REMEDIAL INVESTIGATION REPORT

AMERICAN CLEANERS SITE
SITE #7-04-030
BINGHAMTON, NEW YORK

Prepared For:

NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL REMEDIATION
WORK ASSIGNMENT D003825-28

FINAL

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AMERICAN CLEANERS SITE

PROJECT MANAGEMENT WORK PLAN

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1.0 INTRODUCTION

The American Cleaners site is situated in an urban setting in the City of Binghamton, New York. It was used as a dry cleaning facility. In 1999, the New York State Department of Environmental Conservation (NYSDEC) classified the site as "Class 2" on its Registry of Inactive Hazardous Waste Sites. Under the State Superfund Standby Contract, Work Assignments D003825-28, URS Corporation (URS) was tasked to perform a Remedial Investigation/Feasibility Study (RI/FS). This RI report, summarizes the results of the remedial investigation.

1.1 Purpose of Report

The purpose of this RI report is to present, summarize, and provide interpretations regarding data gathered during RI field activities. As part of the RI, field activities performed from November 2000 through February 2001 included literature reviews, geoprobe soil borings and soil sampling, monitoring well installation, analytical testing of groundwater samples, and a site feature and sampling point survey.

The specific objectives of the RI were to:

- Collect necessary data to determine the vertical and horizontal extent of soil contamination and chemical migration on-site and off-site.
- Install groundwater monitoring wells and piezometers to evaluate groundwater flow direction and quality, and to determine the extent of any contaminant plume migrating from the site.
- Evaluate the impact of site contamination upon human health and the environment.
- Provide sufficient data to determine the need for remedial action and perform a feasibility study.

1.2 Site Description and History

The American Cleaners site is located in a residential area in the west side of the City of Binghamton, Broome County, New York. The property is located on the east side of Walnut Street and on the north side of Seminary Avenue at the address of 48-50 Walnut Street (Figure 1-1). The property, which extends approximately 79 feet along Seminary Street and 50 feet along Walnut Street, is occupied by a one-story masonry block structure attached to a two-story wood frame structure. A smaller, separate masonry block building occupies the north corner of the property (Figure 1-2). The American Cleaners site is a former dry cleaner. The business closed in 1991 and the property has been abandoned since then. The New York State Department of Environmental Conservation completed a records search in January 1998. Based on this information, it was determined that tetrachloroethene, a listed hazardous waste, was disposed of on-site.

1.3 Report Organization

This RI report has been organized and divided into seven sections corresponding to the format outlined by the United States Environmental Protection Agency (USEPA 1988). Site background information, including a discussion of previous investigations, is provided in the following subsections. The scope of work is outlined, and the methods and procedures used during the field investigations are summarized in Section 2.0. The physical characteristics, including a detailed discussion of the site geology and hydrogeology, are described in Section 3.0. A discussion of analytical testing results is provided in Section 4.0. Section 5.0 presents a discussion of the contaminant fate and transport and Section 6.0 provides a qualitative risk assessment. Section 7.0 presents the remedial investigation summary and conclusions. The RI report consists of text followed by tables and figures. Supporting documentation and analytical data are included as appendices. The Data Usability Summary Report (DUSR) has been submitted separately.

1.4 Previous Investigations

Four previous investigations were performed at the site. The following discussion summarizes these previous investigations and the data collected during them. The existing data have been reviewed and have been integrated as appropriate in this report. The previous investigations referred to soil and sump water samples collected in the basement and beneath the basement slab as surface soil and surface water. As part of the remedial investigation conducted by URS, soil samples and sump water samples collected from the basement were referred to as subsurface soil and sump water. URS has changed the terminology from the previous investigations to be consistent with this remedial investigation. All soil samples collected from the basement have been characterized as subsurface soils. All water samples collected from the sump are identified as sump water, however, the criteria used for evaluating sump water are groundwater standards.

- Central Testing and Engineering Report

In April 1995, an environmental assessment was performed by Central Testing and Engineering of Chenango Falls, NY. This assessment was completed for the property owner, Ms. Henrietta Hardie with information provided by Mr. Rollin Twining, attorney for Ms. Hardie, from public records, visual inspection and limited sampling. One composite soil sample from twelve locations was collected from this property and was analyzed for the presence of dry cleaning solvents and degradation byproducts. Tetrachloroethene was detected at a concentration reported as "greater than 200 milligrams per kilogram (mg/kg)" in this sample. The presence of a detectable amount of trichloroethene was also reported, but it was below the laboratory certified detection levels.

- Twining, Nemia & Steflik Sampling

In May 1995, five discrete soil samples were collected for the law firm Twining, Nemia and Steflik. This work was performed because a party was interested in purchasing the property. The five samples were analyzed for only tetrachloroethene (perchloroethylene) and the results ranged from 1,400 micrograms per kilogram (μg/kg) to 410,000 μg/kg. The analytical report also indicated that the samples showed light to heavy petroleum patterns, however, no other analysis was performed.

The potential buyer apparently decided not to purchase this property as a result of this work and a "release of contract for real property" was signed in September 1995.

Gaynor Associates, Inc. Report

In July 1995, a subsurface environmental investigation was performed for Mr. Prescott Perkins of Colonial Plaza Associates. This work was done under the review of Mr. Thomas Suozzo, NYSDEC. This investigation attempted to obtain groundwater quality data since it was determined through previous investigations that soil contamination existed on this site.

Four Geoprobe holes were advanced, one on each side of the site. The four sampling locations were labeled GP-1 through GP-4 and ranged in depth from four to six feet below ground surface. Tetrachloroethene and toluene were detected in all soil gas samples. No groundwater samples were obtained from this investigation since the Geoprobe didn't penetrate any further than six feet and groundwater was not encountered.

In a September 1995 letter to Mr. Perkins, NYSDEC indicated that there was a potential for off-site migration of tetrachloroethene requiring an additional investigation to obtain groundwater quality data. An additional investigation was not performed.

Immediate Investigation Work Assignment Report (NYSDEC, May 1998)

The engineering firm Ecology and Environment, Inc. was retained by NYSDEC to complete an Immediate Investigation Work Assignment (IIWA).

Field investigation activities were conducted in February and March 1998. These activities included:

- Installation of three monitoring wells
- Collection and analysis of four subsurface soil boring samples and three groundwater samples

- Five subsurface soil samples collected beneath the main building basement slab and one surface soil sample from the masonry block storage building floor
- One sediment sample and two sump water samples collected out of two of the three pits identified in the basement of the main building
- Installation of four piezometers.

Figure 1-3 shows the locations of monitoring wells and samples from this investigation.

The soil samples were analyzed for Target Compound List (TCL) volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs). Selected samples were also analyzed for characteristic hazardous waste: Toxicity Characteristic Leaching Procedure (TCLP), and ignitability, reactivity, and corrosivity. The water samples were analyzed for TCL VOCs and SVOCs. No analysis for pesticides/PCBs or inorganics was done during this investigation since there was no evidence of the use of these substances at the site.

Subsurface soil samples were found to contain compounds at hazardous waste levels. Tetrachloroethene was found in the subsurface soils ranging from 6 μg/kg to 4,400,000 μg/kg (Figure 1-4). The soil cleanup level is 1,400 μg/kg. Also, TCLP results showed detectable readings for tetrachloroethene in five of the subsurface soil samples with one result above the regulatory level for classification as a characteristic hazardous waste, as per Part 371.3 (e). The other characteristic hazardous waste tests (ignitability, corrosivity, and reactivity) showed no failure in any of the samples.

The groundwater and sump water was analyzed primarily to determine if a significant threat was posed by the contaminants found in the soils. Groundwater results also showed evidence of tetrachloroethene contamination (Figure 1-5). Tetrachloroethene was found in monitoring well MW-1 at 41 μg/L, which is in excess of the class "GA" groundwater standard of 5 μg/L. Also, the sump water samples showed levels of tetrachloroethene at 8.0 μg/L and 24,000 μg/L, which is in excess of the class "GA" groundwater standard of 5 μg/L. Trichloroethene was also found in one sump water sample at 5,200 μg/L, which is in excess of the class "GA" groundwater standard of 5 μg/L. None of the water samples revealed SVOC levels above established standards.

1.4.1 Summary of Site Contamination

Based upon the results of previous investigations, media of primary concern at the site are groundwater, sump water, sump sediment and subsurface soil. The contaminants of concern (COCs) in these media are as follows:

- Groundwater (monitoring wells) - The primary COCs are volatiles. Tetrachloroethene in MW-1 exceeded NYS Class GA drinking water standards.

- Sump Water (sump and boiler pits) - Tetrachloroethene and/or trichloroethene in samples SW-1 and SW-2 (Sump Pit 1 and 2) exceeded Class GA groundwater standards.

- Sediment (boiler pit) - Several organic compounds [1,2-dichlorothene(total), tetrachloroethene and phthalates] were detected at low concentrations in the samples analyzed.

- Subsurface Soil - Several organic compounds were detected in the soil beneath the basement slab (Table 1-1). Detected compounds included: trichloroethene, tetrachloroethene, toluenes and phthalates. Several organic compounds were detected in the subsurface soils from the monitoring well soil borings (Table 1-1). Detected compounds included: carbon disulfide, benzene, 1,2-dichloroethene(total), tetrachloroethene, toluene and phthalates. Tetrachloroethene exceeded NYSDEC TAGM: Determination of Soil Cleanup Objectives and Cleanup levels at three sampling locations.

2.0 REMEDIAL INVESTIGATION FIELD ACTIVITIES

The field activities conducted as part of this RI were sequenced to most effectively assess the impact of the site on the environment. There were two primary phases of field work. The Phase I RI field activities were conducted between November 27 and 30th, 2000 and consisted of the following tasks:

- Literature search and determination of water use in the area
- Jackhammer borings
- Geoprobe borings
- Installation of five piezometers
- Redevelopment of three existing monitoring wells
- Groundwater level measurements
- Collection of representative samples for chemical analysis including 20 subsurface soil, two sump water samples and groundwater samples from three existing site wells
- Site feature and sampling point survey

The Phase II effort was based upon the data gathered as part of the Phase I. Phase I groundwater results indicated that contamination may potentially be migrating off-site. As a result, two additional monitoring wells were installed as part of the Phase II field activities to further define groundwater flow directions and extent of groundwater contamination. Phase II field activities were conducted between January 2001 and February 2001 and consisted of the following tasks:

- Installation of two monitoring wells
- Development of the two new monitoring wells
- Ambient air sampling in the basement of the on-site building
- Groundwater level measurements
- Collection of representative samples for chemical analyses including three ambient air samples, and five groundwater samples from two newly installed monitoring wells and three existing wells
- Groundwater level measurements
- Site feature and sampling point survey

2.1 Literature Search and Determination of Water Use in the Area

As part of the RI, pertinent literature sources were collected and reviewed. These literature sources included reports on environmental studies conducted near the American Cleaners site. The information, where appropriate has been integrated into this RI.

Water is supplied to the site by the City of Binghamton Water Department. The main source of water for the City of Binghamton is the Susquehanna River just east of the Tompkins Street bridge (NYS Rte 7) which is approximately 1.5 miles east, upstream of the site. An emergency back-up supply, which is a well, is located approximately 1.6 miles northeast of the site, upstream and east of the Chenango River (Personal Communication with City of Binghamton Water Department). According to a United States Geological Survey (USGS) report (USGS 1997) there are no municipal wells and a total of eight industrial groundwater wells located within a 1-mile radius of the site (Plate 1). The eight industrial wells are located to the north of the site and are operated by two private manufacturing firms. Seven of the eight wells are located in the Anitec well field, which was operated by the Anitec Imaging Products Division of International Paper Company (Anitec). The daily average withdrawal rate for 1994 was over three million gallons of water per day. The eighth well is operated by E.H. Titchener and Company (Titchener), which had an average withdrawal rate of 9,000 gallons a day in 1994 (USGS 1997). At the time of this report, the Anitec wells had been temporarily out of service for approximately one year due to closure of the Anitec facility. The Titchener well was temporarily out of service due to a pump malfunction (Personal Communication).

2.2 Subsurface Soil Sampling

A total of thirty-seven (37) soil borings were advanced on November 28 and 29, 2000. Four soil borings (SB-13 through SB-16) were advanced outside the building around the southern and western perimeter of the site using a Simco direct-push unit. Borings SB-13 and SB-14 were advanced adjacent to the service line to the municipal sewer system at the direction of the on-site NYSDEC representative. The remaining 33 soil borings were advanced in the basement of the site buildings using a jackhammer and split-spoon sampler. Prior to sampling, organic soil vapors were monitored beneath the concrete slab of the one-story block building, at the nodes on a five-foot square grid. Additional soil vapor points were designated by the on-site NYSDEC representative

in two adjoining areas of the basement. Subsurface soil sampling points were selected based upon the results of the soil vapor monitoring (Table 2-1). Five piezometers were installed in the basement beneath the one-story block building to evaluate groundwater flow and facilitate the collection of groundwater samples from below the concrete slab.

2.2.1 Jackhammer Borings

On November 28 and 29, 2000, 33 soil borings (SB-1 to SB-12 and SB-17 to SB-37) were advanced in the basement of the American Cleaners buildings. The soil borings were advanced by personnel from Natures Way Environmental Consultants & Contractors (NWEC&C) with a pneumatic jackhammer using 2-inch diameter split-spoons. In general a five-foot square grid was laid out in the basement under the one-story block building and additional sampling points were designated by the on-site NYSDEC representative (Figure 2-1). Prior to sampling at each grid node, a hole was made in the concrete slab with the jackhammer and the soil immediately beneath the slab was screened for total organic soil vapors with a photoionization detector (PID). Subsurface soil sampling points were selected based upon the results of the organic soil vapor screening. Split-spoon samples were collected in two foot increments and each split-spoon sample was described and classified, inspected for signs of contamination, and screened with a PID by a URS geologist. All borings were sampled until split-spoon refusal was encountered which typically occurred between 2 and 3 feet below the concrete slab. Nineteen soil samples were collected from beneath the concrete slab for analytical analysis. These samples were collected from borings where elevated PID readings were detected or from areas of concern identified by the on-site NYSDEC personnel. The samples were analyzed for Target Compound List (TCL) VOCs. Subsurface boring logs for the borings advanced in the basement may be found in Appendix A.

2.2.2 Geoprobe Borings

On November 28, 2000, four soil borings (SB-13 to SB-16) were advanced to the south and west of the American Cleaners buildings (Figure 2-1). NWEC&C advanced each boring with a Simco direct-push unit using a four-foot long, two-inch diameter Macrocore sampler. Each Macrocore sample was described and classified, inspected for signs of contamination, and screened with a PID by a URS geologist. All borings were sampled until Macrocore refusal was encountered.

One soil sample was collected for analysis from boring GP-14, which is located immediately to the west of the sanitary service sewer line. The sample was analyzed for TCL VOCs. Subsurface boring logs for the Geoprobe borings are provided in Appendix A.

2.2.3 Piezometer Installation

Five polyvinyl chloride (PVC) piezometers were installed in the basement of the one-story block building on November 29, 2000 (Figure 2-1). At the time of their installation, groundwater was not encountered in any of the associated soil borings. At the direction of the on-site NYSDEC representative, the piezometers were installed for future sampling and groundwater level measurements.

The peizometers, which consisted of ¾-inch inside-diameter (ID), machine slotted screens were installed in the open annulus made by the split-spoon. Piezometer construction logs are provided in Appendix B.

2.3 Monitoring Well Installation

After the Phase I groundwater data was reviewed, results indicated that contamination may potentially be migrating off-site. As a result, NYSDEC approved the installation of two, Phase II monitoring wells to further define groundwater flow and the extent of groundwater contamination. On January 31 and February 1, 2001, two monitoring wells were installed at the site by Buffalo Drilling Company (BDC). Monitoring wells MW-4 and MW-5 were installed to the west and east of the site respectively. The monitoring well borings were advanced with an ATV-mounted CME-75 drill rig using 4 ¼-inch ID hollow-stem augers (HSAs). Continuous samples were collected in each boring using a 2-inch outside-diameter (OD) split-spoon sampler. Each split-spoon sample was described, classified, inspected for signs of contamination, and screened with a PID by a URS geologist. Boring logs for the monitoring wells are provided in Appendix A.

Upon completion, monitoring wells were installed in each boring. The monitoring wells consisted of a ten-foot long section of two-inch ID Schedule 40 PVC, 0.010-inch machine slotted screen connected to the surface with two-inch ID Schedule 40 PVC riser. Each well was finished with a steel flush-mount protective casing. Monitoring well construction logs are provided in Appendix B. Monitoring well and piezometer construction data is summarized in Table 2-2.

2.4 Monitoring Well Development

The two newly installed wells and the three existing wells were developed using a peristaltic pump with dedicated/disposable high-density polyethylene (HDPE) tubing. Water quality parameters including temperature, pH, specific conductivity and turbidity were monitored during development. Although monitoring well MW-4 was pumped dry after removing approximately 2 gallons, it recharged quickly (approximately 15 minutes). All wells were developed to desired specifications [i.e. stable water quality parameters and turbidity less than 50 nephelometric turbidity units (NTU)]. Monitoring well development records are provided in Appendix C.

Water level measurements in piezometers and monitoring wells were collected on three dates and are presented in Table 2-3.

2.5 Groundwater Sampling

Groundwater sampling was conducted in two phases. Prior to sampling, each well was purged a minimum of three well volumes using a peristaltic pump with dedicated/disposable HDPE tubing. The wells were purged until water quality parameters were stable and three consecutive turbidity reading of less than 50 NTU were obtained. After purging was completed and the well had recharged sufficiently, samples were collected using a dedicated/disposable teflon bailer and dedicated nylon rope.

2.5.1 Phase I Groundwater Sampling

For Phase I, groundwater in the three existing monitoring wells (MW-1 to MW-3) was sampled on October 30, 2000 to confirm the presence or absence of contamination. At this time,

groundwater was not present in any of five piezometers in the basement of the one-story block building and no samples were collected. The groundwater samples from the monitoring wells were analyzed for TCL VOCs. The purge logs may be found in Appendix D.

2.5.2 Phase II Groundwater Samples

After the installation of the two new monitoring wells (MW-4 and MW-5), all five wells were sampled on February 15, 2001. Each well was purged and sampled in the same manner as the wells from Phase I. The purge logs may be found in Appendix D.

During this sampling event, three of the piezometers in the basement (PZ-1, PZ-2, and PZ-3) were found to be submerged in 1 to 3 inches of water. An inspection of the basement revealed water overflowing from the toilets in the two bathrooms located in the northeast corner of the basement. Upon consultation with the NYSDEC representative, it was decided not to sample the basement piezometers at this time. It was also noted that the sump pit was filled to the top with water.

All samples from both phases of groundwater sampling were analyzed for TCL VOCs. Results are summarized in Section 4.4.

2.6 Sump Water Sampling

Sump water samples were collected on October 30, 2000 from the two basement sumps shown in Figure 2-1. The samples were collected by directly immersing the sample containers into the water and were analyzed for TCL VOCs. Results are summarized in Section 4.3.

2.7 Air Sampling

Air samples were collected on February 1, 2001 from three locations in the basement of the site. Three, 3M® 3500 Organic Vapor Monitor badges were suspended from the basement ceiling rafters approximately 5 feet above the basement floor (breathing zone) and directly above soil boring locations SB-3, SB-31 and between SB-22 and SB-23. The badges were exposed for 8-hours and

the temperature and relative humidity were recorded. The badges were analyzed for VOCs and the results are summarized in Section 4.5.

2.8 Site Survey and Mapping

Following each phase of field activities, sampling locations were surveyed for horizontal location and elevation. Horizontal coordinates are based on the New York State Plane Coordinate System Transverse Mercator Projection, East Zone, North American Datum of 1983. Elevations are based on the North American Vertical Datum of 1988 (mean sea level-msl). Surveyed locations and elevations of monitoring wells and piezometers are summarized in Table 2-4 and the survey notes are provided in Appendix E. The survey information was used to develop a base map of the site and adjacent areas which is used throughout this report.

2.9 Data Validation and Data Usability Summary Reports

The data packages were prepared by the laboratory in accordance with the NYSDEC's Analytical Services Protocol (ASP) Category B Deliverable requirements. They were reviewed for compliance with the applicable methods and United States Environmental Protection Agency (USEPA) Region II *Contract Laboratory Program (CLP) Organic Data Review, SOP No. HW-6*, Rev. 11, June 1996. Qualifications applied to the sample results included "U" (undetected), "J" (estimated value due to quality control QC outliers or concentration below the quantitation limit), and "JN" (presumptive evidence for the presence of the compound at an estimated value). The data validation summary tables are located in Appendix F of this report.

The Data Usability Summary Report (DUSR) was prepared following the guidelines provided in NYSDEC Division of Environmental Remediation *Guidance for the Development of Data Usability Summary Reports*, dated 1999 and the approved project *Final RI/FS Work Plan*, dated November 2000. The DUSR was submitted separately.

3.0 PHYSICAL CHARACTERISTICS OF THE STUDY AREA

3.1 Surface Features

The American Cleaners site is located on the east-side of Walnut Street and on the north side of Seminary Avenue at the address of 48-50 Seminary Avenue. The primary surface features of the site include a two-story frame building that occupies approximately 800 square feet of the site, and has an earthen floored basement. The two-story structure is in visible disrepair (missing second story windows, flaking paint and crumbling plaster). A one-story block structure (approximately 315 square feet) with no apparent basement is located to the west of the two-story frame building and fronts 20 feet on Walnut Street. A one-story block structure (approximately 1,750 square feet) with a concrete slab basement is located to the south of the two previous noted structures and fronts 25 feet along Walnut Street and 70 feet along Seminary Avenue. The concrete slab of the one-story block structure is approximately three feet lower than the earthen floor beneath the two-story structure. The two, one-story block structures, have storefront windows along Walnut Street covered with plywood and both are painted dark gray. The three previously noted structures housed the dry-cleaning operations and were interconnected by doorways and hallways during the sites' operation. A one-story masonry block building (approximately 320 square feet) used for storage, is located in the northeast corner of the site and is in generally good repair (Figure 1-2). Site photographs are located in Appendix G.

The topography of the site is generally flat. The site is situated at an elevation of approximately 870 feet above mean sea level (amsl). The topography surrounding the site is generally hilly. To the north, the topography gradually drops and then rises again as it approaches Main Street. To the south, the topography slightly drops for about a city block, rises to approximately 900 feet amsl and then drops off to the Susquehanna River. The topography drops gradually to the east towards the Chenango River. To the west, the topography rises to an elevation of approximately 900 feet amsl within three city blocks.

3.2 Demography and Land Use

The site is located on the west side of the City of Binghamton, which had a population of 53,008 people in 1990 (CBP 2001). Two high schools are located within a two-block radius of the site. Land use near the site is zoned R-5 which is classified as high density residential. A memo from the City of Binghamton Office of Building & Construction is included in Appendix H.

3.3 Soils

Soils in the vicinity of the site have been mapped as cut and fill lands which are a miscellaneous land type made by landforming operations for urban development or construction purposes. Surface materials consist of 5 to 10 feet of fill that typically overly the alluvial Tioga soil. The Tioga soils are characterized as deep, well-drained (1.6 to 16.0 cm/hr) and medium-textured gravelly soils formed in glacial outwash influenced by sandstone and shale (USDA 1971). They consist of dark brown to brown gravelly loams over layers of gravelly, sandy and cobbly materials.

3.4 Surface Water Hydrology

The site is located along the southeastern edge of the Clinton Street-Ballpark Aquifer, which is a sole source aquifer. The dominant surface water features in the vicinity of the site are the Chenango River, which is approximately ¼ -mile to the east and the Susquehanna River and flows approximately ½-mile to the south. The Chenango River in the vicinity of Binghamton is classified as Class "B" fresh surface water. Class "B" waters are best used for primary and secondary contact recreation and fishing. The waters also should be suitable for fish propagation and survival (NYCRR). The Susquehanna River in the vicinity of Binghamton is classified as Class "A" fresh surface water. Class "A" waters are best used for: a source of water supply for drinking; culinary or food processing purposes; primary and secondary contact recreation; and fishing. The waters also should be suitable for fish propagation and survival (NYCRR).

During 1998, the daily mean discharge for the Chengango River near Chenango Falls, NY (approximately 5 miles upstream from Binghamton) was 2,453 ft^3/second. The peak daily minimum and maximum for 1998 was 78 ft^3/second and 21,400 ft^3/second, respectively. The mean daily discharge for the Susquehanna River in 1998 at Conklin, NY (approximately 5 miles upstream from Binghamton) was 3,580 ft^3/second. The peak daily minimum and maximum for 1998 was 276 ft^3/second and 35,200 ft^3/second, respectively.

3.4.1 Site Drainage

Surface drainage is dominated by the impermeable surfaces covering most of the site (buildings, concrete, and asphalt). Concrete and asphalt also cover the area to the west and south of the site. Any surface water runoff from the western and southern portion of the site discharges into the municipal storm sewer system which eventually discharges into the Susquehanna and Chenango Rivers. Along the northern portion of the site, a three-foot wide section of gravel exists between the site buildings and the asphalt driveway of the adjoining property. Surface water from the driveway and any runoff from the site buildings may infiltrate along this area of gravel. The area to the east and northeast of the site is covered with grass and is topographically higher than the site. Any surface runoff from this area is directed to on-site areas.

3.5 Geology and Hydrogeology

The geology and hydrogeology in the site vicinity were studied as part of the RI. Information obtained from other studies conducted at the site and from various literature sources were used to help characterize the site hydrogeology. The following subsections summarize the regional and site-specific geology and hydrogeology.

3.5.1 Geology

3.5.1.1 Regional Geology

The City of Binghamton is situated in the Appalachian Uplands physiographic province of New York State (Broughton, et al. 1966). The province is characterized by moderate to high relief. The geomorphology of the region has been impacted by the last glaciation. During the most recent Pleistocene glacial retreat (approximately 16,500 years ago), the Ontario Lobe of the Laurentide Ice Sheet retreated northward through the Finger Lakes region of New York State (Tewksbury, et al. 1984). Major meltwater drained south through the Susquehanna and Hudson Rivers. The retreating ice mass left behind huge glacial deposits and glacial meltwater. The overburden deposits in the vicinity of the site originated from the Laurentide Ice Sheet. The overburden deposits in the region have been mapped as outwash and kame sand and gravel and glacial till (Muller, et al. 1986). The outwash deposits are characterized as coarse to fine gravel with sand mixed with stratified, proglacial fluvial silts and sands. Sediment textures are generally finer further from the ice border. The glacial till is characterized as a dense and compact, unsorted mixture of silt, clay, and gravel. Beneath the overburden deposits near the site vicinity, the bedrock units of the Sonyea Group have been mapped. The bedrock units are Lower Devonian in age and consist of shales, siltstones and limestones.

3.5.1.2 Site Geology

The stratigraphic sequence in the vicinity of the site includes from the surface down: fill; stratified silts, sands and gravels; clayey silt/silty clay with boulders and gravel; and bedrock. The overburden is estimated to be approximately 50 to 75 feet thick based upon drilling information from municipal water wells nearby (Randall 1977). The surficial deposits have been mapped as kame and kame terrace sand and gravel with alluvium along tributary streams, and morainal till comprised of fine-grained sediments interbedded with or locally overlain by poorly sorted sand and gravel. The bedrock units were not penetrated as part of the drilling program. The bedrock units have been mapped as siltstone and shale (Randall 1977).

Figures 3-1 and 3-2 depict geologic cross-sections A-A' and B-B' in the vicinity of the site. Cross-section locations are shown in Figure 2-2. A thin veneer of fill was encountered at a few drilling locations which was described as clayey silt to silty sand containing some gravel and trace amounts of blacktop and cinders. A 2- to 5-foot thick layer of silty sand/silt and sand lies beneath the fill. A wedge of medium dense, permeable sand and gravel was identified north and east of the site. The wedge thickens toward the north and east (Figure 3-3). The sand and gravel layer is absent beneath the site. It grades into the thin layer of silty sand. The very dense silt layer lies immediately beneath the silty sand and underlies the basement of the building. The dense silt layer was determined to be approximately 6 feet thick at MW-02 and approximately 9 feet thick at P-4. The sand and gravel layer was determined to be approximately 18 feet thick at P-2 (Figure 3-2). A very dense clayey silt with shale fragments underlies the interstratified mixture of sand, gravel, and silt. The clayey silt unit is interpreted as glacial till. The upper surface of the clayey silt is highly variable in the site vicinity (Figures 3-1 and 3-2). The glacial till and dense silt layers form a mound beneath the site near monitoring well MW-02 (Figure 3-4). Saturated deposits were encountered at depths between 12 feet and 22 feet bgs in the RI well borings.

3.5.2 Hydrogeology

3.5.2.1 Regional Hydrogeology

The site is located in the southeastern edge of the Clinton Street-Ballpark Aquifer, a sole source aquifer, which is the primary source of drinking water for Johnson City, NY. The Clinton Street-Ballpark Aquifer is an unconsolidated glacial aquifer that underlies three square miles of urban land in the Susquehanna River valley, extending from the western part of Binghamton to Johnson City. The aquifer is bound on the north by a bedrock valley wall; on the south by a glacial till and bedrock ridge that separates the aquifer from the Susquehanna River; on the east by the Chenango River (north of the confluence with the Susquehanna River); and on the west by the Susquehanna River (USGS, 1997). The aquifer generally consists of ice-contact deposits of silty sand and gravels overlain by outwash deposits of sand and gravels. An intermittent lacustrine silt and clay deposit of variable thickness, locally separates the two coarse deposits into an upper, unconfined layer and a lower, confined layer. The unconsolidated sediments are generally thickest along the center of the valley (long axis) and range from 100 to 150 feet thick.

The storage capacity of the aquifer has been estimated, with proper management, at 1.7 billion gallons (USGS 1997). The transmissivity of the aquifer as a whole (unconfined and confined) ranges from 0 to 50,000 square feet per day, although individual wells have shown local transmissivity as high as 114,000 square feet per day (USGS 1997). Generally, the transmissivity along the margin of the aquifer is low. The transmissivity of the aquifer increases as the saturated thickness increases, and is generally highest (approximately 50,000 ft^2/day) along the central portion (long axis) of the aquifer. The potentiometric surface for May 2, 1995, indicated that groundwater generally moved from upradient areas along the aquifers boundaries towards two major pumping centers, located in Binghamton and Johnson City [Plate 2 (USGS 1997)]. A groundwater divide is located approximately at the municipal boundary between Binghamton and Johnson City with groundwater flowing towards the respective pumping centers. Section 2.1 discusses the water use in the area. Similar potentiometric surfaces have been mapped in the past (USGS 1997).

3.5.2.2 Site Hydrogeology

The unconfined water-table aquifer present in the overburden was characterized as part of the RI. Groundwater was encountered at depths approximately 12 to 22 feet bgs in the site vicinity. Figures 3-5 and 3-6 depict potentiometric surface maps generated from water level data collected as part of the RI during November 2000 and February 2001. On November 27, 2000, groundwater was determined to flow generally toward the north in the site vicinity. At the site, however, groundwater flow is radial away from MW-02. At and near the site, the monitoring wells are screened across the dense silt and glacial till layers (Figures 3-1 and 3-2). North of the site, the piezometers are screened within the sand and gravel layer and across the sand and gravel layer/glacial till layer. Hydraulic conductivities measured during previous investigations reported values ranging from 1.6×10^{-3} cm/sec to 2.9×10^{-4} cm/sec in monitoring wells MW-01 through MW-03 (E&E, 1998). However, these slug test values did not account for the fact that well screens for MW-1 through MW-3 spanned the till. The adjusted conductivity values would be approximately one order of magnitude lower. The groundwater mounding at the site is attributable to preferential recharge near MW-02 and the site geology. The horizontal hydraulic gradient between MW-02 and P-3 is 0.0243 ft/ft and between MW-02 and MW-03 is 0.055 ft/ft.

The pattern of groundwater flow on February 15, 2001 is very similar and includes groundwater level data from the newly installed monitoring wells MW-04 and MW-05. Groundwater is mounded around MW-02 and flows radially away from the well. Groundwater generally flows northerly around the mound. The horizontal hydraulic gradient between MW-02 and P-3 is 0.0246 ft/ft and between MW-02 and MW-03 is 0.053 ft/ft.

4.0 DISCUSSION OF NATURE AND EXTENT OF CONTAMINATION

This section characterizes the nature and extent of contamination detected in soil and groundwater in the vicinity of the American Cleaners site. Soil contamination beneath the building likely occurred as a result of former spills. Although the soils are covered by a concrete slab, groundwater has been adversely impacted by the soil contamination. Sump water in the basement of the building has also been impacted by site contaminants. The contaminated soils beneath the building represent a continuing source of contamination. The following discussion presents the results of the field activities and environmental sampling data for soil vapor, soil, and sump water/groundwater.

