from the test trenches were submitted for TCL volatile organic compounds (VOCs) and semivolatile organic compound (SVOCs) and TAL metals analyses. One sample (AP-TT-12) was submitted for TCL polychlorinated biphenyl (PCB) analyses. The samples were collected from the trench side walls from the fill interval which exhibited visual evidence of contamination (e.g., discoloration, and/or staining) or at the fill/nature soil interface in the absence of suspected contamination. Photoionization detector (PID) screening of the test trenches and test trench spoils indicated no readings above background levels. Sample results are discussed in Section 3.3.

2.4.3 Split-Spoon Sampling

Boreholes were advanced at six locations for the installation of groundwater monitoring wells. As indicated in Table 2-1, two of the boreholes were not completed as monitoring wells. Subsurface materials were sampled at 5-foot intervals to the completion depth of the boring. The samples were

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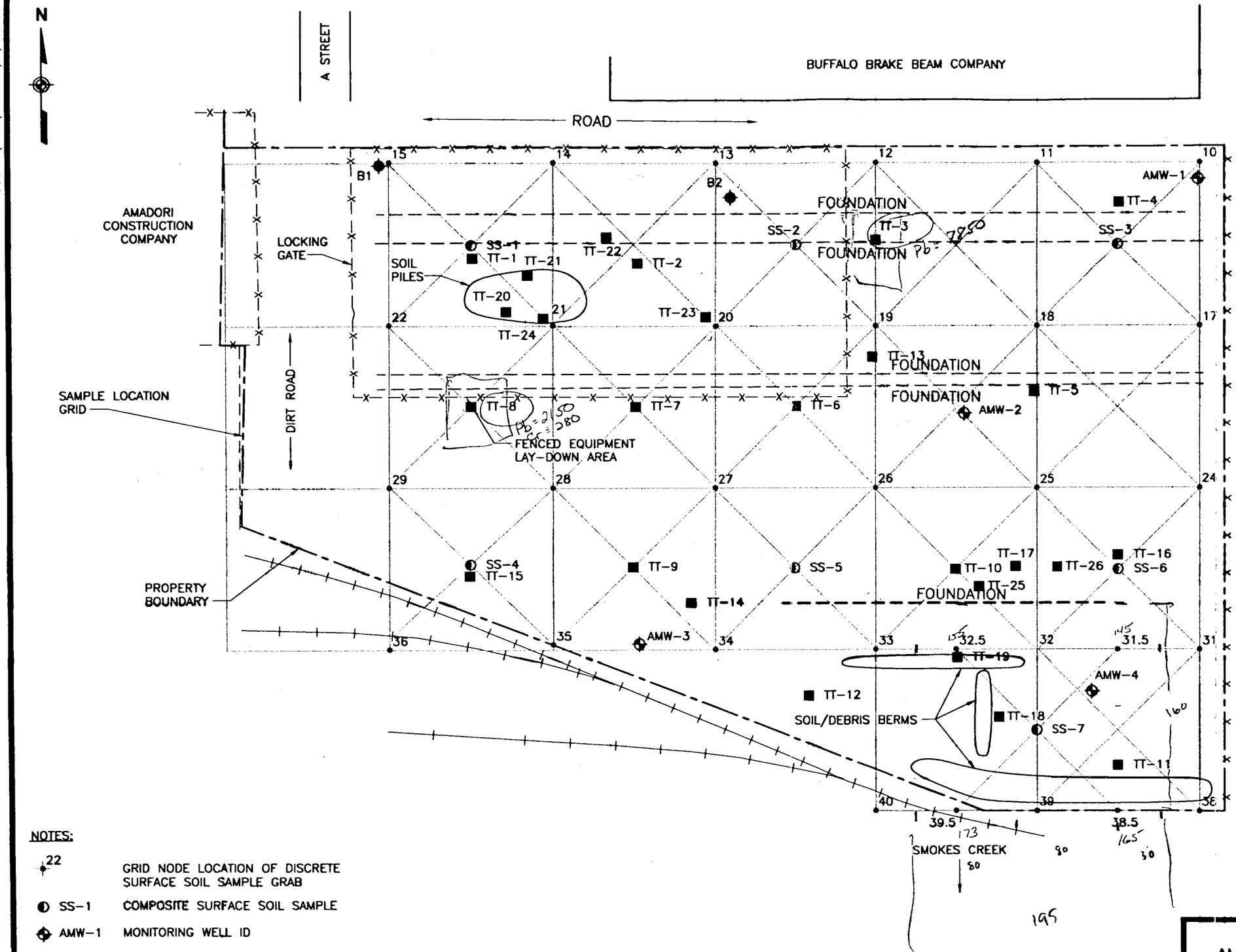

NOTES:

22	GRID NODE LOCATION OF DISCRETE SURFACE SOIL SAMPLE GRAB
SS-1	COMPOSITE SURFACE SOIL SAMPLE
AMW-1	MONITORING WELL ID
B1	BORING FOR ATTEMPTED WELL INSTALLATION
TT-1	TEST TRENCH/SUSURFACE SOIL SAMPLE

SAMPLE LOCATION PLAN
AMADORI PROPERTY, LACKAWANNA, N.Y.

URS Greiner Consultants, Inc.

FIGURE 2-1

CC-5587B

TABLE 2-2

TEST TRENCH SUMMARY
AMADORI PROPERTY

Test Trench ID	Sample ID	Sample Depth (ft. bgs)	Completion Depth (ft. bgs.)	Fill Depth (ft.)	Remarks	PID Readings (ppm)
TT-1	AP-TT-1	1.5	4.5	2.0	Adjacent to concrete foundation	0.0
TT-2	---	---	4.0	2.5	Adjacent to concrete foundation	0.0
TT-3	AP-TT-3	1.5	4.0	2.0	None	0.0
TT-4	---	---	6.6	6.6	Refusal at 6 ft. Basement floor?	0.0
TT-5	AP-TT-5	2.0	4.0	2.5	Sampled brown foundry sand	0.0
TT-6	---	---	3.5	1.7	None	0.0
TT-7	---	---	3.5	2.2	None	0.0
TT-8	AP-TT-8	2.5	4.0	3.0	Very dense surface material	0.0
TT-9	---	---	5.5	4.7	Dense Fill 0 to 4.7 ft.	0.0
TT-10	---	---	5.0	4.0	Very dense surface material	0.0
TT-11	AP-TT-11	2.5	4.0	3.0	Black cindery fill	0.0
TT-12	AP-TT-12	3.0	4.5	3.5	Sample collected beneath former road	0.0
TT-13	---	---	6.0	6.0	Refusal at 6 ft.	0.0
TT-14	---	---	3.0	3.0	Location of magnetic anomaly. Refusal at 3.0 ft.	0.0
TT-15	AP-TT-15	2.3	4.5	3.3	None	0.0
TT-16	---	---	4.0	3.0	None	0.0
TT-17	AP-TT-17	5.0	6.0	6.0	Refusal at 6 ft. Sampled coal ash per NYSDEC.	0.0
TT-18	---	---	6.0	---	Trench through soil pile	0.0

TABLE 2-2 (Continued)

Test Trench ID	Sample ID	Sample Depth (ft. bgs)	Completion Depth (ft. bgs.)	Fill Depth (ft.)	Remarks	PID Readings (ppm)
TT-19	---	---	6.0	---	Trench through soil pile	0.0
TT-20	---	---	6.0	---	Trench through soil pile	0.0
TT-21	---	---	3.5	---	Trench through soil pile	0.0
TT-22	---	---	4.0	4.0	Location of magnetic anomaly	0.0
TT-23	---	---	3.0	3.0	Location of magnetic anomaly	0.0
TT-24	---	---	2.0	2.0	Location of metallic anomaly	0.0
TT-25	---	---	5.0	5.0	Requested by NYSDEC to delineate ash encountered at TT-17	0.0
TT-26	---	---	8.0	8.0	Requested by NYSDEC to delineate ash encountered at TT-17. Refusal at 8.0 ft.	0.0

ft. bgs. = feet below ground surface

screened with a PID to evaluate and quantify volatile vapors, and described by the site geologist (Section 4.1). Boring logs are provided in Appendix D.

2.5 Groundwater Investigation

2.5.1 Monitoring Well Installation and Development

Monitoring wells were installed at four locations (Figure 2-1). The wells were installed to assess groundwater quality, and to determine groundwater flow direction and hydraulic gradient at the site. Well monitoring construction details are provided in Appendix E.

Shallow bedrock and the absence of saturated overburden materials along the northern portion of the site prevented the installation of two upgradient monitoring wells as proposed in the Work Plan. Borings B-1 and B-2, advanced in the northwest portion of the property, encountered bedrock at a depth of 8 feet below grade. Saturated materials were not present in the overburden/fill materials at these locations. The borings were abandoned by backfilling with cement/bentonite grout. A boring advanced at the northeast corner of the site (AMW-1) was completed as a monitoring well. The remaining three wells (AMW-2, AMW-3, and AMW-4) were installed to monitor the water-bearing zone which was encountered in the lower overburden materials and weathered bedrock. The monitoring wells were installed using a 4¼-inch hollow-stem auger and the methods described in the Field Sampling Plan (URSG 1998).

Following a minimum period of 24 hours after installation, each well was developed using well screen surging methods and a peristaltic pump. Groundwater quality parameters were monitored during development and recorded on log forms which are provided in Appendix F. The development water exhibited no signs of contamination (e.g., sheen and/or odor), so the water was discharged to the ground surface.

2.5.2 Groundwater Sampling

On June 29, 1998, groundwater samples were collected from each well and submitted for TCL VOC, TCL SVOC, and TAL metals analyses. A minimum of three well casing volumes were removed

prior to sampling. Groundwater quality parameters were monitored, and recorded during purging and sampling. Well purging log forms are provided in Appendix F.

2.6 Sample Identification

All samples collected by URSG were identified using site-specific sample identifications. The following sample identification system was used:

Monitoring Wells	Groundwater Samples
AMW-1	AP-MW-1
A - Amadori property	AP - Amadori property
MW- Monitoring Well	MW - Monitoring Well
1 - Well number	1 - Well number

Surface Soil Samples	Subsurface Soil
AP-SS-19 (discrete)	AP-TT-11
AP - Amadori Property	AP - Amadori Property
SS - Surface Soil	TT - Test trench
19 - discrete sample locations (grid node number)	11 - test trench number

AP-SS-01-Comp
AP - Amadori Property
SS - Surface Soil
01 - Sample number
Comp - Composite

BG - Background

2.7 Surveying

Surveying was conducted by URSG and surveyors under the supervision of a New York State Licensed Land Surveyor (Lic. No. 49531). Horizontal control was established on the site by conventional survey methods using existing survey data for the property boundaries. Coordinates were based upon the New York State Plane Coordinate Systems North American Datum of 1927. Vertical control was established and referenced to an arbitrary benchmark elevation of 100.00 feet. Surface soil and test trench/subsurface soil sample locations were referenced to a 130-foot by 130-foot grid which was established from the property corners. The monitoring wells were located by determining northing and easting coordinates. Survey notes are provided in Appendix G.

3.0 FIELD INVESTIGATION RESULTS

3.1 Introduction

Soil and groundwater samples collected at the site were submitted for TCL and TAL analysis as described in Section 2.0. All samples were delivered to Ecology and Environment Laboratories in Lancaster, New York under chain-of-custody, and analyzed as per New York State Analytical Services Protocol (NYSDEC ASP). A limited data review and validation was performed in accordance with the Work Plan; a Data Summary Usability Report is provided as Appendix H. The results of the analyses are summarized below.

3.1.1 Applicable Regulatory Criteria and Comparison of Results

The analytical data presented and discussed in this section has been compared to NYSDEC criteria for soil and groundwater to evaluate the nature and extent of contamination at the site. Surface and subsurface soil sample results have been compared to criteria in TAGM 4046 (NYSDEC 1994). Surface soil sample results for samples collected on site also were compared to the background surface soil sample results. Groundwater sample results were compared to NYSDEC *Ambient Water Quality Standards and Guidance Values* (TOGS 1.1.1) Class GA groundwater criteria (NYSDEC 1993).

3.2 Surface Soil Investigation

As described in Section 2.3, composite and discrete surface soil samples were collected and analyzed. Table 3-1 summarizes analytes detected in the onsite composite samples and in the two discrete background samples. Table 3-2 summarizes analytes detected at the discrete surface soil sample locations.

Composite Soil Analysis

VOC analysis reported the presence of acetone in two grab samples, AP-SS-1-5 and AP-SS-7-39.5, which were collected at composite sample locations SS-1 and SS-7, respectively. The reported

TABLE 3-1

COMPOSITE SURFACE SAMPLE RESULTS

SUMMARY OF DETECTED ANALYTES
AMADORI PROPERTY

Location I.D.			AP-SS-01	AP-SS-02	AP-SS-03	AP-SS-04	AP-SS-05
Sample I.D.			AP-SS-01 COMP	AP-SS-02 COMP	AP-SS-03 COMP	AP-SS-04 COMP	AP-SS-05 COMP
Matrix			Soil	Soil	Soil	Soil	Soil
Date Sampled			06/22/98	06/22/98	06/22/98	06/22/98	06/23/98
Parameter	Units	Criteria*					
Volatiles							
Acetone	UG/KG	200	NA	NA	NA	NA	NA
Semivolatiles							
Naphthalene	UG/KG	13000	82	230	84	38	140
2-Methylnaphthalene	UG/KG	36400	100	200	77	44	160
Acenaphthylene	UG/KG	41000	390	1600	560	100	220
Acenaphthene	UG/KG	50000	77	280		37	140
Dibenzofuran	UG/KG	6200	75	300		40	150
Fluorene	UG/KG	50000	110	540	99		160
Phenanthrene	UG/KG	50000	1300	5800	1100	540	1300
Anthracene	UG/KG	50000	540	1600	410	180	400
Carbazole	UG/KG		150	880	160	84	180
Fluoranthene	UG/KG	50000	2500	11000	2500	940	1300
Pyrene	UG/KG	50000	3000	8500	3000	1000	2000
Butylbenzylphthalate	UG/KG	50000	68		90		88
* Benzo(a)anthracene	UG/KG	224	1200	4000	1500	550	770
* Chrysene	UG/KG	400	1500	5100	1700	600	870
* Benzo(b)fluoranthene	UG/KG	1100	1900	5300	2000	670	1200
* Benzo(k)fluoranthene	UG/KG	1100	1800	5300	2600	820	1100
* Benzo(a)pyrene	UG/KG	61	1400	3800	1600	550	860
* Indeno(1,2,3-cd)pyrene	UG/KG	3200	570	1500	580	190	390
Dibenz(a,h)anthracene	UG/KG	14	230	660	240	86	150
Benzo(g,h,i)perylene	UG/KG	50000	530	1300	540	180	370
Metals		Total 500 Semi. VOCs	17	58	18	6	12
Aluminum	MG/KG		20100	13200	7710	10600	12800
Antimony	MG/KG		1.3	3.5	3.9	0.89	3.0
Arsenic	MG/KG	7.5	8.9	9.5	5.9	5.9	9.3
Barium	MG/KG	300	180	129	73.1	78.6	125
Beryllium	MG/KG	0.16	3.6	1.9	0.71	1.4	1.3
Cadmium	MG/KG	10 1	4.9	6.2	7.6	3.8	5.8
Calcium	MG/KG		134000	128000	42800	90000	66900
Chromium	MG/KG	50 10	31.9	104	74.3	68.9	45.6
Cobalt	MG/KG	30	5.5	7.9	12.2	5.2	8.2
Copper	MG/KG	25	38.2	50.0	44.9	30.9	70.0
Iron	MG/KG	2000	30000	42900	54900	30500	38100

* -New York State Department of Environmental Concervation. Division Technical and Administrative Guidance Memorandum (TAGM): Determination of Soil Cleanup Objectives and Cleanup Levels, HWR-94-4046, January 24,1994.

Only detected results reported.

( ) - Concentration exceeds Criteria.

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TABLE 3-1

COMPOSITE SURFACE SAMPLE RESULTS

SUMMARY OF DETECTED ANALYTES
AMADORI PROPERTY

Location I.D.			AP-SS-01	AP-SS-02	AP-SS-03	AP-SS-04	AP-SS-05
Sample I.D.			AP-SS-01 COMP	AP-SS-02 COMP	AP-SS-03 COMP	AP-SS-04 COMP	AP-SS-05 COMP
Matrix			Soil	Soil	Soil	Soil	Soil
Date Sampled			06/22/98	06/22/98	06/22/98	06/22/98	06/23/98
Parameter	Units	Criteria*					
Metals							
Lead	MG/KG		172	130	84.8	117	137
Magnesium	MG/KG		20700	14500	8080	19400	12900
Manganese	MG/KG		1830	3160	2610	3020	1670
Mercury	MG/KG	0.1	0.11	0.11	0.11		0.13
Nickel	MG/KG	13	13.0	23.7	33.5	12.4	24.2
Potassium	MG/KG		2810	2140	1420	1380	2070
Selenium	MG/KG	2	5.6	5.0	5.2	3.1	5.4
Silver	MG/KG		1.2	1.6	0.92	1.4	0.93
Sodium	MG/KG		833	370		407	151
Thallium	MG/KG			1.6		1.7	
Vanadium	MG/KG	150	12.2	43.2	30.6	37.0	21.8
Zinc	MG/KG	20	327	340	222	133	287

* -New York State Department of Environmental Concervation. Division Technical and Administrative Guidance Memorandum (TAGM): Determination of Soil Cleanup Objectives and Cleanup Levels, HWR-94-4046, January 24,1994.

Only detected results reported.

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TABLE 3-1

COMPOSITE SURFACE SAMPLE RESULTS

SUMMARY OF DETECTED ANALYTES
AMADORI PROPERTY

Location I.D.			AP-SS-06	AP-SS-07	AP-SS-1	AP-SS-7	AP-SS-BG-1
Sample I.D.			AP-SS-06 COMP	AP-SS-07 COMP	AP-SS-1-15	AP-SS-7-39.5	AP-SS-BG-1
Matrix			Soil	Soil	Soil	Soil	Soil
Date Sampled			06/23/98	06/23/98	06/22/98	06/23/98	06/22/98
Parameter	Units	Criteria*					
Metals							
Lead	MG/KG		101	82.7	NA	NA	181
Magnesium	MG/KG		12100	25400	NA	NA	5770
Manganese	MG/KG		1820	8700	NA	NA	1650
Mercury	MG/KG	0.1	0.06		NA	NA	
Nickel	MG/KG	13	18.4	13.5	NA	NA	17.9
Potassium	MG/KG		2610	2320	NA	NA	1010
Selenium	MG/KG	2	7.7	6.5	NA	NA	3.0
Silver	MG/KG		0.97	3.3	NA	NA	0.86
Sodium	MG/KG		372	553	NA	NA	
Thallium	MG/KG			9.9	NA	NA	
Vanadium	MG/KG	150	11.7	173	NA	NA	27.5
Zinc	MG/KG	20	271	202	NA	NA	441

* -New York State Department of Environmental Concervation. Division Technical and Administrative Guidance Memorandum (TAGM): Determination of Soil Cleanup Objectives and Cleanup Levels, HWR-94-4046, January 24,1994.

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TABLE 3-1

COMPOSITE SURFACE SAMPLE RESULTS

SUMMARY OF DETECTED ANALYTES
AMADORI PROPERTY

Location I.D.			AP-SS-06	AP-SS-07	AP-SS-1	AP-SS-7	AP-SS-BG-1
Sample I.D.			AP-SS-06 COMP	AP-SS-07 COMP	AP-SS-1-15	AP-SS-7-39.5	AP-SS-BG-1
Matrix			Soil	Soil	Soil	Soil	Soil
Date Sampled			06/23/98	06/23/98	06/22/98	06/23/98	06/22/98
Parameter	Units	Criteria*					
Volatiles							
Acetone	UG/KG	200	NA	NA	5	6	NA
Semivolatiles							
Naphthalene	UG/KG	13000	72	63	NA	NA	78
2-Methylnaphthalene	UG/KG	36400	86	80	NA	NA	100
Acenaphthylene	UG/KG	41000	170	170	NA	NA	120
Acenaphthene	UG/KG	50000		44	NA	NA	68
Dibenzofuran	UG/KG	6200	39	57	NA	NA	62
Fluorene	UG/KG	50000	39	49	NA	NA	74
Phenanthrene	UG/KG	50000	330	670	NA	NA	960
Anthracene	UG/KG	50000	110	250	NA	NA	210
Carbazole	UG/KG			79	NA	NA	150
Fluoranthene	UG/KG	50000	630	1200	NA	NA	1700
Pyrene	UG/KG	50000	680	1100	NA	NA	1400
Butylbenzylphthalate	UG/KG	50000			NA	NA	
Benzo(a)anthracene	UG/KG	224	380	580	NA	NA	740
Chrysene	UG/KG	400	440	670	NA	NA	930
Benzo(b)fluoranthene	UG/KG	1100	560	880	NA	NA	960
Benzo(k)fluoranthene	UG/KG	1100	620	800	NA	NA	1000
Benzo(a)pyrene	UG/KG	61	420	650	NA	NA	850
Indeno(1,2,3-cd)pyrene	UG/KG	3200	170	290	NA	NA	300
Dibenz(a,h)anthracene	UG/KG	14	51	98	NA	NA	130
Benzo(g,h,i)perylene	UG/KG	50000	150	260	NA	NA	270
Metals			5	8			10
Aluminum	MG/KG		21500	18500	NA	NA	8070
Antimony	MG/KG		1.3	5.2	NA	NA	1.5
Arsenic	MG/KG	7.5	11.1	8.2	NA	NA	12.1
Barium	MG/KG	300	215	148	NA	NA	61.7
Beryllium	MG/KG	0.16	2.9	2.7	NA	NA	0.43
Cadmium	MG/KG	1	7.4	7.9	NA	NA	6.2
Calcium	MG/KG		94700	153000	NA	NA	27400
Chromium	MG/KG	10	25.3	243	NA	NA	57.6
Cobalt	MG/KG	30	7.9	5.2	NA	NA	7.0
Copper	MG/KG	25	37.2	33.8	NA	NA	41.7
Iron	MG/KG	2000	53000	61900	NA	NA	30800

* -New York State Department of Environmental Concervation. Division Technical and Administrative Guidance Memorandum (TAGM): Determination of Soil Cleanup Objectives and Cleanup Levels, HWR-94-4046, January 24,1994.