4.1 Soil Gas Screening Results

Volatile organic gases were screened using a combination HNu PID/FID at each of the thirty-three jackhammer boring locations inside the building and at each of the four Geoprobe soil borings outside the building. Measurements inside the building were taken immediately below the concrete slab. Figure 4-1 depicts the results of the soil gas screening. HNu concentrations ranged from 0 to as high as 460 ppm. The highest soil gas readings were reported beneath the basement in the central portion of the one-story block and brick building along Seminary Avenue. No HNu readings above background were detected in the four Geoprobe soil borings outside the building (Figure 4-1).

4.2 Soil Results

Twenty (20) soil samples were collected as part of the RI (Figure 4-2). All samples were analyzed for Target Compound List (TCL) volatiles (VOCs). Nineteen samples were selected from locations beneath the concrete slab inside the building and one sample was selected from Geoprobe soil boring location SB-14, located outside the building. The rationale for sample selections is presented in Table 2-1. Table 4-1 summarizes the analytical results and Appendix F presents the data validation tables. For characterization purposes, Table 4-1 includes NYSDEC criteria provided in Technical Administrative Guidance Memorandum 4046 for each of the detected compounds.

These criteria provide a basis for determining soil cleanup levels at State Superfund Sites and are considered to be the applicable standards, criteria, and guidance (SCGs) value for this site.

Detected compounds included acetone, tetrachloroethene (PCE), trichloroethene (TCE), 4-methyl-2-pentanone, and toluene. PCE was detected most frequently and at the highest concentrations. Detected concentrations of PCE ranged from 10 μg/kg in SB-23 to 37,000 μg/kg in SB-10. Reported concentrations of PCE exceeded the NYS soil SCG at 7 locations including SB-03, SB-04, SB-08, SB-10, SB-34, PZ-03, and PZ-05. Figure 4-2 depicts compounds detected above the SCGs based upon the RI sampling results. The highest reported concentrations of PCE were reported beneath the basement floor in the central portion of the building along Seminary Avenue. The other reported VOCs were detected sporadically and typically at low concentrations. Table 4-2 provides a statistical summary of the RI soil sampling results.

4.3 Sump Water Results

Two sump water samples were collected as part of the RI (Figure 4-3). Samples were analyzed for TCL VOCs only. Analytical results are summarized in Table 4-3. For characterization purposes, Table 4-3 includes NYSDEC criteria provided in Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations for Class GA water. Since the sump water originates from infiltrating water around the foundation/footing it represents groundwater and Class GA criteria are applicable. It appears that the drains for the sumps are clogged given that they hold water. Detected compounds included 1,2-dichloroethene (1,2-DCE), TCE, and PCE in the sump pit and PCE in the boiler pit. Each of the compounds detected in sump pit (SW-01) exceeded the Class GA SCGs. The reported PCE concentration in the boiler pit (SW-02) was less than the Class GA SCG for PCE. Detected concentrations of the compounds detected in SW-01 were less than those reported in 1998 (Figure 1-5) and greater than those detected in SW-02 in 1998 (Figure 1-5).

4.4 Groundwater Results

Two rounds of groundwater sampling were conducted as part of the RI. The first round was conducted in November 2000 when three (3) existing monitoring wells (i.e., MW-01 through MW-03) were sampled. Samples were analyzed for TCL VOCs. In addition to the three monitoring wells, two sump pits inside the building were sampled and analyzed for TCL VOCs (Figure 4-3). Based upon the analytical data from the first round sampling, a second phase of field work was conducted in February 2001 involving installation of two additional monitoring wells (i.e., MW-04 and MW-05) and sampling of the three existing and two newly installed wells. During the second round sampling, the five site monitoring wells were sampled and analyzed for TCL VOCs. The following sections discuss the results of both sampling events.

4.4.1 November 2000 Sampling Round

Table 4-4 summarizes the analytical results for the three monitoring well samples. Figure 4-3 depicts the compounds detected above the NYSDEC Class GA SCGs and their reported concentrations. Table 4-5 presents a statistical summary of the November 2000 sampling data. In groundwater, only PCE was detected above the NYSDEC Class GA SCG criterion. Reported concentrations of PCE ranged from 7μg/L in MW-03 to 220 μg/L in MW-01. Contaminants were not detected in monitoring well MW-02. The reported concentrations of PCE in well MW-01 is higher than previously reported in the 1998 sampling event (Figure 1-5).

4.4.2 February 2001 Sampling Round

Table 4-6 summarizes the analytical results for the five monitoring wells samples. Figure 4-4 depicts the compounds detected above the NYSDEC Class GA SCGs and their reported concentrations. Table 4-7 presents a statistical summary of the February 2001 sampling data. Detected analytes included 1,2-DCE, 2-hexanone, and PCE. PCE was reported at concentrations above the NYSDEC Class GA SCG only in MW-01 at 550μg/L, which was higher than concentrations reported in previous sampling events.

4.5 Indoor Air Quality Results

URS collected three indoor air samples for the analysis of volatile organics using 3M® 3500 Organic Vapor Monitor badges. Air badge samples were collected in addition to the environmental sampling specified in the Project Management Work Plan (Final, November 2000). The badges were suspended from the basement ceiling joists approximately 5 feet above the basement floor considered to be in the breathing zone. The locations were directly above soil boring locations SB-3 and between SB-22 and SB-23. These locations corresponded with areas having the highest VOCs detected in soils during previous investigations. The badges were exposed for an eight-hour interval, from 8 AM to 4 PM. The samples were analyzed by Galson Laboratories located in East Syracuse, New York. No detections were reported in the samples. The analytical data report can be found in Appendix I. URS performed a limited review of the analytical data, which included holding time compliance, surrogate recovery, blank contamination, calibration standards, and completeness of deliverables. No problems were noted in the review.

5.0 CONTAMINANT FATE AND TRANSPORT

5.1 Background

Volatile Organic Compounds (VOCs) detected at the site include: BTEX compounds, chlorinated hydrocarbons, ketones and carbon disulfide. Detections occurred in both the groundwater and subsurface soils. Two rounds of sampling have been conducted in each of the affected media. Results are summarized in Tables 1-1 and 4-1 (soil analytical data for 1998 and 2000) and Tables 1-4, 4-4, and 4-6 (groundwater analytical data for 1998, 2000, and 2001).

Detections above the NYSDEC criteria were recorded only for the chlorinated hydrocarbons. Therefore, this section focuses on the fate and transport processes acting on chlorinated hydrocarbons in the subsurface environment. The discussion emphasizes processes that are essential in evaluating potential exposure of human and environmental receptors to the site contaminants.

5.2 General Description of Fate and Transport Mechanisms

5.2.1 Transport Processes

Contaminant transport in the subsurface can occur as migration of dissolved contaminants in groundwater, or as migration of volatilized contaminants in the soil gas. Primary transport mechanisms are: advection, dispersion and partitioning of mass.

Advection occurs when the contaminant is carried by the flow of groundwater or soil gas. Dispersion refers to the spreading of the migrating contaminants due to process of diffusion and mechanical mixing created by nonuniformities in the flow field. Dispersion results in the widening of the affected area, as well as in the smearing of the phase boundaries.

The mass partitioning is the process in which contaminants move between different environmental media in response to concentration gradients. Thus, for example, contaminants dissolved in groundwater may absorb onto soil particles, or volatilize into the soil gas. The process may involved the mass transfer in any direction between any of the environmental media. The net result of mass partitioning is the distribution of the contaminant between all phases that remain in contact. Typically, mass partitioning acts to inhibit the migration of contaminants in groundwater or soil gas by immobilizing a part of the mass in the soil matrix (retardation). However, the process may be reversed, resulting in the slow release of the absorbed contamination into the groundwater or soil gas.

5.2.2 Mass Destruction Processes

This discussion pertains to the subsurface environment. Therefore, mass destruction processes that rely on the presence of air or exposure to sunlight, such as photolysis, are of little importance and will not be discussed.

The most significant mass destruction process that takes place in groundwater is microbial degradation. During degradation, organic compounds may be transformed into daughter forms. Daughter compounds may be recalcitrant or degradable and either more or less toxic than the parent compounds. If a contaminant degrades into a sequence of degradable daughter compounds, it is ultimately fully metabolized into carbon dioxide, methane, water, and chloride.

The most significant microbial degradation processes operating in groundwater systems are: aerobic respiration, dentrification, iron reduction, sulfate reduction, and methanogenesis. For chlorinated solvents the microbial degradation can be significant only under anaerobic conditions.

There are also abiotic mechanisms that result in the destruction or transformation of the mass of organic contaminants. Examples of such reactions are hydrolysis and dehalogention. However, under normal temperature conditions prevailing in the subsurface environment, rates of these reactions are relatively low. Typically, the importance of the abiotic processes in the overall rate of mass destruction is low.

5.3 Fate and Transport of Site Contaminants

5.3.1 Properties

The only contaminants detected at the site at levels exceeding the NYSDEC quality criteria were chlorinated hydrocarbons: tetrachloroethene, trichloroethene and 1,2 –dichloroethene. These compounds are volatile and moderately to highly soluble in groundwater. Their ability to absorb onto the soil matrix is low to moderate. The properties of chlorinated hydrocarbons make them highly mobile in the subsurface environment. They are typically recalcitrant, except under anaerobic conditions. Table 5-1 summarizes the physical properties of detected contaminants for each medium.

5.3.2 Source of Contamination

Chlorinated hydrocarbons are used as solvents in the operation of dry cleaning facilities, such as American Cleaners. Contamination typically originates with spills of solvents into floor drains or onto the ground surface. The liquid percolates downward through the unsaturated zone. Because chlorinated solvents are heavier than water, the downward migration continues until the liquid reaches the saturated zone. Throughout the downward migration, the liquid is continually absorbed by the soil matrix. If the solvents encounter a low permeability layer, their downward movement may be inhibited, in which case they form pools at the upper surface of the low permeability layer. The final pattern of contamination depends on the overall mass of the spill. For small spills, the liquid is totally absorbed into the soil, forming residual soil contamination. In case of large spills, the residual soil contamination may be accompanied by distinctive pools of nonaqueous-phase liquids (NAPLs) forming at the interface with low permeability layers. The pools can migrate literally following the slope of the upper surface of low permeability zones.

Although NAPLs were not detected in the soil or groundwater at the American Cleaners site, high concentrations of chlorinated solvents may indicate the presence of DNAPLS in soil. The source of contamination is most likely the mass of chlorinated solvents absorbed into the soil matrix.

A summary of detected concentrations of chlorinated hydrocarbons are shown in Table 5-1. The distribution of soil contamination is shown in Figures 1-4 and 4-2. The soil contamination is located under the building, with highest levels detected along Seminary Avenue. Detected concentrations are up to 4,400,000 μg/kg. Exceedances of the NYSDEC soil criteria were recorded only for tetrachloroethylene.

5.3.3 Dissolved Phase Contamination

Groundwater becomes contaminated when it comes into contact with chlorinated hydrocarbons absorbed into the soil at, or below, the water table. The dissolved phase contamination undergoes advection, dispersion and mass partitioning. The flow pattern at the site appears to be radial (Figures 3-5 and 3-6). Dissolved phase contamination has been detected only within a short distance from the source, or directly underneath the source (Figures 4-3 and 4-4). It appears that the plume is generally limited in extent, most likely due to dispersion and mass partitioning. Parameters required to evaluate the presence of degradation are not available. However, degradation of chlorinated hydrocarbons typically occurs only in anaerobic environments. Other contaminants, such as BTEX compounds, have to be present in order to create such conditions. Microorganisms use BTEX compounds as food, and in the process consume the available oxygen. When this happens, another group of microorganisms are able to affect the dechlorinization of chlorinated hydrocarbons. At the American Cleaners site, chlorinated hydrocarbons were the only group of contaminants detected in the downgradient groundwater. Therefore, it is unlikely that anaerobic conditions required to accomplish dechlorinization are present. Degradation is most probably either absent, or it is of negligible magnitude.

5.3.4 Soil Gas Contamination

The soil gas is present in the pore space of the soil matrix in the unsaturated zone. It can become contaminated through contact with the residual soil contamination, or by the volatilization of the dissolved phase contaminants within the groundwater.

Results of the soil gas survey conducted at the site are shown in Figure 4-1. Soil vapors were measured using a PID as a screening tool to select soil sample locations for off-site analysis. Concentration of soil vapors ranged from non-detect to 460 ppm. The highest concentrations were observed under underneath the south side of the building along Seminary Avenue. However, it appears that there is no migration into the surrounding area, as evidenced by the absence of detections in the sidewalk adjacent to the building or in the air samples collected from the basement.

6.0 QUALITATIVE HEALTH RISK ASSESSMENT

The qualitative health risk assessment (HRA) presented in this section provides an evaluation of potential adverse health effects that may result from exposure to contaminants attributable to historic activities at the American Cleaners site, under current and potential future site conditions. This qualitative HRA was performed to meet the objectives of NYSDEC Work Assignment D003825-28 and approved work plans (URS 2000). It uses data and information collected during the field investigation to assess human health risk in the immediate and surrounding areas.

This qualitative HRA for the American Cleaners site follows the general format and procedures set forth in USEPA's Risk Assessment Guidance for Superfund (RAGS) (USEPA 1989). As such, it includes three of the four required components (i.e., risk characterization is not included because this assessment is qualitative):

- Identification of Chemicals of Potential Concern
- Exposure Assessment
- Toxicity Assessment

These components are presented in the following subsections.

6.1 Identification of Chemicals of Potential Concern

Based upon the analytical data obtained as part of this RI, the chemicals of potential concern (CPCs) were selected based on the frequency of detection, range of concentrations, and potential for migration, as well as whether the detected analytes exceeded criteria. Several volatiles were detected in groundwater/sump water, subsurface soil, and sump sediment samples. Tables 1-1 through 1-5 and Tables 4-1 through 4-7 identify detected compounds, identify criteria exceedances, and provide statistical summaries of detected compounds. Table 6-1 presents a summary of CPCs for all matrices and includes 1,2-dichloroethene (total), trichloroethene , and tetrachloroethene. There are no CPCs in sump sediment because detections did not exceed the applicable criteria.

6.2 Exposure Assessment

The purpose of this exposure assessment is to evaluate potential pathways of exposure at the American Cleaners site. An exposure pathway is the manner by which an individual may come in contact with a contaminant. The elements of a completed exposure pathway include: the contaminated environmental media (i.e., soil, water, or air); how the contaminant enters the body (i.e., inhalation, ingestion, and/or absorption through the skin); and the receptor (i.e., resident, trespasser, industrial worker) exposed to the contamination. Tables 6-2 and 6-3 present a summary of exposure pathways assessed for the American Cleaners site under current and future land use scenarios, respectively. The following subsections discuss the rationale for identifying completed exposure pathways.

6.2.1 Identification of Potentially Exposed Receptors

The American Cleaners site is currently zoned for high-density residential use (R-5, see Appendix G). It's previous use was commercial (i.e. dry cleaners). Presently, it is not used for residential or commercial purposes. The zoning is not expected to change in the immediate future. Therefore, the current use scenario has been identified as an abandoned residential property. All utilities (e.g., electric, water) are disconnected. The building is locked, with most ground level windows boarded with plywood. The property is partially fenced. However, during the field investigation, it was observed that site access was not completely restricted. Evidence of trespasser activity (e.g., beverage containers, trash, broken windows) was noted, primarily on the second floor. Access appears to be through the second floor windows. The basement has no natural light, therefore, a potential trespasser would require a light source (e.g., flashlight) to navigate the basement. Because the building is relatively secure, trespassing into the basement would be infrequent and therefore insignificant under current use.

Under the current land use scenario, there are no potable wells onsite. Potable water is supplied by the City of Binghamton Water Department. There are eight industrial wells to the north of the site, all within one mile of the site. None are currently in operation. The industry controlling seven of the wells has been shut down. The eighth industrial well has not been in operation for over one year due to equipment breakdown. A basement survey of nearby homes was not conducted, however, assuming adjacent homes have basements, the potential exists for contact with groundwater

from leaking basements and/or sumps. Most importantly, the site is located in the vicinity of a sole source aquifer. Therefore, under the current land use scenario, there are potentially exposed receptors associated with groundwater/sump water, as summarized in Table 6-2.

The potential future use (Table 6-3) includes residential use of the property, with residents or trespassers identified as potentially exposed receptors. Because of the current state of disrepair of the American Cleaners building, rehabilitation and/or reconstruction for any re-use is unlikely in the absence of remediation. Residents and industrial workers are identified as potentially exposed receptors because the site is located in the vicinity of a sole source aquifer and nearby residents may come into contact with groundwater/sump water in basements, and the possibility of resumption in use of the industrial wells north of the site.

6.2.2 Identification of Media of Concern

In Section 4 (Discussion of Nature and Extent of Contamination), analytical results were presented on a medium-by-medium basis. As part of that presentation, comparisons were made between observed concentrations and applicable regulatory criteria, and criteria exceedances were noted. Within this report, a "medium of concern" is identified as a physical medium (e.g., soil, groundwater/sump water) in which one or more contaminants were detected at concentrations exceeding their applicable regulatory standards.

Groundwater currently is not used as a potable water supply (drinking water is supplied to local residents by the City of Binghamton Water Department) and is not used for industrial purposes, as discussed previously. However, nearby residents may have sumps and/or leaking basements and the site is located in the vicinity of a sole source aquifer. Therefore, groundwater/sump water is considered a medium of concern under the current land use scenario, as shown in Table 6-2.

Under the future land use scenario (i.e., potential rehabilitation/reconstruction) as shown in Table 6-3, groundwater is a medium of concern because the site is located in the vicinity of a sole source aquifer and there is a potential for the resumption in service of the industrial well(s) or the installation of new wells downstream for either non-potable or potable use, assuming there are no restrictions on the installation of private wells. Also, nearby residents may have sumps and/or leaking basements.

Subsurface soil is only accessible if a trespasser enters the basement. The building is relatively secure reducing the frequency a potential trespasser would enter the basement. Subsurface soil is exposed only in the area of the basement having an earthen floor (see Figure 1-2). The remainder of the basement is covered with a concrete slab. As shown in Figure 4-2, detections in subsurface soil samples that exceeded criteria are in the area under the concrete slab, not in the earthen floor area. The earthen floor is approximately 2½ feet higher in elevation than the concrete slab. Under the current use scenario the potential for direct contact with contaminated soil is unlikely because site conditions are unfavorable and therefore are not media of concern.

Under the future use scenario, intrusive activities resulting from rehabilitation/reconstruction may result in direct exposure to the subsurface soil. Because of the previous use and the current state of disrepair, it is unlikely the property would be used as a residence, rehabilitated or reconstructed for any use in the absence of remediation. However, because there are no current restrictions on the use of the property, under the future use scenario subsurface soil is a media of concern.

6.2.3 Identification of Potential Routes of Exposure

Under the current land use scenario (Tables 6-2), exposure to site-related contaminants through drinking water is not expected since homes and businesses in the area are connected to a public water supply. None of the industrial wells to the north are currently in production. Nearby buildings may have sumps and/or leaking basements and the site is located in the vicinity of a sole source aquifer. Therefore, potential exposure pathways exist for groundwater/sump water and include inhalation, ingestion and dermal absorption.

Under the future land use scenario, potential completed exposure pathways exist for groundwater because of the potential for groundwater use from the sole source aquifer exists. The installation of new wells downstream for either non-potable or potable use is possible. Because of the distance of the industrial wells from the site and the size of the aquifer, which would dilute the contamination, the potential for exposure from resumption in use of the existing industrial wells may be low. Nearby building may have sumps and/or leaking basements. As presented in Table 6-3, potential completed exposure pathways from groundwater/sump water exists and include inhalation, ingestion, and dermal absorption.

Under the current land use scenario (Tables 6-2), completed exposure pathways do not exist for subsurface soil because contact is unlikely because the building is relatively secure and this exposure route may be infrequent and therefore insignificant under current use. Inhalation of vapors generated from contaminated subsurface soil and groundwater/sump water is a potential route of exposure to a trespasser. However, air badge samples were collected during site activities and no contaminants were detected, indicating this exposure route is insignificant. Soil gas sample results (Figure 4-1) were also non-detect outside the building, suggesting adjacent buildings are not affected by vapors, even if they have earthen floors.

Under the future land use scenario, as presented in Table 6-3, potential completed exposure pathways exist for subsurface soil because there are no current restrictions on the property, therefore, contact is possible. There were no non-aqueous phase liquids (NAPLs) found during the remedial investigation, therefore, it is unlikely that further subsurface soil contamination will occur. Potential routes of exposure from contaminated subsurface soil include inhalation of vapors, ingestion, and dermal absorption.

6.3 Toxicity Assessment

Toxicity information for the CPCs identified in Section 6.1 are categorized by their relative effects on human health. Toxicological effects are divided into carcinogenic (i.e., cancer causing) and noncarcinogenic effects, with noncarcinogenic data further subdivided into chronic and subchronic (i.e., less than seven years) critical effects.

6.3.1 Carcinogenic Effects

Based on the CPCs identified in Table 6-1, none are classified as carcinogenic by SmartTOX. The SmartTOX 1st Quarter 2001 Toxicity Value Lookup Table incorporates the changes on USEPA's Integrated Risk Information System (IRIS) from 12/12/2000 through 03/15/2001 and the Health Effects Assessment Summary Tables (HEAST) FY-1997 Annual Update. The USEPA classifies chemicals based on the "weight-of-evidence" for carcinogenicity, which expresses the degree of confidence relating to the likelihood that exposure to a given chemical could cause cancer in humans (USEPA 1989). There is no carcinogenic evidence associated with the site CPCs.

6.3.2 Noncarcinogenic Effects

Critical effects express the toxic endpoint(s) of an adverse response (e.g., liver damage) associated with the exposure to noncarcinogenic chemicals. All three CPCs identified in Table 6-1 are classified by the USEPA as noncarcinogenic compounds. Table 6-4 identifies the toxicity values and potential noncarcinogenic effects for these three CPCs.

6.4 Qualitative Health Risk Summary

A qualitative HRA, in the absence of remediation, was performed for the American Cleaners site. PCE was determined to be a CPC in the subsurface soil. Three compounds, PCE, TCE, 1,2-DCE, were determined to be CPCs in the groundwater/sump water. Based on exceedance of applicable regulatory criteria, no CPCs were identified in sump sediments. Under the current land use scenario, groundwater/sump water was identified as a medium of concern because the possibilities of contact through sump water and/or leaking basements and because the site is located in the vicinity of a sole source aquifer.

Under the future use scenario, contaminated groundwater/sump water is also considered a medium of concern because of the possibilities of contact through sump water and/or leaking basements. The site is located in the vicinity of a sole source aquifer, and there is the potential for

groundwater to be used for potable or non-potable purposes. Subsurface soil is a media of concern, although the possibilities of contact are minimal and unlikely in the absence of remediation, and there are no current restrictions on the use of the property. Ingestion, dermal absorption, and inhalation of VOCs detected in groundwater are potential health risks in the future if groundwater is used for potable or non-potable uses. Dermal absorption and ingestion are potential health risks if contact with subsurface soil occurs. None of the CPCs are classified by USEPA as carcinogens.

In order to further reduce the possibility of contact with contaminated subsurface soil and groundwater/sump water under current and future use scenarios, recommendations are to:

- completely secure the American Cleaners site by boarding up the remaining windows which may provide access into the building;
- repairing the sections of fencing which have been breached; and,
- remove the source of contamination.

7.0 SUMMARY AND CONCLUSIONS

The RI was conducted to investigate contaminated media associated with past activities at the American Cleaners site. The American Cleaners site is located at 48-50 Walnut Street, City of Binghamton, Broome County, New York. It was used as a dry-cleaning facility, and was closed in 1991. Prior to this RI, four previous investigations were conducted at the site. A summary of these investigations and the data collected during them may be found in Section 1.4. Based on the results of the previous investigations, it was determined that contamination existed in site groundwater, sump water and sediment, and subsurface soil.

The field activities associated with the RI were conducted in two phases. Phase I field activities included a soil gas survey, subsurface soil sampling, installation of five piezometers, monitoring well development, groundwater level measurements, sump water sampling, groundwater sampling and a site survey. Based on the results of the Phase I analytical results, the Phase II field activities included the installation of two monitoring wells, monitoring well development, groundwater level measurements, ambient air sampling in the basement of the site buildings, groundwater sampling, and a sampling point survey.

The specific objectives of the RI were:

- Collect necessary data to determine the vertical and horizontal extent of chemical migration on-site and off-site.
- Install groundwater monitoring wells to evaluate groundwater quality and determine the extent of any contaminant plume migrating from the site.

7.1 Hydrogeology

The stratigraphic sequence near the site included the following units from the surface down: fill, stratified silts, sands and gravels; and bedrock. Bedrock was not encountered in any of the site borings, but is estimated to be approximately 50 to 75 feet deep.

The primary hydrogeologic unit near the site is the unconfined water table aquifer present in the overburden. Groundwater was encountered at depths approximately 12 to 22 feet bgs. Groundwater generally flows towards the north in the vicinity of the site. However, at the site, groundwater is mounded and flow is radial away from MW-02. Hydraulic gradients on-site range from 0.0243 ft/ft to 0.055 ft/ft.

7.2 Contamination Assessment

7.2.1 Soil Gas

Soil gas was measured at thirty seven locations. A combination HNu PID/FID was used to measure the soil gas immediately beneath the basement slab at 33 locations inside the building. Four additional locations were measured around the perimeter of the building at the Geoprobe soil borings. The highest soil gas readings were reported beneath the basement in the central portion of the one-story building along Seminary Avenue.

7.2.2 Subsurface Soil

Detected compounds included acetone, PCE, TCE, 4-methyl 2-pentanone, toluene, and phthalates. PCE was detected most frequently and at the highest concentrations and was the only compound detected that was reported above the NYS soil cleanup SCG. The highest reported concentrations of PCE occurred in the central portion of the one-story block building along Seminary Avenue.

7.2.3 Sump Water

Sump water samples were collected from the boiler pit and the sump pit. Detected compounds in the sump pit included 1,2-DCE, TCE, and PCE. The reported concentrations of each compound detected in the sump pit exceeded their respective NYS Class GA SCG criterion. No compounds were reported above NYS Class GA SCGs in the boiler pit sump water sample.

7.2.4 Groundwater

Two groundwater sampling events were conducted as part of the RI. During the first event (November 2000), samples were collected from three existing monitoring wells. PCE was reported above the NYS Class GA SCG criteria in the two downgradient monitoring wells, MW-01 (220μg/L) and MW-03 (7μg/L). Based upon the analytical results of the first sampling event, two additional wells were installed at the site. The second sampling event was conducted in February 2001 when the three existing wells and the two newly installed monitoring wells were sampled. PCE was the only compound detected at concentrations above the NYS Class GA SCG criterion at only one location (i.e., MW-01 at 550 μg/L). The reported concentration of PCE in MW-01 during the second event was higher than any previous sampling event.

7.2.5 Indoor Air Quality

Three indoor air samples were collected and analyzed for VOCs. Samples were collected at three locations in the basement of the site building. Locations were selected based upon analytical results of soil samples which reported high levels of VOCs. No detections were reported in any of the samples collected.

7.3 Contaminant Fate and Transport

Contaminants detected at the site at levels exceeding the NYSDEC criteria belong to the group of chlorinated hydrocarbons which includes: tetrachloroethene, trichloroethene and 1,2-dichloroethene. The contamination affects the soil gas, subsurface soils and groundwater. Chlorinated hydrocarbons are used as solvents during the operation of dry cleaning facilities. They infiltrate into the subsurface as a result of spills into floor drains or the ground surface. At the American Cleaners site, distinct NAPL pools have not been detected. Most likely, the source of contamination is in the form of residual mass adsorbed into the soil matrix. From there, contaminants enter the groundwater and the soil vapor through processes of dissolution and volatilization, respectively.

The plume of dissolved contamination detected at the site appears to be of limited extent. Concentrations of chlorinated hydrocarbons above the NYSDEC quality criteria were identified only immediately below the suspected source area, and within forty feet from the source. Most likely, the limited extent of the plume is a result of dispersion and mass partitioning. Due to the absence of significant amounts of non-chlorinated hydrocarbons in the groundwater, the subsurface conditions are most likely aerobic. Therefore, microbial degradation is unlikely to occur, and mass destruction processes play a minor role within the plume.

Soil gas contamination was detected underneath the entire building around the suspected source area. However, it appears that migration via the soil vapor does not occur, as indicated by the absence of detections in the sidewalk adjacent to the building. Likewise, the indoor air quality survey in the basement of the onsite building indicated no detections.

In summary, it appears that the chlorinated hydrocarbons contamination of soil gas, subsurface soil and groundwater is limited in extent to the area beneath the site and its immediate vicinity. The contamination is likely to persist as long as the source, in the form of residual mass in the soil matrix, is present.

7.4 Qualitative Health Risk Summary

The qualitative HRA, in the absence of remediation, was performed for the American Cleaners site. Three compounds were determined to be CPCs including TCE, PCE, and 1,2-DCE. Under the current land use scenario, groundwater/sump water was identified as a medium of concern because the site is located in the vicinity of a sole source aquifer and nearby basements may be impacted. Under the future use scenario, contaminated groundwater is a medium of concern, because of the site being located in the vicinity of a sole source aquifer, the potential for groundwater to be used for potable or non-potable purposes and nearby basements may be impacted. Subsurface soil is a media of concern because there are no controls over the use of the property. Ingestion, dermal absorption, and inhalation of VOCs detected in groundwater and subsurface soils are potential health risks in the future if groundwater is used for potable or non-potable uses or if the subsurface soil is exposed. None of the CPCs are identified by USEPA as carcinogens however,

trichloroethene and tetrachloroethene are considered to be potential occupational carcinogens by the National Institute for Occupational Safety and Health (NIOSH).

To further reduce the possibility of contact with contaminated groundwater/sump water and subsurface soil under current and future use scenarios, recommendations were made to completely secure the American Cleaners site by boarding up the remaining windows which may provide access into the building, repairing the sections of fencing which have been breached, and removing the source of contamination.

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TABLES

TABLE 1-1
PREVIOUS INVESTIGATION
SOIL ANALYTICAL RESULTS SUMMARY - FEBRUARY 1998
AMERICAN CLEANERS

Location ID			MW-01	MW-01	MW-02	MW-03	SS-01
Sample ID			MW-01	MW-01	MW-02	MW-03	SS-01
Matrix			Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)			13.0-13.0	23.0-23.0	20.0-20.0	14.0-14.0	-
Date Sampled			02/25/98	02/26/98	02/25/98	02/27/98	02/23/98
Parameter	Units	Criteria*					
Volatiles							
Carbon Disulfide	UG/KG	2700			4		NA
1,2-Dichloroethene (Total)	UG/KG	300 **	110	4			NA
Trichloroethene	UG/KG	700	NA	NA	NA	NA	
Benzene	UG/KG	60			4		NA
Tetrachloroethene	UG/KG	1400	5				4,400,000
Toluene	UG/KG	1500	2		5		
Semivolatiles							
Diethylphthalate	UG/KG	7100	NA	NA	NA	NA	69
Di-n-butylphthalate	UG/KG	8100	NA		100	90	200
Butylbenzylphthalate	UG/KG	50000	NA	NA	NA	NA	160
bis(2-Ethylhexyl)phthalate	UG/KG	50000	NA	16,000	650	440	730
Di-n-octylphthalate	UG/KG	50000	NA	NA	NA	NA	85

*Criteria- NYSDEC TAGM. Determination of Soil Cleanup Objectives and Cleanup Levels, HWR-94-4046 January 24, 1994 (Revised).

(oval) Concentration Exceeds Criteria.

Note: Data from NYSDEC IWA 1998
** - Criteria value listed is for 1,2-Dichloroethene (trans)
NA - Not Analyzed

Only Detected Results Reported

TABLE 1-1
PREVIOUS INVESTIGATION
SOIL ANALYTICAL RESULTS SUMMARY - FEBRUARY 1998
AMERICAN CLEANERS

Location ID			SS-02	SS-03	SS-04	SS-05	SS-06
Sample ID			SS-02	SS-03	SS-04	SS-05	SS-06
Matrix			Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)			-	-	-	-	-
Date Sampled			02/23/98	02/23/98	02/23/98	02/23/98	02/23/98
Parameter	Units	Criteria*					
Volatiles							
Carbon Disulfide	UG/KG	2700	NA	NA	NA	NA	NA
1,2-Dichloroethene (Total)	UG/KG	300 **	NA	NA	NA	NA	NA
Trichloroethene	UG/KG	700		3			
Benzene	UG/KG	60	NA	NA	NA	NA	NA
Tetrachloroethene	UG/KG	1400	1,700	300	28	6	4,400
Toluene	UG/KG	1500		7		2	
Semivolatiles							
Diethylphthalate	UG/KG	7100				NA	
Di-n-butylphthalate	UG/KG	8100		44	180	NA	
Butylbenzylphthalate	UG/KG	50000		88	42	NA	
bis(2-Ethylhexyl)phthalate	UG/KG	50000	1,900	1,400	710	NA	220
Di-n-octylphthalate	UG/KG	50000				NA	

*Criteria- NYSDEC TAGM: Determination of Soil Cleanup Objectives and Cleanup Levels. HWR-94-4046 January 24, 1994 (Revised).

Concentration Exceeds Criteria.

Note: Data from NYSDEC BWA 1998

** - Criteria value listed is for 1,2-Dichloroethene (trans).

NA - Not Analyzed

Only Detected Results Reported.

TABLE 1-2
PREVIOUS INVESTIGATION
STATISTICAL SUMMARY SOIL - FEBRUARY 1998
AMERICAN CLEANERS

Parameter	Units	Criteria*	Num. of Samples	Num. of Detections	Range of Detections			LOCID of Max Value
					Min	Max	Avg	
Volatiles								
Carbon Disulfide	UG/KG	2700	4	1	4.0	4.0	4.0	MW-02
1,2-Dichloroethene (Total)	UG/KG	300 **	4	2	4.0	110.0	57.0	MW-01
Trichloroethene	UG/KG	700	6	1	3.0	3.0	3.0	SS-03
Benzene	UG/KG	60	4	1	4.0	4.0	4.0	MW-02
Tetrachloroethene	UG/KG	1400	10	7	5.0	4.40E+06	6.29E+05	SS-01
Toluene	UG/KG	1500	10	4	2.0	7.0	4.0	SS-03
Semivolatiles								
Diethylphthalate	UG/KG	7100	5	1	69.0	69.0	69.0	SS-01
Di-n-butylphthalate	UG/KG	8100	8	5	44.0	200.0	122.8	SS-01
Butylbenzylphthalate	UG/KG	50000	5	3	42.0	160.0	96.667	SS-01
bis(2-Ethylhexyl)phthalate	UG/KG	50000	8	8	220.0	16,000.0	2,756.25	MW-01
Di-n-octylphthalate	UG/KG	50000	5	1	85.0	85.0	85.0	SS-01

*Criteria- NYSDEC TAGM: Determination of Soil Cleanup Objectives and Cleanup Levels; HWR-94-4046 January 24, 1994 (Revised).

(oval) Concentration Exceeds Criteria

Note: Data from NYSDEC IIWA 1998

** - Criteria value listed is for 1,2-Dichloroethene (trans).

Only Detected Results Reported.

TABLE 1-3
PREVIOUS INVESTIGATION
SUMP WATER ANALYTICAL RESULTS SUMMARY - FEBRUARY 1998
AMERICAN CLEANERS

Location ID			SW-01(98)	SW-02(98)
Sample ID			SW-01(98)	SW-02(98)
Matrix			Sump Water	Sump Water
Depth Interval (ft)			-	-
Date Sampled			03/16/98	03/16/98
Parameter	**Units**	**Criteria***		
Volatiles				
Trichloroethene	UG/L	5	5,200	
Tetrachloroethene	UG/L	5	24,000	8
Semivolatiles				
Di-n-butylphthalate	UG/L	50	2	2
bis(2-Ethylhexyl)phthalate	UG/L	5	6	23

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, June 1998 (Includes 4/2000 Addendum). Class GA.

(oval) Concentration Exceeds Criteria.

Note: Data from NYSDEC IRWA 1998

Only Detected Results Reported.

TABLE 1-4
PREVIOUS INVESTIGATION
GROUNDWATER ANALYTICAL RESULTS SUMMARY - FEBRUARY 1998
AMERICAN CLEANERS

Location ID			MW-01	MW-02	MW-03
Sample ID			MW-01	MW-02	MW-03
Matrix			Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-
Date Sampled			03/16/98	03/16/98	03/16/98
Parameter	Units	Criteria*			
Volatiles					
Tetrachloroethene	UG/L	5	41		
Semivolatiles					
Di-n-butylphthalate	UG/L	50	2		2

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations June 1998 (includes 4/2000 Addendum). Class GA.

Concentration Exceeds Criteria.

Note: Data from NYSDEC IRWA 1998

Only Detected Results Reported.

TABLE 1-5
PREVIOUS INVESTIGATION
STATISTICAL SUMMARY GROUNDWATER - FEBRUARY 1998
AMERICAN CLEANERS

Parameter	Units	Criteria*	Num. of Samples	Num. of Detections	Range of Detections			LOCID of Max Value
					Min	Max	Avg	
Volatiles								
Tetrachloroethene	UG/L	5	3	1	41.0	41.0	41.0	MW-01
Semivolatiles								
Di-n-butylphthalate	UG/L	50	3	2	2.0	2.0	2.0	MW-03

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, June 1998 (includes 4/2000 Addendum), Class GA.

Concentration Exceeds Criteria

Note: Data from NYSDEC IWA 1998

Only Detected Results Reported.

TABLE 2-1

SOIL SAMPLING RATIONALE

Sample Location	Sample Interval (feet)	Soil Vapor (ppm)	Sample Rationale
SB-1	0-2	460	Sample taken due to elevated soil vapor readings and proximity to sampling location from previous investigation (SS-04).
SB-3	2-3	200	Sample taken due to elevated soil vapor readings.
SB-4	0-1	450	Sample taken due to elevated soil vapor readings.
SB-8	0-2	160	Sample taken due to elevated soil vapor readings and proximity to sampling location from previous investigation (SS-04).
SB-10	1-2	80	Sample taken due to elevated soil vapor readings and proximity to sampling location from previous investigation (SS-04).
SB-11	0-2	35	Sample taken along eastern edge of elevated soil vapor readings.
SB-14	11-11.7	0	Sample taken along western edge of sanitary sewer service line at direction of NYSDEC.
SB-17	1-2	160	Sample taken due to elevated soil vapor readings.
SB-18	0-1	5	Sample taken along southwestern edge of elevated soil vapor readings.
SB-19	0-1	65	Sample taken in front room of basement due to proximity to sampling locations from previous investigation (SS-05 and SS-02).
SB-21	0-2	20	Sample taken in front room of basement at direction of NYSDEC.
SB-22	0-2	17	Sample taken in boiler room at direction of NYSDEC.
SB-23	0-2	30	Sample taken in boiler room at direction of NYSDEC.
SB-26	0-1	35	Sample taken along northern edge of elevated soil vapor readings.
SB-27	0-2	16	Sample taken along northern edge of elevated soil vapor readings.
SB-28	1-2	20	Sample taken adjacent to drain funnel and proximity to sampling location from previous investigation (SS-11).
SB-29	2-3	5	Sample taken adjacent to drain funnel and proximity to sampling location from previous investigation (SS-11).
SB-32	1-3	20	Sample taken adjacent to drain funnel and proximity to sampling location from previous investigation (SS-11).
SB-34	1-2	45	Sample taken along eastern edge of elevated soil vapor readings.
SB-36	1-2	5	Sample taken to north of funnel drain to delineate possible contamination.

TABLE 2-2

SUMMARY OF MONITORING WELL AND PIEZOMETER CONSTRUCTION DATA

Monitoring Well ID	Ground Elevation (ft)	Screen Depth (ft)	Top Screen Elevation (ft)	Bottom Screen Elevation (ft)	Top Sandpack Depth (ft)	Top Sandpack Elevation (ft)
MW-1	869.35	10-15	859.35	854.35	7.9	861.45
MW-2	867.11	11.1-21.1	856.01	846.01	9.1	858.01
MW-3	868.81	12.2-27.2	856.61	841.61	10	858.81
MW-4	868.07	16-26	852.07	842.07	14	854.07
MW-5	870.09	18-28	852.09	842.09	16	854.09
P-1	872.94	14-24	858.94	848.94	NA	NA
P-2	866.04	14-24	852.04	842.04	19	847.04
P-3	863.45	10.1-20.1	853.35	843.35	17.5	845.95
P-4	866.83	10.8-20.8	856.03	846.03	6	860.83
PZ-1	860.23	0-4	860.23	856.23	NA	NA
PZ-2	860.42	0-3	860.42	857.42	NA	NA
PZ-3	860.51	0-2	860.51	858.51	NA	NA
PZ-4	860.48	0-1.5	860.48	858.98	NA	NA
PZ-5	860.53	0-1.5	860.53	859.03	NA	NA

Note: P - Off-site piezometers.

PZ - On-site piezometers in basement.

TABLE 2-3

WATER LEVEL DATA

Well ID	Ground Elevation (ft)	Riser Elevation (ft)	Casing Elevation (ft)	GROUNDWATER DEPTH(FT.)/ELEVATION (FT.)					
				11/27/2000		01/31/2001		02/15/2001	
				Depth	Elev.	Depth	Elev.	Depth	Elev.
MW-1	869.35	868.78	869.35	16.89	851.89	16.67	852.11	16.30	852.48
MW-2	867.11	866.70	867.11	12.04	854.66	11.64	855.06	11.21	855.49
MW-3	868.81	867.90	868.81	17.28	850.62	17.03	850.87	16.51	851.39
MW-4	868.07	867.52	868.07	NA	NA	NA	NA	15.53	851.99
MW-5	870.09	869.73	870.09	NA	NA	NA	NA	16.98	852.75
P-1	872.94	872.27	872.94	20.34	851.93	20.32	851.95	20.24	852.03
P-2	866.04	865.40	866.04	19.78	845.62	19.59	845.81	19.03	846.37
P-3	863.45	863.05	863.45	18.23	844.82	18.29	844.76	17.72	845.33
P-4	866.83	865.88	866.83	11.27	854.61	11.38	854.50	9.78	856.10
PZ-1	860.23	---	860.92	NA	NA	NA	NA	NA	NA
PZ-2	860.42	—	861.07	NA	NA	NA	NA	NA	NA
PZ-3	860.51	---	861.48	NA	NA	NA	NA	NA	NA
PZ-4	860.48	—	861.24	NA	NA	NA	NA	NA	NA
PZ-5	860.53	—	861.35	NA	NA	NA	NA	NA	NA

NOTES:

All elevations are above mean sea level (amsl).
Depth to groundwater measured from top of riser.
P - Off-site piezometers.
PZ - On-site piezometers in basement.

TABLE 2-4

MONITORING WELL AND PIEZOMETER SURVEY INFORMATION

WELL ID	NORTHING	EASTING	ELEVATION OF		
			CASING	RISER	GROUND
MW-1	1192404.5	105707.1	869.35	868.78	869.35
MW-2	1192470.3	105701.9	867.11	866.70	867.11
MW-3	1192414.4	105666.2	868.81	867.90	868.81
MW-4	1192445.3	105660.5	868.07	867.52	868.07
MW-5	1192402.7	105751.9	870.09	869.73	870.09
P-1	1192350.2	105986.1	872.94	872.27	872.94
P-2	1192894.7	106106.5	866.04	865.40	866.04
P-3	1192878.4	105735.6	863.45	863.05	863.45
P-4	1192294.3	105576.5	866.83	865.88	866.83
PZ-1	1192416.5	105713.0	---	860.92	860.23
PZ-2	1192428.0	105725.1	---	861.07	860.42
PZ-3	1192425.1	105692.9	---	861.48	860.51
PZ-4	1192438.2	105679.9	---	861.24	860.48
PZ-5	1192421.5	105679.2	---	861.35	860.53

NOTES:

All elevations are above mean sea level (amsl).

P - Off-site piezometers.

PZ - On-site piezometers in basement.

TABLE 4-1
SOIL ANALYTICAL RESULTS SUMMARY - NOVEMBER 2000
AMERICAN CLEANERS

Location ID			PZ-01	PZ-03	PZ-04	PZ-05	SB-03
Sample ID			SB32-1-3	SB1-0-2	SB26-0-1	SB18-0-1	SB3-2-3
Matrix			Soil	Soil	Soil	Soil	Soil
Depth Interval (ft.)			1.0-3.0	0.0-2.0	0.0-1.0	0.0-1.0	2.0-3.0
Date Sampled			11/29/00	11/28/00	11/29/00	11/29/00	11/28/00
Parameter	Units	Criteria*					
Volatiles							
Acetone	UG/KG	200	30				
Trichloroethene	UG/KG	700					
4-Methyl-2-Pentanone	UG/KG	1000		190			
Tetrachloroethene	UG/KG	1400	650	18000	54	6300	9000
Toluene	UG/KG	1500					

*Criteria- NYSDEC TAGM: Determination of Soil Cleanup Objectives and Cleanup Levels; HWR-94-4046 January 24, 1994 (Revised).

(oval) Concentration Exceeds Criteria.

Only Detected Results Reported.

TABLE 4-1
SOIL ANALYTICAL RESULTS SUMMARY - NOVEMBER 2000
AMERICAN CLEANERS

Location ID			SB-04	SB-08	SB-10	SB-11	SB-14
Sample ID			SB4-0-1	SB8-0-2	SB10-1-2	SB11-0-2	SB14-11-12
Matrix			Soil	Soil	Soil	Soil	Soil
Depth Interval (ft.)			0.0-1.0	0.0-2.0	1.0-2.0	0.0-2.0	11.0-12.0
Date Sampled			11/28/00	11/29/00	11/29/00	11/29/00	11/28/00
Parameter	Units	Criteria*					
Volatiles							
Acetone	UG/KG	200				25	
Trichloroethene	UG/KG	700					3
4-Methyl-2-Pentanone	UG/KG	1000					
Tetrachloroethene	UG/KG	1400	7700	5400	37000	650	510
Toluene	UG/KG	1500					1

*Criteria- NYSDEC TAGM: Determination of Soil Cleanup Objectives and Cleanup Levels; HWR-94-4046 January 24, 1994 (Revised).

(oval) Concentration Exceeds Criteria.

Only Detected Results Reported.

Advanced Summary SD_2000
[illegible]
Printed: 4/19/2001 [illegible]
[MATRIX] = 'SO' AND [YEAR] [illegible] = 2000

TABLE 4-1
SOIL ANALYTICAL RESULTS SUMMARY - NOVEMBER 2000
AMERICAN CLEANERS

Location ID			SB-17	SB-19	SB-21	SB-22	SB-23
Sample ID			SB17-1-2	SB19-0-1	SB21-0-2	SB22-0-2	SB23-0-2
Matrix			Soil	Soil	Soil	Soil	Soil
Depth Interval (ft.)			1.0-2.0	0.0-1.0	0.0-2.0	0.0-2.0	0.0-2.0
Date Sampled			11/28/00	11/28/00	11/28/00	11/29/00	11/29/00
Parameter	Units	Criteria*					
Volatiles							
Acetone	UG/KG	200		26	14	3	4
Trichloroethene	UG/KG	700					
4-Methyl-2-Pentanone	UG/KG	1000					
Tetrachloroethene	UG/KG	1400	340	810	240	16	10
Toluene	UG/KG	1500					

*Criteria- NYSDEC TAGM: Determination of Soil Cleanup Objectives and Cleanup Levels; HWR-94-4046 January 24, 1994 (Revised).

Concentration Exceeds Criteria.

Only Detected Results Reported.

TABLE 4-1
SOIL ANALYTICAL RESULTS SUMMARY - NOVEMBER 2000
AMERICAN CLEANERS

Location ID			SB-27	SB-28	SB-29	SB-34	SB-36
Sample ID			SB27-0-2	SB28-1-2	SB29-2-3	SB34-1-2	SB36-1-2
Matrix			Soil	Soil	Soil	Soil	Soil
Depth Interval (ft.)			0.0-2.0	1.0-2.0	2.0-3.0	1.0-2.0	1.0-2.0
Date Sampled			11/29/00	11/29/00	11/29/00	11/29/00	11/29/00
Parameter	Units	Criteria*					
Volatiles							
Acetone	UG/KG	200					
Trichloroethene	UG/KG	700					
4-Methyl-2-Pentanone	UG/KG	1000					
Tetrachloroethene	UG/KG	1400	19	650	96	2700	140
Toluene	UG/KG	1500					

*Criteria- NYSDEC TAGM: Determination of Soil Cleanup Objectives and Cleanup Levels; HWR-94-4046 January 24, 1994 (Revised).

Concentration Exceeds Criteria.

Only Detected Results Reported.

TABLE 4-2
STATISTICAL SUMMARY SOIL - NOVEMBER 2000
AMERICAN CLEANERS

Parameter	Units	Criteria*	Num. of Samples	Num. of Detections	Range of Detections			Num. Exceed	LOCID of Max Value
					Min	Max	Avg		
Volatiles									
Acetone	UG/KG	200	20	6	3.0	30.0	17.0	-	PZ-01
Trichloroethene	UG/KG	700	20	1	3.0	3.0	3.0	-	SB-14
4-Methyl-2-Pentanone	UG/KG	1000	20	1	190.0	190.0	190.0	-	PZ-03
Tetrachloroethene	UG/KG	1400	20	20	10.0	37,000.0	4,524.75	7	SB-10
Toluene	UG/KG	1500	20	1	1.0	1.0	1.0	-	SB-14

*Criteria- NYSDEC TAGM: Determination of Soil Cleanup Objectives and Cleanup Levels: HWR-94-4046 January 24, 1994 (Revised).

Concentration Exceeds Criteria

Only Detected Results Reported.

TABLE 4-3
SUMP WATER ANALYTICAL RESULTS SUMMARY - NOVEMBER 2000
AMERICAN CLEANERS

Location ID			SW-01	SW-02
Sample ID			SW-1	SW-2
Matrix			Sump Water	Sump Water
Depth Interval (ft.)			-	-
Date Sampled			11/30/00	11/30/00
Parameter	Units	Criteria*		
Volatiles				
1,2-Dichloroethene (Total)	UGL	5	46	
Trichloroethene	UGL	5	140	
Tetrachloroethene	UGL	5	1800	4

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 Addendum). Class GA.

Concentration Exceeds Criteria.

Only Detected Results Reported.

TABLE 4-4
GROUNDWATER ANALYTICAL RESULTS SUMMARY - NOVEMBER 2000
AMERICAN CLEANERS

Location ID			MW-01	MW-02	MW-03
Sample ID			MW-1	MW-2	MW-3
Matrix			Groundwater	Groundwater	Groundwater
Depth Interval (ft.)			-	-	-
Date Sampled			11/30/00	11/30/00	11/30/00
Parameter	Units	Criteria*			
Volatiles					
Vinyl Chloride	UG/L	2			1
1,2-Dichloroethene (Total)	UG/L	5			2
Tetrachloroethene	UG/L	5	220		7

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, June 1998 (includes 4/2000 Addendum). Class GA.

(oval) Concentration Exceeds Criteria.

Only Detected Results Reported.

Advanced Selection: WO_2000
[illegible]
Printed: 4/19/2001 1:37:25 PM
[illegible]

TABLE 4-5
STATISTICAL SUMMARY GROUNDWATER - NOVEMBER 2000
AMERICAN CLEANERS

Parameter	Units	Criteria*	Num. of Samples	Num. of Detections	Range of Detections			Num. Exceed	LOCID of Max Value
					Min	Max	Avg		
Volatiles									
Vinyl Chloride	UG/L	2	3	1	1.0	1.0	1.0	-	MW-03
1,2-Dichloroethene (Total)	UG/L	5	3	1	2.0	2.0	2.0	-	MW-03
Tetrachloroethene	UG/L	5	3	2	7.0	220.0	113.5	2	MW-01

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (Includes 4/2000 Addendum). Class GA.

Concentration Exceeds Criteria

Only Detected Results Reported.

TABLE 4-6
GROUNDWATER ANALYTICAL RESULTS SUMMARY - FEBRUARY 2001
AMERICAN CLEANERS

Location ID			MW-01	MW-02	MW-03	MW-04	MW-05
Sample ID			MW-1	MW-2	MW-3	MW-4	MW-5
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft.)			-	-	-	-	-
Date Sampled			02/15/01	02/15/01	02/15/01	02/15/01	02/15/01
Parameter	Units	Criteria*					
Volatiles							
1,2-Dichloroethene (Total)	UG/L	5			1		
2-Hexanone	UG/L	50		2			
Tetrachloroethene	UG/L	5	550		4		5

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 Addendum). Class GA.

(oval) Concentration Exceeds Criteria.

Only Detected Results Reported.

Advanced Selection: WQ_2001
Printed: [illegible]
[illegible]

TABLE 4-7
STATISTICAL SUMMARY GROUNDWATER - FEBRUARY 2001
AMERICAN CLEANERS

Parameter	Units	Criteria*	Num. of Samples	Num. of Detections	Range of Detections			Num. Exceed	LOCID of Max Value
					Min	Max	Avg		
Volatiles									
1,2-Dichloroethene (Total)	UG/L	5	5	1	1.0	1.0	1.0	-	MW-03
2-Hexanone	UG/L	50	5	1	2.0	2.0	2.0	-	MW-02
Tetrachloroethene	UG/L	5	5	3	4.0	550.0	188.333	2	MW-01

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 Addendum). Class GA.

(oval) Concentration Exceeds Criteria

Only Detected Results Reported.

Advanced Selection: WQ_2001
[illegible]
Printed: [illegible] PM
[illegible]

TABLE 5-1
PHYSICAL PROPERTIES OF CHEMICAL COMPOUNDS IN SOIL, GROUNDWATER, AND SUMP WATER

Volatile Organic Compounds	Frequency of Detections/Number of Samples							Water Solubility (mg/L at 25° C) unless indicated otherwise.	Koc	Henry's Law Constant (atm-m³/mole)	Vapor Pressure (mm Hg at 20° C) unless indicated otherwise	log Kow
	Soil		Groundwater			Sump Water						
	Feb. '98	Nov. '00	Feb. '98	Nov. '00	Feb. '01	Feb. '98	Nov. '00					
Halogenated Hydrocarbons												
1,2-Dichloroethene (cis) *	2/4	-	-	1/3	1/5	-	1/2	3,500	36	3.37E-03	200 (25° C)	1.86
1,2-Dichloroethene (trans) *	2/4	-	-	1/3	1/5	-	1/2	6,300	49	6.72E-03	340 (25° C)	2.09
Bromodichloromethane	-	-	-	-	-	-	-	4,700 (22° C)	53-251	1.60E-03	50	2.10
Chloroform	-	-	-	-	-	-	-	7950	34	4.35E-03	246 (25° C)	1.97
Methylene Chloride	-	-	-	-	-	-	-	13,000	25-48	2.68E-03	434.9 (25° C)	1.25
Tetrachloroethene	7/10	20/20	1/3	2/3	3/5	2/2	2/2	150.3	209	1.49E-02	18.49	3.40
Trichloroethene	1/6	1/20	-	-	-	1/2	1/2	1100	87-150	1.03E-02	69.0 (25° C)	2.42
Vinyl Chloride	-	-	-	1/3	-	-	-	2763	0.40-56	1.07E-02	2660 (25° C)	1.38
Non-Halogenated Hydrocarbons												
Benzene	1/4	-	-	-	-	-	-	1,791	98	5.43E-03	95.2 (25° C)	2.13
Toluene	4/10	1/20	-	-	-	-	-	534.8	37-178	5.94E-03	28.4 (25° C)	2.73
Ketones												
2-Hexanone	-	-	-	-	-	-	-	16000	21-134	9.57E-05	11.62 (25° C)	1.38
4-Methyl-2-Pentanone	-	1/20	-	-	-	-	-	20,400 (20° C)	19-106	9.40E-05	14.5	1.19
Acetone	-	6/20	-	-	-	-	-	Miscible	1	3.67E-05	231 (25° C)	-0.24
Miscellaneous												
Carbon Disulfide	1/4	-	-	-	-	-	-	2100 (20° C)	63	1.40E-03	297	1.7 to 4.16

Source: Howard, P.H., 1993, Handbook of Environmental Fate and Exposure Data for Organic Chemicals.
* - 1,2 - Dichloroethene was analyzed as Total. Isomers are seperated to indicate different physical properties.

TABLE 6-1

CHEMICALS OF POTENTIAL CONCERN IN SAMPLES COLLECTED

Chemical	Matrix		
	Groundwater/Sump Water	Subsurface Soil	Sump Sediment
Tetrachloroethene	Yes	Yes	No
1,2-Dichloroethene (Total)	Yes	No	No
Trichloroethene	Yes	No	No

TABLE 6-2

POTENTIAL PATHWAYS OF EXPOSURE - CURRENT USE SCENARIOS

Potentially Contaminated Medium	Potential Routes of Exposure	Potential Receptors	Pathway Complete?
Groundwater/ Sump Water	Dermal absorption Ingestion Inhalation	Residents Trespassers	Yes. Groundwater may enter into nearby basements when water levels rise through sumps and/or leaking basements. Site is located over a sole source aquifer. However, drinking (potable) water provided by City of Binghamton and industrial wells are not in operation.
Subsurface Soil	Dermal absorption Ingestion	Trespassers	No. Unfavorable site conditions. Building is relatively secure therefore, it is unlikely trespassers would enter the basement.
Sump Sediment	Dermal absorption Ingestion	Trespassers	No. There are no chemicals of potential concern in sump sediment.

TABLE 6-3

POTENTIAL PATHWAYS OF EXPOSURE - FUTURE USE SCENARIOS

Potentially Contaminated Medium	Potential Routes of Exposure	Potential Receptors	Pathway Complete?
Groundwater/ Sump Water	Dermal absorption Ingestion Inhalation	Residents (Adults and Children) Industrial Workers	Yes. Site is located over a sole source aquifer. There is a potential for resuming use of industrial wells for non-potable use, or the installation of new wells on site or downstream for potable use. Nearby buildings may have sumps and/or leaking basements.
Subsurface Soil	Dermal absorption Ingestion	Residents (Adults and Children) Trespassers Construction Workers	Yes. There are no current restrictions on the use of the property.
Sump Sediment	Dermal absorption Ingestion	Residents (Adults and Children) Trespassers	No. There are no chemicals of potential concern in sump sediment.

TABLE 6-4
AMERICAN CLEANERS
TOXICITY VALUES: POTENTIAL NONCARCINOGENIC EFFECTS

Compound	Reference Dose (mg/kg-day)				Critical Effects			
	Inhalation		Oral		Inhalation		Oral	
	Chronic	Subchronic	Chronic	Subchronic	Chronic	Subchronic	Chronic	Subchronic
1,2-Dichloroethene (Total)	NV (1)	NV (1)	0.009 (1)	0.009 (1)	–	–	[illegible]	[illegible]
Trichloroethene	NV (1)	NV (1)	NV (1)	NV (1)	–	–	–	–
Tetrachloroethene	NV (1)	NV (1)	0.01 (1)	0.1 (1)	–	–	Hepatotoxicity in mice, weight gain in rats	Liver - hepatocytic

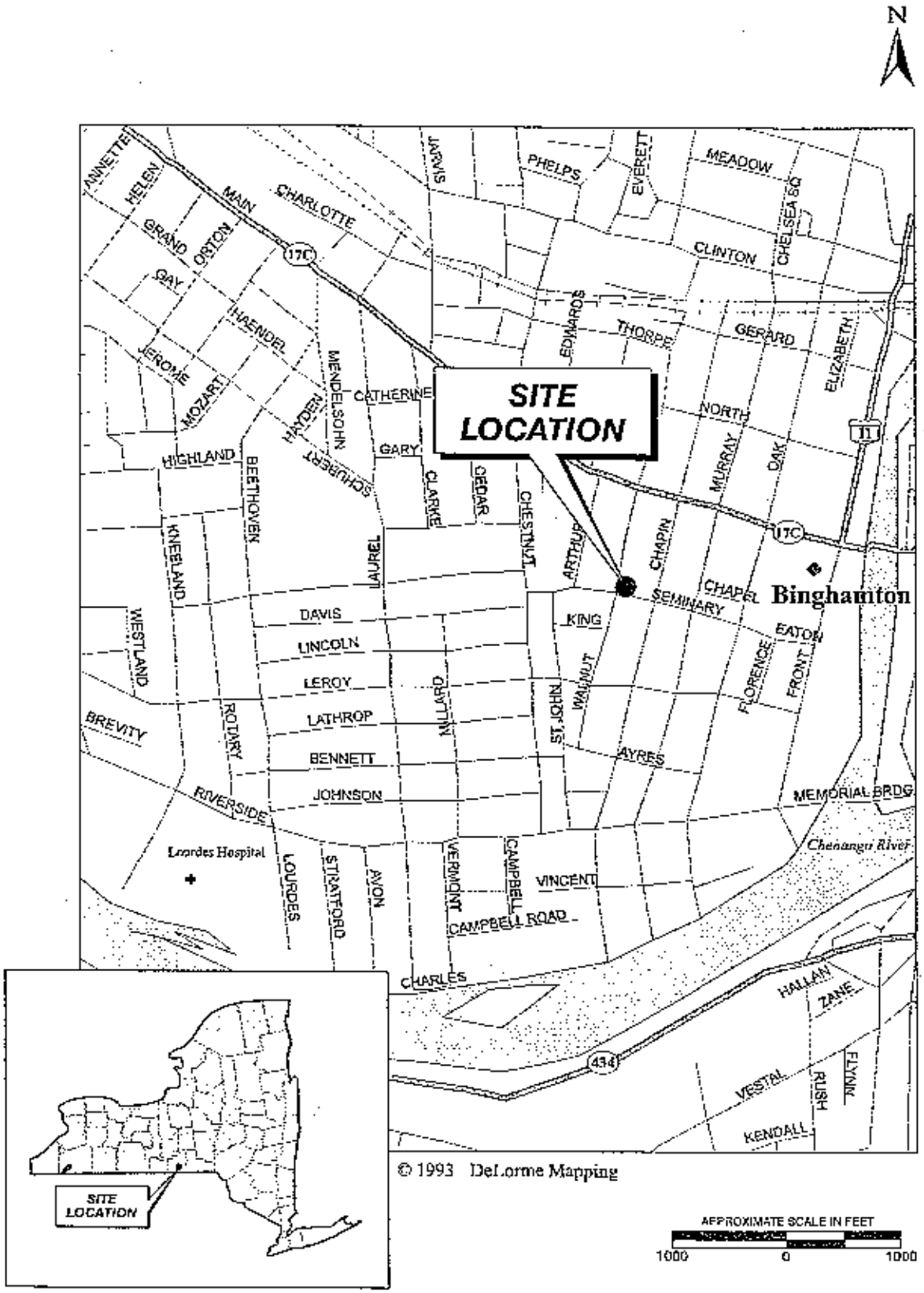
Source List:

1 SmartTOX Database

NV - No Values Available

Tetrachloroethene and trichloroethene are considered to be potential occupational carcinogens by NIOSH.