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TABLE 3-1

COMPOSITE SURFACE SAMPLE RESULTS

SUMMARY OF DETECTED ANALYTES
AMADORI PROPERTY

Location I.D.			AP-SS-BG-2
Sample I.D.			AP-SS-BG-2
Matrix			Soil
Date Sampled			06/22/98
Parameter	Units	Criteria*	
Volatiles			
Acetone	UG/KG	200	NA
Semivolatiles			
Naphthalene	UG/KG	13000	130
2-Methylnaphthalene	UG/KG	36400	130
Acenaphthylene	UG/KG	41000	140
Acenaphthene	UG/KG	50000	280
Dibenzofuran	UG/KG	6200	170
Fluorene	UG/KG	50000	280
Phenanthrene	UG/KG	50000	2700
Anthracene	UG/KG	50000	690
Carbazole	UG/KG		430
Fluoranthene	UG/KG	50000	3400
Pyrene	UG/KG	50000	2700
Butylbenzylphthalate	UG/KG	50000	
Benzo(a)anthracene	UG/KG	224	1200
Chrysene	UG/KG	400	1400
Benzo(b)fluoranthene	UG/KG	1100	1500
Benzo(k)fluoranthene	UG/KG	1100	1500
Benzo(a)pyrene	UG/KG	61	1300
Indeno(1,2,3-cd)pyrene	UG/KG	3200	450
Dibenz(a,h)anthracene	UG/KG	14	180
Benzo(g,h,i)perylene	UG/KG	50000	420
Metals			19
Aluminum	MG/KG		8360
Antimony	MG/KG		
Arsenic	MG/KG	7.5	12.3
Barium	MG/KG	300	62.2
Beryllium	MG/KG	0.16	0.46
Cadmium	MG/KG	1	5.7
Calcium	MG/KG		10500
Chromium	MG/KG	10	35.7
Cobalt	MG/KG	30	7.0
Copper	MG/KG	25	35.8
Iron	MG/KG	2000	34000

* -New York State Department of Environmental Concervation. Division Technical and Administrative Guidance Memorandum (TAGM): Determination of Soil Cleanup Objectives and Cleanup Levels, HWR-94-4046, January 24,1994.

Only detected results reported.

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TABLE 3-1

COMPOSITE SURFACE SAMPLE RESULTS

SUMMARY OF DETECTED ANALYTES
AMADORI PROPERTY

Location I.D.			AP-SS-BG-2
Sample I.D.			AP-SS-BG-2
Matrix			Soil
Date Sampled			06/22/98
Parameter	Units	Criteria*	
Metals			
Lead	MG/KG		163
Magnesium	MG/KG		2390
Manganese	MG/KG		963
Mercury	MG/KG	0.1	0.07
Nickel	MG/KG	13	16.4
Potassium	MG/KG		885
Selenium	MG/KG	2	4.1
Silver	MG/KG		0.37
Sodium	MG/KG		
Thallium	MG/KG		
Vanadium	MG/KG	150	19.5
Zinc	MG/KG	20	373

* -New York State Department of Environmental Concervation. Division Technical and Administrative Guidance Memorandum (TAGM): Determination of Soil Cleanup Objectives and Cleanup Levels, HWR-94-4046, January 24,1994.

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TABLE 3-2

DISCRETE SOIL SAMPLE RESULTS

SUMMARY OF DETECTED ANALYTES
AMADORI PROPERTY

Location I.D.			AP-SS-12	AP-SS-13	AP-SS-19	AP-SS-20	AP-SS-31.5
Sample I.D.			AP-SS-12	AP-SS-13	AP-SS-19	AP-SS-20	AP-SS-31.5
Matrix			Soil	Soil	Soil	Soil	Soil
Date Sampled			07/17/98	07/17/98	07/17/98	07/17/98	07/17/98
Parameter	Units	Criteria*					
Semivolatiles							
Naphthalene	UG/KG	13000	60	61	68	54	NA
Acenaphthylene	UG/KG	41000	340	270	290	240	NA
Phenanthrene	UG/KG	50000	350	390	300	320	NA
Anthracene	UG/KG	50000	230	200	210	180	NA
Fluoranthene	UG/KG	50000	900	900	740	660	NA
Pyrene	UG/KG	50000	740	730	690	560	NA
Benzo(a)anthracene	UG/KG	224	540	440	470	390	NA
Chrysene	UG/KG	400	610	550	580	450	NA
Benzo(b)fluoranthene	UG/KG	1100	730	590	830	560	NA
Benzo(k)fluoranthene	UG/KG	1100	760	720	660	580	NA
Benzo(a)pyrene	UG/KG	61	590	480	530	410	NA
Indeno(1,2,3-cd)pyrene	UG/KG	3200	310	250	280	200	NA
Dibenz(a,h)anthracene	UG/KG	14	110	99	100	75	NA
Benzo(g,h,i)perylene	UG/KG	50000	280	220	250	170	NA
Metals	TOTAL	Semi VOCs	6	6	6	5	
Chromium	MG/KG	10	NA	NA	NA	NA	145

* -New York State Department of Environmental Concervation. Division Technical and Administrative Guidance Memorandum (TAGM): Determination of Soil Cleanup Objectives and Cleanup Levels, HWR-94-4046, January 24,1994.

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TABLE 3-2

DISCRETE SOIL SAMPLE RESULTS

SUMMARY OF DETECTED ANALYTES
AMADORI PROPERTY

Location I.D.			AP-SS-32.5	AP-SS-38.5	AP-SS-39.5
Sample I.D.			AP-SS-32.5	AP-SS-38.5	AP-SS-39.5
Matrix			Soil	Soil	Soil
Date Sampled			07/17/98	07/17/98	07/17/98
Parameter	Units	Criteria*			
Semivolatiles					
Naphthalene	UG/KG	13000	NA	NA	NA
Acenaphthylene	UG/KG	41000	NA	NA	NA
Phenanthrene	UG/KG	50000	NA	NA	NA
Anthracene	UG/KG	50000	NA	NA	NA
Fluoranthene	UG/KG	50000	NA	NA	NA
Pyrene	UG/KG	50000	NA	NA	NA
Benzo(a)anthracene	UG/KG	224	NA	NA	NA
Chrysene	UG/KG	400	NA	NA	NA
Benzo(b)fluoranthene	UG/KG	1100	NA	NA	NA
Benzo(k)fluoranthene	UG/KG	1100	NA	NA	NA
Benzo(a)pyrene	UG/KG	61	NA	NA	NA
Indeno(1,2,3-cd)pyrene	UG/KG	3200	NA	NA	NA
Dibenz(a,h)anthracene	UG/KG	14	NA	NA	NA
Benzo(g,h,i)perylene	UG/KG	50000	NA	NA	NA
Metals					
Chromium	MG/KG	10	155	165	173

* -New York State Department of Environmental Concervation. Division Technical and Administrative Guidance Memorandum (TAGM): Determination of Soil Cleanup Objectives and Cleanup Levels, HWR-94-4046, January 24,1994.

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concentrations were estimated values and were below the NYSDEC TAGM 4046 criteria. Acetone is a common laboratory contaminant. No other VOCs were detected in the site surface soil samples.

Several semivolatile compounds, specifically PAHs, were detected in all site samples and the background samples at concentrations exceeding TAGM 4046 criteria. In general, the concentration of PAHs in the site soils was at or below the concentrations reported for the two background samples. Onsite sample (AP-SS-2) contained the greatest concentrations of PAHs. Additional discrete samples were collected at this location to better determine the location of subsurface soils containing elevated PAHs, as discussed below.

TAL metals analysis of the composite surface soil samples indicated a substantially greater frequency and reported concentrations for onsite metals compared to background samples. Chromium was the only metal of concern that exceeded background and TAGM 4046 criteria. Slag-containing surface fill at the site may account for the elevated chromium concentrations. Additional samples were collected for chromium analysis at the discrete sample locations. Results are discussed below.

Discrete Surface Soil Sampling

Upon review of the initial composite soil sample results and consultation with the NYSDEC, additional discrete soil sampling was conducted to better define the onsite location which contained surface soil contaminants exceeding background concentrations and/or NYSDEC soil criteria. It included collecting surface soils from grid node nos 12, 13, 19, and 20 (composite sample location AP-SS-2) for PAH analysis and grid nodes nos. 31.5, 32.5, 38.5, and 39.5 (composite sample location AP-SS-7) for chromium analysis. Results of the PAH analysis for discrete samples which comprised composite sample AP-SS-2 reported exceedances of TAGM 4046 criteria, but at concentrations less than background. Results of the chromium analysis for the discrete samples which comprised composite sample AP-SS-7 reported exceedances of TAGM 4046 criteria at concentrations ranging from 145 to 173 parts per million (ppm), slightly higher than the composite sample concentration for chromium. The average chromium concentration for the background samples was 46 ppm which exceeds the TAGM 4046 criteria for this metal.

3.3 Subsurface Investigation

3.3.1 Buried Tank Assessment

Based on the results of the magnetometer survey described in Section 2.4.1, test trenches TT-14, TT-22, and TT-23 were excavated at the locations of magnetic anomalies which may represent buried tanks. Buried tanks were not encountered at any location; magnetic anomalies may be attributed to shallow metallic objects within the fill material at these locations. Moreover, no other surficial evidence of buried tanks, such as vent pipes and fill port remnants, were observed at the former row house locations. The Phase I assessment results showed that the fuel source for the former rowhouses was coal.

3.3.2 Subsurface Soil Sampling

All eight of the subsurface soil/fill samples collected from the test trenches reported trace concentrations [2 to 19 parts per billion (ppb)] of methylene chloride; however, the presence of this VOC is attributed to laboratory contamination and is at concentrations below NYSDEC TAGM 4046 criteria. Several SVOCs, predominantly PAHs, were reported at all subsurface soil sample locations at concentrations exceeding TAGM 4046 criteria. The sample reporting the greatest number and concentration of SVOCs was collected from test trench TT-15 (sample AP-TT-15). SVOC concentrations reported for this sample were one to three orders of magnitude greater than other samples collected on site and was collected from the fill material which contained cinders. At the direction of the NYSDEC, one subsurface soil sample was submitted for PCB analysis. Sample AP-TT-12 from test trench TT-12 reported no detectable PCBs. Table 3-3 contains analytical results from subsurface soil samples.

With the exception of thallium, TAL metals were reported in all samples. In general, metals concentrations exceeded NYSDEC TAGM 4046 criteria. Sample AP-TT-8 reported the greatest number of metals of concern at the highest concentrations. Arsenic (58 ppm), cadmium (62.8 ppm), chromium (280 ppm), and lead (2150 ppm) were reported at this sample location. The sample consisted of fill material containing reworked gravel, silt, clay, bricks, and cinders.

TABLE 3-3

SUBSURFACE SAMPLE RESULTS

SUMMARY OF DETECTED ANALYTES
AMADORI PROPERTY

coal ash

Location I.D.			AP-TT-1	AP-TT-11	AP-TT-12	AP-TT-15	AP-TT-17
Sample I.D.			AP-TT-1	AP-TT-11	AP-TT-12	AP-TT-15	AP-TT-17
Matrix			Soil	Soil	Soil	Soil	Soil
Date Sampled			06/22/98	06/23/98	06/23/98	06/23/98	06/23/98
Parameter	Units	Criteria*					
Volatiles							
Methylene Chloride	UG/KG	100	2	6		6	4
Semivolatiles							
4-Methylphenol (p-cresol)	UG/KG	900				78	
2,4-Dimethylphenol	UG/KG					54	
Naphthalene	UG/KG	13000	250	170	240	1100	130
2-Methylnaphthalene	UG/KG	36400	270	180	160	790	140
Acenaphthylene	UG/KG	41000	120	250	48		160
Acenaphthene	UG/KG	50000		52		5600	
Dibenzofuran	UG/KG	6200	120	90	90	4800	64
Fluorene	UG/KG	50000	60	81		8200	
Phenanthrene	UG/KG	50000	630	1200	300	37000	590
Anthracene	UG/KG	50000	120	290	65	13000	130
Carbazole	UG/KG		93	220		3100	110
Fluoranthene	UG/KG	50000	1400	3100	550	22000	1900
Pyrene	UG/KG	50000	2100	4700	520	34000	3100
3,3'-Dichlorobenzidine	UG/KG					90	
Benzo(a)anthracene	UG/KG	224	1200	3000	350	15000	1900
Chrysene	UG/KG	400	1300	2900	430	17000	1700
Benzo(b)fluoranthene	UG/KG	1100	2000	3000	620	3900	2200
Benzo(k)fluoranthene	UG/KG	1100				21000	
Benzo(a)pyrene	UG/KG	61	960	2600	390	15000	1700
Indeno(1,2,3-cd)pyrene	UG/KG	3200	840	2000	280	7400	1400
Dibenz(a,h)anthracene	UG/KG	14	360	1000	180	5600	720
Benzo(g,h,i)perylene	UG/KG	50000	930	2200	310	6100	1500
Metals			12	27	4	22	17
Aluminum	MG/KG		7620	10300	6810	20100	6920
Antimony	MG/KG		3.6	3.4	1.1	21.1	1.4
Arsenic	MG/KG	7.5	13.4	14.4	8.3	17.1	9.2
Barium	MG/KG	300	326	139	75.4	197	184
Beryllium	MG/KG	0.16	0.69	0.88	0.70	1.9	0.80
Cadmium	MG/KG	10	4.7	6.3	3.4	8.2	2.8
Calcium	MG/KG		48100	49100	27900	68700	76200
Chromium	MG/KG	10	29.7	32.5	18.9	66.0	15.6
Cobalt	MG/KG	30	6.3	8.5	5.5	9.4	3.6

* -New York State Department of Environmental Concervation. Division Technical and Administrative Guidance Memorandum (TAGM): Determination of Soil Cleanup Objectives and Cleanup Levels, HWR-94-4046, January 24,1994.

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TABLE 3-3

SUBSURFACE SAMPLE RESULTS

SUMMARY OF DETECTED ANALYTES
AMADORI PROPERTY

Location I.D.			AP-TT-1	AP-TT-11	AP-TT-12	AP-TT-15	AP-TT-17
Sample I.D.			AP-TT-1	AP-TT-11	AP-TT-12	AP-TT-15	AP-TT-17
Matrix			Soil	Soil	Soil	Soil	Soil
Date Sampled			06/22/98	06/23/98	06/23/98	06/23/98	06/23/98
Parameter	Units	Criteria*					
Metals							
Copper	MG/KG	25	48.3	44.0	29.5	101	22.7
Iron	MG/KG	2000	28300	32100	20300	42000	13200
Lead	MG/KG		484	266	76.3	303	234
Magnesium	MG/KG		5260	7250	7160	9770	6680
Manganese	MG/KG		1070	977	805	2960	549
Mercury	MG/KG	0.1	0.33	0.18	0.06		0.25
Nickel	MG/KG	13	17.4	24.0	16.1	28.1	11.2
Potassium	MG/KG		1090	1100	692	2650	628
Selenium	MG/KG	2	2.0	3.2	1.8	6.5	3.2
Silver	MG/KG		0.81	0.78	0.62	1.0	0.84
Sodium	MG/KG		251	165	205	406	190
Vanadium	MG/KG	150	17.1	19.6	11.5	30.5	13.2
Zinc	MG/KG	20	315	464	157	996	159

* -New York State Department of Environmental Concervation. Division Technical and Administrative Guidance Memorandum (TAGM): Determination of Soil Cleanup Objectives and Cleanup Levels, HWR-94-4046, January 24,1994.

Only detected results reported.

( ) - Concentration exceeds Criteria.

MADE BY: DP DATE: 8/25/98
CHKD. BY: PF DATE: 8/26/98

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08/26/98

TABLE 3-3

SUBSURFACE SAMPLE RESULTS

SUMMARY OF DETECTED ANALYTES
AMADORI PROPERTY

Location I.D.			AP-TT-3	AP-TT-5	AP-TT-8
Sample I.D.			AP-TT-3	AP-TT-5	AP-TT-8
Matrix			Soil	Soil	Soil
Date Sampled			06/22/98	06/22/98	06/23/98
Parameter	Units	Criteria*			
Volatiles					
Methylene Chloride	UG/KG	100	4	12	8
Semivolatiles					
4-Methylphenol (p-cresol)	UG/KG	900			
2,4-Dimethylphenol	UG/KG				
Naphthalene	UG/KG	13000	170	110	140
2-Methylnaphthalene	UG/KG	36400	190	100	120
Acenaphthylene	UG/KG	41000	100	57	
Acenaphthene	UG/KG	50000			
Dibenzofuran	UG/KG	6200	100	61	83
Fluorene	UG/KG	50000	60		60
Phenanthrene	UG/KG	50000	590	420	570
Anthracene	UG/KG	50000	120	77	100
Carbazole	UG/KG		87		79
Fluoranthene	UG/KG	50000	1500	720	930
Pyrene	UG/KG	50000	2400	730	1100
3,3'-Dichlorobenzidine	UG/KG				
Benzo(a)anthracene	UG/KG	224	1300	500	560
Chrysene	UG/KG	400	1600	550	680
Benzo(b)fluoranthene	UG/KG	1100	1500	580	680
Benzo(k)fluoranthene	UG/KG	1100	1000	440	440
Benzo(a)pyrene	UG/KG	61	1200	440	550
Indeno(1,2,3-cd)pyrene	UG/KG	3200	830	300	380
Dibenz(a,h)anthracene	UG/KG	14	370	160	190
Benzo(g,h,i)perylene	UG/KG	50000	940	310	430
Metals			14	5	7
Aluminum	MG/KG		12000	15200	13500
Antimony	MG/KG		2.3	8.9	34.6
Arsenic	MG/KG	7.5	10.6	14.5	57.7
Barium	MG/KG	300	668	174	169
Beryllium	MG/KG	0.16	1.4	1.8	0.74
Cadmium	MG/KG	1	4.4	23.5	62.8
Calcium	MG/KG		42600	74300	54900
Chromium	MG/KG	10	44.9	116	280
Cobalt	MG/KG	30	6.0	8.9	15.5

* -New York State Department of Environmental Concervation. Division Technical and Administrative Guidance Memorandum (TAGM): Determination of Soil Cleanup Objectives and Cleanup Levels, HWR-94-4046, January 24,1994.

Only detected results reported.

( ) - Concentration exceeds Criteria.

MADE BY: DP DATE: 8/26/98
CHKD. BY: PF DATE: 8/26/98

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08/26/98

TABLE 3-3

SUBSURFACE SAMPLE RESULTS

SUMMARY OF DETECTED ANALYTES
AMADORI PROPERTY

Location I.D.			AP-TT-3	AP-TT-5	AP-TT-8
Sample I.D.			AP-TT-3	AP-TT-5	AP-TT-8
Matrix			Soil	Soil	Soil
Date Sampled			06/22/98	06/22/98	06/23/98
Parameter	Units	Criteria*			
Metals					
Copper	MG/KG	25	39.9	95.2	386
Iron	MG/KG	2000	25400	163000	198000
Lead	MG/KG		7850	233	2150
Magnesium	MG/KG		5780	10300	9040
Manganese	MG/KG		966	5380	5390
Mercury	MG/KG	0.1	0.18	0.27	0.24
Nickel	MG/KG	13	16.8	38.2	135
Potassium	MG/KG		1130	1590	2220
Selenium	MG/KG	2	3.3	13.4	15.1
Silver	MG/KG		0.91	2.6	3.2
Sodium	MG/KG		172	303	479
Vanadium	MG/KG	150	19.3	27.2	157
Zinc	MG/KG	20	284	822	5980

* -New York State Department of Environmental Concervation. Division Technical and Administrative Guidance Memorandum (TAGM): Determination of Soil Cleanup Objectives and Cleanup Levels, HWR-94-4046, January 24,1994.

Only detected results reported.

( ) - Concentration exceeds Criteria.