FIGURES



AQ15638.35527.01-0721ED.CDR

URS

AMERICAN CLEANERS SITE
SITE LOCATION MAP

FIGURE 1-1

N

WALNUT STREET

CONCRETE SIDEWALK

BLACKTOP DRIVEWAY

GRAVEL

PROPERTY LINE

1 STORY CONCRETE BLOCK BUILDING

INTERIOR WALL

BOILER PIT

WATER SOFTENER PIT

2 STORY FRAME BUILDING EARTHEN FLOOR (IN BASEMENT)

GARAGE (52 WALNUT STREET)

PROPERTY LINE

1 STORY BLOCK GARAGE (360 SQ FT)

CONCRETE WALL

STAIRS

WINDOW WELLS

SUMP PIT

1 STORY BLOCK AND BRICK BUILDING

CONCRETE SLAB FLOOR (IN BASEMENT)

2 STORY FRAME HOUSE

STAIRS

BLACKTOP DRIVEWAY

FUNNEL DRAIN

GRASSY AREA

CATCH BASIN

SANITARY SEWER SERVICE LINE

CONCRETE SIDEWALK

SEMINARY AVENUE

10 0 10 Feet

J:\35822.01\GIS\Workfiles\ap\ SITEPLAN

AMERICAN CLEANERS
SITE PLAN

URS

FIGURE 1-2

AMERICAN CLEANERS
SITE LOCATION

CHEVANGO RIVER

N

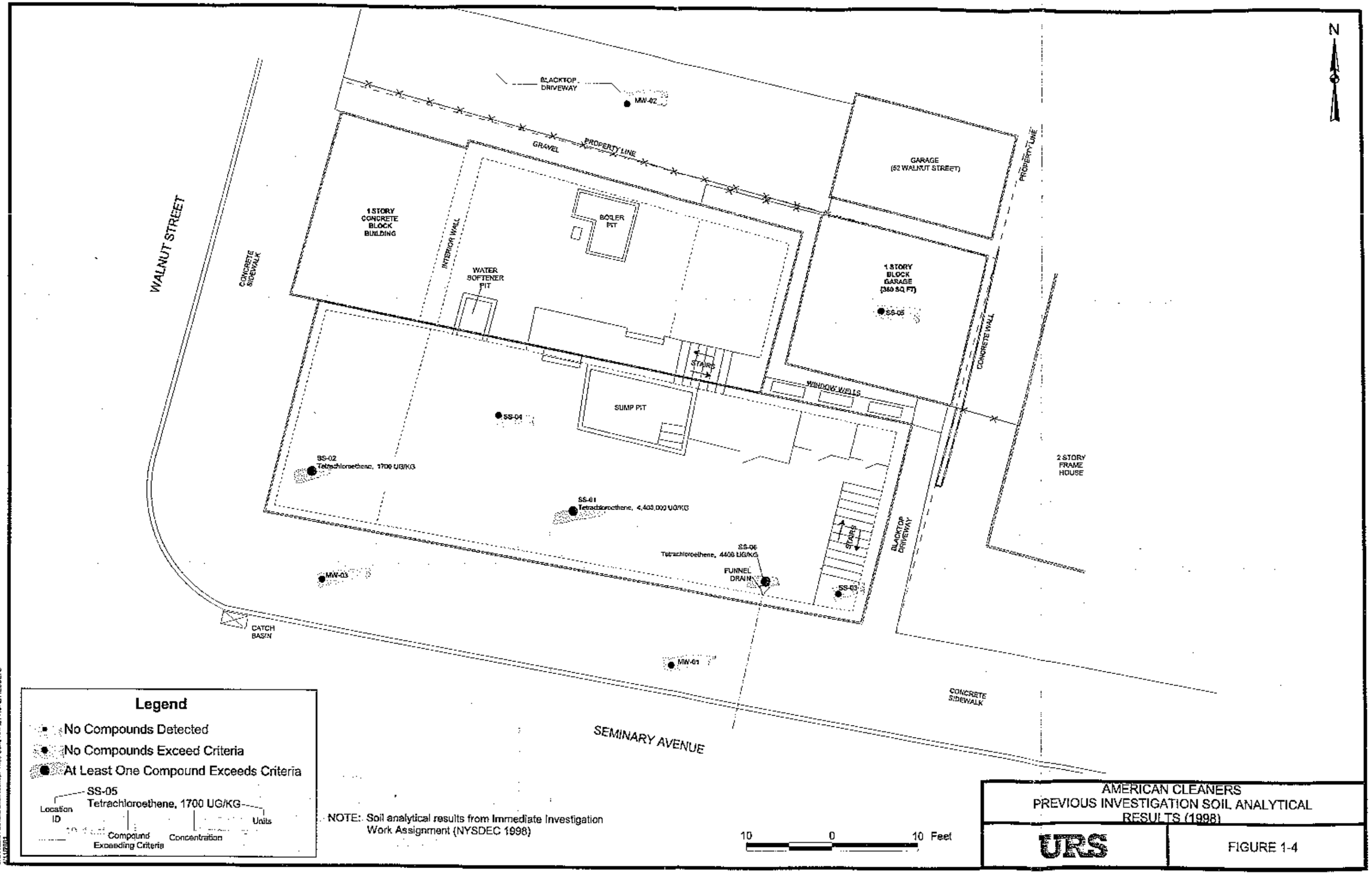
300 0 300 Feet

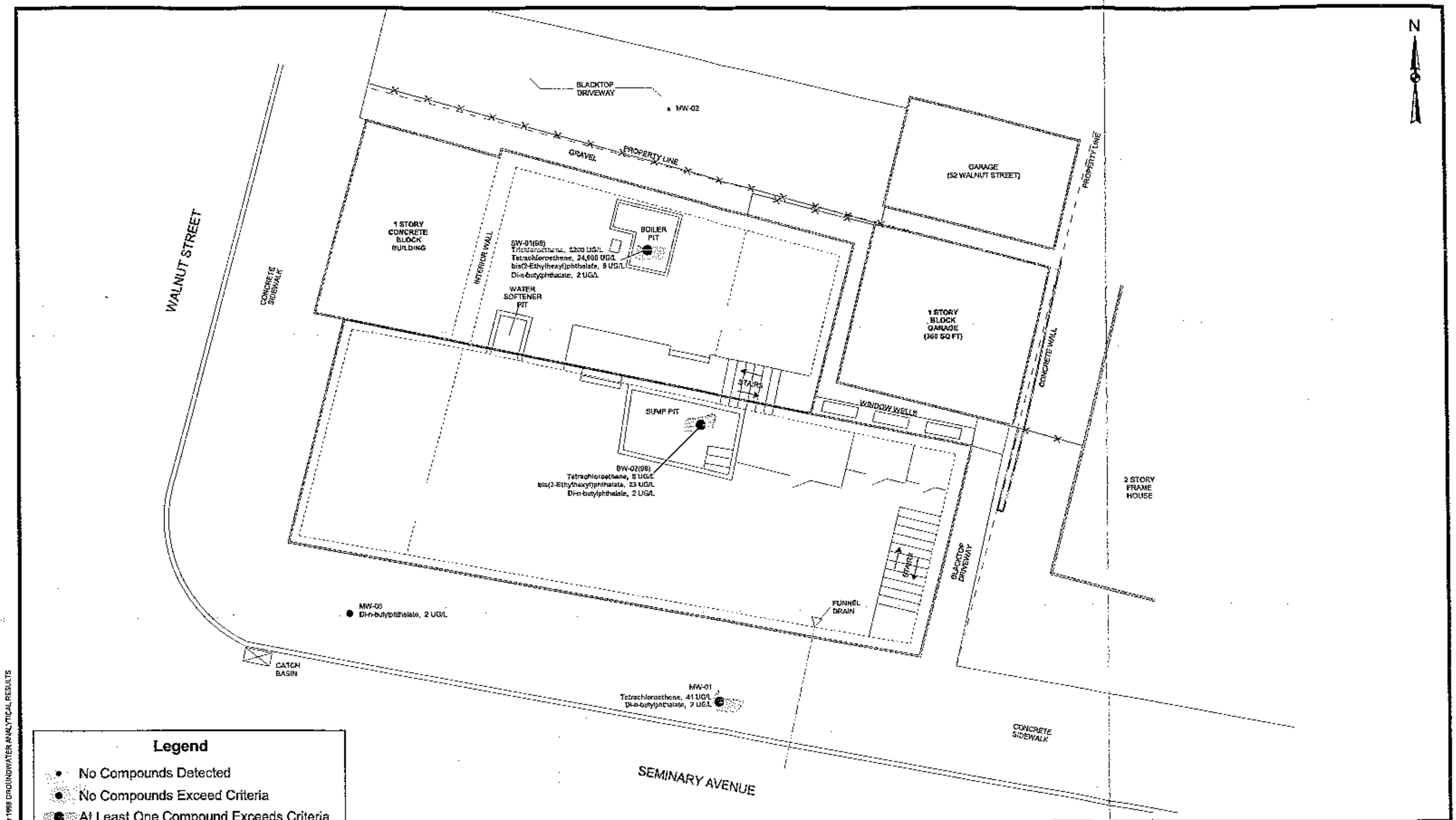
AMERICAN CLEANERS
SITE FEATURES

URS

FIGURE 1-3

J:\35822.01\Arc\GIS\Syracuse.apr ORTHOPHOTO
01/27/2004


N
BLACKTOP DRIVEWAY
MW-02
GRAVEL
PROPERTY LINE
GARAGE (52 WALNUT STREET)
PROPERTY LINE
WALNUT STREET
CONCRETE SIDEWALK
1 STORY CONCRETE BLOCK BUILDING
INTERIOR WALL
BOILER PIT
WATER SOFTENER PIT
1 STORY BLOCK GARAGE (360 SQ FT)
SS-05
CONCRETE WALL
STAIRS
WINDOW WELLS
SUMP PIT
SS-04
SS-02
Tetrachloroethene, 1700 UG/KG
SS-01
Tetrachloroethene, 4,400,000 UG/KG
SS-06
Tetrachloroethene, 4400 UG/KG
FUNNEL DRAIN
STAIRS
BLACKTOP DRIVEWAY
SS-03
2 STORY FRAME HOUSE
MW-03
CATCH BASIN
MW-01
CONCRETE SIDEWALK
SEMINARY AVENUE
Legend
No Compounds Detected
No Compounds Exceed Criteria
At Least One Compound Exceeds Criteria
SS-05
Tetrachloroethene, 1700 UG/KG
Location ID
Compound Exceeding Criteria
Concentration
Units
NOTE: Soil analytical results from Immediate Investigation Work Assignment (NYSDEC 1998)
10 0 10 Feet
AMERICAN CLEANERS
PREVIOUS INVESTIGATION SOIL ANALYTICAL RESULTS (1998)
URS
FIGURE 1-4
J:\35822.01\db\GIS\chemical.apr 1998 SOIL ANALYTICAL RESULTS
04/12/04



Legend

- No Compounds Detected
- No Compounds Exceed Criteria
- At Least One Compound Exceeds Criteria

MW-03
Tetrachloroethene, 41 UG/L

Location ID; Compound Exceeding Criteria; Concentration; Units

NOTE: Groundwater analytical results from Immediate Investigation Work Assignment (NYSDEC 1998)

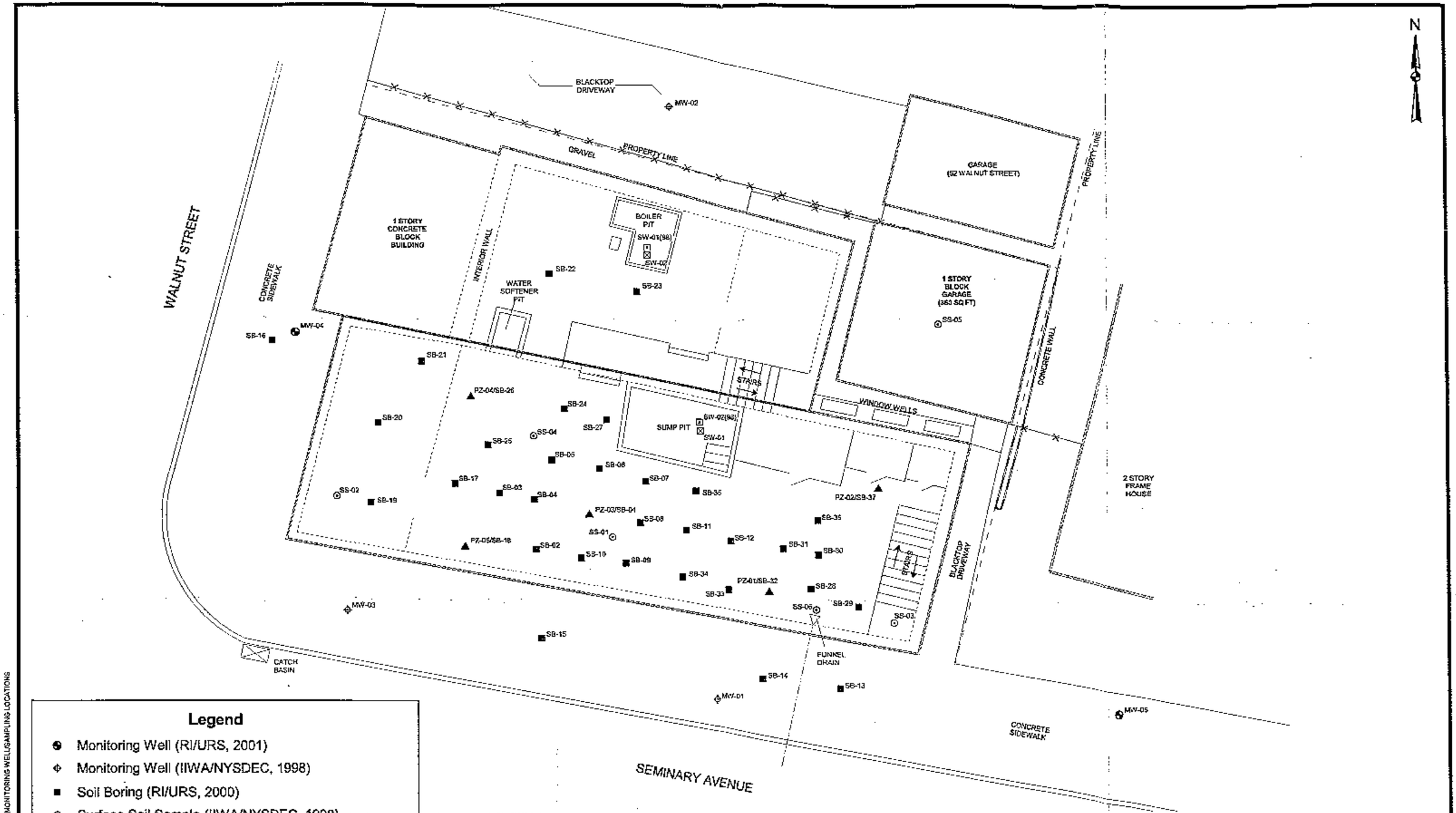
10 0 10 Feet

AMERICAN CLEANERS
PREVIOUS INVESTIGATION GROUNDWATER\SUMP WATER ANALYTICAL RESULTS (1998)

URS

FIGURE 1-5

J:\38\22101\dbGIS\schmidt\arr 1998 GROUNDWATER ANALYTICAL RESULTS



Legend

- Monitoring Well (RI/URS, 2001)
- Monitoring Well (IIWA/NYSDEC, 1998)
- Soil Boring (RI/URS, 2000)
- Surface Soil Sample (IIWA/NYSDEC, 1998)
- Piezometer (RI/URS, 2000)
- Surface Water Sample Location (RI/URS, 2000)
- Surface Water Sample Location (IIWA/NYSDEC, 1998)

FIGURE 2-1

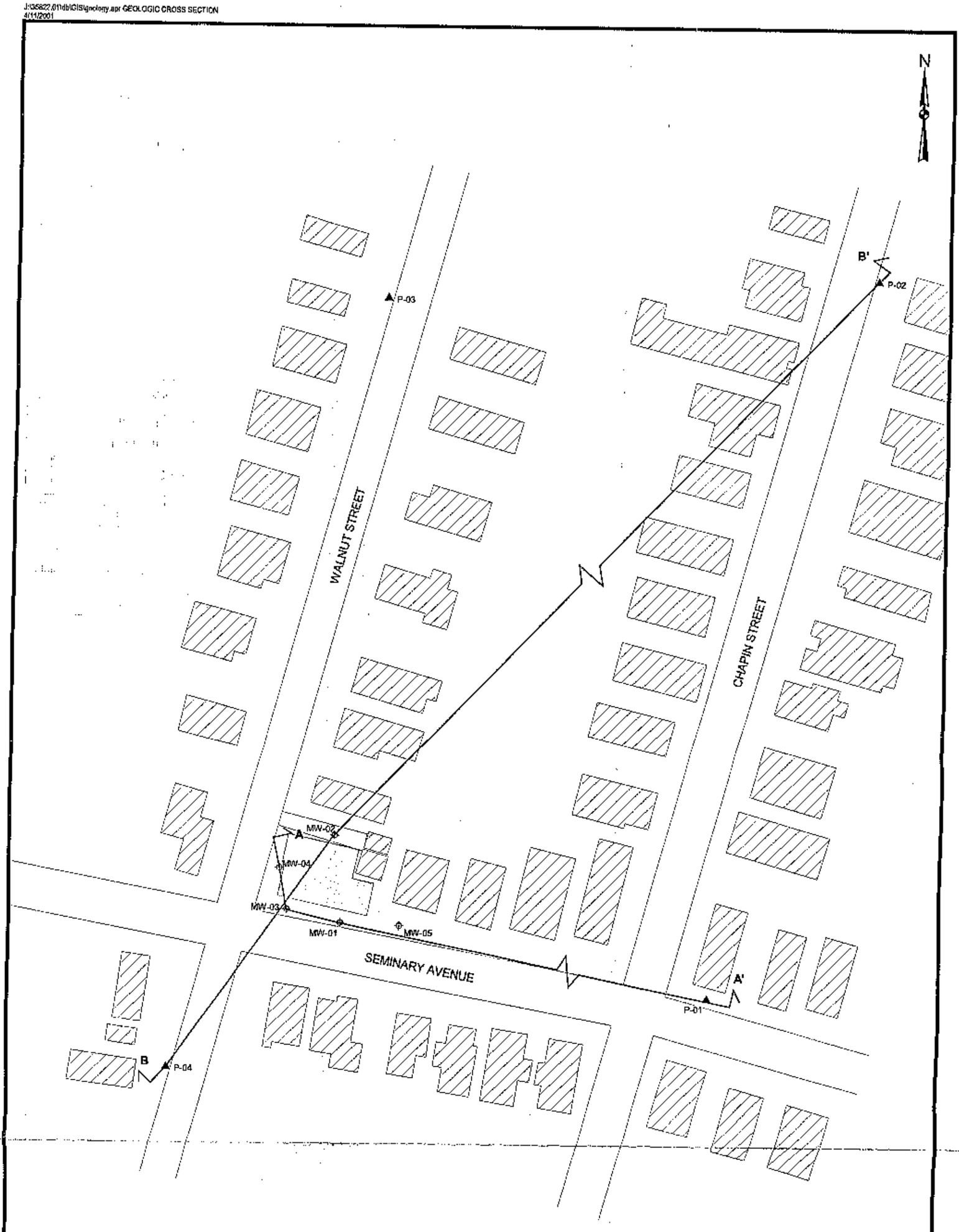
AMERICAN CLEANERS
MONITORING WELL/SAMPLING LOCATIONS

URS

FIGURE 2-1

J:\35822 01\dwg\GIS\chemical.apr MONITORING WELL/SAMPLING LOCATIONS

J:\35822.011\dbl\GIS\geology.apr GEOLOGIC CROSS SECTION
4/11/2001



Legend

- Monitoring Well
- Piezometer
- A A' Geologic Cross-Section Line

70 0 70 Feet

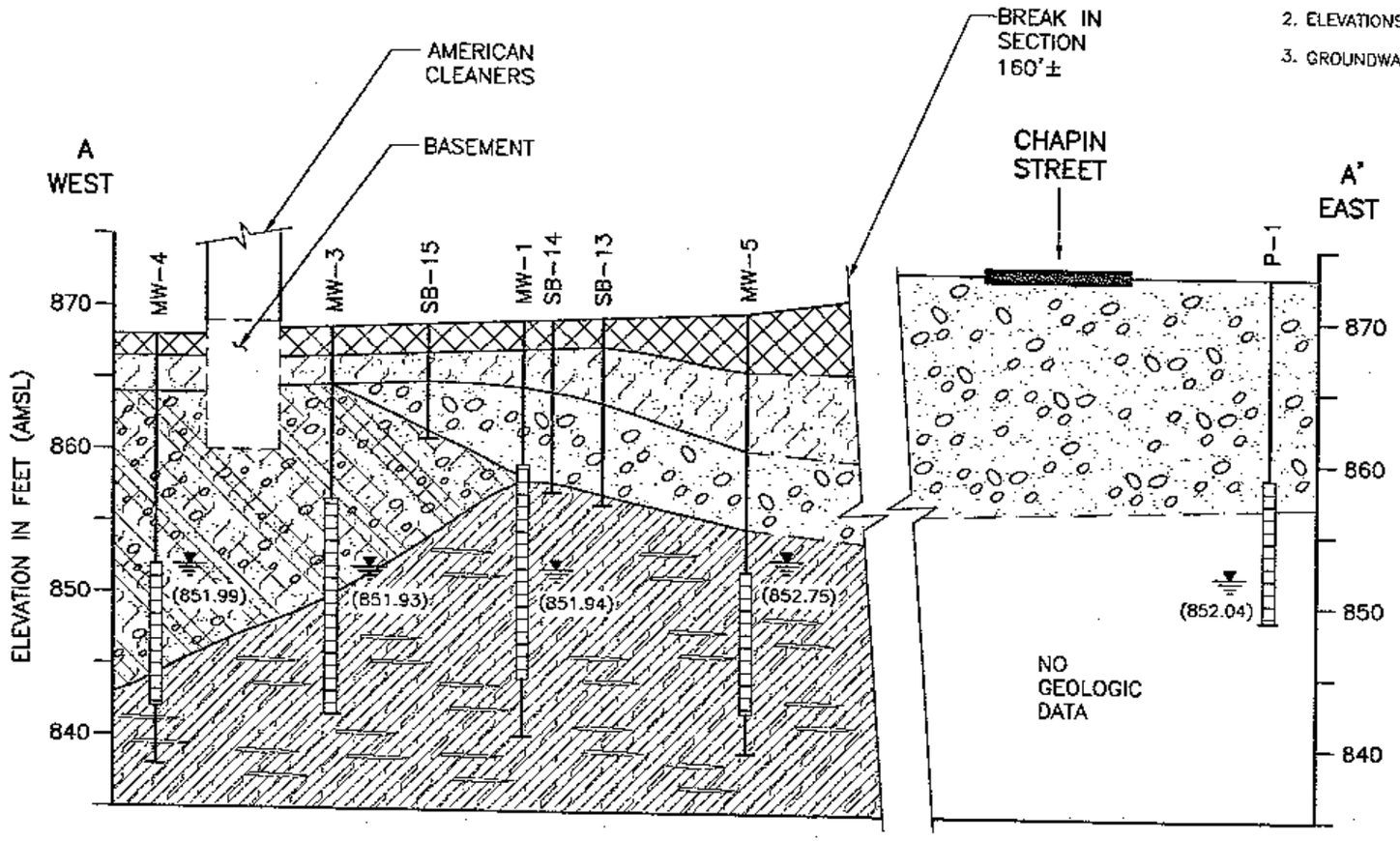
URS

AMERICAN CLEANERS
PIEZOMETER AND CROSS-SECTION LOCATIONS

FIGURE 2-2

NOTES:

1. GEOLOGIC CONDITIONS SHOWN ARE REPRESENTATIVE OF CONDITIONS ENCOUNTERED AT EACH BORING LOCATION TO THE DEPTH DRILLED. EXTRAPOLATIONS BETWEEN BORINGS HAVE BEEN INTERPRETED USING STANDARD ACCEPTED GEOLOGIC PRACTICES AND PRINCIPLES. ACTUAL CONDITIONS MAY VARY BETWEEN BORINGS FROM THOSE SHOWN.
2. ELEVATIONS BASED ON THE NORTH AMERICAN VERTICAL DATUM, 1988.
3. GROUNDWATER ELEVATIONS FROM 2/15/01.



LEGEND

- FILL
- SAND AND GRAVELS
- SILTY SAND/SAND
- SILT, SOME TO TRACE SAND, GRAVEL, CLAY
- CLAYEY SILT, SOME SHALE FRAGMENTS

MW-1 MONITORING WELL ID

GROUNDWATER SURFACE

WELL SCREEN INTERVAL

BOTTOM OF BORING

PROJECTED

10' 0 10'
VERT. SCALE: 1"= 10'

30' 0 30'
HORIZ. SCALE: 1"= 30'

GEOLOGIC CROSS-SECTION A-A'

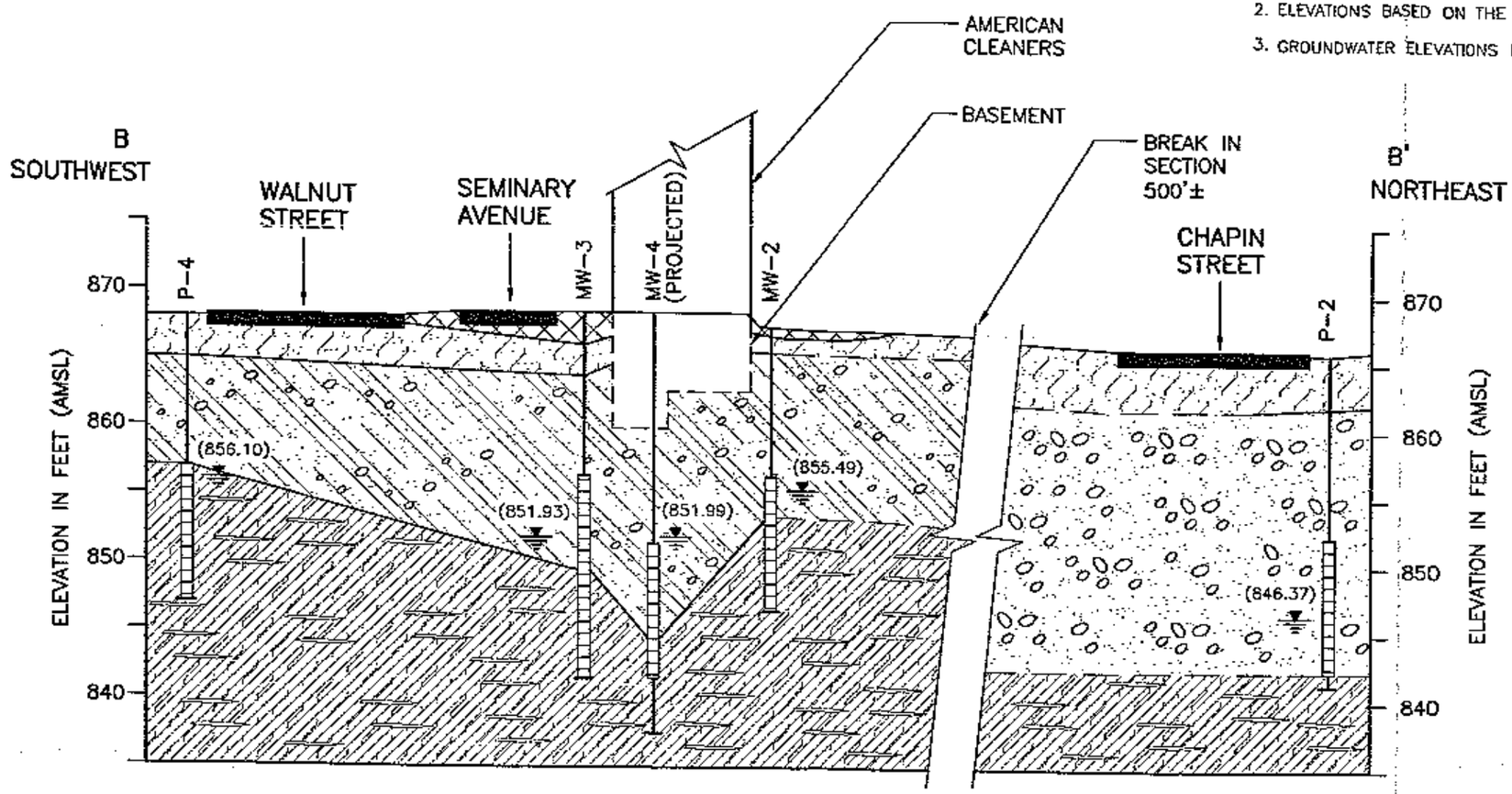
URS

FIGURE 3-1

\35822.01\CAD\35822.02 1=10 4/19/01-2 BJG

NOTES:

1. GEOLOGIC CONDITIONS SHOWN ARE REPRESENTATIVE OF CONDITIONS ENCOUNTERED AT EACH BORING LOCATION TO THE DEPTH DRILLED. EXTRAPOLATIONS BETWEEN BORINGS HAVE BEEN INTERPRETED USING STANDARD ACCEPTED GEOLOGIC PRACTICES AND PRINCIPLES. ACTUAL CONDITIONS MAY VARY BETWEEN BORINGS FROM THOSE SHOWN.
2. ELEVATIONS BASED ON THE NORTH AMERICAN VERTICAL DATUM, 1988.
3. GROUNDWATER ELEVATIONS FROM 2/15/01.



LEGEND

- FILL
- SAND AND GRAVELS
- SILTY SAND/SILT AND SAND
- SILT, SOME TO TRACE SAND, GRAVEL, CLAY
- CLAYEY SILT, SOME SHALE FRAGMENTS
- MW-3 — MONITORING WELL ID
- GROUNDWATER SURFACE
- WELL SCREEN INTERVAL
- BOTTOM OF BORING
- PROJECTED

10' 0 10'
VERT. SCALE: 1"= 10'

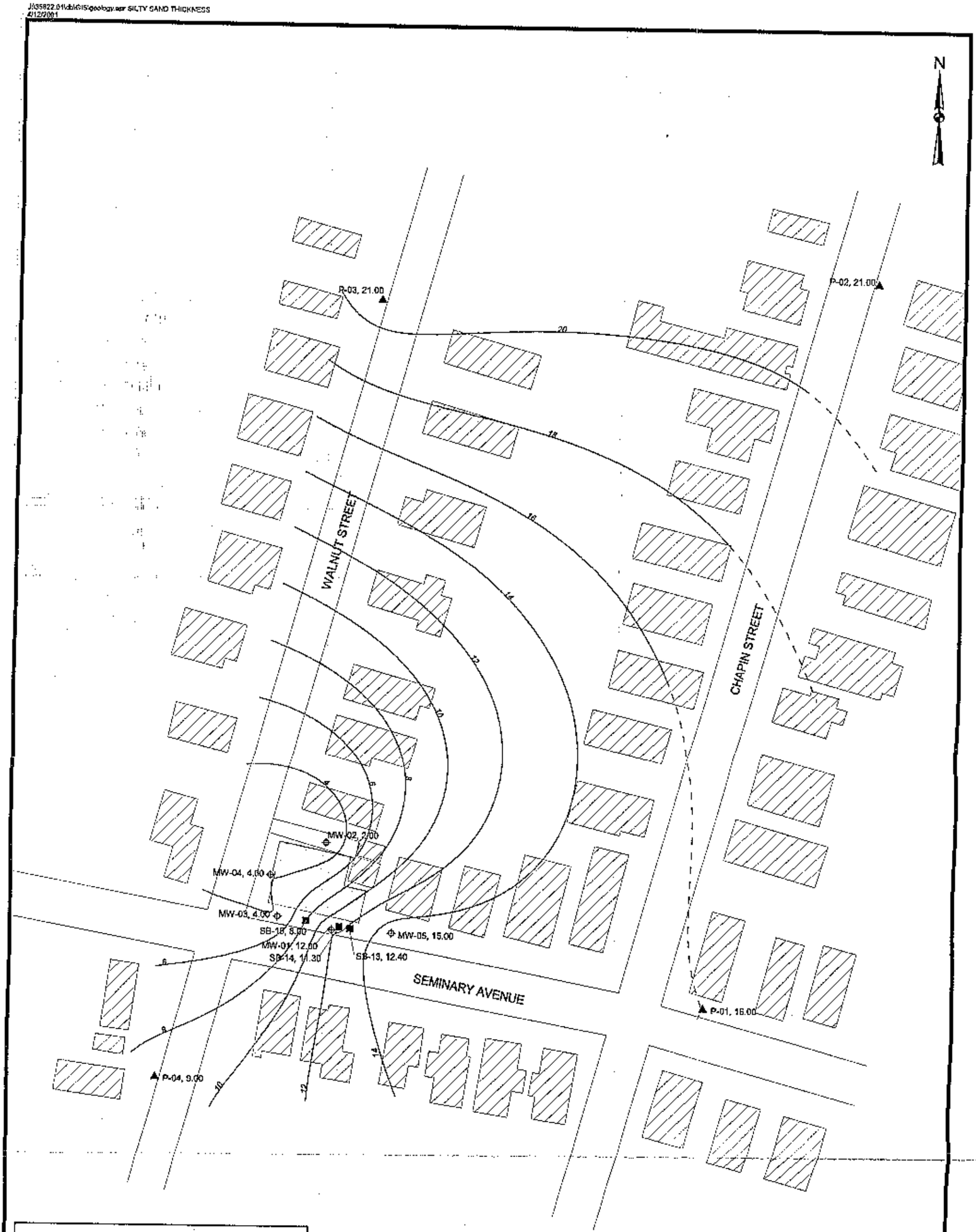
50' 0 50'
HORIZ. SCALE: 1"= 50'

GEOLOGIC CROSS-SECTION B-B'

URS

FIGURE 3-2

CC-6835



Legend

- Monitoring Well
- Piezometer
- Soil Boring
- Thickness of Silty Sand
- Projected Thickness of Silty Sand
- MW-01, 12.00 (Location ID / Thickness of Silty Sand)

NOTE: Boring P-01 was terminated in sand and gravel.

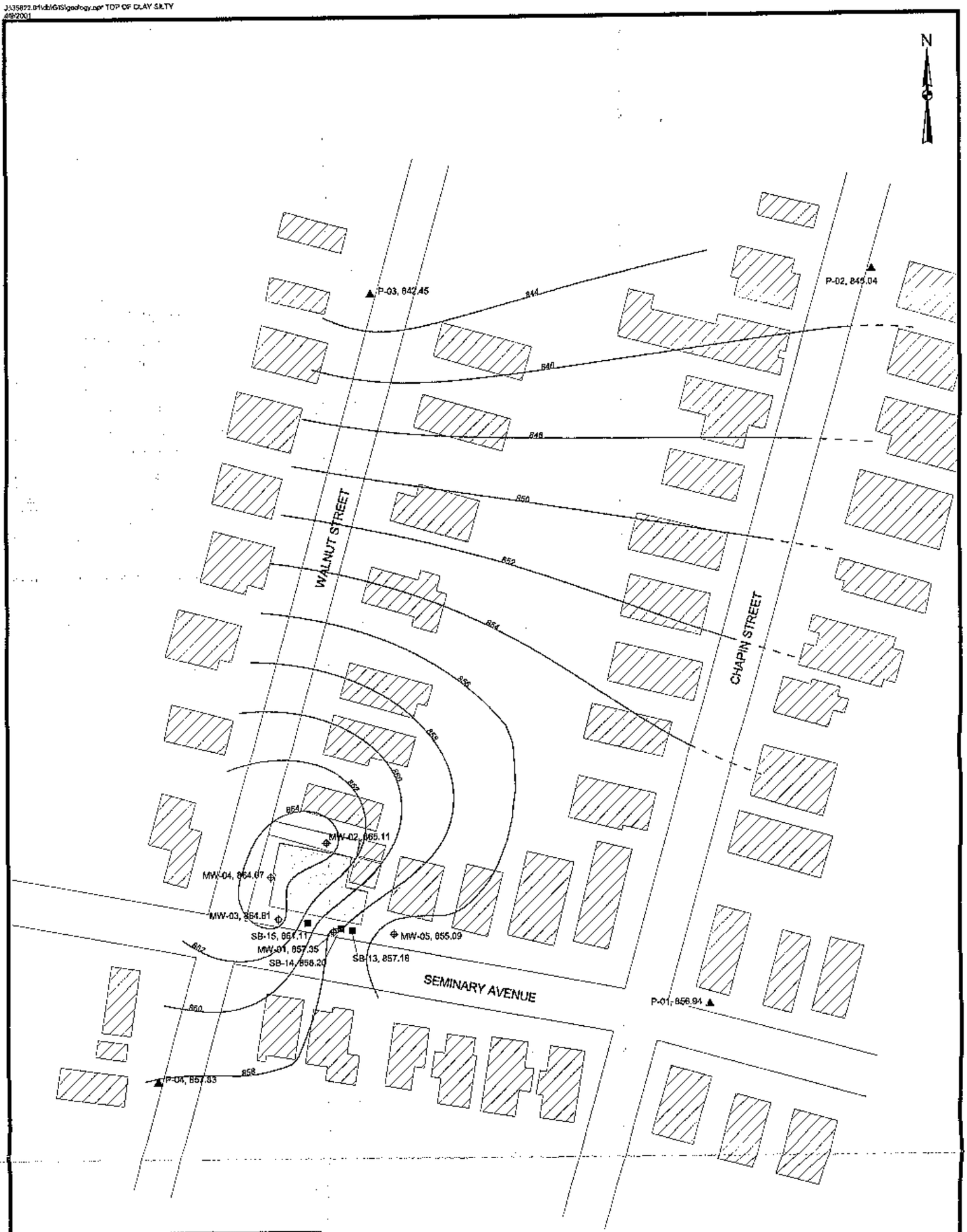
70 0 70 Feet

URS

AMERICAN CLEANERS
THICKNESS OF SILTY SAND AND GRAVEL

FIGURE 3-3

J:\35822.01\db\GIS\geology.apr TOP OF CLAY SILTY
4/9/2001



Legend

- Monitoring Well
- Piezometer
- Soil Boring
- 854 — Bottom of Silty Sand Unit
- Projected Bottom of Silty Sand Unit
- MW-01, 857.35 (Location ID; Thickness of Silty Sand)

NOTE: Boring P-01 was terminated in sand and gravel.

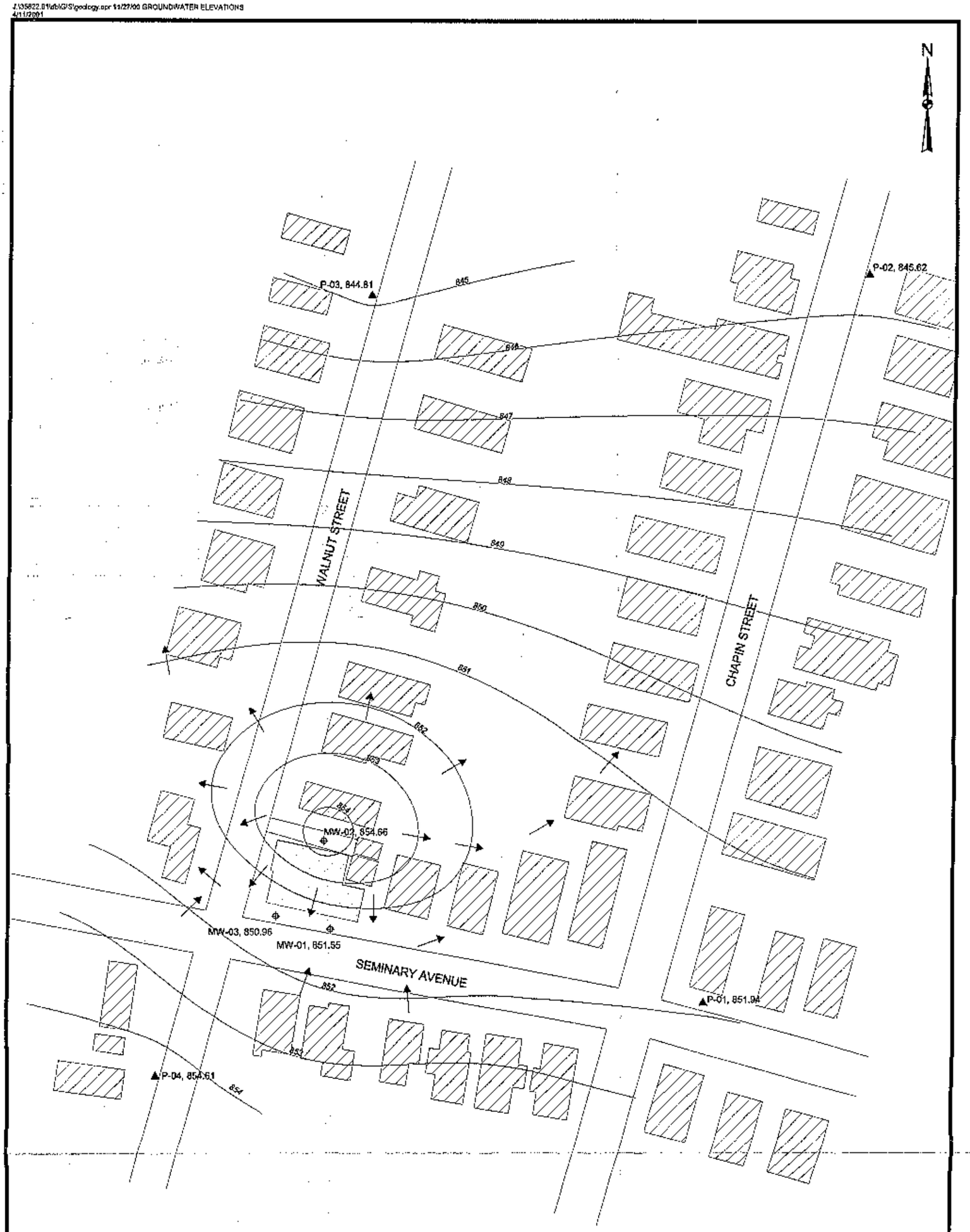
70 0 70 Feet

URS

AMERICAN CLEANERS
BOTTOM OF SILTY SAND AND GRAVEL

FIGURE 3-4

J:\35822.81\db\GIS\geology.apr 11/27/00 GROUNDWATER ELEVATIONS
4/11/2001



Legend

- Monitoring Well
- Piezometer
- 849 Groundwater Elevation Contour
- Groundwater Flow Direction
- MW-01, 851.55 (Location ID; Groundwater Elevation (ft amsl))

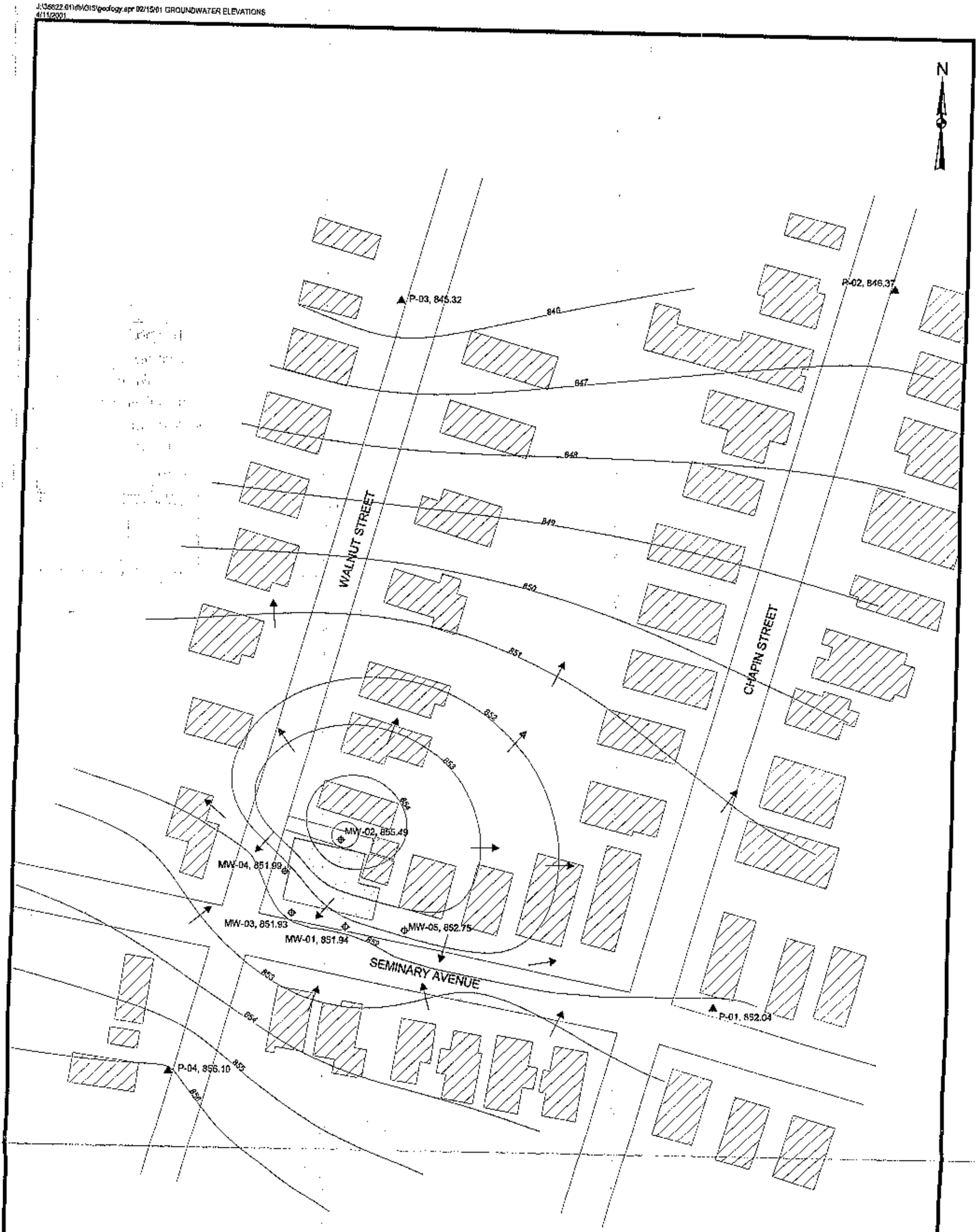
70 0 70 Feet

URS

AMERICAN CLEANERS
GROUNDWATER ELEVATION CONTOUR MAP
(NOVEMBER 27, 2000)

FIGURE 3-5

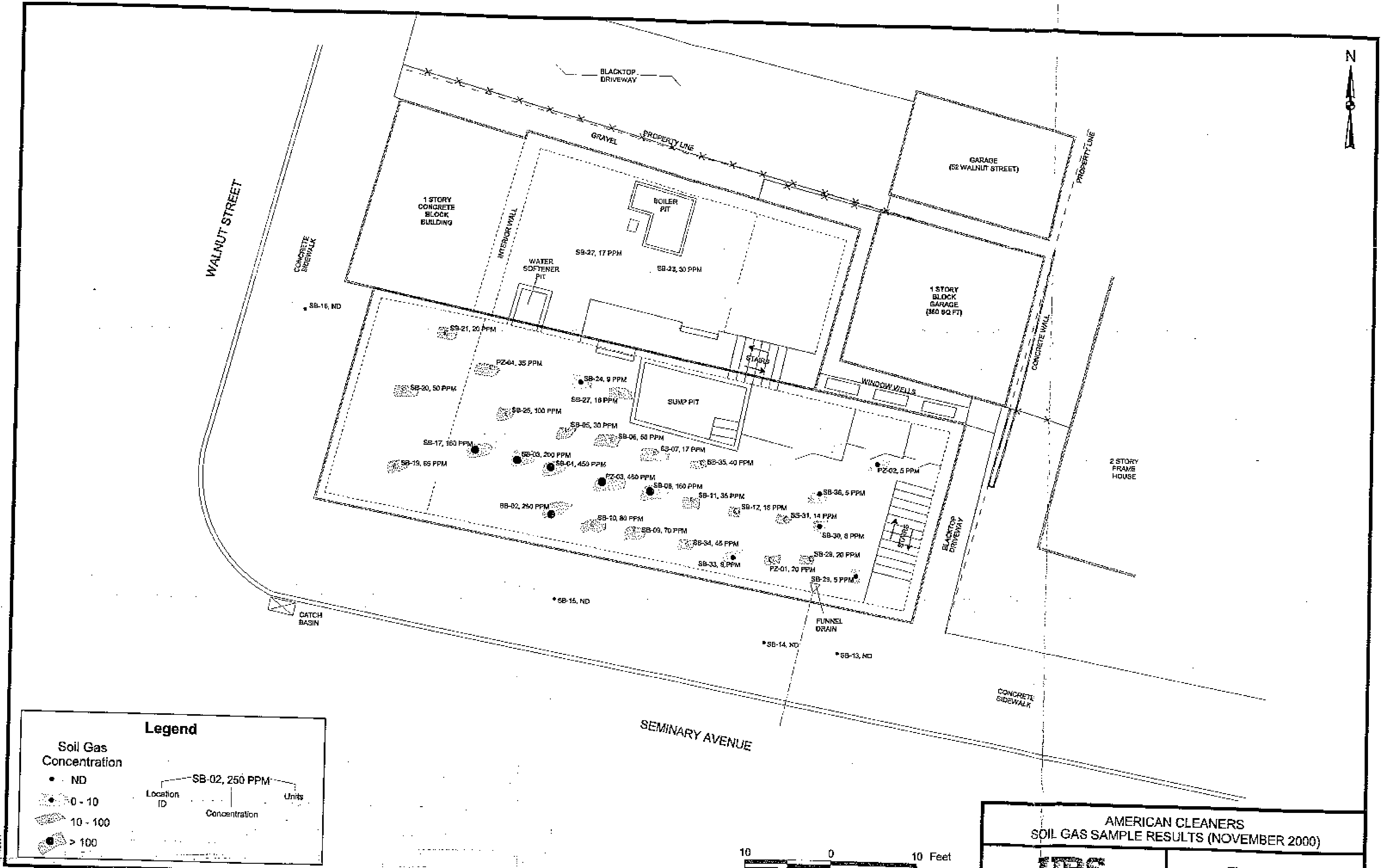
J:\35622.01\db\GIS\geology.apr 02/15/01 GROUNDWATER ELEVATIONS
4/11/2001



URS

AMERICAN CLEANERS
GROUNDWATER ELEVATION CONTOUR MAP
(FEBRUARY 15, 2001)

FIGURE 3-6



AMERICAN CLEANERS
SOIL GAS SAMPLE RESULTS (NOVEMBER 2000)

URS

FIGURE 4-1

N

WALNUT STREET

CONCRETE SIDEWALK

BLACKTOP DRIVEWAY

GRAVEL

PROPERTY LINE

1 STORY CONCRETE BLOCK BUILDING

INTERIOR WALL

BOILER PIT

WATER SOFTENER PIT

SB-22

SB-23

GARAGE (62 WALNUT STREET)

PROPERTY LINE

1 STORY BLOCK GARAGE (350 SQ FT)

CONCRETE WALL

SB-21

PZ-04/SB-25

SB-27

STAIRS

WINDOW WELLS

SUMP PIT

SB-04
Tetrachloroethene, 7700 UG/KG

SB-03
Tetrachloroethene, 9000 UG/KG

SB-17

SB-19

PZ-03/SB-24
Tetrachloroethene, 18000 UG/KG

SB-08
Tetrachloroethene, 5400 UG/KG

SB-11

SB-35

PZ-05/SB-18
Tetrachloroethene, 6300 UG/KG

SB-10
Tetrachloroethene, 37000 UG/KG

SB-34
Tetrachloroethene, 2700 UG/KG

STAIRS

BLACKTOP DRIVEWAY

2 STORY FRAME HOUSE

SB-28

PZ-01/SB-32

SB-29

FUNNEL DRAIN

CATCH BASIN

SB-14

CONCRETE SIDEWALK

SEMINARY AVENUE

Legend

- No Compounds Detected
- No Compounds Exceed Criteria
- At Least One Compound Exceeds Criteria

SB-03
Tetrachloroethene, 9000 UG/KG

Location ID — Compound Exceeding Criteria — Concentration — Units

10 0 10 Feet

AMERICAN CLEANERS
SOIL ANALYTICAL RESULTS (NOVEMBER 2000)

URS

FIGURE 4-2

J:\GIS\2.0\lib\GIS\phase\mxd Jan 11\00 SOIL ANALYTICAL RESULTS 4/11/2001

N

BLACKTOP DRIVEWAY

MW-02

GRAVEL

PROPERTY LINE

WALNUT STREET

CONCRETE SIDEWALK

1 STORY CONCRETE BLOCK BUILDING

INTERIOR WALL

BOILER PIT

SW-02
Tetrachloroethene, 4 UG/L

WATER SOFTENER PIT

GARAGE (52 WALNUT STREET)

PROPERTY LINE

1 STORY BLOCK GARAGE (360 SQ FT)

CONCRETE WALL

STAIRS

WINDOW WELLS

SUMP PIT

SW-01
Trichloroethene, 140 UG/L
Tetrachloroethene, 1800 UG/L
1,2-Dichloroethene (Total), 46 UG/L

2 STORY FRAME HOUSE

STAIRS

BLACKTOP DRIVEWAY

MW-03
Vinyl Chloride, 1 UG/L
1,2-Dichloroethene (Total), 2 UG/L
Tetrachloroethene, 7 UG/L

CATCH BASIN

FUNNEL DRAIN

MW-01
Tetrachloroethene, 220 UG/L

CONCRETE SIDEWALK

SEMINARY AVENUE

Legend

- No Compounds Detected
- No Compounds Exceed Criteria
- At Least One Compound Exceeds Criteria

MW-01
Tetrachloroethene, 220 UG/L

Location ID — Compound Exceeding Criteria — Concentration — Units

10 0 10 Feet

AMERICAN CLEANERS
GROUNDWATER/SUMP WATER ANALYTICAL RESULTS
(NOVEMBER 2000)

URS

FIGURE 4-3

J:\35922.01\ub/GIS\chem\cnd.apr 11/00 GROUNDWATER/SUMP ANALYTICAL RESULTS 4/11/2001

N

BLACKTOP DRIVEWAY

MW-02
2-Hexanone, 2 UG/L

GRAVEL

PROPERTY LINE

GARAGE
(62 WALNUT STREET)

PROPERTY LINE

WALNUT STREET

CONCRETE SIDEWALK

1 STORY CONCRETE BLOCK BUILDING

INTERIOR WALL

BOILER PIT

WATER SOFTENER PIT

MW-04

1 STORY BLOCK GARAGE (560 SQ FT)

CONCRETE WALL

STAIRS

WINDOW WELLS

SUMP PIT

2 STORY FRAME HOUSE

STAIRS

BLACKTOP DRIVEWAY

MW-03
1,2-Dichloroethene (Total), 1 UG/L
Tetrachloroethene, 4 UG/L

CATCH BASIN

FUNNEL DRAIN

MW-01
Tetrachloroethene, 550 UG/L

CONCRETE SIDEWALK

MW-05
Tetrachloroethene, 5 UG/L

SEMINARY AVENUE

Legend

- No Compounds Detected
- No Compounds Exceed Criteria
- At Least One Compound Exceeds Criteria

MW-03
Tetrachloroethene, 550 UG/L

Location ID — Compound Exceeding Criteria — Concentration — Units

10 0 10 Feet

AMERICAN CLEANERS
GROUNDWATER ANALYTICAL RESULTS (FEBRUARY 2001)

URS

FIGURE 4-4

J:\36829\01\drl\GIS\chemical apr 02\01 GROUNDWATER ANALYTICAL RESULTS 4/11/2001

APPENDIX A
BORING LOGS

URS Corporation

TEST BORING LOG

PROJECT:	American Cleaners
CLIENT:	New York State DEC
BORING CONTRACTOR:	Natures Way
GROUNDWATER:	Not Encountered

BORING NO:	SB-4 Jackhammer
SHEET:	1 of 1
JOB NO.:	0500035822.02
BORING LOCATION:	N: 1192426.7 E: 105686.9
GROUND ELEVATION:	850.50 ft.
DATE STARTED:	11/28/00
DATE FINISHED:	11/28/00
DRILLER:	B. Bartz
GEOLOGIST:	S. McCabe
REVIEWED BY:	

DATE	TIME	LEVEL	TYPE		CAS.	SAMPLER	CORE	TUBE
				TYPE		Splitspoon		
				DIA.		2"		
				WT.		—		
				FALL		—		
				* POCKET PENETROMETER READING				

DEPTH FEET	SAMPLE STRATA	NO.	TYPE	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSIST HARD	MATERIAL DESCRIPTION	USCS	REMARKS PID	REMARKS Moist
0.2						—	—	0-.2' Concrete	—		Dry
						Reddish Brown	NA	.2-.5' Silt and sand, some gravel	SM	450	
0.5											
1		1	SS		100%	Yellow Brown	NA	.5-2.0' Clayey silt, some angular gravel	ML	120	
2								End of Boring at 2.0' BGS Split-spoon refusal.			
3											
4											
5											
6											
7											

Comments: Boring advanced with a jackhammer utilizing a 2-foot long,2" diameter split-spoon. Strong solvent odor.

PROJECT NO.	0500035822.02
BORING NO.	SB-4

URS Corporation

TEST BORING LOG

PROJECT:	American Cleaners
CLIENT:	New York State DEC
BORING CONTRACTOR:	Natures Way
GROUNDWATER:	Not Encountered

BORING NO:	SB-8 Jackhammer
SHEET:	1 of 1
JOB NO.:	0500035822.02
BORING LOCATION:	N: 1192424.1 E: 105898.6
GROUND ELEVATION:	860.51 ft
DATE STARTED:	11/29/00
DATE FINISHED:	11/29/00
DRILLER:	B. Bartz
GEOLOGIST:	S. McCabe
REVIEWED BY:	

DATE	TIME	LEVEL	TYPE	TYPE	CAS.	SAMPLER	CORE	TUBE
				DIA.		2"		
				WT.		---		
				FALL		—		
				* POCKET PENETROMETER READING				

DEPTH FEET	SAMPLE STRATA	NO.	TYPE	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSIST HARD	MATERIAL DESCRIPTION	USCS	REMARKS PID	Moist
0.2						---	—	0-.2' Concrete	---		Dry
0.4						R. Brown	NA	.2-.4' Silt and sand, some gravel	SM		
						Yellow Brown	NA	.4-2.0' Clayey silt, some angular gravel	ML	160	
1		1	SS		100%					17	
2											
								End of Boring at 2.0' BGS Split-spoon refusal.			
3											
4											
5											
6											
7											

Comments: Boring advanced with a jackhammer utilizing a 2-foot long,2" diameter split-spoon.

PROJECT NO.	0500035822.02
BORING NO.	SB-8

URS Corporation

TEST BORING LOG

PROJECT:	American Cleaners
CLIENT:	New York State DEC
BORING CONTRACTOR:	Natures Way
GROUNDWATER:	Not Encountered

	CAS.	SAMPLER	CORE	TUBE
TYPE		Splitspoon		
DIA.		2"		
WT.		—		
FALL		—		

DATE	TIME	LEVEL	TYPE

* POCKET PENETROMETER READING

BORING NO:	SB-10 Jackhammer
SHEET:	1 of 1
JOB NO.:	0500035822.02
BORING LOCATION:	N: 1192420.2 E: 105692.1
GROUND ELEVATION:	860.52 ft.
DATE STARTED:	11/29/00
DATE FINISHED:	11/29/00
DRILLER:	B. Bartz
GEOLOGIST:	S. McCabe
REVIEWED BY:	

DEPTH FEET	SAMPLE STRATA	NO.	TYPE	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSIST HARD	MATERIAL DESCRIPTION	USCS	REMARKS PID	REMARKS Moist
0.2						—	—	0-.2' Concrete	—		Dry
0.4						R. Brown	NA	.2-.4' Silt and sand, some gravel	SM		
						Yellow Brown	NA	.4-2.0' Clayey silt, some angular gravel	ML	60	
1		1	SS		100%					20	
2								End of Boring at 2.0' BGS Split-spoon refusal.			
3											
4											
5											
6											
7											

Comments: Boring advanced with a jackhammer utilizing a 2-foot long,2" diameter split-spoon.

PROJECT NO.	0500035822.02
BORING NO.	SB-10

URS Corporation

TEST BORING LOG

PROJECT:	American Cleaners
CLIENT:	New York State DEC
BORING CONTRACTOR:	Natures Way
BORING NO:	SB-11 Jackhammer
SHEET:	1 of 1
JOB NO.:	0500035822.02
BORING LOCATION:	N: 1192423.3 E: 1D5703.7
GROUND ELEVATION:	860.49 ft.
DATE STARTED:	11/29/00
DATE FINISHED:	11/29/00
DRILLER:	B. Bartz
GEOLOGIST:	S. McCabe
REVIEWED BY:	

GROUNDWATER: Not Encountered

DATE	TIME	LEVEL	TYPE

	CAS.	SAMPLER	CORE	TUBE
TYPE		Splitspoon		
DIA.		2"		
WT.		—		
FALL		—		

* POCKET PENETROMETER READING

DEPTH FEET	SAMPLE STRATA	NO.	TYPE	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSIST HARD	MATERIAL DESCRIPTION	USCS	REMARKS PID	REMARKS Moist
0.2						---	—	0-.2' Concrete	---		Dry
1		1	SS		100%	Reddish Brown	NA	.2-1.5' Silt and sand, some gravel	ML/ SM	35	
1.5										11	
2						Yellow Brown	NA	1.5-2.0' Clayey silt, some angular gravel	ML		
3								End of Boring at 2.0' BGS Split-spoon refusal.			
4											
5											
6											
7											

Comments: Boring advanced with a jackhammer utilizing a 2-foot long,2" diameter split-spoon.

PROJECT NO.	0500035822.02
BORING NO.	SB-11

URS Corporation

TEST BORING LOG

PROJECT:	American Cleaners
CLIENT:	New York State DEC
BORING CONTRACTOR:	Natures Way
GROUNDWATER:	Not Encountered

BORING NO:	SB-13 Geoprobe
SHEET:	1 of 1
JOB NO.:	0500035822.02
BORING LOCATION:	N: 1192405.8 E: 105720.8
GROUND ELEVATION:	869.58 ft.
DATE STARTED:	11/28/00
DATE FINISHED:	11/28/00
DRILLER:	B. Bartz
GEOLOGIST:	S. McCabe
REVIEWED BY:	

DATE	TIME	LEVEL	TYPE		CAS.	SAMPLER	CORE	TUBE
				TYPE		MacroCore		
				DIA.		2"		
				WT.		—		
				FALL		—		

* POCKET PENETROMETER READING

DEPTH FEET	SAMPLE STRATA	NO.	TYPE	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSIST HARD	MATERIAL DESCRIPTION	USCS	REMARKS PID	REMARKS Moist
						—	—	0-.2' Concrete	—		Dry
		1	Macro		50%	Yellow to Reddish Brown	NA	.2-1.0' Fill: Clayey silt, some sand 1.0-6.3': Fill: Silty sand, trace gravel and cinders	—	0	Moist
5											
6.3		2	Macro		50%					0	
						Black Light Gray	NA	6.3-11.0' Fine to medium sand, trace silt and gravel. Few clayey silt partings.	SW		
10		3	Macro		75%					0	
12.4						Reddish Brown		11.0-12.4' Fine to medium sand			
12.7		4	Macro		100%	Gray	NA	12.4-12.7' Clayey silt, some gravel	ML		
15								End of Boring at 12.7' BGS MacroCore Refusal			
20											
25											
30											
35											

Comments: Boring advanced with a truck mount Simco direct push unit utilizing a 4-foot long, 2" diameter Macro Core sampler.

PROJECT NO.	0500035822.02
BORING NO.	SB-13

URS Corporation

TEST BORING LOG

PROJECT:	American Cleaners
CLIENT:	New York State DEC
BORING CONTRACTOR:	Natures Way
GROUNDWATER:	Not Encountered

BORING NO:	SB-14 Geoprobe
SHEET:	1 of 1
JOB NO.:	0500035822.02
BORING LOCATION:	N: 1192405.84 E: 105712.29
GROUND ELEVATION:	869.50 ft.
DATE STARTED:	11/28/00
DATE FINISHED:	11/28/00
DRILLER:	B. Bartz
GEOLOGIST:	S. McCabe
REVIEWED BY:	

DATE	TIME	LEVEL	TYPE		CAS.	SAMPLER	CORE	TUBE
				TYPE		MacroCore		
				DIA.		2"		
				WT.		—		
				FALL		---		
				* POCKET PENETROMETER READING				

DEPTH FEET	SAMPLE STRATA	NO.	TYPE	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSIST HARD	MATERIAL DESCRIPTION	USCS	REMARKS PID	Moist
						—	---	0-.2' Concrete	—		Dry
		1	Macro		50%	Yellow to Reddish Brown	NA	.2-3.7' Fill: Sandy silt some gravel trace cinders 3.7-5.0' Fill: Silty sand, trace gravel and cinders	---	0	Moist
5		2	Macro		50%	Black Light Gray	NA	5.0-8.0' Fine to medium sand, trace silt and gravel. Few clayey silt partings.	SW	0	
10		3	Macro		75%	Reddish Brown		8.0-11.3' Fine to medium sand		0	
11.3											
11.7						Gray	NA	11.3-11.7' Clayey silt, some gravel	ML		
								End of Boring at 11.7' BGS MacroCore Refusal			
15											
20											
25											
30											
35											

Comments: Boring advanced with a truck mount Simco direct push unit utilizing a 4-foot long, 2" diameter Macro Core sampler.

PROJECT NO.	0500035822.02
BORING NO.	SB-14

URS Corporation

TEST BORING LOG

PROJECT:	American Cleaners
CLIENT:	New York State DEC
BORING CONTRACTOR:	Natures Way
GROUNDWATER:	Not Encountered

BORING NO:	SB-15 Geoprobe
SHEET:	1 of 1
JOB NO.:	0500035822.02
BORING LOCATION:	N: 1192411.3 E: 105687.7
GROUND ELEVATION:	869.11 ft.
DATE STARTED:	11/28/00
DATE FINISHED:	11/28/00
DRILLER:	B. Bartz
GEOLOGIST:	S. McCabe
REVIEWED BY:	

DATE	TIME	LEVEL	TYPE		CAS.	SAMPLER	CORE	TUBE
				TYPE		MacroCore		
				DIA.		2"		
				WT.		—		
				FALL		—		

* POCKET PENETROMETER READING

DEPTH FEET	SAMPLE STRATA	NO.	TYPE	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSIST HARD	MATERIAL DESCRIPTION	USCS	REMARKS PID	REMARKS Moist
						—	—	0-.2' Concrete	—		Dry
		1	Macro		50%	Reddish Brown	NA	.2-2.0' Fill: Sandy silt, trace gravel, cinders	—	0	
4								2.0-4.0' Fill: Silty sand, trace gravel,cinders			Moist
5		2	Macro		75%	Light Gray to Reddish Brown	NA	4.0-8.0' Fine to medium sand, trace silt and gravel	SW	0	
8											
		3	Macro		100%	Y. Brown	NA	8.0-8.4' Clayey silt, some gravel	ML	0	
10								End of Boring at 8.4' BGS MacroCore Refusal			
15											
20											
25											
30											
35											

Comments: Boring advanced with a truck mount Simco direct push unit utilizing a 4-foot long, 2" diameter Macro Core sampler.