MADE BY: DP DATE: 8/25/98
CHKD. BY: PF DATE: 8/26/98

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08/26/98

TABLE 3-4

GROUNDWATER SAMPLE RESULTS

SUMMARY OF DETECTED ANALYTES
AMADORI PROPERTY

Location I.D.			AP-MW-1	AP-MW-2	AP-MW-3	AP-MW-4
Sample I.D.			AP-MW-1	AP-MW-2	AP-MW-3	AP-MW-4
Matrix			Water	Water	Water	Water
Date Sampled			06/29/98	06/29/98	06/29/98	06/29/98
Parameter	Units	Criteria*				
Volatiles						
Carbon Disulfide	UG/L	50	2	2		
1,2-Dichloroethene (total)	UG/L	5		2		
Benzene	UG/L	0.7	16	12		
Toluene	UG/L	5	12	11	1	
Ethylbenzene	UG/L	5	5	3		
Xylene (total)	UG/L	5	27	9		
Semivolatiles						
2-Methylnaphthalene	UG/L	50		1		
Metals						
Aluminum	UG/L		610	505	224	9300
Arsenic	UG/L	25	5.2	5.2		13.1
Barium	UG/L	1000	117	74.9	70.4	95.7
Cadmium	UG/L	10	1.0	0.54	2.5	2.2
Calcium	UG/L		176000	218000	260000	230000
Chromium	UG/L	50	1.4	0.91		11.6
Cobalt	UG/L		1.4	4.5	2.6	6.7
Copper	UG/L	200	3.1	2.1		15.1
Iron	UG/L	300	1340	882	618	14400
Lead	UG/L	25				8.0
Magnesium	UG/L	35000	39600	36800	76800	42100
Manganese	UG/L	300	206	738	672	812
Nickel	UG/L		7.9	7.6	5.7	16.0
Potassium	UG/L		13400	7160	5530	3920
Selenium	UG/L	10	5.0	5.7		
Silver	UG/L	50			1.3	1.5
Sodium	UG/L	20000	101000	14400	30200	12200
Vanadium	UG/L		0.78	0.76		13.2
Zinc	UG/L	300	20.4	18.2	22.7	55.8

* - New York State Department of Environmental Conservation Division of Water Technical and Operational Guidance Series (1.1.1) AMBIENT WATER QUALITY STANDARDS AND GUIDANCE VALUES (10/22/93).

Only detected results reported.

( ) - Concentration exceeds Criteria.

MADE BY: DP DATE: 8/25/98
CHKD. BY: PF DATE: 8/26/98

J:\35556\DB\RES.DBF(detcrit.frx,PRINT.PRG)
08/26/98

TABLE 4-1

GROUNDWATER ELEVATION SUMMARY
AMADORI PROPERTY

Monitoring Well ID	Top of Riser Elevation	Groundwater Elevation*		
		DATE		
		6/25/98	6/29/98	8/21/98
AMW-1	102.39	88.47	88.69	88.35
AMW-2	99.54	87.86	87.57	85.49
AMW-3	99.87	87.24	87.03	85.97
AMW-4	98.96	84.46	84.45	83.74

* Elevations are referenced to an arbitrary benchmark elevation of 100.00 feet.

35556\CAD\1=80 9/8/98-4 BJC

N

A STREET

BUFFALO BRAKE BEAM COMPANY

ROAD

B1

B2

AMW-1
(88.69)

AMADORI
CONSTRUCTION
COMPANY

88

AMW-2
(87.57)

87

HT6
(100.00)

86

PROPERTY
BOUNDARY

AMW-3
(87.03)

85

AMW-4
(84.45)

COUNTY OF ERIE R/O
(SEWAGE TREATMENT PLANT)

BETHLEHEM STEEL CORP.

SOUTH BUFFALO RAILWAY CO.

SMOKES CREEK

NOTES:

- AMW-1 — MONITORING WELL ID
- (88.69) — RELATIVE GROUNDWATER ELEVATION* (6/29/98)
- B2 — BORING FOR ATTEMPTED WELL INSTALLATION
- 88 — GROUNDWATER CONTOUR
- GROUNDWATER FLOW DIRECTION
- ▲ HT6 — ESTABLISHED VERTICAL REFERENCE OF 100.00 FT. AMSL
- * — GROUNDWATER ELEVATIONS ARE RELATIVE TO AN ARBITRARY BASE ELEVATION OF 100.00 FT. AT HUB HT6 (▲)

80' 0 80'

SCALE: 1"= 80'

GROUNDWATER CONTOUR MAP
AMADORI PROPERTY, LACKAWANNA, N.Y.

URS Greiner Consultants, Inc.

FIGURE 4-1

CC-5587A

3.4 Groundwater Investigation

Upgradient sample AP-MW-1 and onsite sample AP-MW-2 reported benzene, toluene, ethylbenzene, and xylene (BTEX) compounds ranging in concentrations from 3 to 27 ppb. Concentrations of benzene, toluene, and xylene (total) reported in these samples exceeded NYSDEC TOGS 1.1.1 criteria. Downgradient sample AP-MW-3 reported toluene at a concentration of 1 ppb, below the NYSDEC criteria for this compound. Sample AP-MW-2 also reported 1,2 - dichlorethene (total) at a concentration of 2 ppb, below the criteria for this compound. Sample AP-MW-1 reported the highest BTEX concentrations, with a decrease in the BTEX concentration at downgradient sample location AP-MW-2. The presence of contamination in the upgradient wells suggests an offsite contaminant source, possibly an underground storage tank leaking petroleum or an upgradient surface spill. The Phase I investigation, however, did not identify any registered underground storage tank sites upgradient of the site. The only other VOC detected was carbon disulfide in samples AP-MW-1 and AP-MW-2 at concentrations below the NYSDEC criteria for this compound; the presence of this compound in the samples is attributed to laboratory contamination. Sample AP-MW-2 reported the presence of the only SVOC detected, 2-methynapthalene at a concentration of 1 ppb. The reported concentration of this compound is below the NYSDEC criteria.

Several of the TAL metals were detected in groundwater at the site. The only metals reported at concentrations exceeding NYSDEC groundwater quality criteria were iron, magnesium, manganese, and sodium. Downgradient sample AP-MW-4 reported the greatest number of metals, generally at the highest concentrations. This sample was collected downgradient of an area containing ash fill material (test trench Nos. 17 and 26) which may be contributing to the elevated metals concentrations at this location.

Table 3-4 summarizes the analytes detected in groundwater at the site.

4.0 PHYSICAL CHARACTERISTICS OF STUDY AREA

4.1 Site Geology

The United States Department of Agriculture (USDA) Soil Conservation Service *Soil Survey of Erie County, New York* (1986) lists the site area as Urban Land, which is defined as nearly level urbanized areas, and areas of well drained to poorly drained soils and disturbed soils on lowland plains. Soils on the property have been characterized as primarily Urban Land-Niagara Complex (Us) and Urban Land (Ud). This complex consists of nearly level areas of urban land and somewhat poorly drained Niagara soils. Niagara soils formed in silty lake-laid deposits with slope ranges from 0 to 3 percent. Permeability of the Niagara soils is moderately slow; the available water capacity is high and run-off is slow.

The subsurface investigation identified fill materials consisting of reworked silt, clay , and gravel intermixed with brick, concrete, cinders, metal, wood, glass, and wood. The fill materials consisted largely of building demolition debris assumed to be the remnants of the former row houses. Surface materials consisted of very dense gravel intermixed with slag at some locations. The physical character of the fill was generally consistent across the site with a few exceptions. Materials resembling foundry sands were identified at test trench location TT-5. An isolated area of fill containing coal ash was identified as test trench locations TT-17 and TT-26. A very dense impenetrable material was encountered at two for these test trench locations, as well as two other locations (TT-4 and TT-13). The trenches were located between the row house foundations which suggests that the impenetrable materials encountered 6 to 8 feet below grade is the row house basement floor.

Subsurface soils beneath the fill materials consisted of a brown fine to medium sand which is underlain by a gray medium dense to very dense sandy to clayey silt with some gravel. Bedrock below the site is a black fissile shale classified as the Levanna shale member of the Skaneateles formation. Bedrock was encountered at an average depth of 8 feet below ground surface (bgs) across most of the site. The boring for monitoring well AMW-4, situated in the southeast portion of the site, encountered bedrock 15.5 feet bgs.

4.2 Groundwater Flow

Groundwater was encountered at depths ranging from 8 to 10 feet bgs (Table 4-1). The general direction of groundwater flow across the site is to the southeast towards Smokes Creek which is approximately 100 feet south of the site (Figure 4-1). It follows the bedrock contours. The calculated average hydraulic gradient across the site is 0.013 foot per foot (ft/ft).

4.3 Site Topography and Drainage

The site is situated at latitude (north) 42°48'51.2" and longitude (west) 78°50'36.7", and is generally flat-lying with the exception of isolated berms of soil and debris in the southeastern portion of the site (Figure 2-1). The average height of northernmost berm is approximately 10 feet, which the average height of the berm in the southeast portion of the site is approximately 5 feet. The property to the east is slightly higher in elevation.

Property drainage patterns were determined through a combination of site reconnaissance, and a review of both aerial photographs and topographic maps conducted as part of the Phase I assessment. The area is generally flat, and surface drainage is likely laterally in all directions and towards onsite low spots. In general, surface drainage most likely follows the surface topography and flows from north to south-southwest towards Smokes Creek. No man-made drainage was observed during the site investigation. The site is designated within a 100-year floodplain (PEI 1998).

5.0 SUMMARY AND CONCLUSIONS

5.1 Site Investigation Summary

5.1.1 Nature and Extent of Contamination

Surface Soil

Analysis of the surface soil samples indicated the presence of several PAHs and metals which exceed NYSDEC TAGM 4046 criteria for both onsite and background samples. Additional sampling to further delineate areas of elevated PAHs in the surface soils in the northern-central portion of the site reported PAH concentrations exceeding NYSDEC soil criteria, but at concentrations below background levels. The levels of PAHs in the site surface soils are typical of an urban/industrial setting and are not greatly elevated above background surface soils. The average concentration of PAHs which exceed NYSDEC criteria for the background samples was 4,865 ppb compared to 7,505 ppb for the onsite samples. With the exception of the PAHs identified in the surface soils in the northern-central portion of the site (sample SS-2), the average concentration of PAHs exceeding NYSDEC criteria is below the average background concentration. Concentrations of chromium exceeding NYSDEC TAGM 4046 criteria in surface soils were identified in the southeastern corner of the property. Surficial slag deposits in this area may be contributing to average chromium concentrations which are slightly above background (46 ppm background compared to 160 ppm on site).

Subsurface Soils

Subsurface soils/fill samples collected from the test trenches did not show the presence of any volatile organic compounds attributed to site conditions. Several PAHs and metals were detected in the soil/fill samples, but generally at comparable concentrations found across the site. Sample results of fill materials consisting of coal ash revealed no greater levels of contamination than the remaining subsurface soil/fill samples. Total metals concentrations exceeding NYSDEC TAGM # 4046 criteria for the sample consisting of the coal ash CAP-TT-171 was the lowest of the eight samples analyzed. Total PAHs reported for this sample was below the average PAH concentration reported fro the subsurface soil/fill samples. The sample consisting of the foundry sand reported the second highest total

metals concentration chiefly attributed to the presence of iron. This sample contained the lowest concentration of total PAHs exceeding NYSDEC criteria.

Groundwater

Upgradient and onsite groundwater samples (AP-MW-1 and AP-MW-2) showed low level BTEX compounds exceeding NYSDEC Class GA groundwater standards. These compounds either were not detected or reported below class GA groundwater standards at the two downgradient locations, AP-MW-3 and AP-MW-4 at the present time. The presence of the BTEX compounds only in the upgradient wells suggests an upgradient offsite source for these compounds. BTEX concentrations could persist in groundwater in the upgradient wells and potentially migrate farther until the contaminant source is identified and removed.

5.1.2 Evaluation of Potential Receptors

The Amadori site is situated in an area chiefly composed of light industry with residential areas situated north and south of the site. The Phase I ESA results revealed that past site uses included residential followed by recreational uses. Currently, the site is vacant and used for storing and disposing of construction material, construction and demolition debris, soils, and other various discarded materials. Future use includes developing the site for commercial or light industrial activities. Based on current development plans proposed by the City of Lackawanna, development for residential use is not forecasted. Site groundwater is not a currently or a likely future source of potable water, as the area is served by a municipal water system.

Access to the property is currently semi-restricted by gates, jersey barriers, and soil berms, but evidence of entry and short-term use by local residents was noted during the investigation. Individuals who enter the site potentially can come in contact with contaminants in the soils through dermal contact and incidental ingestion via hand-to-mouth transfer (direct contact routes). Future site visitors or workers could be subjected to the same exposure route if the property is redeveloped. Moreover, excavation associated with redeveloping the property could expose future workers to contaminants identified in the subsurface soil/fill materials.

Human exposure to contamination in site groundwater is an unlikely scenario under existing and future site conditions. Groundwater encountered at depths greater than 8 feet below grade is not likely to be encountered in excavations associated with construction/redevelopment of the site.

5.1.3 Contaminant Fate and Transport

This section describes the probable fate and transport of contaminants identified at the site. Contaminant fate and transport depends not only upon the properties of the individual contaminant, but also upon the migration pathways (e.g., volatilization to air, leaching of contaminants to groundwater) available at a particular site. Migration pathways are determined by the physical characteristics of the site, and the distribution and types of contaminants identified at the site. These pathways also vary with respect to media. For example, groundwater contaminants migrate through advection and dispersion in groundwater, and volatilization into the unsaturated zone. Soil contaminants travel via wind and water erosion, leaching by infiltrating precipitation, and volatilization to the air or soil pores.

Soil Migration Pathways

Leaching is an unlikely migration pathway for PAHs and metals in the soil. These chemicals have low solubilities and high K_{oc} values. As a result, they have a tendency to sorb to soils and, consequently, will be transported mechanically by wind and water erosion. Since most of the site is covered by vegetation, wind erosion will be limited.

Groundwater Migration Pathways

Advection and dispersion are the primary controlling transport mechanisms for groundwater contaminants. Precipitation percolating through the soil solubilizes various compounds and transports them vertically to the groundwater.

As for other possible groundwater migration pathways, volatilization of groundwater contaminants is expected to be a significant pathway only where groundwater is near the surface (i.e., at the seeps), and where contaminants in groundwater are generally at concentrations below their solubilities.

5.1.3.1 Fate and Transport of Contaminants in Surface Soil and Fill Materials

Contaminants detected in the surface soil at the Amadori property include PAHs and metals. For ease of discussion, these chemicals have been grouped according to properties and behaviors.

PAHs

PAHs were the largest group of contaminants detected in the surface soils. The detected noncarcinogenic PAHs include: acenaphthylene, acenaphthene, fluorene, phenanthrene, anthracene, fluoranthene, pyrene, and benzo(g,h,i)perylene. The carcinogenic PAHs found at the site include: benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-c,d)pyrene, and dibenz(a,h)anthracene. All of these compounds exhibit low solubilities, high K_{oc} and K_{ow} values, and low vapor pressures. Accordingly, the ultimate fate of these PAHs is sorption to soils, followed by gradual degradation.

Inorganics

Several metals were identified in the surface soils at the site including cadmium, chromium, mercury, and lead. In general, the fate of these inorganics depends on their methylation or formation of different organic compounds and the pH of the soil. Chromium, as chromite, resists weathering and is relatively immobile. However, as a chromate ion (CrO_4^{2-}), it is mobile but easily sorbed onto clays and hydrous oxides. Mercury also can form several ions, but in general it is immobile. It tends to sorb to soils and persists as a slightly mobile organic compounds. The acidity or alkalinity of soils may also alter fates. In acidic soils (pHs 4.5 to 5.5), cadmium's fate resembles that of the chromate ion. At pHs above 7.5, sorbed cadmium remains immobile. Lead is relatively immobile in the environment. Its presence may be attributable to exhaust particulates deposited on the site and the presence of slag in the surface materials.

5.1.3.2 Fate and Transport of Contaminants in Subsurface Soils

The contaminants in the subsurface soils/fill material (PAHs and metals) generally reflect the compounds found in the surface soils. Many are transported vertically by infiltrating rainwater and sorb

onto the subsurface soils before reaching the groundwater. As a group, these compounds basically follow the same fate pathways as the surface soil contaminants, except that volatilization releases vapors to the soil pores instead of the air, and wind and soil erosion do not occur.

SVOCs

SVOCs detected in the subsurface soils primarily consist of PAHs. All PAH compounds encountered in the surface soils are present in the subsurface soils. SVOCs found in subsurface soils which were not detected in the surface soils include p-cresol, 2,4-dimethyphenol, and 3,3-dichlorobenzidine. PAHs are fairly immobile in soils or in water, as indicated by their K_{oc} and K_{ow} partition coefficients.

Inorganics

Various metals were encountered in the subsurface soil/fill samples. Sample location AP-TT-8 showed the greatest frequency and highest metals concentrations. The metals detected may complex with other elements into a more soluble form and be transported via infiltrating precipitation. They appear to be persistent in the soils/fill material and have not been subject to substantial leaching based on the groundwater sample results.

5.1.3.3 Fate and Transport of Contaminants in Groundwater

Contaminants detected in groundwater were limited to volatile organic compounds. The fate and transport for these compounds is discussed below.

VOCs

Aromatic fuel-related compounds (BTEX) detected in the site groundwater appear to be undergoing aerobic degradation typical of a trailing end of a product plume. The source of this plume, as discussed previously, is suspected to be upgradient of the site. Generally, BTEX compounds will migrate with the groundwater to locations where biodegradation and volatilization fate processes will occur.

5.2 Conclusions

Onsite surface and subsurface soils contain concentrations of PAHs and metals exceeding NYSDEC TAGM 4046 criteria. For the most part, concentrations of these analytes are within the range of background surface soils.

Results of the Phase I ESA reported no evidence that the property was ever used for any significant treatment, storage, or disposal of hazardous waste, chemicals, or substances. Three 55-gallon drums identified on the property during the Phase I ESA have been secured and removed from the site. Contents of the drums were nonhazardous.

Results of the site investigation of the subsurface indicated no buried wastes or tanks exist at the site and that the majority of fill material consists of building debris from the demolition of the former row houses. Surface debris piles contain soil, wood, rubber, and metal. The proposed redevelopment of the property as warehouses surrounded by surface cover materials which will essentially cap the isolated surface soil contamination identified in the southeast portion of the site. If redevelopment of the property occurs, measures should be taken during construction to suppress dust such as wetting dust-generating areas.

The BTEX compounds identified in site groundwater are not attributed to the site, but appear to be the result of an upgradient, offsite source. The extent of volatile organic groundwater contamination is limited to the northeastern portion of the property, but may persist and potentially migrate farther until the offsite contamination source is identified and removed. Metals in groundwater exceeding NYSDEC criteria include iron, magnesium, manganese, and sodium for all samples. The concentrations of these metals are typical of upgradient background conditions. Site groundwater is not currently or a likely future source of potable water, as the area is served by a municipal water system. Furthermore, human contact with groundwater during redevelopment of the property is unlikely, considering the depth to groundwater.