PROJECT NO.	0500035822.02
BORING NO.	SB-15

URS Corporation

TEST BORING LOG

PROJECT:	American Cleaners
CLIENT:	New York State DEC
BORING CONTRACTOR:	Natures Way
GROUNDWATER:	Not Encountered

	CAS.	SAMPLER	CORE	TUBE
TYPE		MacroCore		
DIA.		2"		
WT.		—		
FALL		—		

DATE	TIME	LEVEL	TYPE

* POCKET PENETROMETER READING

BORING NO:	SB-16 Geoprobe
SHEET:	1 of 1
JOB NO.:	0500035822.02
BORING LOCATION:	N. 1192444.4 E: 105657.9
GROUND ELEVATION:	867.99 ft
DATE STARTED:	11/28/00
DATE FINISHED:	11/28/00
DRILLER:	B. Bartz
GEOLOGIST:	S. McCabe
REVIEWED BY:	

DEPTH FEET	SAMPLE STRATA	NO.	TYPE	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSIST HARD	MATERIAL DESCRIPTION	USCS	REMARKS PID	REMARKS Moist
						--	—	0-.2' Concrete	—		
2		1	Macro		50%	R. Brown	NA	.2-2.0' Fill: Silty sand, some cinders	--	0	Dry
						Yellow Brown	NA	2.0-6.0' Clayey silt, some gravel trace sand	ML		Moist
5		2	Macro		75%					0	
6								End of Boring at 6.0' BGS MacroCore Refusal			
10											
15											
20											
25											
30											
35											

Comments: Boring advanced with a truck mount Simco direct push unit utilizing a 4-foot long, 2" diameter Macro Core sampler.

PROJECT NO.	0500035822.02
BORING NO.	SB-16

URS Corporation

TEST BORING LOG

PROJECT:	American Cleaners
CLIENT:	New York State DEC
BORING CONTRACTOR:	Natures Way
GROUNDWATER:	Not Encountered

					CAS.	SAMPLER	CORE	TUBE
DATE	TIME	LEVEL	TYPE	TYPE		Splitspoon		
				DIA.		2"		
				WT.		—		
				FALL		—		

* POCKET PENETROMETER READING

BORING NO:	SB-17 Jackhammer
SHEET:	1 of 1
JOB NO.:	0500035822.02
BORING LOCATION:	N: 1192428.5 E: 105676.1
GROUND ELEVATION:	860.45 ft.
DATE STARTED:	11/28/00
DATE FINISHED:	11/28/00
DRILLER:	B. Bartz
GEOLOGIST:	S. McCabe
REVIEWED BY:	

DEPTH FEET	SAMPLE STRATA	NO.	TYPE	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSIST HARD	MATERIAL DESCRIPTION	USCS	REMARKS PID	REMARKS Moist
0.2						—	—	0-.2' Concrete	—		Dry
						R Brown	NA	.2-.5' Silt and sand, some gravel	SM	180	
0.5						Yellow Brown	NA	.5-2.0' Clayey silt, some angular gravel	ML		
1		1	SS		100%					10	
2								End of Boring at 2.0' BGS Split-spoon refusal.			
3											
4											
5											
6											
7											

Comments: Boring advanced with a jackhammer utilizing a 2-foot long,2" diameter split-spoon.

PROJECT NO.	0500035822.02
BORING NO.	SB-17

URS Corporation

TEST BORING LOG

PROJECT:	American Cleaners
CLIENT:	New York State DEC
BORING CONTRACTOR:	Natures Way
GROUNDWATER:	Not Encountered

BORING NO:	SB-18 Jackhammer
SHEET:	1 of 1
JOB NO.:	0500035822.02
BORING LOCATION:	N: 1192421.5 E: 105679.2
GROUND ELEVATION:	860.53 ft.
DATE STARTED:	11/29/00
DATE FINISHED:	11/29/00
DRILLER:	B. Bartz
GEOLOGIST:	S. McCabe
REVIEWED BY:	

DATE	TIME	LEVEL	TYPE		CAS.	SAMPLER	CORE	TUBE
				TYPE		Splitspoon		
				DIA.		2"		
				WT.		---		
				FALL		—		

* POCKET PENETROMETER READING

DEPTH FEET	SAMPLE STRATA	NO.	TYPE	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSIST HARD	MATERIAL DESCRIPTION	USCS	REMARKS PID	REMARKS Moist
0.2						—	---	0-.2' Concrete	—		
0.50						R. Brown	NA	.2-.5' Silt and sand, some gravel	SM	20	Dry
1		1	SS		100%	Yellow Brown	NA	.5-1.5' Clayey silt, some angular gravel	ML	5	
1.5								End of Boring at 1.5' BGS Split-spoon refusal.			
2											
3											
4											
5											
6											
7											

Comments: Boring advanced with a jackhammer utilizing a 2-foot long,2" diameter split-spoon. Install piezometer (PZ-5) in boring to 1.5 feet bgs.

PROJECT NO.	0500035822.02
BORING NO.	SB-18

URS Corporation

TEST BORING LOG

PROJECT:	American Cleaners
CLIENT:	New York State DEC
BORING CONTRACTOR:	Natures Way
GROUNDWATER:	Not Encountered

BORING NO:	SB-19 Jackhammer
SHEET:	1 of 1
JOB NO.:	0500035822.02
BORING LOCATION:	N: 1192428.3 E: 105656.9
GROUND ELEVATION:	860.46 ft.
DATE STARTED:	11/29/00
DATE FINISHED:	11/29/00
DRILLER:	B. Bartz
GEOLOGIST:	S. McCabe
REVIEWED BY:	

DATE	TIME	LEVEL	TYPE		CAS.	SAMPLER	CORE	TUBE
				TYPE		Splitspoon		
				DIA.		2"		
				WT.		—		
				FALL		—		

* POCKET PENETROMETER READING

DEPTH FEET	SAMPLE STRATA	NO.	TYPE	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSIST HARD	MATERIAL DESCRIPTION	USCS	REMARKS PID	REMARKS Moist
0.20		1	SS		100%	—	—	0-.2' Concrete	—		
						R. Brown	NA	.2-.5' Silt and sand, some gravel	SM	65	Dry
0.50						Yellow Brown	NA	.5-2.0' Clayey silt, some angular gravel	ML	2	
1											
1.70								End of Boring at 1.7' BGS Split-spoon refusal.			
2											
3											
4											
5											
6											
7											

Comments: Boring advanced with a jackhammer utilizing a 2-foot long,2" diameter split-spoon.

PROJECT NO.	0500035822.02
BORING NO.	SB-19

URS Corporation

TEST BORING LOG

PROJECT:	American Cleaners
CLIENT:	New York State DEC
BORING CONTRACTOR:	Natures Way
BORING NO:	SB-21 Jackhammer
SHEET:	1 of 1
JOB NO.:	0500035822.02
BORING LOCATION:	N: 1192442.1 E: 1056745
GROUND ELEVATION:	860.47 ft.
DATE STARTED:	11/29/00
DATE FINISHED:	11/29/00
DRILLER:	B. Bartz
GEOLOGIST:	S. McCabe
REVIEWED BY:	

GROUNDWATER: Not Encountered

DATE	TIME	LEVEL	TYPE

	CAS.	SAMPLER	CORE	TUBE
TYPE		Splitspoon		
DIA.		2"		
WT.		—		
FALL		--		

* POCKET PENETROMETER READING

DEPTH FEET	SAMPLE STRATA	NO.	TYPE	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSIST HARD	MATERIAL DESCRIPTION	USCS	REMARKS PID	REMARKS Moist
0.2		1	SS		100%	--	--	0-.2' Concrete	—		
						R. Brown	NA	.2-.5' Silt and sand, some gravel	SM	20	Dry
0.5						Yellow Brown	NA	.5-2.0' Clayey silt, some angular gravel	ML		
1										1	
1.8											
2								End of Boring at 1.8' BGS Split-spoon refusal.			
3											
4											
5											
6											
7											

Comments: Boring advanced with a jackhammer utilizing a 2-foot long,2" diameter split-spoon.

PROJECT NO.	0500035822.02
BORING NO.	SB-21

URS Corporation

TEST BORING LOG

PROJECT:	American Cleaners
CLIENT:	New York State DEC
BORING CONTRACTOR:	Natures Way
BORING NO:	SB-22 Jackhammer
SHEET:	1 of 1
JOB NO.:	0500035822.02
BORING LOCATION:	N: 1192451.8 E: 105688.7
GROUND ELEVATION:	863.30
DATE STARTED:	11/29/00
DATE FINISHED:	11/29/00
DRILLER:	B. Bartz
GEOLOGIST:	S. McCabe
REVIEWED BY:	

GROUNDWATER: Not Encountered

DATE	TIME	LEVEL	TYPE		CAS.	SAMPLER	CORE	TUBE
				TYPE		Splitspoon		
				DIA.		2"		
				WT.		---		
				FALL		---		

* POCKET PENETROMETER READING

DEPTH FEET	SAMPLE STRATA	NO.	TYPE	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSIST HARD	MATERIAL DESCRIPTION	USCS	REMARKS PID	REMARKS Moist
0.2						---	---	0-.2' Concrete	---		
						Yellow Brown	NA	.2-2.0' Clayey silt, some angular gravel	ML	17	Dry
1		1	SS		100%					0	
2											
								End of Boring at 2.0' BGS			
								Split-spoon refusal.			
3											
4											
5											
6											
7											

Comments: Boring advanced with a jackhammer utilizing a 2-foot long,2" diameter split-spoon.

PROJECT NO.	0500035822.02
BORING NO.	SB-22

URS Corporation

TEST BORING LOG

PROJECT:	American Cleaners
CLIENT:	New York State DEC
BORING CONTRACTOR:	Natures Way
GROUNDWATER:	Not Encountered

BORING NO:	SB-23 Jackhammer
SHEET:	1 of 1
JOB NO.:	0500035822.02
BORING LOCATION:	N: 1192449.8 E: 805696.3
GROUND ELEVATION:	863.09 ft.
DATE STARTED:	11/28/00
DATE FINISHED:	11/28/00
DRILLER:	B. Bartz
GEOLOGIST:	S. McCabe
REVIEWED BY:	

DATE	TIME	LEVEL	TYPE		CAS.	SAMPLER	CORE	TUBE
				TYPE		Splitspoon		
				DIA.		2"		
				WT.		—		
				FALL		—		
				* POCKET PENETROMETER READING				

DEPTH FEET	SAMPLE STRATA	NO.	TYPE	BLOWS PER 6"	REC% ROD%	DESCRIPTION COLOR	CONSIST HARD	MATERIAL DESCRIPTION	USCS	REMARKS PID	REMARKS Moist
0.2						—	—	0-.2' Concrete	—		Dry
						R. Brown	NA	.2-.5' Silt and sand, some gravel	SM	30	
0.5						Yellow Brown	NA	.5-2.0' Clayey silt, some angular gravel	ML	0	
1		1	SS		100%						
2								End of Boring at 2.0' BGS Split-spoon refusal.			
3											
4											
5											
6											
7											

Comments: Boring advanced with a jackhammer utilizing a 2-foot long,2" diameter split-spoon.

PROJECT NO.	0500035822.02
BORING NO.	SB-23

URS Corporation

TEST BORING LOG

PROJECT:	American Cleaners
CLIENT:	New York State DEC
BORING CONTRACTOR:	Natures Way
BORING NO:	SB-26 Jackhammer
SHEET:	1 of 1
JOB NO.:	0500035822.02
BORING LOCATION:	N: 1192436.2 E: 105679.9
GROUND ELEVATION:	860.48 ft.
DATE STARTED:	11/29/00
DATE FINISHED:	11/29/00
DRILLER:	B. Bartz
GEOLOGIST:	S. McCabe
REVIEWED BY:	

GROUNDWATER: Not Encountered

DATE	TIME	LEVEL	TYPE		GAS	SAMPLER	COR	TUBE
				TYPE		Splitspoon		
				DIA.		2"		
				WT.		—		
				FALL		—		

* POCKET PENETROMETER READING

DEPTH FEET	SAMPLE STRATA	NO.	TYPE	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSIST HARD	MATERIAL DESCRIPTION	USCS	REMARKS PID	REMARKS Moist
0.2						—	—	0-.2' Concrete	—		Dry
						R. Brown	NA	.2-.5' Silt and sand, some gravel	SM	35	
0.5											
1		1	SS		100%	Yellow Brown	NA	.5-1.5' Clayey silt, some angular gravel	ML	4	
1.5								End of Boring at 1.5' BGS Split-spoon refusal.			
2											
3											
4											
5											
6											
7											

Comments: Boring advanced with a jackhammer utilizing a 2-foot long,2" diameter split-spoon. Install piezometer (PZ-4) in boring to 1.5 feet bgs.

PROJECT NO.	0500035822.02
BORING NO.	SB-26

URS Corporation

TEST BORING LOG

PROJECT:	American Cleaners
CLIENT:	New York State DEC
BORING CONTRACTOR:	Natures Way
GROUNDWATER:	Not Encountered

BORING NO:	SB-27 Jackhammer
SHEET:	1 of 1
JOB NO.:	0500035822.02
BORING LOCATION:	N: 1192435.5 E: 105694.9
GROUND ELEVATION:	860.55 ft.
DATE STARTED:	11/29/00
DATE FINISHED:	11/29/00
DRILLER:	B. Bartz
GEOLOGIST:	S. McCabe
REVIEWED BY:	

	CAS.	SAMPLER	CORE	TUBE
TYPE		Splitspoon		
DIA.		2"		
WT.		---		
FALL		—		

DATE	TIME	LEVEL	TYPE

* POCKET PENETROMETER READING

DEPTH FEET	SAMPLE STRATA	NO.	TYPE	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSIST HARD	MATERIAL DESCRIPTION	USCS	REMARKS PID	REMARKS Moist
0.2						—	—	0-.2' Concrete	—		Dry
0.4						R. Brown	NA	.2-.4' Silt and sand, some gravel	SM		
						Yellow Brown	NA	.4-2.0' Clayey silt, some angular gravel	ML	.16	
1		1	SS		100%					1	
2								End of Boring at 2.0' BGS Split-spoon refusal.			
3											
4											
5											
6											
7											

Comments: Boring advanced with a jackhammer utilizing a 2-foot long,2" diameter split-spoon.

PROJECT NO.	0500035822.02
BORING NO.	SB-27

URS Corporation

TEST BORING LOG

PROJECT:	American Cleaners
CLIENT:	New York State DEC
BORING CONTRACTOR:	Natures Way
GROUNDWATER:	Not Encountered

BORING NO:	SB-28 Jackhammer
SHEET:	1 of 1
JOB NO.:	05D0035822.02
BORING LOCATION:	N: 1192416.8 E: 105717.7
GROUND ELEVATION:	860.02 ft.
DATE STARTED:	11/29/00
DATE FINISHED:	11/29/00
DRILLER:	B. Bartz
GEOLOGIST:	S. McCabe
REVIEWED BY:	

DATE	TIME	LEVEL	TYPE		CAS.	SAMPLER	CORE	TUBE
				TYPE		Splitspoon		
				DIA.		2"		
				WT.		—		
				FALL		—		

* POCKET PENETROMETER READING

DEPTH FEET	SAMPLE STRATA	NO.	TYPE	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSIST HARD	MATERIAL DESCRIPTION	USCS	REMARKS PID	REMARKS Moist
0.2						—	---	0-.2' Concrete	---		
0.4						R. Brown	NA	.2-.4' Silt and sand, some gravel	SM		
						Reddish Brown	NA	.4-1.9' Fine to medium sand,trace silt	SW	20	Dry
1		1	SS		100%						
1.9										4	
2								End of Boring at 1.9' BGS Split-spoon refusal.			
3											
4											
5											
6											
7											

Comments: Boring advanced with a jackhammer utilizing a 2-foot long,2" diameter split-spoon.

PROJECT NO.	05D0035822.02
BORING NO.	SB-28

URS Corporation

TEST BORING LOG

PROJECT:	American Cleaners
CLIENT:	New York State DEC
BORING CONTRACTOR:	Natures Way
GROUNDWATER:	Not Encountered

BORING NO:	SB-29 Jackhammer
SHEET:	1 of 1
JOB NO.:	0500035822.02
BORING LOCATION:	N: 1192414.8 E: 105722.8
GROUND ELEVATION:	860.28 ft.
DATE STARTED:	11/29/00
DATE FINISHED:	11/29/00
DRILLER:	B. Bartz
GEOLOGIST:	S. McCabe
REVIEWED BY:	

DATE	TIME	LEVEL	TYPE

	CAS.	SAMPLER	CORE	TUBE
TYPE		Splitspoon		
DIA.		2"		
WT.		—		
FALL		---		

* POCKET PENETROMETER READING

DEPTH FEET	SAMPLE STRATA	NO.	TYPE	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSIST HARD	MATERIAL DESCRIPTION	USCS	REMARKS PID	REMARKS Moist
0.2						---	—	0-.2' Concrete	---		Dry
						Reddish Brown	NA	.2-.4' Silt and sand, some gravel .4-2.7' Fine to medium sand, trace silt	SM/ML SW	5	
1		1	SS		100%						Moist
2										2	
		2	SS		100%					1	
2.7											
3						Y. Brown	NA	2.7-3.0' Clayey silt,some angular gravel	ML		
								End of Boring at 3.0' BGS Split-spoon refusal.			
4											
5											
6											
7											

Comments: Boring advanced with a jackhammer utilizing a 2-foot long,2" diameter split-spoon. Strong solvent odor.

PROJECT NO.	0500035822.02
BORING NO.	SB-29

URS Corporation

TEST BORING LOG

PROJECT:	American Cleaners
CLIENT:	New York State DEC
BORING CONTRACTOR:	Natures Way
GROUNDWATER:	Not Encountered

BORING NO:	SB-32 Jackhammer
SHEET:	1 of 1
JOB NO.:	0500035822.02
BORING LOCATION:	N: 1192416.5 E: 105713.0
GROUND ELEVATION:	860.23 ft.
DATE STARTED:	11/29/00
DATE FINISHED:	11/29/00
DRILLER:	B. Bartz
GEOLOGIST:	S. McCabe
REVIEWED BY:	

DATE	TIME	LEVEL	TYPE

	CAS.	SAMPLER	CORE	TUBE
TYPE		Splitspoon		
DIA.		2"		
WT.		—		
FALL		—		

* POCKET PENETROMETER READING

DEPTH FEET	SAMPLE STRATA	NO.	TYPE	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSIST HARD	MATERIAL DESCRIPTION	USCS	REMARKS PID	REMARKS Moist
0.2						---	—	0-.2' Concrete	---		
						Reddish Brown	NA	.2-.7' Silt and sand, some gravel	SM	6	Dry
1		1	SS		100%			.7-2.6' Fine to medium sand, trace silt	SW		Moist
										2	
2											Very Moist
2.6										2	
3		2	SS		100%	Yellow Brown	NA	2.6-4.0' Clayey silt, some angular gravel	ML		Dry
										2	
4								End of Boring at 4.0' BGS Split-spoon refusal.			
5											
6											
7											

Comments: Boring advanced with a jackhammer utilizing a 2-foot long,2" diameter split-spoon. Install piezometer (PZ-1) in boring to 4.0 feet bgs.

PROJECT NO.	0500035822.02
BORING NO.	SB-32

URS Corporation

TEST BORING LOG

PROJECT:	American Cleaners
CLIENT:	New York State DEC
BORING CONTRACTOR:	Natures Way
GROUNDWATER:	Not Encountered

BORING NO:	SB-34 Jackhammer
SHEET:	1 of 1
JOB NO.:	0500035822.02
BORING LOCATION:	N: 119241 8.1 E: 1057 03.2
GROUND ELEVATION:	860.46 ft.
DATE STARTED:	11/29/00
DATE FINISHED:	11/29/00
DRILLER:	B. Bartz
GEOLOGIST:	S. McCabe
REVIEWED BY:	

DATE	TIME	LEVEL	TYPE		CAS.	SAMPLER	CORE	TUBE
				TYPE		Splitspoon		
				DIA.		2"		
				WT.		—		
				FALL		—		

* POCKET PENETROMETER READING

DEPTH FEET	SAMPLE STRATA	NO.	TYPE	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSIST HARD	MATERIAL DESCRIPTION	USCS	REMARKS PID	REMARKS Moist
0.2						—	—	0-.2' Concrete	—		Dry
						Reddish Brown	NA	.2-.5' Silt and sand, some gravel	SM		
								.5-1.7' Fine to medium sand, trace silt	SW	45	
1		1	SS		100%						
										6	
1.7						Yellow Brown	NA	1.7-2.0' Clayey silt, some angular gravel	ML		
2											
								End of Boring at 2.0' BGS			
								Split-spoon refusal.			
3											
4											
5											
6											
7											

Comments: Boring advanced with a jackhammer utilizing a 2-foot long,2" diameter split-spoon.

PROJECT NO.	0500035822.02
BORING NO.	SB-34

URS Corporation

TEST BORING LOG

PROJECT:	American Cleaners
CLIENT:	New York State DEC
BORING CONTRACTOR:	Natures Way
GROUNDWATER:	Not Encountered

BORING NO:	SB-36 Jackhammer
SHEET:	1 of 1
JOB NO.:	0500035822.02
BORING LOCATION:	N: 1192424.4 E: 105718.4
GROUND ELEVATION:	860.41 ft.
DATE STARTED:	11/29/00
DATE FINISHED:	11/29/00
DRILLER:	B. Bartz
GEOLOGIST:	S. McCabe
REVIEWED BY:	

DATE	TIME	LEVEL	TYPE

	CAS.	SAMPLER	CORE	TUBE
TYPE		Splitspoon		
DIA.		2"		
WT.		---		
FALL		—		

* POCKET PENETROMETER READING

DEPTH FEET	SAMPLE STRATA	NO.	TYPE	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSIST HARD	MATERIAL DESCRIPTION	USCS	REMARKS PID	REMARKS Moist
0.2						—	---	0-.2' Concrete	—		
						Reddish Brown	NA	.2-.5' Silt and sand, some gravel	SM/ML	5	Dry
								.5-2.6' Fine to medium sand, trace silt	SW		
1		1	SS		100%						Moist
										1	
2											
2.6		2	SS		100%					1	
						Yellow Brown	NA	2.6-3.0' Clayey silt,some angular gravel	ML		
3											
								End of Boring at 3.0' BGS			
4								Split-spoon refusal.			
5											
6											
7											

Comments: Boring advanced with a jackhammer utilizing a 2-foot long,2" diameter split-spoon. Strong solvent odor.

PROJECT NO.	0500035822.02
BORING NO.	SB-36

URS Corporation

TEST BORING LOG

PROJECT:	American Cleaners
CLIENT:	New York State DEC
BORING CONTRACTOR:	Natures Way
GROUNDWATER:	Not Encountered

BORING NO:	SB-37 Jackhammer
SHEET:	1 of 1
JOB NO.:	0500035822.02
BORING LOCATION:	N: 1192427.9 E: 1D5725.1
GROUND ELEVATION:	860.42 ft.
DATE STARTED:	11/29/00
DATE FINISHED:	11/29/00
DRILLER:	B. Bartz
GEOLOGIST:	S. McCabe
REVIEWED BY:	

DATE	TIME	LEVEL	TYPE	CAS.	SAMPLER	CORE	TUBE
			TYPE		Splitspoon		
			DIA.		2"		
			WT.		—		
			FALL		—		

* POCKET PENETROMETER READING

DEPTH FEET	SAMPLE STRATA	NO.	TYPE	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSIST HARD	MATERIAL DESCRIPTION	USCS	REMARKS PID	REMARKS Moist
0.2						—	—	0-.2' Concrete	—		
						R. Brown	NA	.2-.4' Silt and sand, some gravel	SM/ML	5	Dry
						Grey		.4-2.8' Fine to medium sand, trace silt	SW		
1		1	SS		100%						Moist
										1	
2						Reddish Brown					
		2	SS		100%					1	Very Moist
2.8											Dry
3						Grey	NA	2.8-3.0' Clayey silt,some angular gravel	ML		
								End of Boring at 3.0' BGS			
4								Split-spoon refusal.			
5											
6											
7											

Comments: Boring advanced with a jackhammer utilizing a 2-foot long,2" diameter split-spoon. Install piezometer (PZ-2) in boring to 3.0 feet bgs.

PROJECT NO.	0500035822.02
BORING NO.	SB-37

URS Corporation

TEST BORING LOG

PROJECT:	American Cleaners
CLIENT:	NYSDEC
BORING CONTRACTOR:	Buffalo Drilling Co.
GROUNDWATER:	At 22.0' after 1/2 hour.

BORING NO:	MW-4
SHEET:	1 of 1
JOB NO.:	0500035822.02
BORING LOCATION:	N: 1192445.3 E: 1056605
GROUND ELEVATION:	868.07 ft.
DATE STARTED:	02/01/01
DATE FINISHED:	02/01/01
DRILLER:	Ted Bistoff
GEOLOGIST:	Scott McCabe
REVIEWED BY:	

DATE	TIME	LEVEL	TYPE		CAS.	SAMPLER	CORE	TUBE
				TYPE		Split spoon		
02/01/2001	14:00	22'	bgs	DIA.		2"		
				WT.		140#		
				FALL		30"		
				* POCKET PENETROMETER READING				

DEPTH FEET	STRATA	SAMPLE NO.	SAMPLE TYPE	BLOWS PER 6"		REC% ROD%	DESCRIPTION COLOR	CONSIST HARD	MATERIAL DESCRIPTION	USCS	REMARKS PID	REMARKS Moist
0.5		1	ss	-	4	100%	—	—	0-.5 Concrete	—	0	moist
1.5				6	4		R. Brown	Loose	.5-1.5 Fill: Clayey silt, some concrete	—		
		2	ss	3	4	50%	Reddish Brown	Loose	Silty fine sand, some gravel	SM	0	
4				4	12							
5		3	ss	15	26	100%	Yellow Brown	Very Dense	Silt, some sand and gravel, trace clay and cobbles	SM	D	dry
				30	50/4							
		4	ss	18	30	50%					D	
				40	46							
		5	ss	60	50/1	100%					0	
10				-	-							
		6	ss	48	50/0	100%					0	
				-	-							
		7	ss	20	50/3	100%					0	
				-	-							
15		8	ss	50/4	-	100%					0	
				-	-		Gray					
		9	ss	50/4	-	100%					0	
				-	-							
		10	ss	50/2	-	100%					0	
20				-	-							
		11	ss	50/3	-	100%					0	
				-	-							
		12	ss	50/3	-	100%					0	
				-	-							
25		13	ss	50/5	-	100%	Gray	Hard	Clayey silt, some shale fragments	ML	0	
				-	-							
		14	ss	50/5	-	100%					0	
				-	-							
		15	ss	50/5	-	100%					0	
30				-	-							
									Boring completed at 30.0' bgs.			
35												

Comments:	Boring advanced with CME-75 on ATV-rig using 4 1/4" ID HSA to 30.0'
PROJECT NO.	0500035822.02
BORING NO.	MW-4

URS Corporation

TEST BORING LOG

PROJECT:	American Cleaners
CLIENT:	NYSDEC
BORING CONTRACTOR:	Buffalo Drilling Co.
GROUNDWATER:	At 22.0'

DATE	TIME	LEVEL	TYPE
01/30/2001	15:00	22'	bgs

	CAS.	SAMPLER	CORE	TUBE
TYPE		Split spoon		
DIA.		2"		
WT.		140#		
FALL		30"		

* POCKET PENETROMETER READING

BORING NO:	MW-5
SHEET:	1 of 1
JOB NO.:	0500035822.02
BORING LOCATION:	N: 1192402.7 E: 105751.9
GROUND ELEVATION:	870.09 ft.
DATE STARTED:	01/31/01
DATE FINISHED:	01/31/01
DRILLER:	Ted Bistoff
GEOLOGIST:	Scott McCabe
REVIEWED BY:	

DEPTH FEET	SAMPLE STRATA	NO.	TYPE	BLOWS PER 6"		REC% ROD%	DESCRIPTION COLOR	CONSIST HARD	MATERIAL DESCRIPTION	USCS	REMARKS PID	REMARKS Moist
0.3		1	ss	-	5	50%	—	---	0-4" Concrete	—	0	moist
				8	8		Reddish Brown	Loose	Fill: Silty fine sand, some gravel, trace blacktop	---		
		2	ss	5	6	50%					D	
4				8	6							
5		3	ss	8	11	100%	Reddish Brown	Medium Dense	Silty fine sand, some gravel	SM	0	
				6	6							
		4	ss	6	8	75%					0	
				7	9							
		5	ss	8	10	75%	Gray				0	
10				10	11							
		6	ss	7	8	50%	Gray	Medium Dense	Fine to medium sand	SW	0	
				7	7							
		7	ss	5	5	75%	Brown				0	very moist
				5	5							
15		8	ss	3	7	50%					0	
				17	14		Gray	Very Stiff	Clayey silt, some shale fragments	ML		dry
		9	ss	15	20	75%					0	
				18	20							
		10	ss	50/5	-	100%		Hard			0	
20				-	-							
		11	ss	10	50/4	100%					0	wet
				-	-							
		12	ss	27	48	100%					0	
				55	50/5							
25		13	ss	50/4	-	100%					0	
				-	-							
		14	ss	29	50/4	100%					0	
				-	-							
		15	ss	50/3	-	100%					0	
30				-	-							
									Boring completed at 30.0' bgs.			
35												

Comments: Boring advanced with CME-75 on ATV-rig using 4 1/4 " ID HSA to to 30.0'

PROJECT NO.	0500035822.02
BORING NO.	MW-5

URS Corporation

TEST BORING LOG

PROJECT:	American Cleaners
CLIENT:	New York State DEC
BORING CONTRACTOR:	Natures Way
GROUNDWATER:	Not Encountered

BORING NO:	SB-1 Jackhammer
SHEET:	1 of 1
JOB NO.:	0500035822.02
BORING LOCATION:	N: 1192425.1 E: 105692.9
GROUND ELEVATION:	860.51 ft.
DATE STARTED:	11/28/00
DATE FINISHED:	11/28/00
DRILLER:	B. Bartz
GEOLOGIST:	S. McCabe
REVIEWED BY:	

DATE	TIME	LEVEL	TYPE		CAS.	SAMPLER	CORE	TUBE
				TYPE		Splitspoon		
				DIA.		2"		
				WT.		---		
				FALL		---		

* POCKET PENETROMETER READING

DEPTH FEET	SAMPLE STRATA	NO.	TYPE	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSIST HARD	MATERIAL DESCRIPTION	USCS	REMARKS PID	REMARKS Moist
0.2						---	---	0-.2" Concrete	---		
						Reddish Brown	NA	.2-.5' Silt and sand, some gravel	SM	450	Dry
0.5											
						Yellow Brown	NA	.5-2.0' Clayey silt, some angular gravel	ML		
1		1	SS		100%					450	
2								End of Boring at 2.0' BGS Split-spoon refusal.			
3											
4											
5											
6											
7											

Comments: Boring advanced with a jackhammer utilizing a 2-foot long,2" diameter split-spoon. Strong solvent odor. Install piezometer (PZ-3) in boring to 2.0 feet bgs.

PROJECT NO.	0500035822.02
BORING NO.	SB-1

URS Corporation

TEST BORING LOG

PROJECT:	American Cleaners
CLIENT:	New York State DEC
BORING CONTRACTOR:	Natures Way
GROUNDWATER:	Not Encountered

	CAS.	SAMPLER	CORE	TUBE
TYPE		Splitspoon		
DIA.		2"		
WT.		—		
FALL		—		

* POCKET PENETROMETER READING

DATE	TIME	LEVEL	TYPE

BORING NO:	SB-3 Jackhammer
SHEET:	1 of 1
JOB NO.:	0500035822.02
BORING LOCATION:	N: 1192427.4 E: 105683.0
GROUND ELEVATION:	860.50 ft.
DATE STARTED:	11/28/00
DATE FINISHED:	11/28/00
DRILLER:	B. Bartz
GEOLOGIST:	S. McCabe
REVIEWED BY:	

DEPTH FEET	SAMPLE STRATA	NO.	TYPE	BLOWS PER 6"	REC% RQD%	DESCRIPTION COLOR	CONSIST HARD	MATERIAL DESCRIPTION	USCS	REMARKS PID	REMARKS Moist
0.2						---	---	0-.2' Concrete	---		Dry
						Reddish Brown	NA	.2-.5' Silt and sand, some gravel	SM	15	
0.5											
						Yellow Brown	NA	.5-2.0' Clayey silt, some angular gravel	ML		
1		1	SS		100%					400	
2											
		2	SS		100%					400	
3											
								End of Boring at 3.0' BGS Split-spoon refusal.			
4											
5											
6											
7											

Comments: Boring advanced with a jackhammer utilizing a 2-foot long,2" diameter split-spoon. Strong solvent odor.