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APPENDIX A

DRUM DISPOSAL DOCUMENTATION

Environmental
LABORATORY SERVICES

7280 Caswell Street, Hancock Air Park, North Syracuse, NY 13212
(315) 458-8033, FAX (315) 458-0249, (800) 842-4667

Certified in:
- Connecticut
- Delaware
- Maryland
- Massachusetts
- New Hampshire
- New Jersey
- New York
- Pennsylvania
- Rhode Island

RECEIVED
UP ... TS
AUG 10 1998
JOB # 0535584(C-1)

cc: CD
Dan Sheldon

E.E.S. - BUFFALO
170 COOPER AVENUE
SUITE 100
TONAWANDA NY 14150
ATTN: ENVIRONMENTAL COORDINATOR

P.O. # 50026
CLIENT JOB NUMBER: B2099

PROJECT #: 981467
RECEIVED: 06/23/98

SITE ADDRESS: LACKAWANNA ED2
AMADORI SITE
LACKAWANNA, NY

TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 160137 CLIENT SAMPLE ID: B1507 A			DATE SAMPLED: 06/22/98		
FLASHPOINT	>150	DEGREES F	07/01/98	EPA 1010	SKW
METALS DIGESTION - TCLP	YES		07/08/98	EPA 3010	CD
TCLP LEAD	<0.10	MG/L	07/08/98	EPA 6010	CD
TCLP PREPARATION, NON VOLATILE	YES		06/30/98	EPA 1311	JCO
VOL. HALOCARBONS - EPA 8010		MG/KG	07/06/98	EPA 8010	SKW
BROMODICHLOROMETHANE	<10				
BROMOFORM	<10				
BROMOMETHANE	<10				
CARBON TETRACHLORIDE	<10				
CHLOROBENZENE	<10				
CHLOROETHANE	<10				
CHLOROFORM	<10				
CHLOROMETHANE	<10				
2-CHLOROETHYLVINYLETHER	<10				
DIBROMOCHLOROMETHANE	<10				
DICHLORODIFLUOROMETHANE	<10				
1,1-DICHLOROETHANE	<10				
1,2-DICHLOROETHANE	<10				
1,1-DICHLOROETHENE	<10				
TRANS-1,2-DICHLOROETHENE	<10				
1,2-DICHLOROPROPANE	<10				
CIS-1,3-DICHLOROPROPENE	<10				
TRANS-1,3-DICHLOROPROPENE	<10				
METHYLENE CHLORIDE	<10				
1,1,2,2-TETRACHLOROETHANE	<10				
TETRACHLOROETHENE	<10				
1,1,1-TRICHLOROETHANE	<10				
1,1,2-TRICHLOROETHANE	<10				
TRICHLOROFLUOROMETHANE	<10				
TRICHLOROETHENE	<10				

E.P.S. - BUFFALO
170 COOPER AVENUE
SUITE 100
TONAWANDA NY 14150
ATTN: ENVIRONMENTAL COORDINATOR

P.O. # 50026
CLIENT JOB NUMBER: B2099

PROJECT #: 981467
RECEIVED: 06/23/98

SITE ADDRESS: LACKAWANNA ED2
AMADORI SITE
LACKAWANNA, NY

TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 160137 CLIENT SAMPLE ID: B1607 A				**DATE SAMPLED: 06/22/98**	
VOL. HALOCARBONS - EPA 8010		MG/KG	07/06/98	EPA 8010	SKW
VINYL CHLORIDE	<10				
1,2-DICHLOROBENZENE	<10				
1,3-DICHLOROBENZENE	<10				
1,4-DICHLOROBENZENE	<10				
SAMPLE #: 160138 CLIENT SAMPLE ID: B1607 B				**DATE SAMPLED: 06/22/98**	
METALS DIGESTION - TCLP	YES		07/08/98	EPA 3010	CD
TCLP ARSENIC	<0.20	MG/L	07/08/98	EPA 6010	CD
TCLP BARIUM	<2.0	MG/L	07/08/98	EPA 6010	CD
TCLP CADMIUM	<0.05	MG/L	07/08/98	EPA 6010	CD
TCLP CHROMIUM	<0.05	MG/L	07/08/98	EPA 6010	CD
TCLP LEAD	<0.10	MG/L	07/08/98	EPA 6010	CD
TCLP MERCURY	<0.02	MG/L	07/07/98	EPA 7470	CD
TCLP PREPARATION, NON VOLATILE	YES		06/30/98	EPA 1311	JCO
TCLP PREPARATION, VOLATILE	YES		07/06/98	EPA 1311	JCO
TCLP SELENIUM	<0.20	MG/L	07/07/98	EPA 6010	CD
TCLP SILVER	<0.10	MG/L	07/07/98	EPA 6010	CD
TCLP VOLATILES ANALYSIS		MG/L	07/07/98	EPA 8240	PK
BENZENE	<0.010				
CARBON TETRACHLORIDE	<0.010				
CHLOROBENZENE	<0.010				
CHLOROFORM	<0.010				

Environmental
LABORATORY SERVICES

E.P.S. - BUFFALO
170 COOPER AVENUE
SUITE 100
TONAWANDA NY 14150
ATTN: ENVIRONMENTAL COORDINATOR

P.O. # 50026
CLIENT JOB NUMBER: B2099

PROJECT #: 981467
RECEIVED: 06/23/98

SITE ADDRESS: LACKAWANNA ED2
AMADORI SITE
LACKAWANNA, NY

SAMPLE #: 160138 CLIENT SAMPLE ID: B1607 B — DATE SAMPLED: 06/22/98

TEST PERFORMED	RESULTS	UNITS	DATE PERFORMED	METHOD NUMBER	PERFORMED BY
TCLP VOLATILES ANALYSIS		MG/L	07/07/98	EPA 8240	PK
1,2-DICHLOROETHANE	<0.010				
1,1-DICHLOROETHYLENE	<0.010				
2-BUTANONE (MEK)	0.16				
TETRACHLOROETHYLENE	<0.010				
TRICHLOROETHYLENE	<0.010				
VINYL CHLORIDE	<0.050				
1,4-DICHLOROBENZENE	<0.010				

Douglas W. Mendrala
Laboratory Director

07/08/98
Date

All tests performed under NYS ELAP Laboratory Certification # 11375 unless otherwise stated.

Environmental
LABORATORY SERVICES

CHAIN OF CUSTODY RECORD

Environmental PRODUCTS & SERVICES, INC. (315) 471-0503 / (800) 843-8265

EPS LAB LOG NO. 1607

JOB NUMBER: 82099 PIN NUMBER: NA
P.O. NUMBER: 50026 SPILL NUMBER: NA

LABORATORY: ELS
ADDRESS:
PHONE NO.:

REPORTING REQUIREMENTS (other than mail)
☐ PHONE NO.:
☒ FAX NO.: 716 - 447 - 4708

SITE ADDRESS: LACKAWANNA EDZ, Amadori Site, Lackawanna, NY

Sample(s) State of Origin: CT ☐ DE ☐ MA ☐ MD ☐ NH ☐ NJ ☐ NY ☒ PA ☐ RI ☐ VT ☐ __ ☐

TURN AROUND TIME (CALL AHEAD FOR APPROVAL FOR RUSH): 24-HOUR ☐ 48-HOUR ☐ NORMAL ☒ OTHER ☐ ____

LAB APPROVAL BY: ____

SPECIAL DETECTION LIMITS: Yes (Specify) ☐ No ☒

SPECIAL QA/QC LEVEL: Yes (Specify) ☐ No ☒

WASTE SAMPLE: Yes ☒ No ☐

SAMPLE TYPE: G - GRAB; C - COMPOSITE; W - WIPE; SS - SURFACE SCRAPE; O - OTHER (SPECIFY)

CONTAINER TYPE: V - VOA VIALS; G - GLASS; P - PLASTIC; O - OTHER ____

SPECIAL INSTRUCTIONS:

ANALYSIS REQUESTED: pH ☐; REACT ☒; FLASH ☒; CORRCS ☐; SEMI-VOA ☐; VOA ☒; TCLP: METALS ☒; HERB ☐; TCLP: PEST ☐; SPECIFY: ☐; TOTAL METALS ☐; EPA 413.1 ☐; OIL AND GREASE: ☐; TPH GC ☐; DRO ☐; PH: GRO ☐; NYS DOH 310-13(GC) ☐; TPH: EPA 418.1(IR) ☐; W/ MTBE ☐; EPA 524 ☐; EPA 503.1 ☐; W/ MTBE ☐; EPA 8010 ☒; EPA 601 ☐; W/ MTBE ☐; EPA 802 ☐; EPA 8020 ☐; EPA 602 ☐; BTEX ☐; PCB ONLY ☐; EPA 8080 ☐; EPA 608 ☐; EPA 8260 ☐; EPA 8240 ☐; EPA 624 ☐; EPA 8270 BN ☐; EPA 8270 ☐; EPA 625 ☐; TCLP Lead

LAB USE ONLY	SAMPLE I.D./ DESCRIPTION	DATE	TIME	CONTAINER Number	Size	Type	MATRIX Groundwater	Soil	Sludge	Other	TYPE (ENTER CODE)	PRESERVATIVE HCl	HNO₃	H₂SO₄	Ice (4°C)	Teflon Liner	Filtered	Other	ANALYSIS REQUESTED	COMMENTS/ SAMPLING POINT(S)
[illegible]	1607A	6/22/88	9:30AM	1	16oz	G				X									CORRCS X; EPA 8010 X; TCLP Lead X	Composite Mint H₂O
[illegible]	1607B	6/22/88	10:AM	1	16oz	G		X											TCLP: METALS X	Drum 3

EPS CONTACT: Linda Grammer PHONE NO.: 716-447-4700

CUSTODY TRANSFERS

	DATE	TIME		DATE	TIME
RELINQUISHED BY: (SAMPLER) [signature]	6/22/88	5:00pm	RECEIVED BY:		
RELINQUISHED BY:			RECEIVED BY:		
RELINQUISHED BY:			RECEIVED AT LAB BY: [signature]	6-23-88	1:30

Goldenrod - BRANCH FILE 2202 ENV 202 9508

Environmental
PRODUCTS & SERVICES, INC.

315) 471-0503 FAX (315) 475-8920

REMIT TO:
P.O. Box 315
Syracuse, NY 13209

INVOICE NO.
000540

DATE
July 31/98

LACKAWANNA ECONOMIC DEV ZONE
ATTN ACCOUNTS PAYABLE
714 RIDGE RD
LACKAWANNA NY 14218

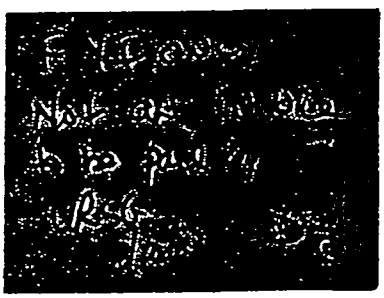
Our Ref: LAC007
Your Ref: B2099

Job No: B2099
Contract#:

Ship To:
LACKAWANNA, NY
P.O.#:
Spill#:
PIN#:

Description	Qty	Unit Price	Total
CONTACT: DREW SHAPIRO			
SITE LOCATION: LACKAWANNA, NEW YORK			
7/30/98			
PROVIDED ANALYSIS, LABOR, EQUIPMENT AND MATERIALS TO OVERPACK, TRANSPORT AND DISPOSE OF THREE (3) DRUMS OF NON-HAZARDOUS PETROLEUM WASTE.			
** ANALYTICAL **			
ANALYZED FOR FLASH AND EPA METHOD 8010 QUOTED AS (PER SAMPLE):	1.00	295.00	295.00
** MATERIALS/MISCELLANEOUS **			
DRUM, 1H2 OVERPACK, 95 GAL POLY - EACH	3.00	195.00	585.00
OVERPACK, TRANSPORT AND DISPOSE OF DRUMS QUOTED AS (PER DRUM):	3.00	195.00	585.00
** JOB COMPLETE **			
Sub Total			$1,465.00
Net Invoice			$1,465.00

Visit us at: www.eps-inc.com



1 1/2% per month Service Charge will be added to all past-due invoices.

NET 10 DAYS

STRAIGHT BILL OF LADING/NON-HAZARDOUS WASTE MANIFEST

No.

1. Generator Information

Generator Name: LACKAWANNA ECONOMIC DEVELOPMENT ZONE
Generator Mailing Address: 714 RIDGE ROAD
LACKAWANNA NY 14218

Site Address: 1A STREET
LACKAWANNA NY 14218
Generator Telephone No.: 716 827-6475

2. Destination/Disposal Facility Information

Company Name: ENVIRONMENTAL PRODS. & SVCS.
Telephone No.: 315 471-0503

Facility
Site Address: 532 STATE FAIR BLVD.
SYRACUSE NY 13204

3. Transporter Information

Transporter 1 Company Name: ENVIRONMENTAL PRODUCTS & SERVICES
Telephone No.: 315 471-0503
License Plate No.: PM2159-NY

Transporter 2 Company Name:
Telephone No.:
License Plate No.:

4. Material/Waste Description

	Containers No.	Containers Type	*HM	Material Description/ *Proper Shipping Name if DOT Hazardous Material	*Hazard Class	*ID Number	*Packing Group	Total Weight/ Volume	Unit of Weight/ Volume
a.	002	DM		WASTE NON RCRA LIQUID,NOS(PAINT)	NON HAZARDOUS	N/A	N/A	00110	G
b.	001	DM		WASTE NON RCRA SOLID(CONTAMINATED SOIL)	NON HAZARDOUS	N/A	N/A	00500	P
c.									
d.									

(54340) (54341)

5. Job No.	6. Approval Nos.	7. Purchase Order No.	8. Additional Information	9. Required Placard(s)
B2099	a. 15247 b. 15246 c. d.			NONE

10. Generator Certification: I hereby certify the above-named materials are properly classified, described, packaged, marked, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

Generator Name: LACKAWANNA Economic Development Zone Generator Signature: AGENT FOR Shipment Date: 7/30/98

11. Acknowledgement of Receipt of Material - To be Completed by Signatories

Transporter 1 Driver Name (Print): FRED JACOK Signature: Shipment Date: 7/30/98
Transporter 2 Driver Name (Print): Signature: Shipment Date:

12. Facility Receiving Wastes - Authorized Agent: Jacqueline Murray Signature: Jacqueline Murray Receipt Date: 8/5/98

13. Emergency Telephone No.: (315) 471-0503 Contact Name: LINDA SCOTT (Required for transportation of DOT Hazardous Material only.)

14. Discrepancy Indication Space to be Completed by the Disposal Facility.

This form may not be used for wastes identified as hazardous under state or RCRA regulations.

White: Retained by TSDF Canary: Mailed by TSDF to EPS Branch Pink: Retained by Generator

APPENDIX B

BACKGROUND SURFACE SOIL LOCATIONS

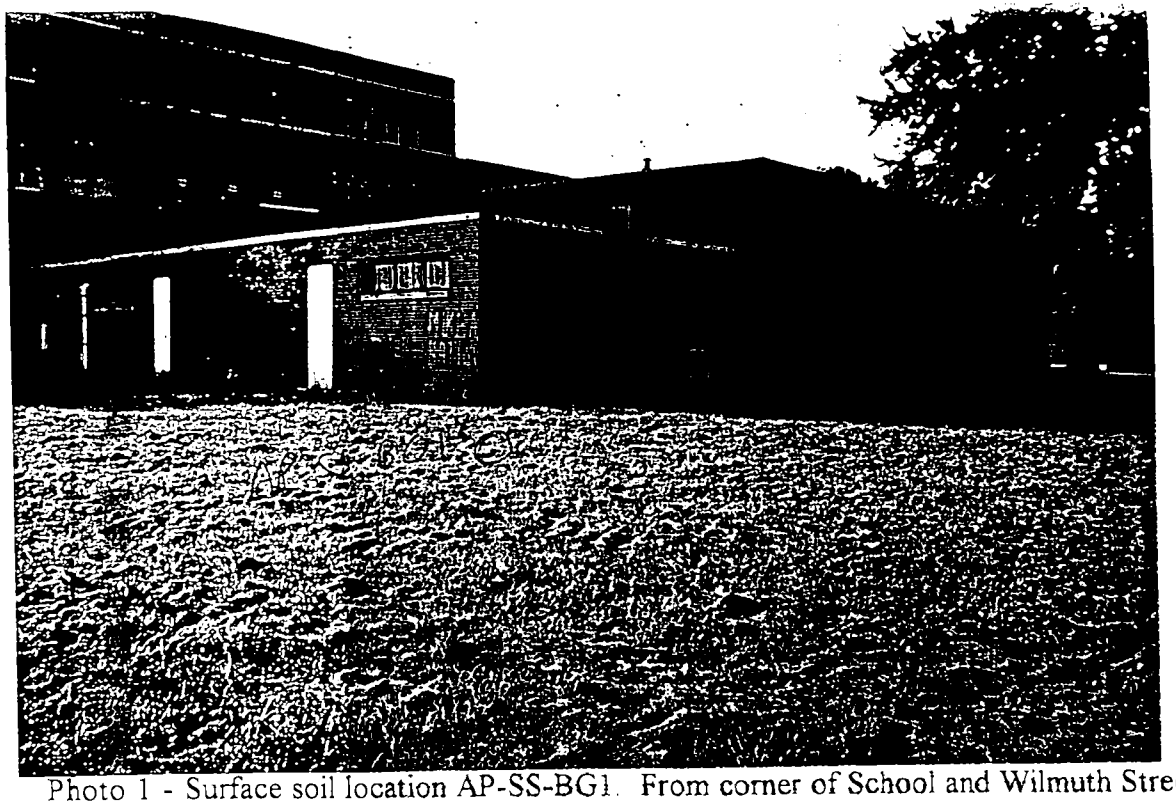


Photo 1 - Surface soil location AP-SS-BG1. From corner of School and Wilmuth Streets facing southeast.

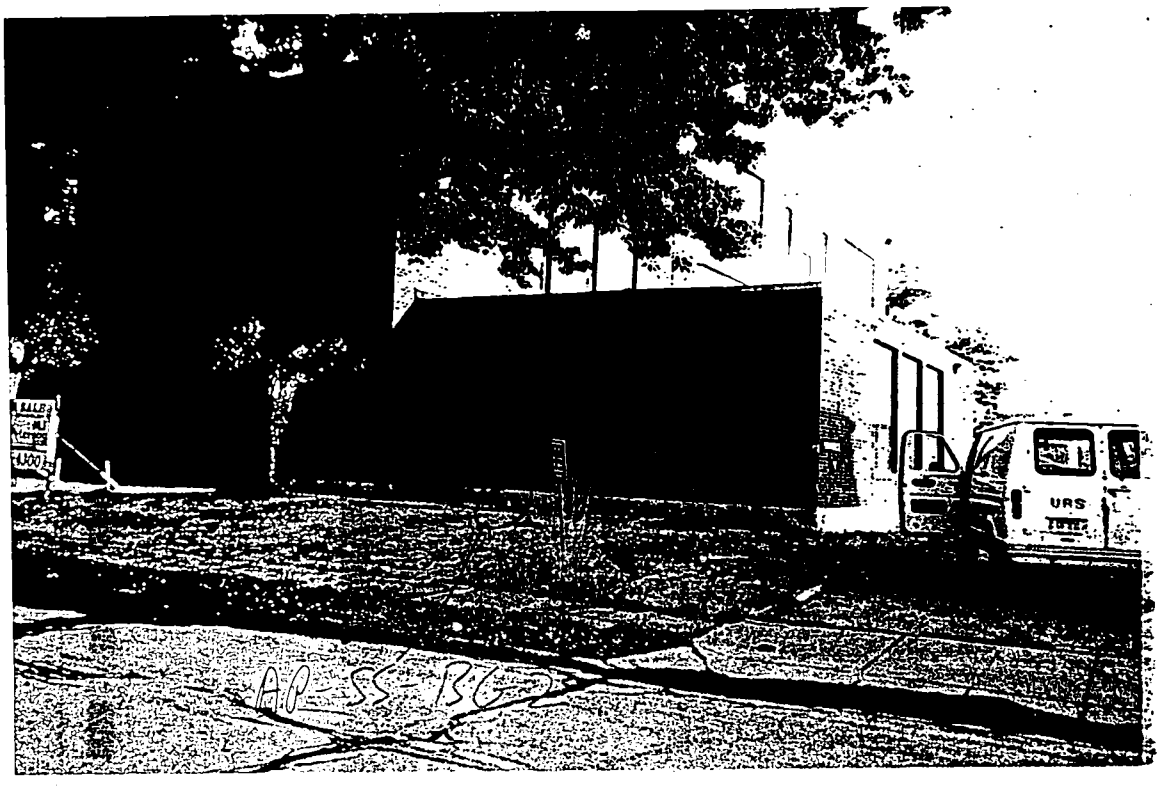


Photo 2 - Surface soil sample location AP-SS-BG2. From corner of Dona and A Streets facing northwest.

BACKGROUND SURFACE SOIL LOCATIONS PHOTOS
AMADORI PROPERTY

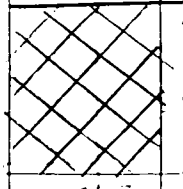
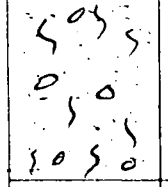
APPENDIX C

TEST TRENCH LOGS

URS CONSULTANTS, INC.

TEST PIT LOG

Project: AMADORI Property	Project Number: 0535556.02
Client: City of Lackawanna	Contractor: AMERICAN AUGER
Date Started: 6/22/98	Elevation: —
Date Completed: 6/22/98	Sheet 1 of 1
Pit Number: TT-1	Pit Max. Depth: 9.5 Ft.
	Approx. Water Table Depth: Not encountered

SECTION	DEPTH	DESCRIPTION
	-0- - -1- - -2-	Fill (see below)
	- -3- - -4- -	Light BRN silty SAND, some coarse gravel (Native Soils)
	-5- - -6- - -7- -	

FILL INCLUDES:

General: DARK BRN to black FINE to COARSE SAND intermixed with brick, metal, cinders, slag, AND glass

Metal Objects: trace scrap metal

Drums: NA

COMMENTS:
- Analytical sample collected at 1.5 Ft. VOC grab sample of black-STAINED SAND.
- Concrete Footer wall encountered 2 Ft BGS, north side of trench

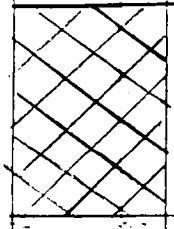
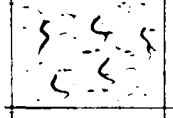
Geologist: DANIEL Sheldon	Operator: Todd Hall

AH-8801 35384

URS CONSULTANTS, INC.

TEST PIT LOG

Project: AMADORI PROPERTY	Project Number: 0535556.02
Client: CITY OF LACKAWANNA	Contractor: AMERICAN AUGER
Date Started: 6/24/98	Elevation: —
Date Completed: 6/24/98	Sheet 1 of 1
Pit Number: TT-2	Pit Max. Depth: 4.0 Ft.
	Approx. Water Table Depth: Not encountered

SECTION	DEPTH	DESCRIPTION
	-0- - -1- - -2- -	FILL (see below)
	-3- - -4-	Light brn silty SAND (NATIVE soils)
	- -5- - -6- - -7- -	

FILL INCLUDES:

General: Bricks, curbstones, trace glass and metal, Some silt and FINE SAND

Metal Objects: SCRAP metal

Drums: NA

COMMENTS:

Geologist: DANIEL Sheldon	Operator: Todd Hall

AH-6801 35394

URS CONSULTANTS, INC.

TEST PIT LOG

Project: AMADORI Property	Project Number: 0535556.02
Client: City of Lackawanna	Contractor: American Auger
Date Started: 6/1/98	Elevation: —
Date Completed: 6/1/98	Sheet 1 of 1
Pit Number: TT-3	Pit Max. Depth:
	Approx. Water Table Depth: Not encountered

SECTION	DEPTH	DESCRIPTION
	-0- -1- -2-	Fill (see below)
	-3- -4-	lt. BRN SAND AND silt, some coarse gravel
	-5- -6- -7-	

FILL INCLUDES:

General: Concrete, brick, silty SAND. Trace coal ash.

Metal Objects: NA

Drums: NA

COMMENTS: • Analytical sample collected at 1.5 ft.

Geologist: Daniel Sheldon	Operator: Todd Hall

AH-6801 35384

URS CONSULTANTS, INC.

TEST PIT LOG

Project: AMADORI Property	Project Number: 0535556.02
Client: City of Lackawanna	Contractor: American Auger
Date Started: 6/22/98	Elevation: —
Date Completed: 6/24/98	Sheet 1 of 1
Pit Number: TT-4	Pit Max. Depth: 6.6 Ft.
	Approx. Water Table Depth: Not encountered

SECTION	DEPTH	DESCRIPTION
	-0- -1- -2- -3- -4- -5- -6-	Fill (see below)
	-7-	Bucket Refusal at 6.6 Ft. Possible basement floor

FILL INCLUDES:

General: Bricks, concrete (building demo debris), cinders, trace coal ash

Metal Objects: NA

Drums: NA

COMMENTS:
- Very hard surface materials, offset 3 times.
- trench located between former row house foundations.

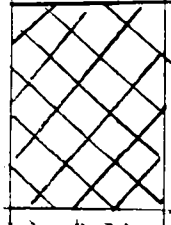
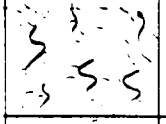
Geologist: Daniel Sheldon	Operator: Todd Hall

AH-6801 35394

URS CONSULTANTS, INC.

TEST PIT LOG

Project: AMADORI PROPERTY	Project Number: 0535556.02
Client: CITY OF LACKAWANNA	Contractor: AMERICAN AUGER
Date Started: 6/24/98	Elevation: —
Date Completed: 6/24/98	Sheet 1 of 1
Pit Number: TT-5	Pit Max. Depth: 4.0 Ft.
	Approx. Water Table Depth: Not encountered

SECTION	DEPTH	DESCRIPTION
	-0- - -1- - -2-	Fill (see below)
	-3- - -4-	Brn silty SAND
	- -5- - -6- - -7- -	

FILL INCLUDES:

General: DARK brn Foundry SAND, metallic sheen. Dry. Slight odor.

Metal Objects: trace scrap metal

Drums: NA

COMMENTS:
- Dense gravel and slag 0-8"
- Analytical sample collected at 2.0 Ft.

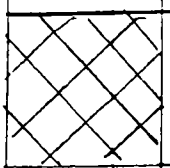
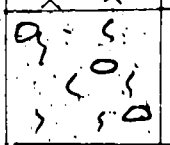
Geologist: DANIEL Sheldon	Operator: Todd Hall

AH-6601 35394

URS CONSULTANTS, INC.

TEST PIT LOG

Project: AMADORI PROPERTY	Project Number: 0535556.02
Client: CITY OF LACKAWANNA	Contractor: AMERICAN AUGER
Date Started: 6/23/98	Elevation: —
Date Completed: 6/23/98	Sheet 1 of 1
Pit Number: TT-6	Pit Max. Depth: 3.5 FT.
	Approx. Water Table Depth: Not encountered

SECTION	DEPTH	DESCRIPTION
	-0- - -1- -	Fill (see below)
	-2- - -3- -	BRN silty SAND, trace cobbles
	-4- - -5- - -6- - -7- -	

FILL INCLUDES:

General: reworked silty clay, trace bricks.

Metal Objects: NA

Drums: NA

COMMENTS:

Geologist: DANIEL Sheldon	Operator: Todd Hall

AH-6601 35394

URS CONSULTANTS, INC.

TEST PIT LOG

Project: AMADORI Property	Project Number: 0535556.02
Client: City of Lackawanna	Contractor: AMERICAN AUGER
Date Started: 6/23/98	Elevation: —
Date Completed: 6/23/98	Sheet 1 of 1
Pit Number: TT-7	Pit Max. Depth: 3.5 ft.
	Approx. Water Table Depth: Not encountered

SECTION	DEPTH	DESCRIPTION
	-0- -1- -2-	Fill (see Below)
	-3-	DARK BRN SANDY SILT, SOME GRAVEL
	-4- -5- -6- -7-	

FILL INCLUDES:

General: Reworked silty clay, some gravel and cobbles. Trace metal debris.

Metal Objects: trace rebar and barb-wire

Drums: NA

COMMENTS:

Geologist: Daniel Sheldon	Operator: Todd Hall

AH-6801 35394

URS CONSULTANTS, INC.

TEST PIT LOG

Project: AMADORI PROPERTY	Project Number: 0535556.02
Client: CITY OF LACKAWANNA	Contractor: AMERICAN AUGER
Date Started: 6/23/98	Elevation: —
Date Completed: 6/23/98	Sheet 1 of 1
Pit Number: TT-8	Pit Max. Depth: 4.0 Ft.
	Approx. Water Table Depth: Not encountered

SECTION	DEPTH	DESCRIPTION
	-0- -1- -2- -3-	Fill (see below)
	-4-	GRAY/BRN SANDY SILT, some GRAVEL.
	-5- -6- -7-	

FILL INCLUDES:

General: GRAVEL, SAND, CLAY. TRACE CINDERS AND BRICKS

Metal Objects: NA

Drums: NA

COMMENTS:
- Very dense surface material containing gravel and slag 0-3"
- Analytical sample collected at 2.5 Ft.

Geologist: DANIEL STELTON	Operator: Todd Hall

AH-6801 35394

URS CONSULTANTS, INC.

TEST PIT LOG

Project: AMADORI PROPERTY	Project Number: 0535556.02
Client: CITY OF LACKAWANNA	Contractor: AMERICAN AUGER
Date Started: 6/23/98	Elevation: —
Date Completed: 6/23/98	Sheet 1 of 1
Pit Number: TT-9	Pit Max. Depth: 5.5 Ft.
	Approx. Water Table Depth: Not encountered

SECTION	DEPTH	DESCRIPTION
	-0-	Fill (See Below)
	-1-	
	-2-	
	-3-	
	-4-	
	-5-	GRAY/BRN. SANDY AND CLAYEY SILT.
	-6-	
	-7-	

FILL INCLUDES:

General: Dense fill; clay, bricks, cinders. Trace coal, ceramics, and wood

Metal Objects:

Drums: NA

COMMENTS: • Very dense gravel 0-10" (Former road bed)

Geologist: Daniel Sheldon

Operator: Todd Hall

AH-6801 35394

URS CONSULTANTS, INC.

TEST PIT LOG

Project: AMADORI PROPERTY	Project Number: 0535556.02
Client: CITY OF LACKAWANNA	Contractor: AMERICAN AUGER
Date Started: 6/23/98	Elevation: —
Date Completed: 6/23/98	Sheet 1 of 1
Pit Number: TT-10	Pit Max. Depth: 5.0 Ft.
	Approx. Water Table Depth: Not encountered

SECTION	DEPTH	DESCRIPTION
	-0- -1- -2- -3- -4-	Fill (see Below)
	-5- -6- -7-	GRAY/BRN clayey silt, some fine sand

FILL INCLUDES:

General: reworked silty clayey, trace glass, coal, and metal.

Metal Objects: Some scrap metal

Drums: NA

COMMENTS: • Dense gravel surficial Fill 0-1 Ft.

Geologist: DANIEL Sheldon	Operator: Todd Hall

AH-8801 35394

URS CONSULTANTS, INC.

TEST PIT LOG

Project: AMADORI PROPERTY	Project Number: 0535556.02
Client: CITY OF LACKAWANNA	Contractor: AMERICAN AUGER
Date Started: 6/23/98	Elevation: —
Date Completed: 6/23/98	Sheet 1 of 1
Pit Number: TT-11	Pit Max. Depth: 4.0 Ft.
	Approx. Water Table Depth: Not encountered

SECTION	DEPTH	DESCRIPTION
	-0-	Fill (see below)
	-1-	
	-2-	
	-3-	
	-4-	GRAY/TAN SANDY SILT
	-5-	
	-6-	
	-7-	

FILL INCLUDES:

General: Brick, cinders, slag in a black silt matrix

Metal Objects: Trace slag & scrap metal

Drums: NA

COMMENTS: • Analytical sample collected at 2.5 Ft.

Geologist: DANIEL Sheldon	Operator: Todd Hall

AH-8601 35394

URS CONSULTANTS, INC.

TEST PIT LOG

Project: AMADORI PROPERTY	Project Number: 0535556.02
Client: CITY OF LACKAWANNA	Contractor: AMERICAN AUGER
Date Started: 6/23/98	Elevation: —
Date Completed: 6/23/98	Sheet 1 of 1
Pit Number: TT-12	Pit Max. Depth: 4.5
	Approx. Water Table Depth: Not encountered

SECTION	DEPTH	DESCRIPTION
	-0-	COARSE GRAVEL, trace silt (Former road BED)
	-1-	FILL (See below)
	-2-	
	-3-	
	-4-	BRN silty SAND, some gravel AND cobbles
	-5-	
	-6-	
	-7-	

FILL INCLUDES:

General: BRN CINDERS AND SLAG, SOME GRAVEL

Metal Objects: NA

Drums: NA

COMMENTS:

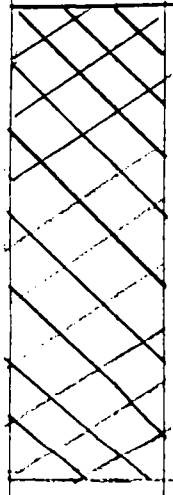
Geologist: DANIEL Sheldon	Operator: Todd Hall

AH-6801 35394

URS CONSULTANTS, INC.

TEST PIT LOG

Project: AMADORI PROPERTY	Project Number: 0535556.02
Client: CITY OF LACKAWANNA	Contractor: AMERICAN AUGER
Date Started: 6/24/98	Elevation: —
Date Completed: 6/24/98	Sheet 1 of 1
Pit Number: TT-13	Pit Max. Depth: 6.0 Ft.
	Approx. Water Table Depth: Not encountered

SECTION	DEPTH	DESCRIPTION
	-0- - -1- - -2- - -3- - -4- - -5- - -6	Fill (see below)
	- -7- -	Bucket refusal at 6.0 Ft.

FILL INCLUDES:

General: Brick and oversized concrete (demo. material), some silty SAND, trace cinders

Metal Objects: trace nails, building debris.

Drums: NA

COMMENTS:
- Location requested by NYSDEC to characterize fill between former row house foundations
- Refusal at 6.0 Ft. Possible basement floor.
- moist at 6 Ft.

Geologist:	Operator:
DANIEL Sheldon	Todd Hall

AH-6801 35394

URS CONSULTANTS, INC.

TEST PIT LOG

Project: AMADORI Property	Project Number: 0535556.02
Client: City of Lackawanna	Contractor: American Auger
Date Started: 6/23/98	Elevation: —
Date Completed: 6/23/98	Sheet 1 of 1
Pit Number: TT-14	Pit Max. Depth: 3.0 Ft.
	Approx. Water Table Depth: Not encountered

SECTION	DEPTH	DESCRIPTION
	-0- - -1- - -2- - -3-	Fill (see below)
	- -4- - -5- - -6- - -7- -	Bucket refusal at 3.0 Ft.

FILL INCLUDES:

General: Silt, cinders, wood, and some reworked clay.

Metal Objects: 2" metal pipe at 10" below grade

Drums:

NA

COMMENTS:
- Location of magnetic anomaly. No tank found.
- Bucket refusal at 3.0 ft. - Concrete footer wall.

Geologist:	Operator: Todd Hall

AH-6801 35384

URS CONSULTANTS, INC.

TEST PIT LOG

Project: AMADORI PROPERTY	Project Number: 0535556.02
Client: CITY OF LACKAWANNA	Contractor: AMERICAN AUGER
Date Started: 6/23/98	Elevation: —
Date Completed: 6/23/98	Sheet 1 of 1
Pit Number: TT-15	Pit Max. Depth: 4.5 Ft.
	Approx. Water Table Depth: Not encountered

SECTION	DEPTH	DESCRIPTION
	-0- -1- -2- -3-	Fill (see below)
	-4-	Brn silty SAND, some gravel
	-5- -6- -7-	

FILL INCLUDES:

General: Reworked silty clay with (cinders,) brick, and trace metal

Metal Objects: metal pipe

Drums: NA

COMMENTS: • Analytical Sample collected at 2.3 Ft.

Geologist: Daniel Sheldon

Operator: Todd Hall

AH-6601 35394

URS CONSULTANTS, INC.

TEST PIT LOG

Project: AMADORI Property	Project Number: 0585556.02
Client: City of Lackawanna	Contractor: American Auger
Date Started: 6/23/98	Elevation: —
Date Completed: 6/23/98	Sheet 1 of 1
Pit Number: TT-16	Pit Max. Depth: 4.0 ft
	Approx. Water Table Depth: Not encountered

SECTION	DEPTH	DESCRIPTION
	-0-	Fill (see below)
	-1-	
	-2-	
	-3-	
	-4-	Gray clayey silt. Some iron mottles
	-5-	
	-6-	
	-7-	

FILL INCLUDES:

General: Building demolition material - brick and oversized concrete. Trace cinders.

Metal Objects: trace scrap metal

Drums: NA

COMMENTS:

Geologist: Daniel Sheldon	Operator: Todd Hall

AH-8601 35384

URS CONSULTANTS, INC.

TEST PIT LOG

Project: AMADORI Property	Project Number: 0535556.02
Client: City of Lackawanna	Contractor: American Auger
Date Started: 6/23/98	Elevation: —
Date Completed: 6/23/98	Sheet 1 of 1
Pit Number: TT-17	Pit Max. Depth: 6.0 Ft.
	Approx. Water Table Depth: Not encountered

SECTION	DEPTH	DESCRIPTION
	-0- - -1- - -2- - -3- - -4- - -5- - -6-	Fill (see below)
	- -7- -	Bucket refusal at 6.0 Ft.

FILL INCLUDES:

General: Building demo. debris; bricks, concrete, trace metal. Ash layer 4-5 Ft.

Metal Objects: trace scrap metal

Drums: NA

COMMENTS:
- Analytical sample of coal ash collected at 5.0 Ft. upon NYSDEC request.
- Trench located between former row house foundation. Possible basement floor at 6.0 Ft.

Geologist:	Operator:
Daniel Sleldon	Todd Hall

AH-6801 36384

URS CONSULTANTS, INC.

TEST PIT LOG

Project: AMADORI Property	Project Number: 0585556.02
Client: City of Lackawanna	Contractor: American Auger
Date Started: 6/1/98	Elevation: —
Date Completed: 6/1/98	Sheet 1 of 1
Pit Number: TT-18	Pit Max. Depth: 6.0 Ft.
	Approx. Water Table Depth: Not encountered

SECTION	DEPTH	DESCRIPTION
	-0- - -1- - -2- - -3- - -4- - -5- - -6-	Surficial Fill Berm (see below)
	- -7- -	

FILL INCLUDES:

General: Topsoil intermixed with rubber hoses, metal cans, wood, and demolition debris.

Metal Objects: Scrap metal

Drums: NA

COMMENTS: • Soil/Fill berm.

Geologist: Daniel Sheldon	Operator: Todd Hall

AH-6801 35384

URS CONSULTANTS, INC.

TEST PIT LOG

Project: AMADORI Property	Project Number: 0535556.02
Client: City of Lackawanna	Contractor: American Auger
Date Started: 6/23/98	Elevation: —
Date Completed: 6/23/98	Sheet 1 of 1
Pit Number: TT-19	Pit Max. Depth: 6.0 Ft.
	Approx. Water Table Depth: Not encountered

SECTION	DEPTH	DESCRIPTION
	-0-	Surficial Soil/Fill Berm (see below)
	-1-	
	-2-	
	-3-	
	-4-	
	-5-	
	-6-	
	-7-	

FILL INCLUDES:

General: Predominantly topsoil, some wood, tires and scrap metal

Metal Objects: Scrap metal

Drums: NA

COMMENTS: Soil/Fill berm

Geologist: Daniel Sheldon	Operator: Todd Hall

AH-6801 35384

URS CONSULTANTS, INC.

TEST PIT LOG

Project: AMADORI PROPERTY	Project Number: 0535556.02
Client: CITY OF LACKAWANNA	Contractor: AMERICAN AUGER
Date Started: 6/23/98	Elevation: —
Date Completed: 6/23/98	Sheet 1 of 1
Pit Number: TT-20	Pit Max. Depth: 6.0 Ft.
	Approx. Water Table Depth: Not encountered

SECTION	DEPTH	DESCRIPTION
	-0-	Surficial soil pile (see below)
	-1-	
	-2-	
	-3-	
	-4-	
	-5-	
	-6-	
	-7-	

FILL INCLUDES:

General: RED/BRN LACUSTRINE CLAY, some GRAVEL

Metal Objects: NA

Drums: NA

COMMENTS: Soil pile within fenced AREA

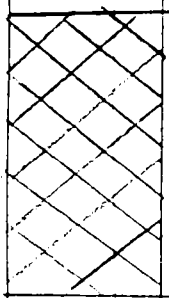
Geologist: Tim Burmeier	Operator: Todd Hall

AH-6801 35394

URS CONSULTANTS, INC.

TEST PIT LOG

Project: AMADORI PROPERTY	Project Number: 0535556.02
Client: CITY OF LACKAWANNA	Contractor: AMERICAN AUGER
Date Started: 6/23/98	Elevation: —
Date Completed: 6/23/98	Sheet 1 of 1
Pit Number: TT-21	Pit Max. Depth: 3.5 Ft
	Approx. Water Table Depth: Not encountered

SECTION	DEPTH	DESCRIPTION
	-0- -1- -2- -3-	Surficial soil pile (see below)
	-4- -5- -6- -7-	

FILL INCLUDES:

General: Yellow/tan clay (surficial fill)

Metal Objects: ONE metal pipe encountered.

Drums: NA

COMMENTS: Soil pile within fenced area

Geologist: Tim Burmeier	Operator: Todd Hall

AH-6801 35394

URS CONSULTANTS, INC.

TEST PIT LOG

Project: AMADORI PROPERTY	Project Number: 0535556.02
Client: CITY OF LACKAWANNA	Contractor: AMERICAN AUGER
Date Started: 6/23/98	Elevation: —
Date Completed: 6/23/98	Sheet 1 of 1
Pit Number: TT-22	Pit Max. Depth: 4.0
	Approx. Water Table Depth: Not encountered

SECTION	DEPTH	DESCRIPTION
	-0- -1- -2- -3- -4-	Fill (see below)
	-5- -6- -7-	

FILL INCLUDES:

General: GRAY/BRN SANDY silt with metal, concrete.

Metal Objects: metal pipe AND nails

Drums:

NA

COMMENTS: • Investigation at location of magnetic anomaly. TANK not encountered.

Geologist: Tim Burmeier	Operator: Todd Hall

AH-6801 35394

URS CONSULTANTS, INC.

TEST PIT LOG

Project: AMADORI Property	Project Number: 0535556.02
Client: City of Lackawanna	Contractor: American Auger
Date Started: 6/23/98	Elevation: —
Date Completed: 6/23/98	Sheet 1 of 1
Pit Number: TT-23	Pit Max. Depth: 3.0 Ft.
	Approx. Water Table Depth: Not encountered

SECTION	DEPTH	DESCRIPTION
	-0- - -1- - -2- - -3-	Fill (see below)
	- -4- - -5- - -6- - -7- -	

FILL INCLUDES:

General: Reworked silt and clay with metal rebar

Metal Objects: Metal rebar

Drums: NA

COMMENTS: • Investigation at location of magnetic anomaly. Tank not encountered.

Geologist: Tim Burmeier	Operator: Todd Hall

AH-6801 35394

URS CONSULTANTS, INC.

TEST PIT LOG

Project: AMADORI PROPERTY	Project Number: 0535556.02
Client: CITY OF LACKAWANNA	Contractor: AMERICAN AUGER
Date Started: 6/23/98	Elevation: —
Date Completed: 6/23/98	Sheet 1 of 1
Pit Number: TT-24	Pit Max. Depth: 2.0 ft.
	Approx. Water Table Depth: Not encountered

SECTION	DEPTH	DESCRIPTION
	-0- - -1- - 2	Fill (see below)
	- -3- - -4- - -5- - -6- - -7- -	

FILL INCLUDES:

General: Gravel, slag, and metal

Metal Objects: Large metals sheets

Drums:

NA

COMMENTS: • Investigation at location of magnetic anomaly. Tank not encountered.

Geologist: Tim Bunmeier	Operator: Todd Hall

AH-6801 35394

URS CONSULTANTS, INC.

TEST PIT LOG

Project: AMADORI Property	Project Number: 0535556.02
Client: City of Lackawanna	Contractor: American Auger
Date Started: 6/23/98	Elevation: —
Date Completed: 6/23/98	Sheet 1 of 1
Pit Number: TT-25	Pit Max. Depth: 5.0 ft.
	Approx. Water Table Depth: Not encountered

SECTION	DEPTH	DESCRIPTION
	-0- - -1- - -2- - -3- - -4- - -5	Fill (see below)
	- -6- - -7- -	

FILL INCLUDES:

General: Gray/Brn silt with gravel, concrete and brick. Concrete matrix include A blue-green slag material

Metal Objects:

NA

Drums:

NA

COMMENTS: • Additional trench requested by NYSDEC to delineate coal ASL found at TT-17. No coal ash at this location

Geologist:	Operator:
Tim Burmeier	Todd Hall

AH-6801 35384

URS CONSULTANTS, INC.