PROJECT NO.	0500035822.02
BORING NO.	SB-3

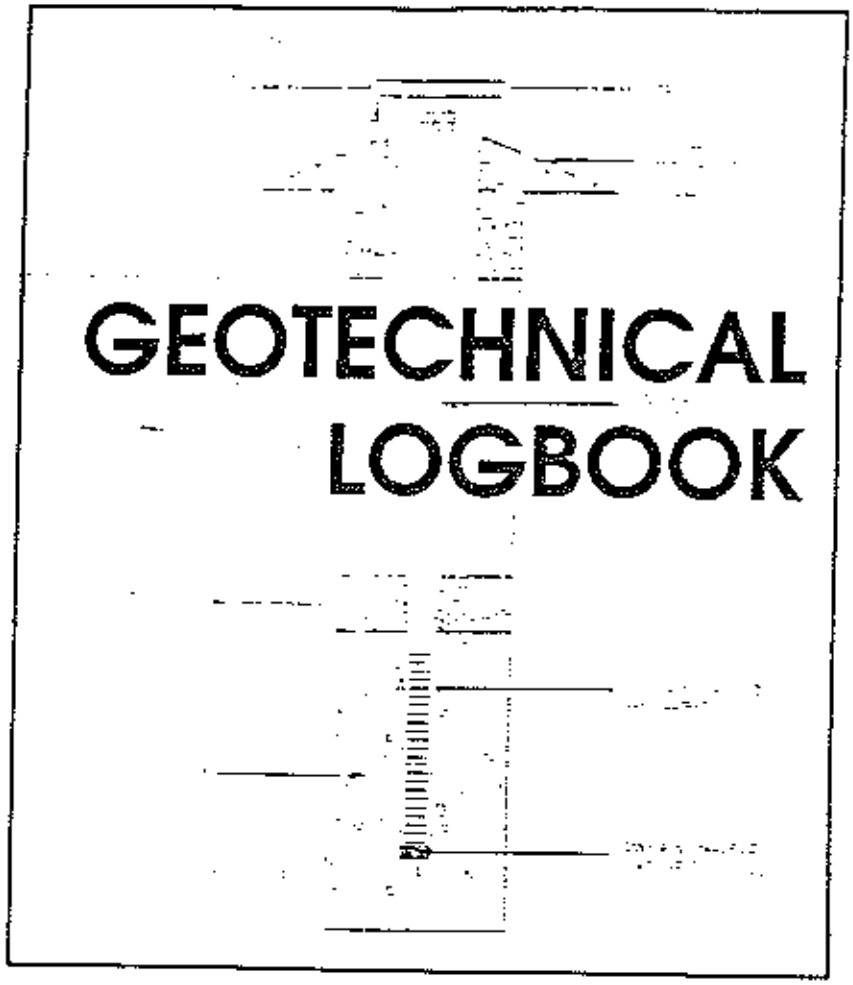
APPENDIX B

MONITORING WELL / PIEZOMETER CONSTRUCTION LOGS

ecology and environment, inc.

International Specialists in the Environment

GEOTECHNICAL LOGBOOK



PROJECT NUMBER: KI2020

CLIENT/SITE NAME: American Cleaners/NYSDEC

DRILLING COMPANY: American Auger

DATE OF FIELD ACTIVITIES: 2/23/98

HOLES LOGGED IN BOOK: MW1, 2+3, P1, 2, 3+4

Borehole Record for MW-1

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

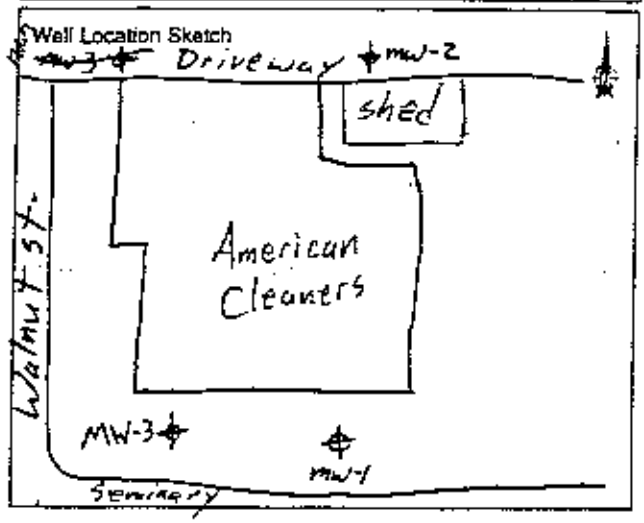
DRILLING LOG FOR MW-1

Project Name: American Cleaners
Site Location: Binghamton, New York

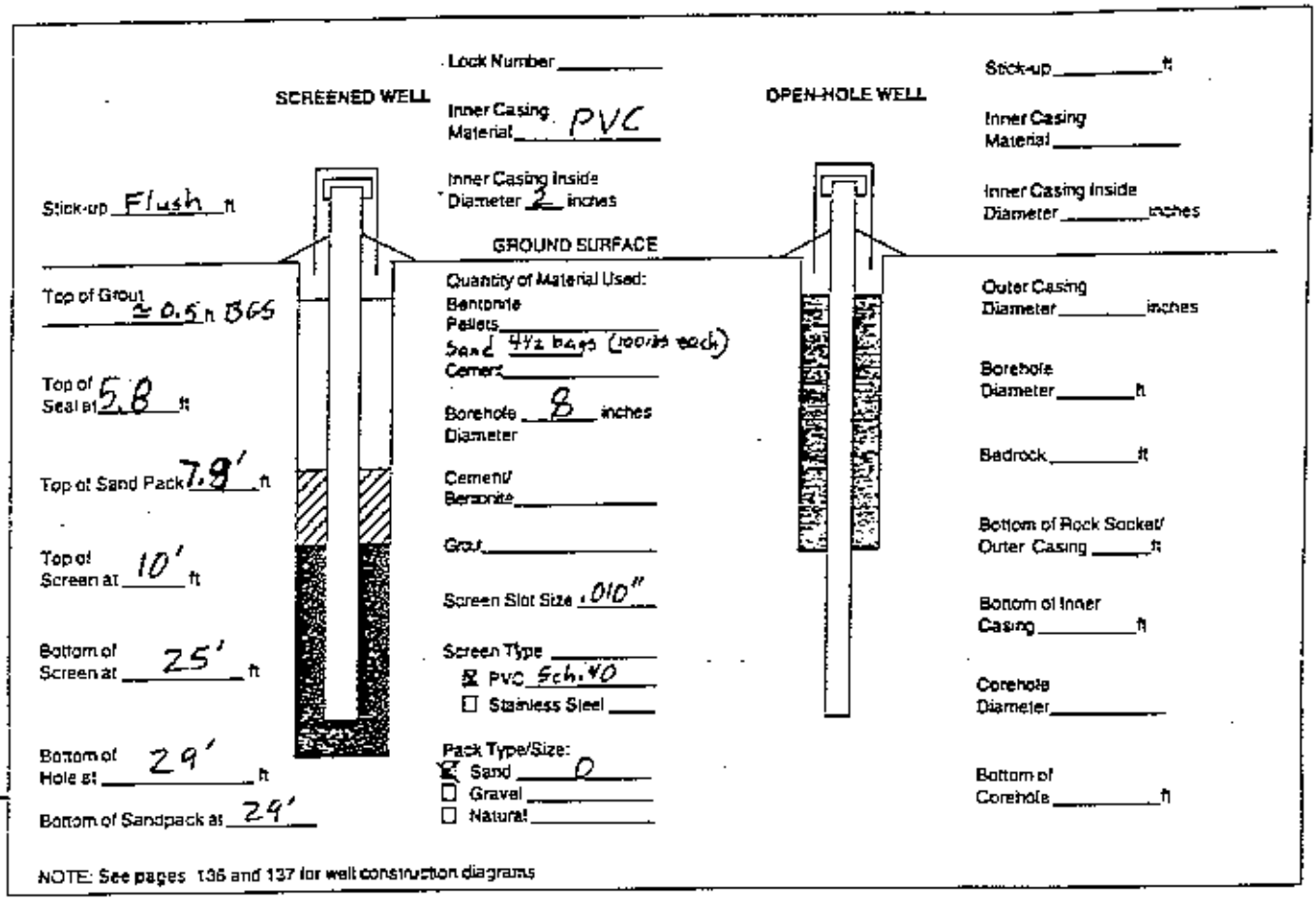
Date Started/Finished: 2-25-98 / 2-26-98
Drilling Company: Maxim Technologies
Driller's Name: Ed Cole
Geologist's Name: Robert Meyers
Geologist's Signature: Robert A Meyers
Rig Type (s): CME-55
Drilling Method (s): Hollow stem Auger (HSA)
Bit Size (s): _____ Auger Size (s): 4¼" ID
Auger/Split Spoon Refusal: NA / 23.3
Total Depth of Borehole Is: 24' BGS
Total Depth of Corehole is: _____

Water Level (TOIC)		
Date	Time	Level (Feet)
2-26-98	1625	16.14' TOIC
2-27-98	1120	15.86 TOIC

Well Location Sketch



Depth (Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1	1	/ 4				0.4'			0ppm	Auger 0' to 0.5' 2"SS
2		4 5								
3	2	6 4				0.1'			0ppm	2'SS
4		8 6								
5	3	4 2				0.6'			0ppm	3'SS 0ppm in the hole
6		12 11								
7	4	6 6				0.5'			0ppm	3"SS Water @ 6' BGS
8		8 9								
9	5	4 15				1.6'			0ppm	3"SS Collect Grainsize sample
10		8 9								
11	6	5 5				1.8'			0ppm	3"SS 0ppm in hole
12		10 21								
13	7	19 16				1.9'			0.4ppm	3'SS Collect Grainsize Sample
14		25 35								
15	8	14 20				1.8'			0ppm	3"SS
		25 28								



NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1	0' to 0.4' = Concrete, 0.4' to 0.8' Clayey brown silt with little asphalt and gravel	⊗	○	○
2	2' to 2.1' Clayey brown silt, little rounded to angular gravel and trace asphalt. 0'-4' Augered up VF sand and silt with little Rounded Gravel	○	⊗	○
3		○	⊗	○
4	4' to 6', Med. brown Silt and VF Sand with Some Rounded	○	⊗	○
5	Gravel and few Rounded Cobbles.	○	⊗	○
6	6' to 8' Same as above	○	○	⊗
7		○	○	⊗
8		○	○	⊗
9	8' to 10', VF Sand with little silt & few Clay.	○	○	⊗
10	little iron staining	○	○	⊗
11	10' to 12', VF to Fine Sand with little silt & Rounded	○	○	⊗
12	Gravel/Small Cobbles, little iron staining, Shale Frag. from 11.6-12'	○	⊗	○
13	12' to 14', Gray Silt and Clay with Some weathered shale	○	⊗	○
14	Fragments and ~~trace~~ few VF to Coarse sand.	○	⊗	○
15	14' to 16' Gray silty Clay and Weathered shale Fragments	⊗	⊗	○

Depth(feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
16	8	25	28					—			—	
17	9	35	32					1.5'			0ppm	3"SS Collect Grainsize sample
18		24	36									
19	10	19	44					1.7'			0ppm	2"SS Water@20'
20		36	34									
21	11	19	27					1.6'			0ppm	2"SS Saturated
22		30	33									
23	12	21	27	Refusal @23.3'				1.0'			0ppm	2"SS Saturated
24		50/.3										
25												
26												
27												
28												
29												
30												
31												
32												
33												
34												
35												
36												
37												
38												
39												
40												
41												
42												
43												
44												
45												

Depth (feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
		⊗	⊗	○
16	16' to 18' Weather Shale & Gray Clay with	○	⊗	○
17	little silt & VF to Coarse Sand.	○	⊗	○
18	18' to 22' Same Gray Clay & Weathered Shale	○	⊗	○
19	as above, Few wet seams between	○	⊗	⊗
20	19' & 20'. Saturated from 20' to 22'.	○	○	⊗
21		○	○	⊗
22	22' to 23.3' Same as above	○	○	⊗
23	Auger down to B.O.H = 23.3'	○	○	○
24	Dry cuttings while augering.	○	○	○
25		○	○	○
26		○	○	○
27		○	○	○
28		○	○	○
29		○	○	○
30		○	○	○
31		○	○	○
32		○	○	○
33		○	○	○
34		○	○	○
35		○	○	○
36		○	○	○
37		○	○	○
38		○	○	○
39		○	○	○
40		○	○	○
41		○	○	○
42		○	○	○
43		○	○	○
44		○	○	○
45				

WELL DEVELOPMENT RECORD

SITE American Cleaners DATE 3-3-98

LOCATION Binghamton N.Y. WELL NO. MW-1

MEASUREMENT OF WATER LEVEL AND WELL VOLUME

- Prior to sampling, the static water level and total depth of the well will be measured with a calibrated weighted line. Care will be taken to decontaminate equipment between each use to avoid cross contamination of wells.
- The number of linear feet of static water (difference between static water level and total depth of well) will be calculated.
- The static volume will be calculated using the formula:

$$V = Tr^2(0.163)$$

Where:
V = Static volume of well in gallons;
T = Depth of water in the well, measured in feet;
r = Inside radius of well casing in inches;
and 0.163 = A constant conversion factor which compensates for r^2h factor for the conversion of the casing radius from inches to feet, the conversion of cubic feet to gallons, and (pi).

1 well volume (v) = 2.02 gallons.
1.6

.163
12.4
652
3260
1630
2021 z

Volume of Water in Casing or Hole

Diameter of Casing or Hole (in)	Gallons per Foot of Depth	Cubic Feet per Foot of Depth	Liter per Meter of Depth	Cubic Meters per Meter of Depth
1	0.041	0.0055	0.509	0.509×10^{-3}
1 1/2	0.092	0.0123	1.142	1.142×10^{-3}
2	0.163	0.0218	2.024	2.024×10^{-3}
2 1/2	0.255	0.0341	3.167	3.167×10^{-3}
3	0.367	0.0491	4.558	4.558×10^{-3}
3 1/2	0.500	0.0668	6.209	6.209×10^{-3}
4	0.653	0.0873	8.110	8.110×10^{-3}
4 1/2	0.826	0.1104	10.260	10.260×10^{-3}
5	1.020	0.1364	12.670	12.670×10^{-3}
5 1/2	1.234	0.1650	15.330	15.330×10^{-3}
6	1.469	0.1963	18.240	18.240×10^{-3}
7	2.000	0.2673	24.840	24.840×10^{-3}
8	2.611	0.3491	32.430	32.430×10^{-3}
9	3.305	0.4418	41.040	41.040×10^{-3}
10	4.080	0.5454	50.670	50.670×10^{-3}
11	4.937	0.6600	61.310	61.310×10^{-3}
12	5.875	0.7854	72.960	72.960×10^{-3}
14	8.000	1.0690	99.350	99.350×10^{-3}
16	10.440	1.3960	129.650	129.650×10^{-3}
18	13.220	1.7670	164.180	164.180×10^{-3}
20	16.320	2.1820	202.680	202.680×10^{-3}
22	19.750	2.6400	245.260	245.260×10^{-3}
24	23.500	3.1420	291.850	291.850×10^{-3}
26	27.580	3.6870	342.520	342.520×10^{-3}
28	32.000	4.2760	397.410	397.410×10^{-3}
30	36.720	4.9090	456.020	456.020×10^{-3}
32	41.780	5.5850	518.670	518.670×10^{-3}
34	47.160	6.3050	585.680	585.680×10^{-3}
36	52.880	7.0690	656.720	656.720×10^{-3}

1 Gallon = 3.785 liters
1 Meter = 3.281 feet
1 Gallon water weighs 8.33 lbs. = 3.779 kilograms
1 Liter water weighs 1 kilogram = 2.205 pounds
1 Gallon per foot of depth = 12.419 liters per foot of depth
1 Gallon per meter of depth = 12.419×10^{-3} cubic meters per meter of depth

INITIAL DEVELOPMENT WATER

WATER LEVEL (TOIC) ~~8:00~~ RM. 15.66'
WELL DEPTH (TD) ~~20.4' TOIC~~ ~~Soft bottom~~ 24.50 Clean bottom
COLOR Clear on Top / Cloudy Gray on bottom
ODOR None
CLARITY Poor

FINAL DEVELOPMENT WATER

WATER LEVEL (TOIC) 19.20
WELL DEPTH (TD) 24.50
COLOR Gray
ODOR None
CLARITY Poor >1000 NTU

DESCRIPTION OF DEVELOPMENT TECHNIQUE St. steel bailer

WELL DEVELOPMENT - PARAMETER MEASUREMENTS

MW-1
one well Vol. = 1.6 gallons

TIME	TOTAL VOL. WITHDRAWN		pH	COND. (µmhos/cm)	TEMP (°C/°F)	TURB. (NTU)	COMMENTS
	GALS.	BORE VOL					
0832	0		7.07	996	44.3	>1000	Cloudy Gray
0836	1/2		7.22	888	47.9		
0842	1		7.28	951	48.5		
0844	2		7.28	1025	48.5		
0848	3		7.16	1098	48.8		
0851	4		7.24	1160	49.4		
0855	5		7.20	1168	49.8		
0902	7		7.33	1146	48.7		
0908	10		7.25	1051	49.0		
0915	13		7.41	1040	50.1		
0921	15		7.37	1055	50.7		
0925	17	>10	7.36	1050	50.7		
0934	19		7.23	1204	49.8		
0940	21		7.22	1209	50.0		
0946	23		7.30	1230	49.7		
0953	25		7.30	1110	49.7		
1001	27		7.28	1090	50.0		
1007	29		7.29	1110	50.1		
1014	37		7.28	1091	49.7		
1030	41	25½	7.28	1054	49.8	√	√ Dev. Complete.

DEVELOPED BY: Al Kimball (Maxim Technologies) DATE 3-3-98

Borehole Record for MW-2

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

DRILLING LOG FOR MW-2

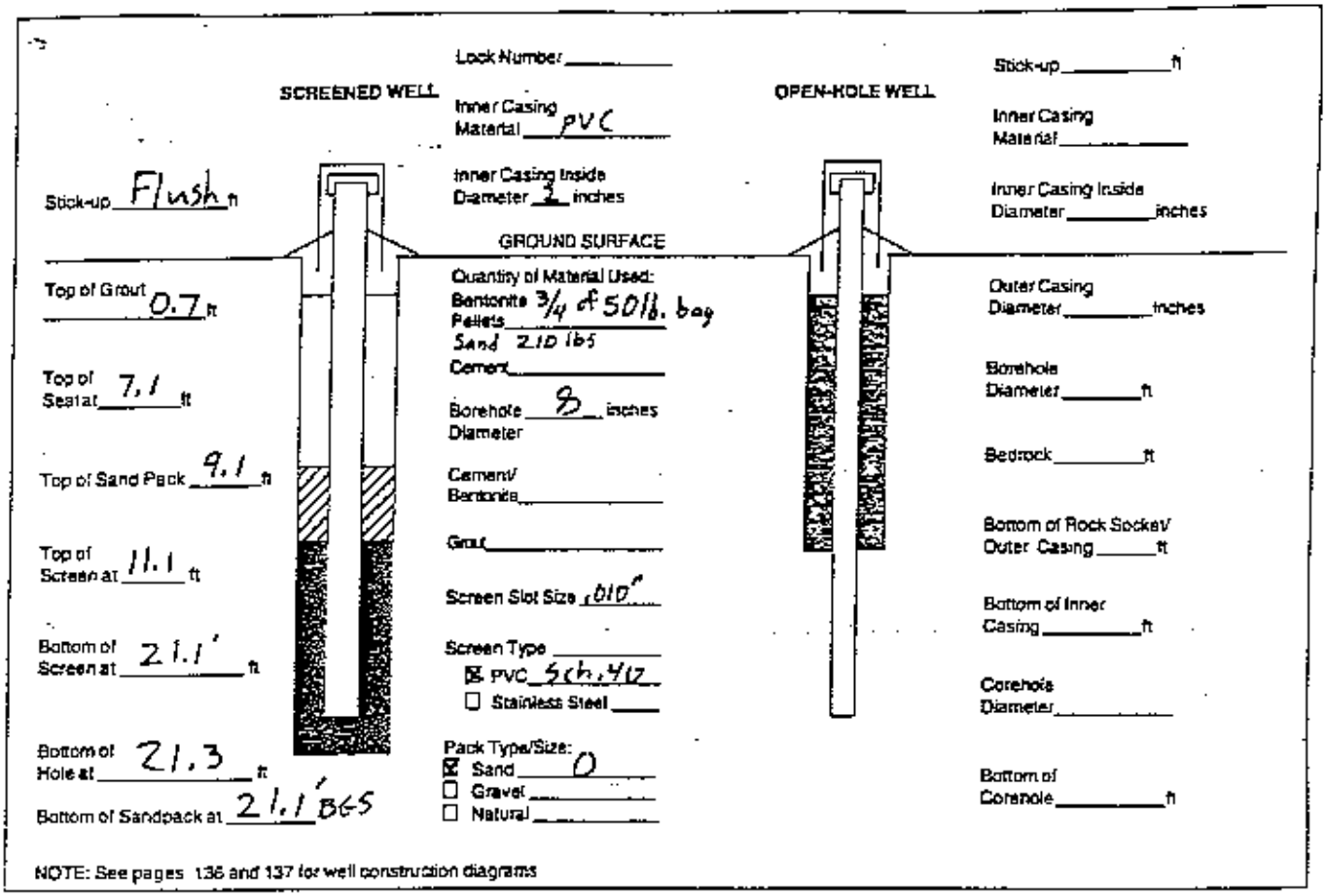
Project Name: American Cleaners
Site Location: Binghamton New York
Date Started/Finished: 2-24-98 / 2-25-98
Drilling Company: Maxim
Driller's Name: Al Kimball / Ed Cole
Geologist's Name: Robert Meyers
Geologist's Signature: Robert A Meyers
Rig Type (s): CME-55
Drilling Method (s): HSA
Bit Size (s): _____ Auger Size (s): 4¼" ID
Auger/Split Spoon Refusal: 21.3' BGS
Total Depth of Borehole is: 21.3'
Total Depth of Corehole is: NA

Water Level (TOIC)		
Date	Time	Level (Feet)
2-25-98	12:38	14.71' BGS (in Augers)
2-25-98	12:58	14.45' BGS (in Augers)
2-26-98	0915	8.55' TOIC

Well Location Sketch

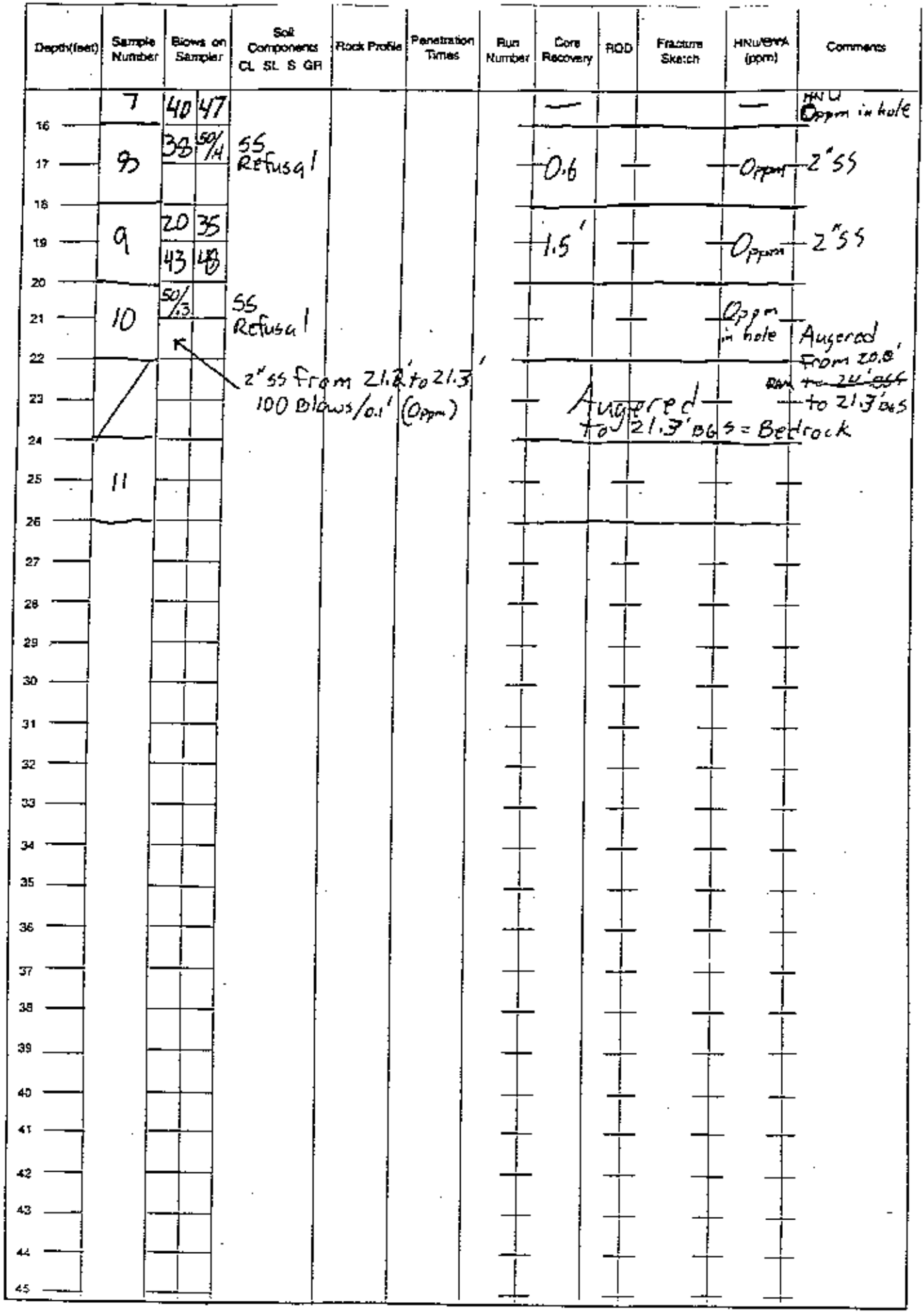
See MW-1 Log

Depth (Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1	1	/, /				0.9'			0ppm	3"SS
2		5, 6								
3	2	7, 6				1.6'			0ppm	3"SS
4		5, 7								
5	3	9, 6				1.4'			0ppm	3"SS Oppm in hole
6		7, 5								
7	4	11, 11				1.8'			0ppm	3"SS Collected Grainsize & Hydrometer
8		19, 25								
9	5	10, 14				1.8'			0ppm	3"SS
10		25, 30								
11	/	/				NA			NA	~~2"SS~~ Concrete, No Splitspoon
12										
13	6	51, 53				0.4'			0ppm	2"SS Oppm in hole
14		54, 64								
15	7	25, 38				1.6'			0ppm	2'SS Collect Grainsize Sample
		40/4"								



NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1	0' to 0.75' Asphalt & Gravel base, 0.75' to 2.0'	○	⊗	⊗
2	Gray to dark brown Silt with Some VF to Med. Sand & little Rounded Gravel	○	⊗	⊗
3	2' to 4', Med. brown to Gray silt with some clay, little	○	○	○
4	VF to Course sand and rounded Gravel	○	○	○
5	4' to 6' Same as above, with some iron staining	○	○	⊗
6		○	○	⊗
7	6' to 8' Silty Gray CLAY, very slight Plastic/moderately Cohesive,	○	⊗	⊗
8	with iron staining, few rounded Cobbles/shale Frag, and VF to med. Sand	○	⊗	⊗
9	8' to 10' Clayey Gray/brown silt with trace rounded	○	⊗	⊗
10	cobbles and few VF to Course sand; little iron staining.	○	⊗	⊗
11	10' to 11.2' Concrete, Augered through, No Splitspoons	⊗	○	○
12	Augered to 12'.	⊗	○	○
13	12' to 14', Gray CLAY Till, with little silt & VF to Coarse	○	⊗	⊗
14	sand and Some Gravel/Cobbles.	○	⊗	⊗
15	14' to 16' Gray silty Clay with Some Angular shale Gravel.	○	○	⊗


Depth(feet)
Sample Number
Blows on Sampler
Soil Components CL SL S GR
Rock Profile
Penetration Times
Run Number
Core Recovery
RQD
Fracture Sketch
HNu/OVA (ppm)
Comments
7
40 47
16
9D
38 50/4
SS Refusal
17
0.6
0ppm
2"SS
18
9
20 35
19
43 48
1.5'
0ppm
2"SS
20
50/.3
SS Refusal
21
10
0ppm in hole
Augered from 20.8' to 21.3' BGS
2"ss from 21.2' to 21.3'
100 Blows/0.1' (0ppm)
22
23
Augered to 21.3' BGS = Bedrock
24
11
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45

Depth(feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
16		○	○	⊗
17	16' to 16.9', Shale Cobble (broken) with little Gray	⊗	○	○
18	Silty Clay.	⊗	⊗	○
19	18' to 20' Weathered Shale Fragment with some	○	⊗	⊗
20	Silty Gray CLAY and little VF to Coarse sand.	○	⊗	⊗
21	20' to 20.3' Shale with few Gray Clay.	○	○	⊗
22	21.2' to 21.3', Shale with Gray Clay & silt.	○	○	⊗
23	B.O.H @ 21.3' BGS	○	○	○
24		○	○	○
25		○	○	○
26		○	○	○
27		○	○	○
28		○	○	○
29		○	○	○
30		○	○	○
31		○	○	○
32		○	○	○
33		○	○	○
34		○	○	○
35		○	○	○
36		○	○	○
37		○	○	○
38		○	○	○
39		○	○	○
40		○	○	○
41		○	○	○
42		○	○	○
43		○	○	○
44		○	○	○
45		○	○	○

WELL DEVELOPMENT RECORD

SITE American Cleaners DATE 3-3-98

LOCATION Binghanton NY. WELL NO. MW-2

MEASUREMENT OF WATER LEVEL AND WELL VOLUME

- Prior to sampling, the static water level and total depth of the well will be measured with a calibrated weighted line. Care will be taken to decontaminate equipment between each use to avoid cross contamination of wells.
- The number of linear feet of static water (difference between static water level and total depth of well) will be calculated.
- The static volume will be calculated using the formula:

$$V = Tr^2 (0.163)$$

Where:
V = Static volume of well in gallons;
T = Depth of water in the well, measured in feet;
r = Inside radius of well casing in inches;
and 0.163 = A constant conversion factor which compensates for r^2h factor for the conversion of the casing radius from inches to feet, the conversion of cubic feet to gallons, and (pi).
1 well volume (v) = 2.1 gallons.