TEST PIT LOG

Project: AMADORI Property	Project Number: 0535556.02
Client: City of Lackawanna	Contractor: American Auger
Date Started: 6/23/98	Elevation: —
Date Completed: 6/24/98	Sheet 1 of 1
Pit Number: TT-26	Pit Max. Depth: 8.0 feet
	Approx. Water Table Depth: Not encountered

SECTION	DEPTH	DESCRIPTION
	-0-	Fill (see Below)
	-1-	
	-2-	
	-3-	
	-4-	
	-5-	
	-6-	
8'	-7-	

FILL INCLUDES:

General: GRAY/BRN silt w/ concrete and bricks 0-3 Ft.
Yellow/BRN coal ash 3-8 Ft

Metal Objects: NA

Drums: NA

COMMENTS:
- Additional trench location requested by NYSDEC to delineate coal ash found at TT-17. Coal ash present 3-8 feet.
- Bucket refusal at 8 Ft. RED/BRN clay tile at this depth.

Geologist: Tim Burmeier

Operator: Todd Hall

AH-6801 35384

Photo 1 - Test trench TT-1, facing southwest.

Photo 2 - Test trench TT-3. Note concrete footer wall.

TEST TRENCH PHOTOS
AMADORI PROPERTY

Photo 3 - Test trench TT-4 spoils, facing east.

Photo 4 - Test trench TT-5 spoils containing foundry sand. Facing east.

TEST TRENCH PHOTOS
AMADORI PROPERTY

Photo 5 - Test trench TT-6 spoils, facing north.

Photo 6 - Test trench TT-7 spoils. Facing northeast.

TEST TRENCH PHOTOS
AMADORI PROPERTY

Photo 7 - Test trench TT-8 spoils. Facing northeast.

Photo 8 - Test trench TT-11. Note native brown sand at trench bottom.

TEST TRENCH PHOTOS
AMADORI PROPERTY

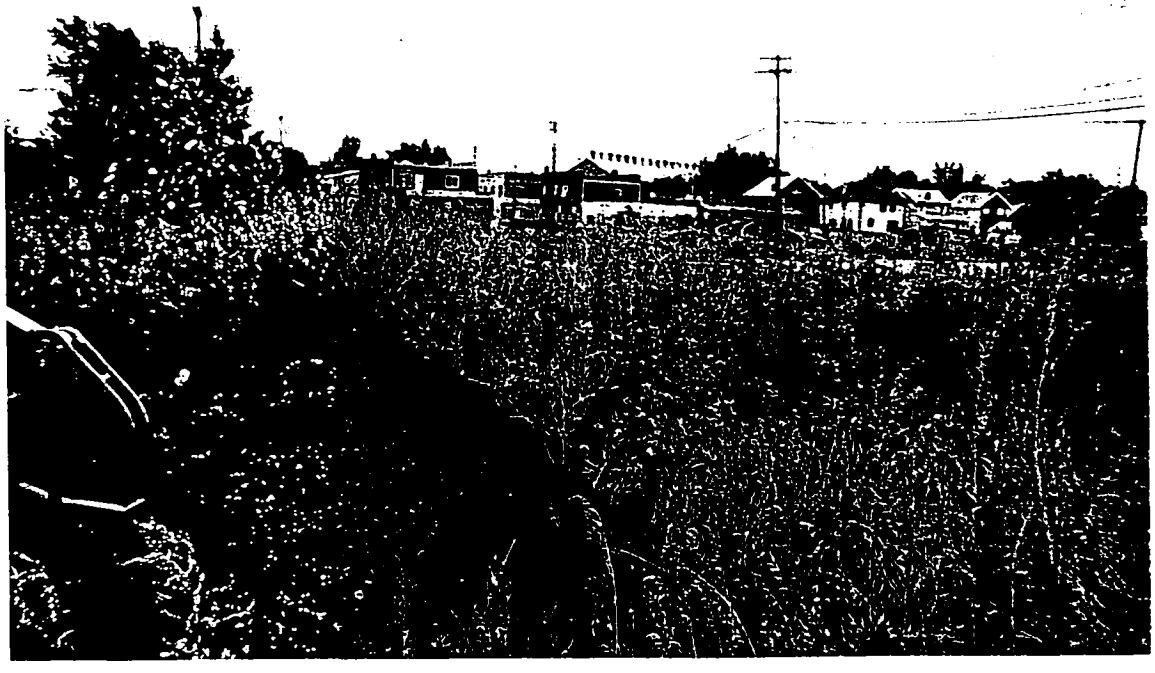


Photo 9 - Test trench TT-15 spoils. Facing southwest.

Photo 10 - Test trench TT-16 spoils. Facing east.

TEST TRENCH PHOTOS
AMADORI PROPERTY

Photo 11 - Test trench TT-17 spoils. Facing west.

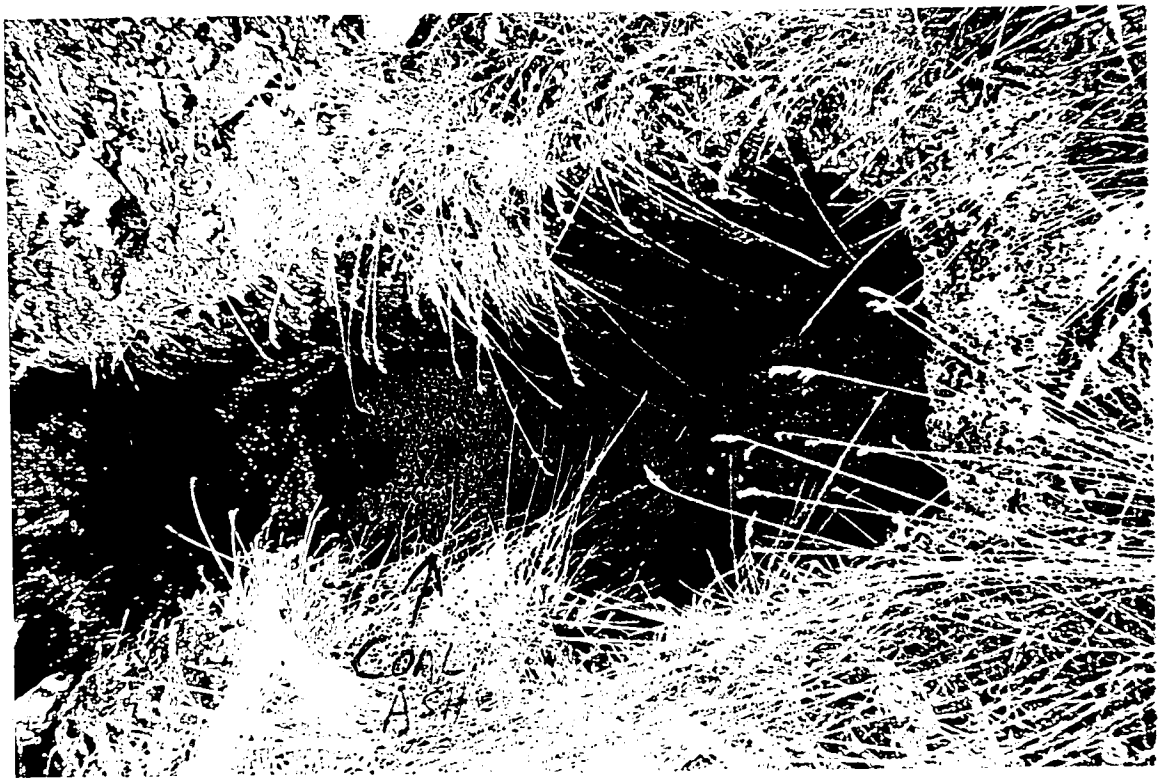


Photo 12 - Test trench TT-17. Note coal ash.

TEST TRENCH PHOTOS
AMADORI PROPERTY

APPENDIX D

SOIL BORING LOGS

URS Greiner, Inc.

TEST BORING LOG

BORING NO.: B-1

PROJECT: AMADORI PROPERTY, LACKAWANNA, NY.
SHEET: 1 OF 1
CLIENT: CITY OF LACKAWANNA
JOB NO.: 0535556.02
BORING CONTRACTOR: AMERICAN AUGER
BORING LOCATION: NW COR. PROPERTY
GROUNDWATER: NOT REACHED
GROUND ELEVATION: —
DATE STARTED: 6-23-98
DATE FINISHED: 6-23-98
DRILLER: RYAN BAYE
GEOLOGIST: TIM BURMEISTER
REVIEWED BY: DMS

DATE	TIME	LEVEL	TYPE		CAS.	SAMPLER	CORE	TUBE
				TYPE		SPLIT SPOON		
				DIA.		2"		
				WT.		140#		
				FALL		DOWN HOLE HAMMER		

* POCKET PENETROMETER READING

DEPTH FEET	STRATA	SAMPLE "S" NO.	SAMPLE "N" TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION: COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
0						GRAY BROWN	HARD	FILL: BROKEN CONCRETE SAND, SILT & GRAVEL	—	HAND AUGERED 0-4', PID = 0PPM (0-8½') HEADSPACE READINGS = 0PPM (0-8½'). SLIGHT MOIST SAMPLES, NO WATER IN HOLE. BEDROCK IS 7½' HIGHER THAN ENCOUNTERED AT NEARBY OFF SITE WELL. WELL NOT INSTALLED AT THIS LOCATION
5		1	45	21 23 / 22 23	65	LIGHT BROWN	DENSE	SILT W/TRACE F. SAND & GRAVEL	ML	
								FINE SAND, MOSTLY QUARTZ	SP	
								TOP LEVANNA SHALE MBR OF SKANEATELES FM @ 9'	—	
						GRAY	HARD			
10		2	>50	50 × / ×	100			END OF BORING AT 9½ FT		
15										
20										
25										
30										
35										

COMMENTS: BORING ADVANCED W/ FOREMOST CT 250 DRILLING RIG W/ 4¼" ID HOLLOW STEM AUGERS

PROJECT NO.: 0535556.02
BORING NO.: B-1

URS Greiner, Inc.

TEST BORING LOG

BORING NO.: B-2

PROJECT: AMADORI PROPERTY, LACKAWANNA, NY
SHEET: 1 OF 1
CLIENT: CITY OF LACKAWANNA
JOB NO.: 0535556.02
BORING CONTRACTOR: AMERICAN AUGER
BORING LOCATION:
GROUNDWATER: NOT REACHED
GROUND ELEVATION:

DATE	TIME	LEVEL	TYPE

	CAS.	SAMPLER	CORE	TUBE
TYPE		SPLIT SPOON		
DIA.		2"		
WT.		140#		
FALL		DOWN HOLE HAMMER		

* POCKET PENETROMETER READING

DATE STARTED: 6-24-98
DATE FINISHED: 6-24-98
DRILLER: RYAN BAYE
GEOLOGIST: DAN SHELDON
REVIEWED BY: DMS

DEPTH FEET	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION: COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
0						GRAY/ BROWN	HARD	FILL: CLAY & SILT W/ GRAVEL (REWORKED)	—	BORING WAS ATTEMPTED AS AN UPGRADIENT WELL LOCATION
										PID = 0ppm @ 0-8'
		1	86	15 36 / 50/3 x	75		VERY DENSE	SANDY SILT & COARSE GRAVEL	ML	
5										AUGER REFUSAL @ 8'
								END OF BORING AT 8'		
10										
15										
20										
25										
30										
35										

COMMENTS: BORING ADVANCED W/ FOREMOST CT250 DRILLING RIG W/ 4¼" ID HOLLOW STEM AUGERS

PROJECT NO.: 0535556.02
BORING NO.: B-2

URS Greiner, Inc.

TEST BORING LOG

BORING NO.: AMW-1

PROJECT: AMADORI PROPERTY, LACKAWANNA, NY
SHEET: 1 OF 1
CLIENT: CITY OF LACKAWANNA
JOB NO.: 0535556.02
BORING CONTRACTOR: AMERICAN AUGER
BORING LOCATION: N=9986.9525 E=4998.7137
GROUNDWATER: *88.69' ON 6/29
GROUND ELEVATION: 99.25*
DATE STARTED: 6-24-98
DATE FINISHED: 6-24-98
DRILLER: RYAN BAYE
GEOLOGIST: DAN SHELDON
REVIEWED BY: DMS

DATE	TIME	LEVEL	TYPE
6/25	0700	11.1 FT BGS	

	CAS.	SAMPLER	CORE	TUBE
TYPE		SPLIT SPOON		
DIA.		2"		
WT.		140#		
FALL		AUTO HAMMER		

* POCKET PENETROMETER READING

DEPTH FEET	STRATA	SAMPLE "S" NO.	SAMPLE "N" TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS PID SCON PPM	REMARKS HEAD SPACE PPM	REMARKS MOISTURE
0						BROWN	MED. DENSE	FINE-MED. SAND, SOME SILT, IRON STAINING ON QUARTZ GRAINS	SM			
5		1	16	10 7 / 9 8	65					0	150 (MOIST)	NO ODOR V. MOIST AT 5'
10		2	65	10 15 / 50 x	55	GRAY	VERY DENSE	SANDY SILT, SOME ROUND-SUBROUND, MED-COARSE GRAVEL (TILL)	ML	0	0	WET
						BLACK	HARD	SHALE BEDROCK AT 10'	—			HARD AUGERING ON SHALE
15								END OF BORING AT 13 FT.				
20												
25												
30												
35												

* NOTE: ELEVATION DATA BASED ON AN ASSUMED BENCHMARK ELEVATION OF 100.00 FT AMSL

COMMENTS: BORING ADVANCED W/ FOREMOST CT 250 DRILLING RIG W/ 4 1/4" ID HOLLOW STEM AUGERS

PROJECT NO.: 0535556.02
BORING NO.: AMW-1

URS Greiner, Inc.

TEST BORING LOG

BORING NO.: AMW-2

PROJECT: AMADORI PROPERTY, LACKAWANNA, NY
CLIENT: CITY OF LACKAWANNA
BORING CONTRACTOR: AMERICAN AUGER
GROUNDWATER: *87.57' ON 6/29

DATE	TIME	LEVEL	TYPE
6/25	0845	11.68'	FROM TOP OF RISER

	CAS.	SAMPLER	CORE	TUBE
TYPE		SPLIT SPOON		
DIA.		2"		
WT.		140#		
FALL		AUTO HAMMER		

* POCKET PENETROMETER READING

SHEET: 1 OF 1
JOB NO.: 0535556.02
BORING LOCATION: N=9799.8418 E=4611.2708
GROUND ELEVATION: ≈ 98' *
DATE STARTED: 6-24-98
DATE FINISHED: 6-24-98
DRILLER: RYAN BAYE
GEOLOGIST: DAN SHELDON
REVIEWED BY: DMS

DEPTH FEET	STRATA	SAMPLE S" NO.	SAMPLE N° TYPE	BLOWS PER 6"	RECOVERY ROD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS PID BGAN	REMARKS HEAD SPACE	REMARKS
		1	2S	10 11 / 14 11	30	GRAY/ BROWN	MED DENSE	FILL: GRAVEL (0-1½') OVER RE-WORKED CLAYEY SILT (1½-4')	—	0	2.0	DRY
		2	16	9 10 / 6 13	65	BROWN		FINE-MED. SAND, SOME SILT	SM	0	50.0 MOIST	MOIST
5												
		3	31	14 16 / 15 50/3	90	GRAY		SILT W/ CLAY INTERBEDS GRADES TO SANDY SILT & GRAVEL	ML	0	210.0 MOIST	VERY MOIST
10						BLACK	SOFT	SHALE - WEATHERED, FISSILE	—			WET
								END OF BORING AT 12½'				
15												
20												
25												
30												
35												

* NOTE: ELEVATION DATA BASED ON AN ASSUMED BENCHMARK ELEVATION OF 100.001 AMSL

COMMENTS: BORING ADVANCED W/ FOREMOST CT 250 DRILLING RIG W/ 4¼" ID HOLLOW STEM AUGERS

PROJECT NO.: 0535556.02
BORING NO.: AMW-02

URS Greiner, Inc.

TEST BORING LOG

BORING NO.: AMW-3

PROJECT: AMADORI PROPERTY, LACKAWANNA, NY
SHEET: 1 OF 1
CLIENT: CITY OF LACKAWANNA
JOB NO.: 0535556.02
BORING CONTRACTOR: AMERICAN AUGER
BORING LOCATION: N=9614.8855 E=4548.3446
GROUNDWATER: *87.03'
GROUND ELEVATION: ≈97.6' *
DATE STARTED: 6-24-98
DATE FINISHED: 6-24-98
DRILLER: RYAN BAYE
GEOLOGIST: DAN SHELDON
REVIEWED BY: DMS

DATE	TIME	LEVEL	TYPE
6/25	0845	12.63'	FROM TOP OF RISER

	CAS.	SAMPLER	CORE	TUBE
TYPE		SPLIT SPOON		
DIA.		2"		
WT.		140#		
FALL		AUTO HAMMER		

* POCKET PENETROMETER READING

DEPTH FEET	STRATA	SAMPLE "S" NO.	SAMPLE "N" TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS PID SCAN (ppm)	REMARKS HEAD SPACE	
		1	18	7 6 / 12 11	55	BROWN	MED. DENSE TO VERY DENSE	FILL: REWORKED SILTY CLAY, SOME COAL & BRICK CONCRETE, TRACE SLAG		0	2	
		2	>50	50/5" x / x x	40					0	1	DRY
5												-AUGER REFUSAL @4½'. MOVE 6' NORTH
		3	23	5 7 / 16 15	65	GRAY	MED DENSE	CLAYEY SILT, TRACE SAND & ORGANICS	ML	0	0	WET @ 8.6'
10						BLACK	MOD. TO HARD	SHALE BEDROCK @ 9½FT				
								END OF BORING AT 13FT				*NOTE: ELEVATION DATA BASED ON AN ASSUMED BENCHMARK ELEVATION OF 100.00' AMSL
15												
20												
25												
30												
35												

COMMENTS: BORING ADVANCED W/ FOREMOST CT 250 DRILLING RIG W/ 4 1/4" ID HOLLOW STEM AUGERS

PROJECT NO.: 0535556.02
BORING NO.: AMW-3

URS Greiner, Inc.

TEST BORING LOG

BORING NO.: AMW-4

PROJECT: AMADORI PROPERTY, LACKAWANNA, NY
SHEET: 1 OF 1
CLIENT: CITY OF LACKAWANNA
JOB NO.: 0535556.02
BORING CONTRACTOR: AMERICAN AUGER
BORING LOCATION: N=9576.2457 E=4914.4425
GROUNDWATER: *84.45'
GROUND ELEVATION: ≈97.51 *
DATE STARTED: 6-24-98
DATE FINISHED: 6-24-98
DRILLER: RYAN BAYE
GEOLOGIST: DAN SHELDON
REVIEWED BY: JMS

DATE	TIME	LEVEL	TYPE
6/25	0845	14.50	FROM TOP OF RISER

	CAS.	SAMPLER	CORE	TUBE
TYPE		SPLIT SPOON		
DIA.		2"		
WT.		140#		
FALL		AUTO HAMMER		

* POCKET PENETROMETER READING

DEPTH FEET	STRATA	SAMPLE 'S" NO.	SAMPLE 'N' TYPE	BLOWS PER 6"	RECOVERY RQD %	DESCRIPTION COLOR	CONSISTENCY HARDNESS	MATERIAL DESCRIPTION	CLASS USCS	REMARKS
		1	24	10 11 / 13 5½	75	BROWN/ GRAY	MED. DENSE	FILL; GRAVEL & SLAG	—	PID SCAN & HEAD SPACE READINGS = 0ppm (0-17')
5		2	8	3 3 / 5 7	70	GRAY	STIFF TO VERY STIFF	CLAYEY SILT W/ IRON RICH MOTTLES	ML	SLIGHTLY MOIST
										WET @ 8'
10		3	17	9 8 / 9 11	70			- 2" THICK GRAVEL @ 9'		
		4	14	5 8 / 6 5	80			SILTY CLAY & INTERBEDDED SANDY SILT	CL / ML	VERY MOIST - WET
15		5	26	8 12 / 14 15	75	BLACK	MOD HARD	SHALE BEDROCK @ 15½'	—	
								END OF BORING AT 17 FT		*NOTE: ELEVATION DATA BASED ON AN ASSUMED BENCHMARK ELEVATION OF 100.00' AMSL
20										
25										
30										
35										

COMMENTS: BORING ADVANCED W/ FOREMOST CT 250 DRILLING RIG W/ 4¼" ID HOLLOW STEM AUGERS

PROJECT NO.: 0535556.02
BORING NO.: AMW-4

APPENDIX E

MONITORING WELL INSTALLATION DETAILS

DRILLING SUMMARY

Geologist: Daniel Sheldon

Drilling Company: American Auger

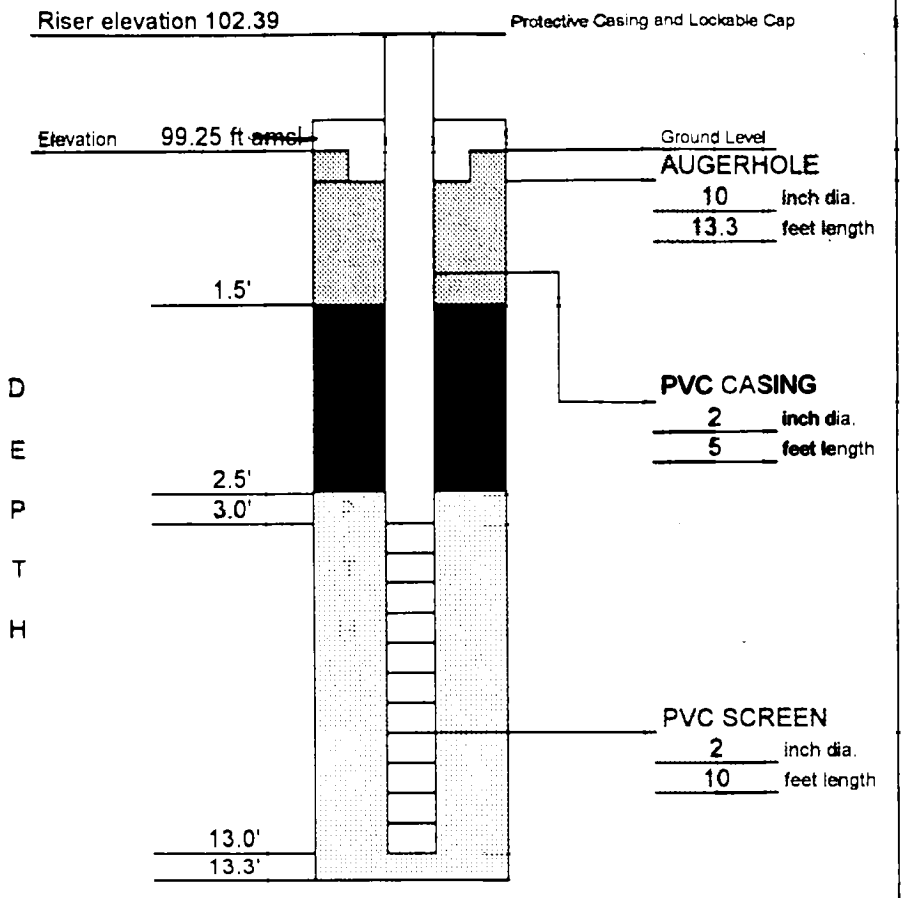
Driller: Ryan Baye

Rig Make/Model: Foremost CT 250

Date: June 24, 1998

GEOLOGIC LOG

Depth(ft.)	Description
0-8	Fine - med. sand
8-10	Sandy silt w/ some gravel
10-13.3	Shale bedrock



WELL DESIGN

CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface: Steel protective casing	Type: 2" PVC	Type: #2 Sand Setting: 3-13.3'
Monitor: 2" PVC	Slot Size: 0.01"	SEAL MATERIAL Type: Bentonite Setting: 1.5-2.5'

COMMENTS:

LEGEND

- Cement/Bentonite Grout
- Bentonite Seal
- Silica Sandpack

Client: City of Lackawanna	Location: Amadori Property	Project No.: 0535556.02
URS Greiner, Inc.	MONITORING WELL CONSTRUCTION DETAILS	Well Number: AMW-1

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08/14/98

DRILLING SUMMARY

Geologist: Daniel Sheldon

Drilling Company: American Auger

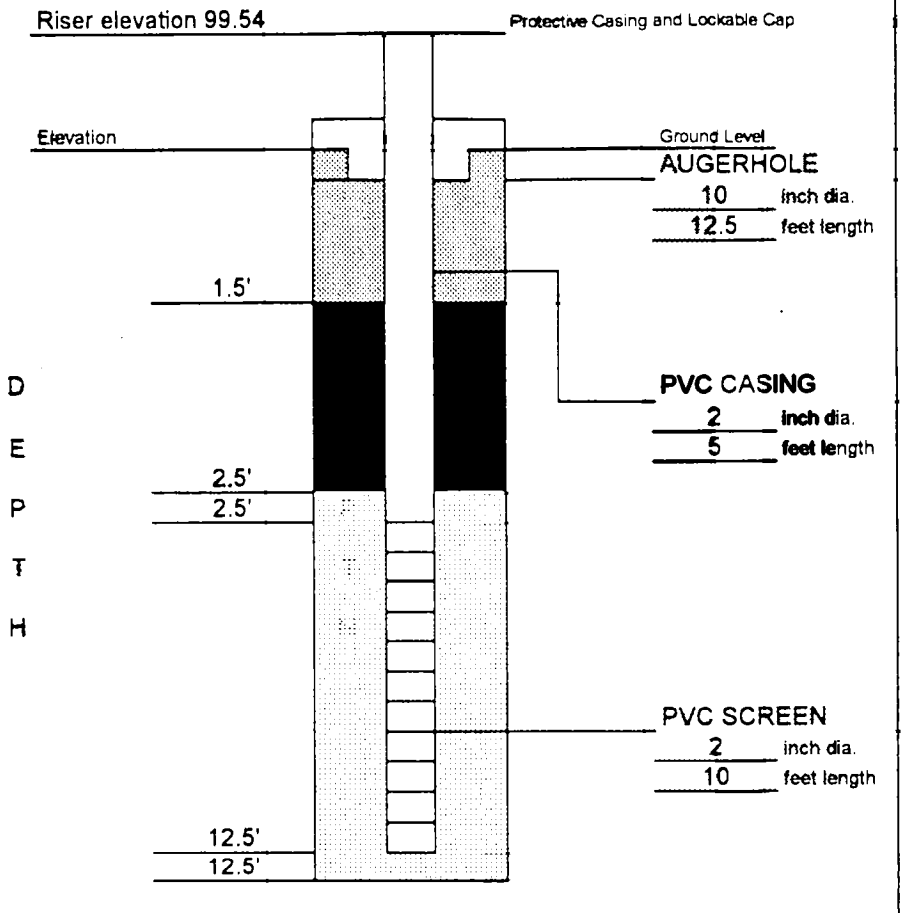
Driller: Ryan Baye

Rig Make/Model: Foremost CT 250

Date: June 24, 1998

GEOLOGIC LOG

Depth(ft.)	Description
0-4	Fill: gravel over reworked clayey silt
4-8	Fine-med. sand
8-9.5	Silt grades to sandy silt w/ gravel
9.5-12.5	Shale bedrock



WELL DESIGN

CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface: Steel protective casing	Type: 2" PVC	Type: #2 Sand Setting: 2.5-12.5
Monitor: 2" PVC	Slot Size: 0.01"	SEAL MATERIAL Type: Bentonite Setting: 1.5-2.5'

COMMENTS:

LEGEND

- Cement/Bentonite Grout
- Bentonite Seal
- Silica Sandpack

Client: City of Lackawanna	Location: Amadori Property	Project No.: 0535556.02
URS Greiner, Inc.	MONITORING WELL CONSTRUCTION DETAILS	Well Number: AMW-2

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08/14/98

DRILLING SUMMARY

Geologist: Daniel Sheldon

Drilling Company: American Auger

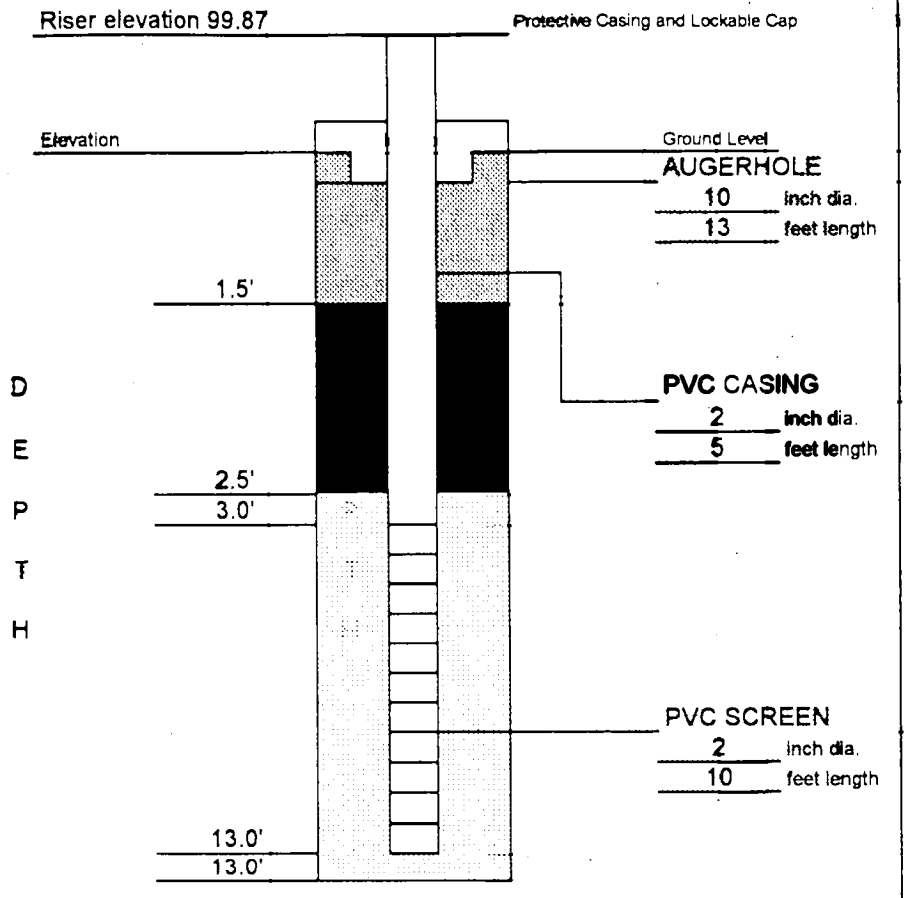
Driller: Ryan Baye

Rig Make/Model: Foremost CT 250

Date: June 24, 1998

GEOLOGIC LOG

Depth(ft.)	Description
0-5	Fill: silty clay, some coal, brick, concrete
5-9.5	Clayey silt, trace sand
9.5-13.0	Shale bedrock



WELL DESIGN

CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface: Steel protective casing	Type: 2" PVC	Type: #2 Sand Setting: 3-13'
Monitor: 2" PVC	Slot Size: 0.01"	SEAL MATERIAL Type: Bentonite Setting: 1.5-2.5'

COMMENTS:

LEGEND

- Cement/Bentonite Grout
- Bentonite Seal
- Silica Sandpack

Client: City of Lackawanna	Location: Amadori Property	Project No.: 0535556.02
URS Greiner, Inc.	MONITORING WELL CONSTRUCTION DETAILS	Well Number: AMW-3

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08/14/98

DRILLING SUMMARY

Geologist: Daniel Sheldon

Drilling Company: American Auger

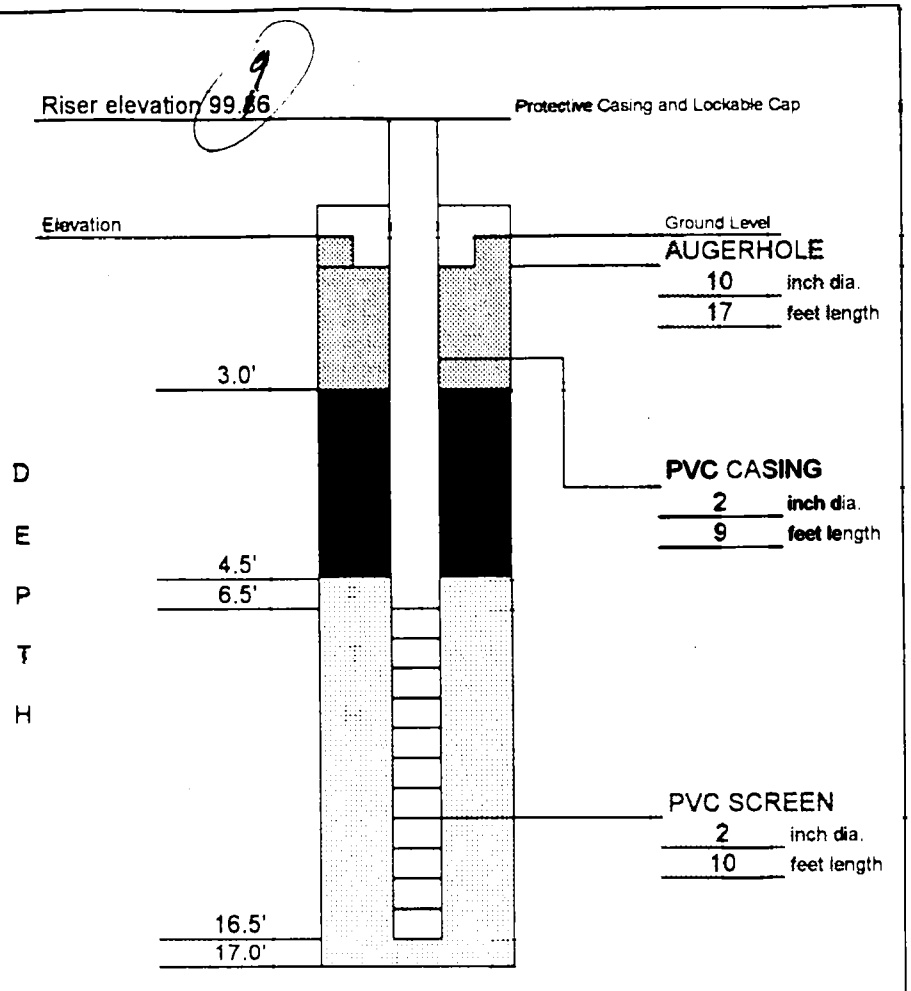
Driller: Ryan Baye

Rig Make/Model: Foremost CT 250

Date: June 24, 1998

GEOLOGIC LOG

Depth(ft.)	Description
0-3	Fill: gravel and slag
3-13	Clayey silt
13-15.5	Silty clay and sandy silt
15.5-17	Shale bedrock



WELL DESIGN

CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface: Steel protective casing	Type: 2" PVC	Type: #2 Sand Setting: 4.5-17'
Monitor: 2" PVC	Slot Size: 0.01"	SEAL MATERIAL Type: Bentonite Setting: 3-4.5'

COMMENTS:

LEGEND

- Cement/Bentonite Grout
- Bentonite Seal
- Silica Sandpack

Client: City of Lackawanna	Location: Amadori Property	Project No.: 0535556.02
URS Greiner, Inc.	MONITORING WELL CONSTRUCTION DETAILS	Well Number: AMW-4

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08/14/98

APPENDIX F

WELL DEVELOPMENT AND WELL PURGING LOG

WELL DEVELOPMENT LOG

URS Greiner

PROJECT TITLE: Amadori Property WELL NO.: AMW-1

PROJECT NO.: 05.35556.02

STAFF: Dan Tobin and Tim Burmeier

DATE(S): 6/25/98 and 6/26/98

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	16.31	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	13.92	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	2.39	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	—	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	—	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=	N.A.	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	4	8"	2.60

OR

$V = 0.0408 \times (\text{CASING DIAMETER})^2$

	ACCUMULATED VOLUME PURGED (GALLONS)										
PARAMETERS	0	2	3	4							
pH	7.26	6.95	6.92	6.89							
SPEC. COND. (umhos)	1,054	946	981	954							
TURBIDITY (NTU)	>200	98	76	62							
TEMPERATURE (deg. C)	18.1	14.7	13.9	13.7							
DESCRIPTION	md. brown	sl. turbid, brown	sl. turbid, clear	clear							

COMMENTS: Well surged and bailed.
Dry @ ~ 1/4 gallon.
Well developed at 4 gallons.

WELL DEVELOPMENT LOG

URS Greiner

PROJECT TITLE: Amadori Property WELL NO.: AMW-2

PROJECT NO.: 05.35556.02

STAFF: Dan Tobin and Tim Burmeier

DATE(S): 6/25/98

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	15.48	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	11.71	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	3.77	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	—	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	—	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=	N.A.	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	41	8"	2.60

OR

$V=0.0408 \times (\text{CASING DIAMETER})^2$

	ACCUMULATED VOLUME PURGED (GALLONS)										
PARAMETERS	0	7	12	16	20	28	36	41			
pH	7.25	6.88	6.85	6.84	7.11	6.86	6.99	6.89			
SPEC. COND. (umhos)	823	944	900	986	876	953	931	948			
TURBIDITY (NTU)	>200	>200	>200	>200	>200	112	74.0	52.0			
TEMPERATURE (deg. C)	19.8	16.7	13.0	13.7	18.2	13.9	13.7	13.5			
DESCRIPTION	very turbid, no odor	md. brown, no odor	md. brown, no odor	very turbid brown	turbid brown	md. brown	sl. turbid clear	clear			

COMMENTS: Dark brown with rock cuttings.
Dry @ 3 gallons.
Pump dry with peristalic pump several times, 2.5 - 3 gallons removed each time.
Recharges in 1/2 hour.
Total 21 gallons, clearing to light brown.
Remove 21 gallons total turbid brown.
Well developed at 41 gallons.

WELL DEVELOPMENT LOG

URS Greiner

PROJECT TITLE: Amadori Property WELL NO.: AMW-3

PROJECT NO.: 05.35556.02

STAFF: Dan Tobin and Tim Burmeier

DATE(S): 6/25/98

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	15.96	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	12.67	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	3.29	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	---	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	---	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=	N.A.	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	25	8"	2.60

OR

$V=0.0408 \times (\text{CASING DIAMETER})^2$

	ACCUMULATED VOLUME PURGED (GALLONS)										
PARAMETERS	0	5	10	14	19	24					
pH	7.34	7.03	6.94	6.99	6.86	6.91					
SPEC. COND. (umhos)	1,716	1,072	1,159	1,147	1,261	1,395					
TURBIDITY (NTU)	>200	>200	478	606	83.5	52.8					
TEMPERATURE (deg. C)	17.3	12.7	14.0	13.8	14.1	14.7					
DESCRIPTION	very turbid, silty	very turbid, silty	turbid	turbid	clear sl. turbid	clear					

COMMENTS: Dry @ 3 gallons.
Dry @ 5.5 gallons.
Dry @ 8 gallons.
Dry @ 11 gallons.
Lost teflon check valve in well.
Well developed at 24 gallons.

WELL DEVELOPMENT LOG

URS Greiner

PROJECT TITLE: Amadori Property WELL NO.: AMW-4

PROJECT NO.: 05.35556.02

STAFF: Dan Tobin and Tim Burmeier

DATE(S): 6/25/98

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	20.40	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	14.49	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	5.91	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	—	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	—	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=	N.A.	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	—	8"	2.60
			OR	
			$V=0.0408 \times (\text{CASING DIAMETER})^2$	

	ACCUMULATED VOLUME PURGED (GALLONS)										
PARAMETERS	0	5	15	50							
pH	6.74	6.77	6.88	6.79							
SPEC. COND. (umhos)	763	837	897	969							
TURBIDITY (NTU)	>1100	>1100	>1100	12.8							
TEMPERATURE (deg. C)	13.9	12.6	14.3	13.4							
DESCRIPTION	very turbid, no odor	very turbid, no odor	very turbid, no odor	clear							

COMMENTS: Well developed using a peristalic pump.
Good recharge.

WELL PURGING LOG

URS Greiner

PROJECT TITLE: Amadori Property WELL NO.: AMW-1

PROJECT NO.: 05.35556.02

STAFF: Dan Tobin

DATE(S): 6/29/98

			WELL ID.	VOL. (GAL/FT)
1. DEPTH TO WATER (FT.)	=	13.70	1"	0.04
2. BOTTOM OF WELL (FT.)	=	16.31	2"	0.17
3. LENGTH OF WATER COLUMN (#2 - #1) (FT.)	=	2.61	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	0.44	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 3)	=	1.33	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	2	8"	2.60
			OR	
			$V=0.0408 \times (\text{CASING DIAMETER})^2$	

START Purge: 1025 END: 1030

	ACCUMULATED VOLUME PURGED (GALLONS)										
PARAMETERS	0	2	SAMPLE								
pH	6.99	6.81	6.89								
SPEC. COND. (umhos)	907	961	954								
TURBIDITY (NTU)	84	65	62								
TEMPERATURE (°C)	14.3	13.9	14.1								
DESCRIPTION	clear no odor	clear no odor	clear no odor								

COMMENTS: DTW (sample): 13.76
Well Headspace (PID): 19 ppm
Purged to dryness at 1030. Sampled at 1420.

WELL PURGING LOG

URS Greiner

PROJECT TITLE: Amadori Property WELL NO.: AMW-2

PROJECT NO.: 05.35556.02

STAFF: Dan Tobin

DATE(S): 6/29/98

			WELL ID.	VOL. (GAL/FT)
1. DEPTH TO WATER (FT.)	=	11.97	1"	0.04
2. BOTTOM OF WELL (FT.)	=	15.48	2"	0.17
3. LENGTH OF WATER COLUMN (#2 - #1) (FT.)	=	3.51	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	0.60	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=	1.79	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	3	8"	2.60

OR

$V=0.0408 \times (\text{CASING DIAMETER})^2$

START Purge: 1040 END: 1046

	ACCUMULATED VOLUME PURGED (GALLONS)										
PARAMETERS	0	3	SAMPLE								
pH	6.91	6.84	6.87								
SPEC. COND. (umhos)	963	943	948								
TURBIDITY (NTU)	117	61	50								
TEMPERATURE (°C)	14.7	13.9	13.7								
DESCRIPTION	turbid, brown	clear no odor	clear								

COMMENTS: DTW (sample): 12.05
Time (sample): 1130
Well Headspace (PID): 0 ppm

WELL PURGING LOG

URS Greiner

PROJECT TITLE: Amadori Property WELL NO.: AMW-3

PROJECT NO.: 05.35556.02

STAFF: Dan Tobin

DATE(S): 6/29/98

			WELL ID.	VOL. (GAL/FT)
1. DEPTH TO WATER (FT.)	=	12.84	1"	0.04
2. BOTTOM OF WELL (FT.)	=	15.96	2"	0.17
3. LENGTH OF WATER COLUMN (#2 - #1) (FT.)	=	3.12	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	0.53	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=	1.59	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	3	8"	2.60

OR

$V=0.0408 \times (\text{CASING DIAMETER})^2$

START Purge: 1110 END: 1115

	ACCUMULATED VOLUME PURGED (GALLONS)										
PARAMETERS	0	3	SAMPLE								
pH	6.94	6.97	6.89								
SPEC. COND. (umhos)	1181	1043	1094								
TURBIDITY (NTU)	52	47	27.9								
TEMPERATURE (°C)	14.8	14.1	13.8								
DESCRIPTION	no odor clear	no odor clear	no odor clear								

COMMENTS: DTW (sample): 12.85
Time (sample): 1405
Well Headspace (PID): 0 ppm

WELL PURGING LOG

URS Greiner

PROJECT TITLE: Amadori Property WELL NO.: AMW-4

PROJECT NO.: 05.35556.02

STAFF: Dan Tobin

DATE(S): 6/29/98

			WELL ID.	VOL. (GAL/FT)
1. DEPTH TO WATER (FT.)	=	14.51	1"	0.04
2. BOTTOM OF WELL (FT.)	=	20.40	2"	0.17
3. LENGTH OF WATER COLUMN (#2 - #1) (FT.)	=	5.89	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	1.00	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=	3.00	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	3	8"	2.60

OR

$V = 0.0408 \times (\text{CASING DIAMETER})^2$

START Purge: 1055 END: 1100

	ACCUMULATED VOLUME PURGED (GALLONS)										
PARAMETERS	0	3	SAMPLE								
pH	6.79	6.83	6.87								
SPEC. COND. (umhos)	806	928	912								
TURBIDITY (NTU)	>200	27.6	21.3								
TEMPERATURE (°C)	13.1	12.8	13.4								
DESCRIPTION	no odor turbid	no odor clear	no odor clear								

COMMENTS: DTW (sample): 14.53
Time (sample): 1300
Well Headspace (PID): 0 ppm

APPENDIX G

SURVEY FIELD NOTES

File: AMADORI.CR5

POINT	NORTHING	EASTING	ELEVATION	NOTE
5	10019.6621	4952.2335	98.4830	PK
6	9767.2621	4923.5024	100.0000	H+T
7	9477.0805	4898.3461	0.0000	PK
10	9858.1763	4923.1493	100.0779	COTWD
11	9857.2688	4989.1430	99.6616	COTWD
12	9912.5682	4923.1000	100.1027	COTWD
13	9659.6827	4938.7404	99.2484	FOUNDATION
14	9576.6989	4913.1857	98.8959	GS
15	9576.4058	4914.4501	99.1429	AM-W4 TC
16	9576.2457	4914.4425	98.9632	AM-W4 TR
17	9611.7427	4788.8864	100.7078	COTWD
18	9560.6965	4755.0869	101.4774	COTWD
19	9636.2659	4664.2651	98.9946	FOUNDATION
20	9811.3956	4740.6647	99.2425	FOUNDATION
21	9811.2486	4841.4401	99.2532	FOUNDATION
22	9801.0324	4811.4513	99.5406	GS
23	9799.8426	4811.2658	99.6546	AM-W2 TC
24	9799.8418	4811.2708	99.5452	AM-W2 TR
25	9731.5367	4509.4537	101.1414	REBAR
26	9985.5913	4998.5834	99.2569	GS
27	9986.9391	4998.6831	102.4311	AM-W1 TC
28	9986.9525	4998.7137	102.3948	AM-W1 TR
29	9959.9697	4988.3221	99.2225	FOUNDATION
30	9936.9225	5002.6583	99.1580	FOUNDATION
31	9936.3729	4339.3331	99.3290	FOUNDATION
32	9959.3524	4340.4099	99.4088	FOUNDATION
33	9830.9696	4530.1975	99.5570	FOUNDATION
34	9834.3890	4606.3577	99.3879	FOUNDATION
35	9936.4960	4662.7716	99.3333	FOUNDATION
36	9959.7902	4551.3596	99.2712	FOUNDATION
37	9972.8822	4621.9049	99.6349	B1
38	9912.4034	4520.2491	99.1485	COTWD
39	9858.1522	4486.6364	100.0225	COTWD
40	9611.7906	4486.0136	99.7591	COTWD
41	9557.6825	4485.3528	99.3530	COTWD
42	9615.6397	4550.2347	99.9596	GS
43	9614.8754	4548.3461	99.9837	AM-W3 TC
44	9614.8855	4548.3446	99.8734	AM-W3 TR
45	9514.4228	4693.4914	98.1631	RRT-1
46	9582.1719	4528.0832	98.6376	RRT-1
47	9633.8864	4404.7021	98.4965	RRT-1
48	9653.2293	4353.9373	98.3103	RRT-1
49	9670.5764	4295.8643	98.5482	RRT-1
50	9686.9562	4234.1306	98.4676	RRT-1
51	9626.6237	4231.2596	98.3854	RRT-3
52	9624.4798	4319.0488	98.6094	RRT-3
53	9620.1669	4372.2966	98.4262	RRT-3
54	9611.1107	4420.9535	98.4766	RRT-3
55	9598.7075	4474.3375	98.5010	RRT-3
56	9589.1654	4508.8954	98.5561	RRT-3
57	9582.2157	4528.0718	98.6147	RRT-3
58	9528.1001	4589.2026	98.2400	RRT-2
59	9523.1498	4628.3399	98.0970	RRT-2
60	9513.2085	4679.8552	98.1602	RRT-2
61	9504.0333	4716.4299	98.0888	RRT-2

RAWDATA FILE

DONNA Date 07-02-1998 Time 09:00:25
de setup:North Azm,Dist ft,scale 1.000000, Earth crv ON,offset 0.00
Store :Pt 5 N 10019.66 E 4952.23, Elv 0.00, PK
Store :Pt 6 N 9767.26 E 4923.50, Elv 100.00, H+T
Store :Pt 7 N 9477.08 E 4898.35, Elv 0.00, PK
Occupy:Pt 6 N 9767.26 E 4923.50, Elv 100.00, H+T
Note:BS check 6 - 5: ZE90.1920,SD254.015,HD err= 0.019, VD err= -98.483
Backsight:6-5, BS azm 6.2939, BS cir 0.0000
HI / HR : Inst H 4.62 Rod H 4.71
Side shot : 6-500 Ang-Rt 0.0000 Zen 90.1920 SlpD 254.02 ,PK
Side shot : 6-10 Ang-Rt 353.1700 Zen 89.5339 SlpD 90.92 ,COTWD
Side shot : 6-11 Ang-Rt 29.3631 Zen 90.0740 SlpD 111.40 ,COTWD
HI / HR : Inst H 4.62 Rod H 5.50
Side shot : 6-12 Ang-Rt 353.2050 Zen 89.3645 SlpD 145.31 ,COTWD
HI / HR : Inst H 4.62 Rod H 6.00
Side shot : 6-13 Ang-Rt 165.2638 Zen 89.4007 SlpD 108.66 ,FOUNDATION
HI / HR : Inst H 4.62 Rod H 4.71
Side shot : 6-14 Ang-Rt 176.3617 Zen 90.1816 SlpD 190.85 ,GS
HI / HR : Inst H 4.62 Rod H 3.15
Side shot : 6-15 Ang-Rt 176.1317 Zen 90.4152 SlpD 191.09 ,AM-W4 TC
HI / HR : Inst H 4.62 Rod H 3.35
Side shot : 6-16 Ang-Rt 176.1317 Zen 90.4128 SlpD 191.25 ,AM-W4 TR
HI / HR : Inst H 4.62 Rod H 4.71
Side shot : 6-17 Ang-Rt 214.2306 Zen 89.4640 SlpD 205.69 ,COTWD
Side shot : 6-18 Ang-Rt 212.4148 Zen 89.3947 SlpD 266.53 ,COTWD
HI / HR : Inst H 4.62 Rod H 6.00
Side shot : 6-19 Ang-Rt 236.4152 Zen 89.5534 SlpD 290.46 ,FOUNDATION
HI / HR : Inst H 4.62 Rod H 4.71
Side shot : 6-20 Ang-Rt 277.0435 Zen 90.1212 SlpD 188.09 ,FOUNDATION
Side shot : 6-21 Ang-Rt 291.4152 Zen 90.2415 SlpD 93.11 ,FOUNDATION
Side shot : 6-22 Ang-Rt 280.1640 Zen 90.1051 SlpD 117.03 ,GS
HI / HR : Inst H 4.62 Rod H 2.79
Side shot : 6-23 Ang-Rt 279.4135 Zen 91.0359 SlpD 116.89 ,AM-W2 TC
HI / HR : Inst H 4.62 Rod H 2.90
Side shot : 6-24 Ang-Rt 279.4136 Zen 91.0358 SlpD 116.89 ,AM-W2 TR
HI / HR : Inst H 4.62 Rod H 5.03
Side shot : 6-25 Ang-Rt 258.3428 Zen 89.4710 SlpD 415.59 ,REBAR
Store :Pt 5 N 10019.66 E 4952.23, Elv 98.48, PK
Occupy:Pt 5 N 10019.66 E 4952.23, Elv 98.48, PK
Note:BS check 5 - 6: ZE89.4335,SD254.010,HD err= 0.023, VD err= -0.007
Backsight:5-6, BS azm 186.2939, BS cir 0.0000
HI / HR : Inst H 5.02 Rod H 5.00
Side shot : 5-26 Ang-Rt 299.4929 Zen 89.1457 SlpD 57.53 ,GS
HI / HR : Inst H 5.02 Rod H 4.71
Side shot : 5-27 Ang-Rt 298.4012 Zen 86.2011 SlpD 56.94 ,AM-W1 TC
Side shot : 5-28 Ang-Rt 298.3828 Zen 86.2226 SlpD 56.95 ,AM-W1 TR
Side shot : 5-29 Ang-Rt 322.2059 Zen 89.3850 SlpD 69.76 ,FOUNDATION
Side shot : 5-30 Ang-Rt 322.0846 Zen 89.4703 SlpD 96.90 ,FOUNDATION
Occupy:Pt 25 N 9731.54 E 4509.45, Elv 101.15, REBAR
Note:BS check 25 - 6: ZE90.1347,SD415.605,HD err= -0.015, VD err= -0.042
Backsight:25-6, BS azm 85.0407, BS cir 0.0000
HI / HR : Inst H 5.27 Rod H 8.00
Side shot : 25-31 Ang-Rt 235.1316 Zen 89.4812 SlpD 266.27 ,FOUNDATION
HI / HR : Inst H 5.27 Rod H 8.20
Side shot : 25-32 Ang-Rt 238.2119 Zen 89.4532 SlpD 283.69 ,FOUNDATION
HI / HR : Inst H 5.27 Rod H 8.00
Side shot : 25-33 Ang-Rt 286.4256 Zen 89.2121 SlpD 101.58 ,FOUNDATION
Side shot : 25-34 Ang-Rt 318.1333 Zen 89.3620 SlpD 141.32 ,FOUNDATION

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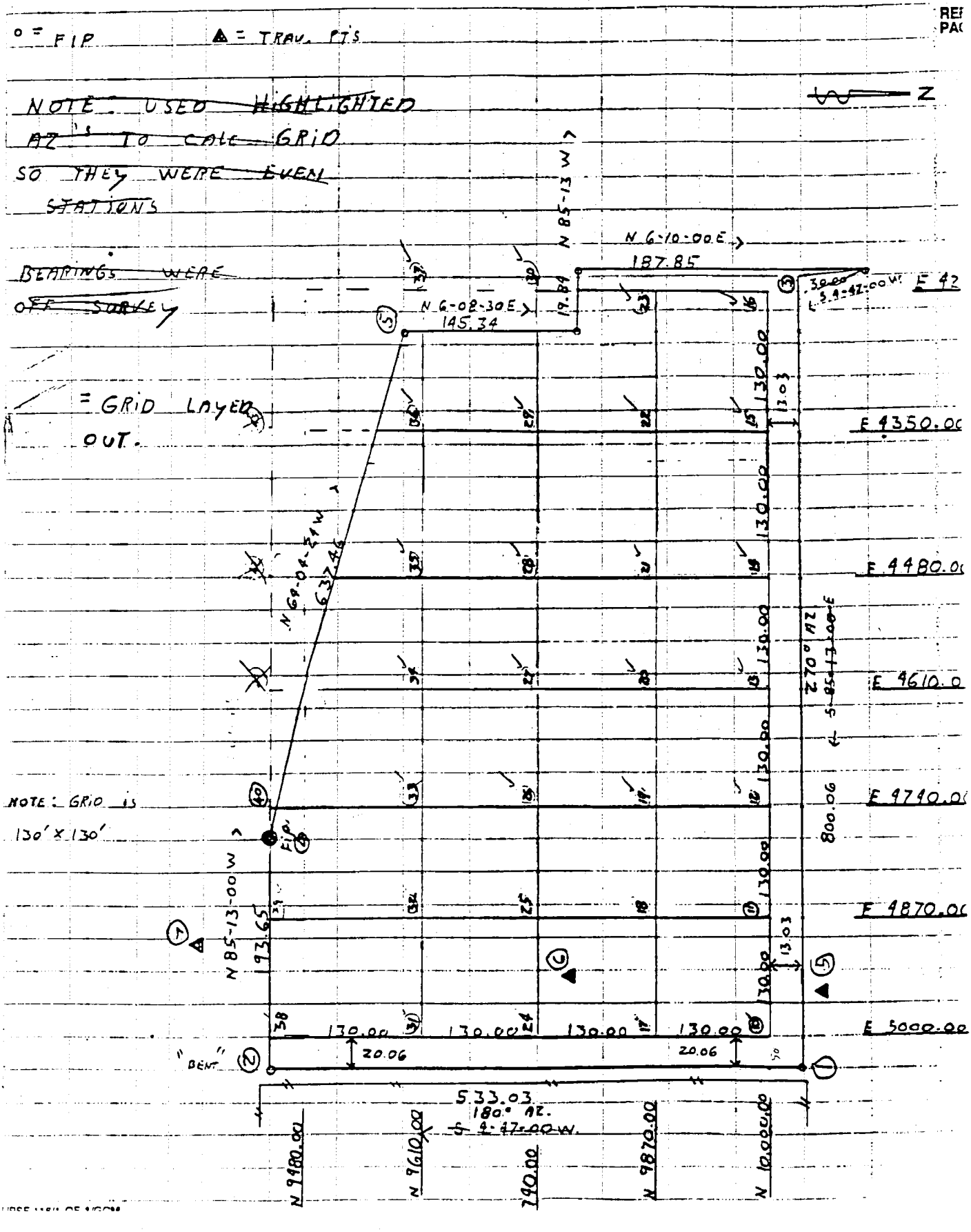

APPENDIX H

DATA USEABILITY SUMMARY REPORT

DATA USABILITY SUMMARY REPORT

AMADORI PROPERTY
LACKAWANNA, NEW YORK

Analyses Performed by:

ECOLOGY AND ENVIRONMENT, INC.

Prepared for:

THE CITY OF LACKAWANNA
LACKAWANNA ECONOMIC DEVELOPMENT ZONE

URS GREINER CONSULTANTS, INC.

SEPTEMBER 1998

TABLE OF CONTENTS

I. Analytical Methodologies

The data being evaluated is from the June 22 to July 17, 1998 sampling of thirty-two soil samples, four groundwater, two rinsate blanks, one trip blank and six matrix spike/matrix spike duplicates (MSs/MSDs). The samples were analyzed for the following parameters in accordance with the New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol (ASP), 10/95 Edition.

VOCs - Target Compound List (TCL) Volatiles (Method 95-1)
SVOCs - TCL Semivolatiles (Method 95-2)
Pest/PCBs - TCL Pesticides/Polychlorinated Biphenyls (Method 95-3)
Metals - TAL Metals (23) (Method CLP-M)
PAHs - Polynuclear Aromatic Hydrocarbons (Method 95-2)

A limited data validation was performed following the general guidelines in EPA Region II, CLP Organics Data Review (CLP/SOW OLM03.1), SOP No. HW-6, Revision #11, June 1996 and Evaluation of Metals Data for the Contract Laboratory Program (CLP), SOP Revision XI, January 1992.

II. Data Deliverable Completeness

The analytical data packages were in accordance with NYSDEC ASP, Category B data deliverable requirements, except for the following instances.

- The volatile and semivolatile instrument detection limits (IDLs) are outdated. The laboratory has been notified of these problems.

III. Holding Times

All samples were extracted and/or analyzed within NYSDEC and EPA Region II holding time criteria.

IV. Quality Control (QC) Data

A. QC Blanks:

All compound/analyte blank concentrations were below the contract required quantitation (organics) and detection (metals) limits. Acetone and methylene chloride were detected at low concentrations in the volatile method, storage, and/or trip blank. Following EPA Region II validation guidelines, these compounds for the associated samples that were less than 10 times the blank value were qualified "U" (undetected).

Two rinsate blanks, AP-RB-SS and AP-RB-TT, had methylene chloride detected at high levels. Methylene chloride was detected in some samples, however, at levels near or below the quantation limit. The high levels found in the rinsates were traced to contaminated glassware supplied by the laboratory. No other samples were affected and no qualifications of the data was necessary.

Di-n-butylphthalate and bis-(2-ethylhexyl)phthalate were detected in some of the semivolatile method blanks. However, only bis-(2-ethylhexyl)phthalate was detected in some samples and was qualified as "U" undetected in the associated samples, following EPA Region II validation guidelines.

B. Instrument Tune Criteria (VOC and SVOC Only)

All NYSDEC ASP instrument tuning criteria were met.

C. Initial and Continuing Calibrations

All method and EPA Region II validation guideline criteria were met for the initial calibrations for all analyses. No qualifications to the data were necessary.

The continuing calibrations for all analyses met method requirements. However, EPA Region II validation guidelines require all analytes for volatile and semivolatile

analyses to be less than 25% different from the initial calibration. The following volatile compounds exceeded the criteria and were qualified as estimated ("J, UJ"): acetone, bromoform, 2-butanone, chloromethane, dibromochloromethane, 2-hexanone, and 4-methyl-2-pentanone. The following semivolatile compounds exceeded criteria and were qualified as estimated ("J, UJ"): bis-(2-ethylhexyl)phthalate, 4-chloroaniline, 2,4-dinitrophenol, 3,3'-dichlorobenzidine, di-n-octylphthalate, 4,6-dinitro-2-methylphenol, hexachlorocyclopentadiene, 2-methylnapthalene, 4-nitroanaline, and pentachlorophenol.

D. CRDL Standards for ICP

To verify the linearity near the CRDL for ICP analysis, the laboratory must analysis an ICP standard (CRI) at two times the CRDL at the beginning and end of each sample analysis run or a minimum of twice per 8 hour working shift, whichever is more frequent. The following analytes exceeded EPA Region II validation guideline criteria of 80-120% and were qualified as estimated ("J") in all associated samples: lead, selenium, and silver.

E. Surrogate/Internal Standard Recoveries (Organics Only)

One internal standard (IS) area was outside method criteria of -50% to +100% of the continuing calibration for the volatile analysis of sample AP-TT-12. The reanalysis was compliant and was used for reporting purposes.

The following semivolative samples and their reanalysis failed method criteria for internal standards: AP-TT-1, AP-TT-3, AP-TT-5, and AP-TT-15. Following EPA Region II validation guidelines, the analytes under the non-compliant IS were qualified as estimated, "J". Analytes under IS areas that were less 25% of the continuing calibration were qualified estimated if detected or rejected ("R") if non-detected.

F. Field Duplicates

No field duplicates were sampled during this investigation.

G. Laboratory Control Samples (LCSs)

The inorganic LCSs were within EPA Region II and method QC limits.

H. Serial Dilutions

The serial dilution analyses of sample AP-SS-BG-2 for calcium, chromium, nickel, and potassium exceeded QC limits. Following EPA Region II validation guidelines, these analytes were qualified as estimated ("J") in all associated samples.

V. Sample Results

A. Raw Data vs. Reporting Forms

The final results as listed on the reporting forms were in agreement with the raw data, and no transcription/calculation errors were detected.

B. Quantitation Limits

All reported quantitation limits were adjusted for dilution factors and percent moisture.

The reported semivolatile and pesticide/PCB instrument detection limits (IDLs) were analyzed in January 1997 and June, 1997, respectively. ASP methodologies require that the laboratory run these on a semi-annual basis. Since all calibration response and linearity criteria were met, no qualifications were made to the data based on the outdated IDLs.

VI. Summary

All samples analyses were found to be compliant with NYSDEC ASP criteria, except where previously noted. Those results qualified as estimated (J/UJ) should be considered conditionally usable.