Volume of Water in Casing or Hole

Diameter of Casing or Hole (in)	Gallons per Foot of Depth	Cubic Feet per Foot of Depth	Liter per Meter of Depth	Cubic Meters per Meter of Depth
1	0.041	0.0055	0.509	0.509×10^{-3}
1 1/2	0.092	0.0123	1.142	1.142×10^{-3}
2	0.163	0.0218	2.024	2.024×10^{-3}
2 1/2	0.255	0.0341	3.167	3.167×10^{-3}
3	0.367	0.0491	4.558	4.558×10^{-3}
3 1/2	0.500	0.0668	6.209	6.209×10^{-3}
4	0.653	0.0873	8.110	8.110×10^{-3}
4 1/2	0.826	0.1104	10.260	10.260×10^{-3}
5	1.020	0.1364	12.670	12.670×10^{-3}
5 1/2	1.234	0.1650	15.330	15.330×10^{-3}
6	1.469	0.1963	18.240	18.240×10^{-3}
7	2.000	0.2673	24.840	24.840×10^{-3}
8	2.611	0.3491	32.430	32.430×10^{-3}
9	3.305	0.4418	41.040	41.040×10^{-3}
10	4.080	0.5454	50.670	50.670×10^{-3}
11	4.937	0.6600	61.310	61.310×10^{-3}
12	5.875	0.7854	72.960	72.960×10^{-3}
14	8.000	1.0690	99.350	99.350×10^{-3}
16	10.440	1.3960	129.650	129.650×10^{-3}
18	13.220	1.7670	164.180	164.180×10^{-3}
20	16.320	2.1820	202.680	202.680×10^{-3}
22	19.750	2.6400	245.280	245.280×10^{-3}
24	23.500	3.1420	291.850	291.850×10^{-3}
26	27.580	3.6870	342.520	342.520×10^{-3}
28	32.000	4.2760	397.410	397.410×10^{-3}
30	36.720	4.9090	456.020	456.020×10^{-3}
32	41.780	5.5850	518.870	518.870×10^{-3}
34	47.160	6.3050	585.680	585.680×10^{-3}
36	52.850	7.0690	656.720	656.720×10^{-3}

1 Gallon = 3.785 liters
1 Meter = 3.281 feet
1 Gallon water weighs 8.33 lbs. = 3.779 kilograms
1 Liter water weighs 1 kilogram = 2.205 pounds
1 Gallon per foot of depth = 12.419 liters per foot of depth
1 Gallon per meter of depth = 12.419 x 10^{-3} cubic meters per meter of depth

INITIAL DEVELOPMENT WATER

WATER LEVEL (TOIC) 8.00'
WELL DEPTH (TD) 20.68' TOIC
COLOR Clear on Top / Cloudy Gray on bottom
ODOR NONE
CLARITY Fair to Poor

FINAL DEVELOPMENT WATER

WATER LEVEL (TOIC) 15.88'
WELL DEPTH (TD) 20.68
COLOR Gray
ODOR None
CLARITY very Poor

DESCRIPTION OF DEVELOPMENT TECHNIQUE St. steel bailer

MW-2
one well vol = 2.1 Gallons

WELL DEVELOPMENT - PARAMETER MEASUREMENTS

ME	TOTAL VOL. WITHDRAWN		pH	COND. (µmhos/cm)	TEMP. (°C/°F)	TURB. (NTU)	COMMENTS
	GALS.	BORE VOL.					
30	0	0	7.10	920	45.3	>1000	
33	½		7.24	870	47.2		
35	1		7.45	820	46.5		
38	2	≃ 1	7.27	880	45.7		
42	3		7.29	890	46.0		
45	4	≃ 2	7.27	890	46.0		
50	6	≃ 3	7.30	880	45.9		W.L = 18.15' TOIC, will allow recharge
110	8	≃ 4	7.27	910	45.8		W.L = 11.0' TOIC / Con't Dev.
1418	10	≃ 5	7.25	860	45.9		
128	Dev.		Complete		—	↓	W.L. = 15.88'

DEVELOPED BY: Al Kimball (maxim)

DATE 3-3-98

MW-2

Borehole Record for MW-3

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

DRILLING LOG FOR MW-3

Project Name: American Cleaners
Site Location: Binghamton, NY

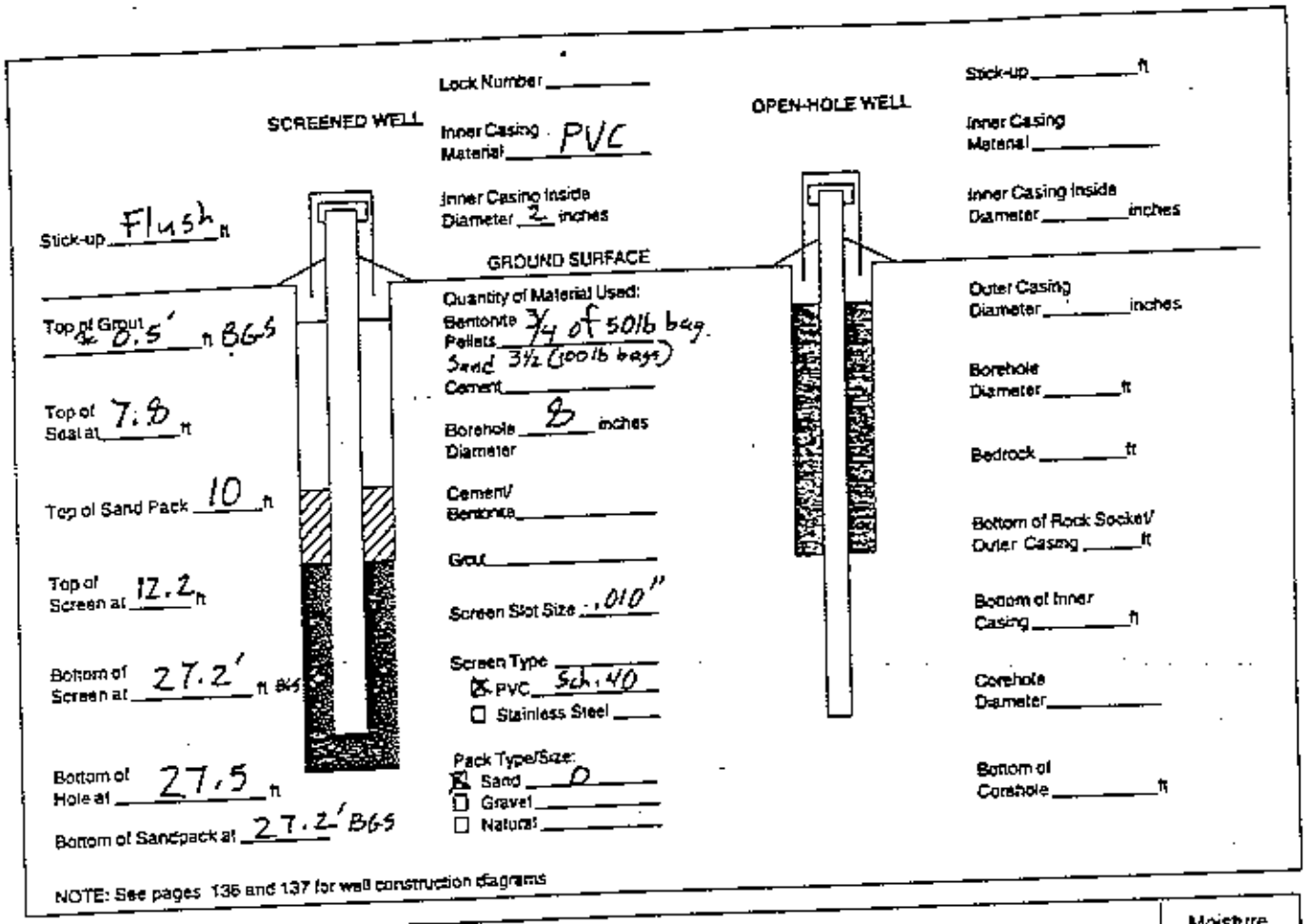
Date Started/Finished: 2-26-98 / 2-27-98
Drilling Company: Maxim Technologies
Driller's Name: Ed Cole
Geologist's Name: Robert Meyers
Geologist's Signature: Robert A Meyers
Rig Type (s): CME-55
Drilling Method (s): HSA
Bit Size (s): _____ Auger Size (s): 4 1/4"
Auger/Split Spoon Refusal: 27.5' / See below
Total Depth of Borehole is: 27.5' BGS
Total Depth of Corehole is: NA

Water Level (TOIC)		
Date	Time	Level (Feet)
3-2-98	1020	16.36' TOIC

Well Location Sketch

see MW-1 Log

Depth (Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1	1	8 5 / 7 5				0.5'			0ppm	3"SS
2	2	2 6 / 35 50/0	SS Refusal @ 3.5'			1.2'			0ppm	3"SS 0ppm in the hole
3										
4	3	32 44 / 44 37				0.5'			0ppm	3"SS
5										
6	4	26 46 / 52 54				1.7'			0ppm	3"SS
7										
8	5	19 64 / 50/4	SS Refusal			1.2'			0ppm	3"SS 0ppm in the hole.
9										
10	6	23 50/1	SS Refusal			0.4'			0ppm	3"SS Cobble in shoe
11										
12	7	70/2	SS Refusal			0.1'			0ppm	3"SS Cobble in shoe
13										
14	8	45 57	SS Refusal			1.1'			0ppm	3"SS
15		75/9								



NOTE: See pages 135 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
	0' to 0.4' Concrete, 0.4' to 2.0' Silty Clay (brown) with	⊗	○	○
1	little rounded gravel and few rounded Cobbles, Slightly Plastic	○	⊗	○
2	2' to 3.5' VF to Fine brown Sand with Some silty Clay	○	○	⊗
3	and little rounded Gravel/Cobbles, (Splitspoon Refusal @ 3.5')	○	⊗	⊗
4	4' to 6' Weathered Shale Fragment (5m. Gravel to large Cobble)	⊗	⊗	○
5	with Some silt and tr. VF Sand.	⊗	⊗	○
6	6' to 8' Clayey brown SILT with Some rounded to angular	○	⊗	○
7	shale Fragments and trace VF Sand.	○	⊗	○
8	8' to 10' Same as above	⊗	⊗	○
9		⊗	⊗	○
10	10' to 12' Same as above, Cobble in shoe	⊗	⊗	○
11		⊗	⊗	○
12	12' to 12.1' Shale Cobble/boulder	○	⊗	○
13		○	⊗	○
14	14' to 16.4', Silt and VF Sand with some Rounded Sandstone Gravel & Cobble,	○	⊗	⊗
15				

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
	8	75/.1					—			—	
15		3/6	75/.1	SS Refusal							
16	9						0.6'			0ppm	3"SS 0ppm in hole
17											
18		29	48								
19	10	50/.1		SS Refusal			1.3'			0ppm	3"SS
20		27	84								
21	11	72	50/.1	SS Refusal			1.5'			0ppm	3"SS
22		32	32								
23	12	44	54				1.7'			0ppm	3"SS
24		18	57								
25	13	50/.0		SS Refusal			0.9'			0ppm	3"SS
26											
27										0ppm HNU in the hole	Auger Refusal @ 27.5' BGS
28											
29											
30											
31											
32											
33											
34											
35											
36											
37											
38											
39											
40											
41											
42											
43											
44											
45											

Depth(feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
16	and Angular to rounded shale fragments.	○	○	⊗
17	16' to 16.9 Gray silt & shale fragments with few	○	⊗	○
18	VF to Fine sand & sandstone gravel.	○	○	○
19	18' to 19.4' Weathered shale & silty Gray/brown	○	⊗	○
20	Clay. Shale is coarse sand to cobble size.	○	⊗	○
21	20' to 21.6', Clayey silt with little/few VF to fine	○	⊗	⊗
22	(wet seams) Sand and some shale fragments (sand to cobble size)	○	⊗	⊗
23	22' to 24', Silty Gray CLAY and weathered shale	○	⊗	○
24	Fragments (sand to cobble size)	○	⊗	○
25	24' to 25', weathered shale with little silt & Tr. clay	○	⊗	○
26	Augered to 27.5' BGS = B.O.H	○	○	○
27	27.5' = Auger Refusal	○	○	○
28		○	○	○
29		○	○	○
30		○	○	○
31		○	○	○
32		○	○	○
33		○	○	○
34		○	○	○
35		○	○	○
36		○	○	○
37		○	○	○
38		○	○	○
39		○	○	○
40		○	○	○
41		○	○	○
42		○	○	○
43		○	○	○
44		○	○	○
45				

WELL DEVELOPMENT RECORD

SITE American Cleaners DATE 3-3-98

LOCATION Binghamton N.Y. WELL NO. MW-3

MEASUREMENT OF WATER LEVEL AND WELL VOLUME

- Prior to sampling, the static water level and total depth of the well will be measured with a calibrated weighted line. Care will be taken to decontaminate equipment between each use to avoid cross contamination of wells.
- The number of linear feet of static water (difference between static water level and total depth of well) will be calculated.
- The static volume will be calculated using the formula:

$$V = Tr^2(0.163)$$

Where:
V = Static volume of well in gallons;
T = Depth of water in the well, measured in feet;
r = Inside radius of well casing in inches;
and 0.163 = A constant conversion factor which compensates for r^2h factor for the conversion of the casing radius from inches to feet, the conversion of cubic feet to gallons, and (pi).

1 well volume (v) = _____ gallons.

3 vol. = 5 gallons

Volume of Water in Casing or Hole

Diameter of Casing or Hole (in)	Gallons per Foot of Depth	Cubic Feet per Foot of Depth	Liter per Meter of Depth	Cubic Meters per Meter of Depth
1	0.041	0.0055	0.509	0.509×10^{-3}
1 1/2	0.092	0.0123	1.142	1.142×10^{-3}
2	0.163	0.0218	2.024	2.024×10^{-3}
2 1/2	0.255	0.0341	3.167	3.167×10^{-3}
3	0.367	0.0491	4.558	4.558×10^{-3}
3 1/2	0.500	0.0668	6.209	6.209×10^{-3}
4	0.653	0.0873	8.110	8.110×10^{-3}
4 1/2	0.826	0.1104	10.260	10.260×10^{-3}
5	1.020	0.1364	12.670	12.670×10^{-3}
5 1/2	1.234	0.1650	15.330	15.330×10^{-3}
6	1.469	0.1963	18.240	18.240×10^{-3}
7	2.000	0.2673	24.840	24.840×10^{-3}
8	2.611	0.3491	32.430	32.430×10^{-3}
9	3.305	0.4418	41.040	41.040×10^{-3}
10	4.080	0.5454	50.670	50.670×10^{-3}
11	4.937	0.6600	61.310	61.310×10^{-3}
12	5.875	0.7854	72.960	72.960×10^{-3}
14	8.000	1.0690	99.350	99.350×10^{-3}
16	10.440	1.3960	129.650	129.650×10^{-3}
18	13.220	1.7670	164.180	164.180×10^{-3}
20	16.320	2.1820	202.680	202.680×10^{-3}
22	19.750	2.6400	245.280	245.280×10^{-3}
24	23.500	3.1420	291.850	291.850×10^{-3}
26	27.550	3.6870	342.520	342.520×10^{-3}
28	32.000	4.2760	397.410	397.410×10^{-3}
30	36.720	4.9090	456.020	456.020×10^{-3}
32	41.780	5.5850	518.870	518.870×10^{-3}
34	47.160	6.3050	585.680	585.680×10^{-3}
36	52.880	7.0690	656.720	656.720×10^{-3}

1 Gallon = 3.785 liters
1 Meter = 3.281 feet
1 Gallon water weighs 8.33 lbs. = 3.779 kilograms
1 Liter water weighs 1 kilogram = 2.205 pounds
1 Gallon per foot of depth = 12.419 liters per foot of depth
1 Gallon per meter of depth = 12.419×10^{-3} cubic meters per meter of depth

INITIAL DEVELOPMENT WATER

WATER LEVEL (TOIC) 16.39'
WELL DEPTH (TD) 26.38
COLOR Clear on Top / Gray @ bottom
ODOR None
CLARITY Fair to Poor

FINAL DEVELOPMENT WATER

WATER LEVEL (TOIC) 24.24' TOIC
WELL DEPTH (TD) 26.38' TOIC
COLOR Gray
ODOR None
CLARITY Poor, >1000 NTU

DESCRIPTION OF DEVELOPMENT TECHNIQUE St. steel bailer

WELL DEVELOPMENT - PARAMETER MEASUREMENTS

TIME	TOTAL VOL. WITHDRAWN		pH	COND. (µmhos/cm)	TEMP. (°C/°F)	TURB. (NTU)	COMMENTS
	GALS.	BORE VOL.					
1036	0		7.38	2400	46.5	284	
1040	½		7.48	2530	49.1	>1000	Cloudy Gray
1045	1		7.50	2570	49.4		
1050	2	>1	7.42	2510	49.7		
1053	3		7.45	2640	50.0		
1056	4	>2	7.44	2840	50.2		
1108	6		7.70	2740	50.7		
1126	8	5	7.67	2260	48.3	↓	Final W.L. = 24.24' TOIC
				Development Complete			

DEVELOPED BY: Al Kimball (Maxim) DATE 3-3-98

Borehole Record for P-1

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

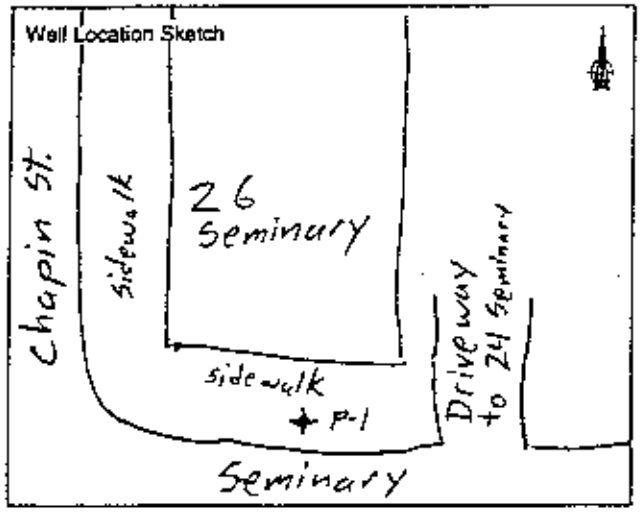
DRILLING LOG FOR P-1

Project Name: American Cleaners
Site Location: Binghamton, New York

Date Started/Finished: 3-3-98 / 3-3-98
Drilling Company: Maxim Technologies
Driller's Name:
Geologist's Name: Robert Meyers
Geologist's Signature: Robert A Myers
Rig Type (s): CME-55
Drilling Method (s): HSA
Bit Size (s): 8" Auger Size (s): 4¼" ID
Auger/Split Spoon Refusal: / 15.9' BGS
Total Depth of Borehole is: 24'
Total Depth of Corehole is:

Water Level (TOIC)		
Date	Time	Level (Feet)

Well Location Sketch



Depth (Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1										Augered through 4" of Concrete
2										
3										
4										
5	1	5 8 / 24 29				0.6'			0ppm	0ppm in hot
6										
7										
8										
9										
10	2	24 38 / 47 52				1.5'			0ppm	
11										
12										
13										
14										
15	3	14 48 / 46 50/5				1.6'			0ppm	

Lock Number 2537

SCREENED WELL

Stick-up -0.5 ft

Top of Grout NA ft

Top of Seal at NA ft

Top of Sand Pack NA ft

Top of Screen at 14 ft

Bottom of Screen at 24' ft

Bottom of Hole at 24' ft

Bottom of Sandpack at ~~24'~~ NA

Inner Casing Material PVC

Inner Casing Inside Diameter 2 inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets NA

Cement NA

Borehole 8 inches Diameter

Cement/ Bentonite NA

Grout NA

Screen Slot Size .010"

Screen Type

☒ PVC Sch. 40

☐ Stainless Steel

Pack Type/Size:

☐ Sand NA

☐ Gravel

☐ Natural

OPEN-HOLE WELL

Stick-up ft

Inner Casing Material

Inner Casing Inside Diameter inches

Outer Casing Diameter inches

Borehole Diameter ft

Bedrock ft

Bottom of Rock Socket/ Outer Casing ft

Bottom of Inner Casing ft

Corehole Diameter

Bottom of Corehole ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
	0' to ≃1' is Concrete	⊗	○	○
1	1' to 4' Augered through Rounded gravel and VF to	○	○	○
2	Coarse Sand with little silt.	○	○	○
3		○	○	○
4	SS#1, 4' to 6', Rounded Gravel and VF to Coarse Sand with	⊗	⊗	○
5	little silt.	⊗	⊗	○
6		○	○	○
7		○	○	○
8		○	○	○
9		⊗	⊗	○
10	9' to 11', Mostly Rounded Gravel w/some VF to Coarse Sand	⊗	⊗	○
11	and little silt.	○	○	○
12		○	○	○
13		○	⊗	⊗
14	14' to 16', Same as above	○	⊗	⊗
15				

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
16	3	46 50/4	SS Refusal				—			—	
17											
18											
19											
20											
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
33											
34											
35											
36											
37											
38											
39											
40											
41											
42											
43											
44											
45											

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content		
		Dry	Moist	Wet
16		○	○	○
17		○	○	○
18		○	○	○
19		○	○	○
20		○	○	○
21		○	○	○
22		○	○	○
23		○	○	○
24		○	○	○
25		○	○	○
26		○	○	○
27		○	○	○
28		○	○	○
29		○	○	○
30		○	○	○
31		○	○	○
32		○	○	○
33		○	○	○
34		○	○	○
35		○	○	○
36		○	○	○
37		○	○	○
38		○	○	○
39		○	○	○
40		○	○	○
41		○	○	○
42		○	○	○
43		○	○	○
44		○	○	○
45				

Borehole Record for P-2

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

DRILLING LOG FOR P-2

Project Name: American Cleaners

Site Location: Binghamton, New York

Date Started/Finished: 3-3-98 / 3-3-98

Drilling Company: Maxim Technologies

Driller's Name:

Geologist's Name: Robert Meyers

Geologist's Signature: Robert A Meyers

Rig Type (s): CME-55

Drilling Method (s): HSA

Bit Size (s): 8" Auger Size (s): 4¼" ID

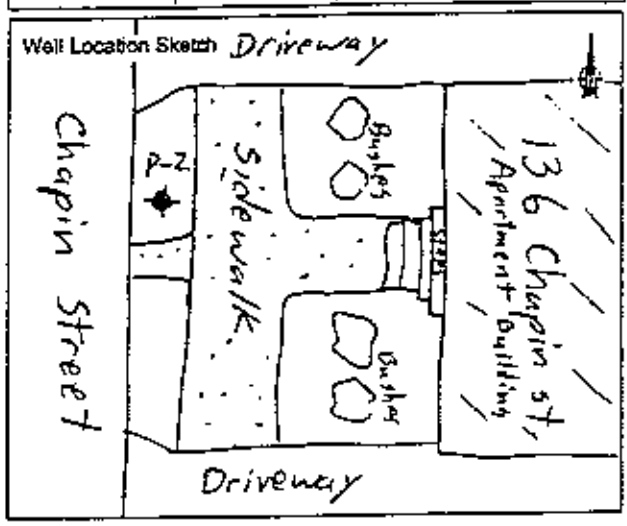
Auger/Split Spoon Refusal:

Total Depth of Borehole is: 25.3' w/splitspoon, 24' with Augers

Total Depth of Corehole is: NA

Water Level (TOIC)		
Date	Time	Level (Feet)

Well Location Sketch



Depth (Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1										
2										
3										
4	1	3 3				0.6'			0ppm	No Recovery
5		2 6								
6										
7										
8										
9		17 33				1.3'			0ppm	
10	2	34 49								
11										
12										
13										
14	3	24 30				1.5'			0ppm	
15		40 50/4	Ss Refusal							

P-2 Piezometer ~~SCREENED WELL~~ Lock Number: 2537

Inner Casing Material: PVC

Stick-up: Flush ~0.5' ft BGS

Inner Casing Inside Diameter: 2 inches

GROUND SURFACE

Top of Grout: NA ft

Top of Seal at: NA ft

Top of Sand Pack: 19' ft

Top of Screen at: 14' ft

Bottom of Screen at: 24' ft

Bottom of Hole at: 25.3 ft

Bottom of Sandpack at: 25.3

Quantity of Material Used:
Bentonite Pellets: NA
Cement: ½ Bag (100 lb/bag)
Borehole Diameter: 8 inches
Cement/ Bentonite:
Grout:
Screen Slot Size: .010"
Screen Type:
☒ PVC: Sch. 40
☐ Stainless Steel:
Pack Type/Size:
☒ Sand: No. 0
☐ Gravel:
☐ Natural:

OPEN-HOLE WELL

Stick-up: ft

Inner Casing Material:

Inner Casing Inside Diameter: inches

Outer Casing Diameter: inches

Borehole Diameter: ft

Bedrock: ft

Bottom of Rock Socket/ Outer Casing: ft

Bottom of Inner Casing: ft

Corehole Diameter:

Bottom of Corehole: ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1	Augered through 0' to 4', Med. to dark brown silt	○	⊗	○
2	and VF to med. Sand with little rounded gravel	○	⊗	○
3	and Clay.	○	⊗	○
4	SS#1, 4'-6', No Recovery/Pushed a Cobble	○	○	○
5		○	○	○
6		○	○	○
7		○	○	○
8		○	○	○
9		○	○	○
10	SS#2, 9' to 11' light to med. brown VF to Coarse Sand with Some	○	⊗	○
11	rounded Gravel and little silt.	○	⊗	○
12	11' to 14'. Augered up Primarily Rounded Gravel w/silt & VF to Fine	○	○	○
13	Sand.	○	○	○
14	SS#3, 14' to 15.9' Rounded Gravel with some VF to Coarse Sand and	⊗	⊗	○
15	little silt.	⊗	⊗	○

Depth (feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
		40	50/4					—			—	
16												
17												
18												
19												
20	4	14	34					1.3'			0ppm	
21		44	46									
22												
23												
24												
25	5	17	56					1.3'			0ppm	
26		50/3										
27												
28												
29												
30												
31												
32												
33												
34												
35												
36												
37												
38												
39												
40												
41												
42												
43												
44												
45												

Depth(feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
16		○	○	○
17		○	○	○
18		○	○	○
19		○	○	○
20	SS #4, Gravel & Sand as above Wet but not Saturated.	○	○	⊗
21		○	○	⊗
22		○	○	○
23		○	○	○
24		○	○	○
25	SS # 24' to 25.3' Gray clayey silt and some Weathered Shale.	⊗	⊗	○
26		⊗	⊗	○
27	B.O.H @ 25.3' BGS	○	○	○
28		○	○	○
29		○	○	○
30		○	○	○
31		○	○	○
32		○	○	○
33		○	○	○
34		○	○	○
35		○	○	○
36		○	○	○
37		○	○	○
38		○	○	○
39		○	○	○
40		○	○	○
41		○	○	○
42		○	○	○
43		○	○	○
44		○	○	○
45		○	○	○

Borehole Record for P-3

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

DRILLING LOG FOR P-3

Project Name: American Cleaners

Site Location: Binghamton, New York

Date Started/Finished: 3-2-98 / 3-2-98

Drilling Company: Maxim Technologies

Driller's Name: Ed Colo

Geologist's Name: Robert Meyers

Geologist's Signature: Robert A Meyers

Rig Type (s): CME-55

Drilling Method (s): HSA

Bit Size (s): _____ Auger Size (s): 4¼" ID

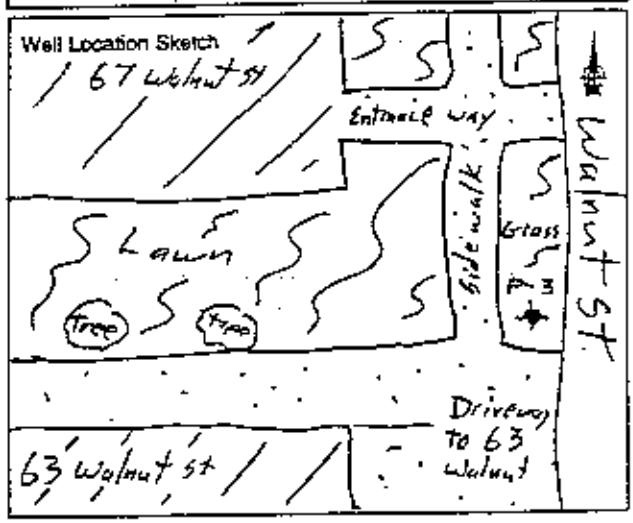
Auger/Split Spoon Refusal: NA

Total Depth of Borehole is: 21'

Total Depth of Corehole is: _____

Water Level (TOIC)		
Date	Time	Level (Feet)

Well Location Sketch



Depth (Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1										
2										
3										
4		2 2								
5	1	4 4				0.6'			0ppm	wet
6										
7										
8										
9		11 16								
10	2	19 14				1.5'			0ppm	0ppm in hole
11										
12										
13										
14		4 9								
15	3	5 7				0.6'			0ppm	water @ ≈ 15'

Piezometer

SCREENED WELL

Stick-up Flush ft

Top of Grout NA ft

Top of Seal at NA ft

Top of Sand Pack 17.5 ft

Top of Screen at 10.1 ft

Bottom of Screen at 20.1 ft

Bottom of Hole at 21 ft

Bottom of Sandpack at 21

Lock Number _____

Inner Casing Material PVC

Inner Casing Inside Diameter 2 inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets NA

Cement NA

Borehole Diameter 8 inches

Cement/ Bentonite _____

Grout _____

Screen Slot Size .010"

Screen Type _____

☒ PVC Sch. 40

☐ Stainless Steel _____

Pack Type/Size:

☒ Sand No. 0

☐ Gravel _____

☐ Natural _____

OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Outer Casing _____ ft

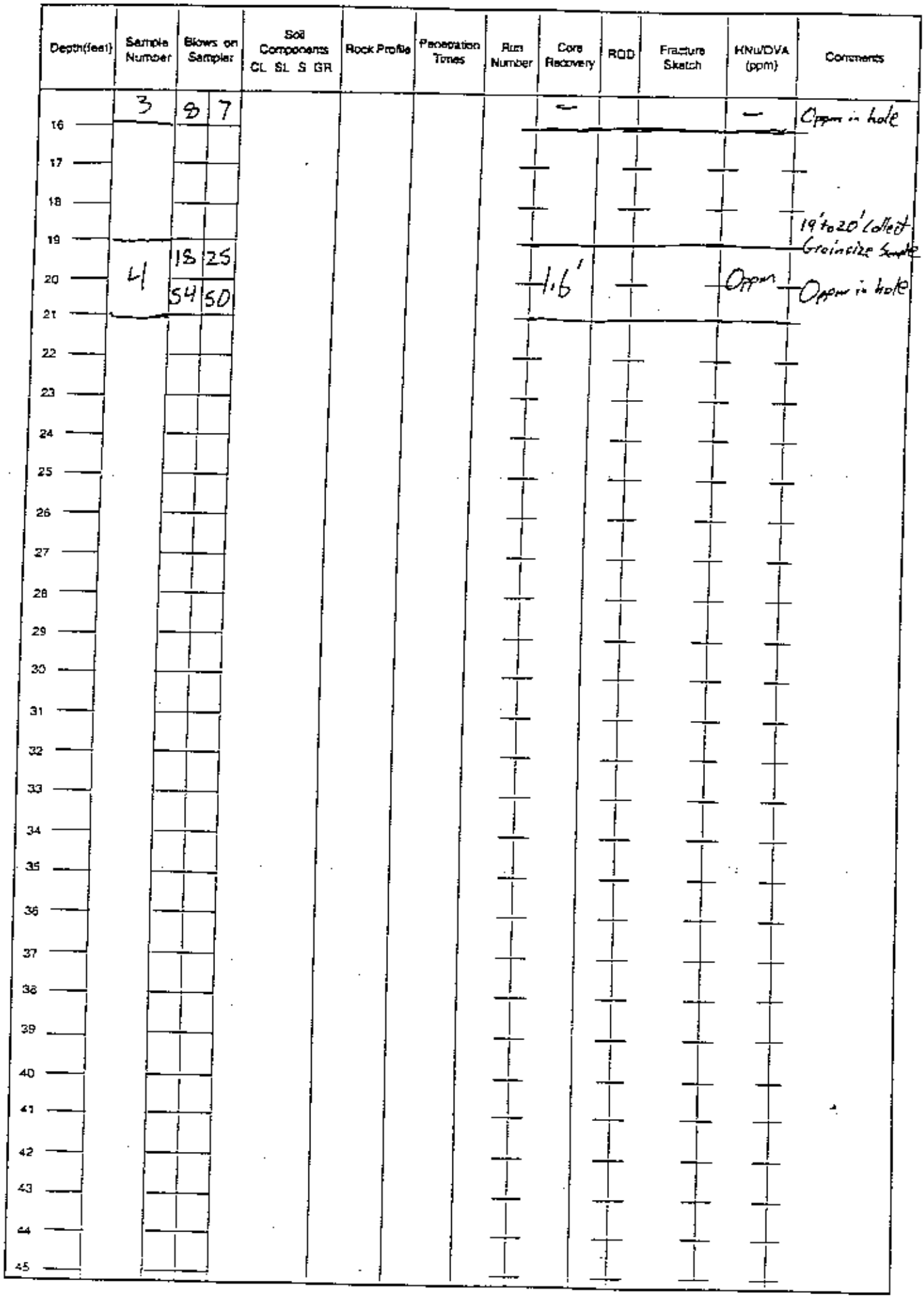
Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1	0' to 4', Augered through Med. Brown Silt, VF Sand and rounded Gravel	○	⊗	⊗
2		○	⊗	⊗
3		○	⊗	⊗
4	SS#1, 4' to 6', Orange/brown silt and VF Sand with little rounded Gravel.	○	○	⊗
5		○	○	⊗
6		○	○	○
7		○	○	○
8		○	○	○
9	SS#2, 9' to 11', Med. Brown VF to Coarse Sand and	○	⊗	⊗
10	Rounded Gravel with little (25%) angular Shale Frag.	○	⊗	⊗
11		○	○	○
12		○	○	○
13		○	○	○
14	SS#3, 14'-16' VF Brown to Med. Sand with Some (45%) Rounded Gravel	○	⊗	⊗
15				


Depth(feet)
Sample Number
Blows on Sampler
Soil Components CL SL S GR
Rock Profile
Penetration Times
Run Number
Core Recovery
RQD
Fracture Sketch
HNu/OVA (ppm)
Comments
3
9
7
—
—
0ppm in hole
19'to20' collect Grainsize Sample
4
18
25
54
50
1.6'
0ppm
0ppm in hole
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45

Depth(feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
16		○	○	⊗
17		○	○	⊗
18		○	○	⊗
19		○	○	⊗
20	SS #4, 19' to 20.4', VF to Med Sand & SILT with little	○	○	⊗
21	rounded Gravel (wet), 20.4' to 21', Gray clayey	⊗	⊗	○
22	Silt and Weathered Shale Fragments, little VFSand.	⊗	○	○
23	Auger to ~~20.5~~ RAN 21' BGS = B.O.H.	○	○	○
24		○	○	○
25		○	○	○
26		○	○	○
27		○	○	○
28		○	○	○
29		○	○	○
30		○	○	○
31		○	○	○
32		○	○	○
33		○	○	○
34		○	○	○
35		○	○	○
36		○	○	○
37		○	○	○
38		○	○	○
39		○	○	○
40		○	○	○
41		○	○	○
42		○	○	○
43		○	○	○
44		○	○	○
45		○	○	○

Borehole Record for P-4

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

DRILLING LOG FOR P-4

Project Name: American Cleaners

Site Location: Binghamton N.Y.

Date Started/Finished: 3-2-98 / 3-2-98

Drilling Company: Maxim Technologies

Driller's Name:

Geologist's Name: Robert Meyers

Geologist's Signature: Robert a Meyers

Rig Type (s): CME-55

Drilling Method (s): HSA

Bit Size (s): _____ Auger Size (s): 4¼" ID

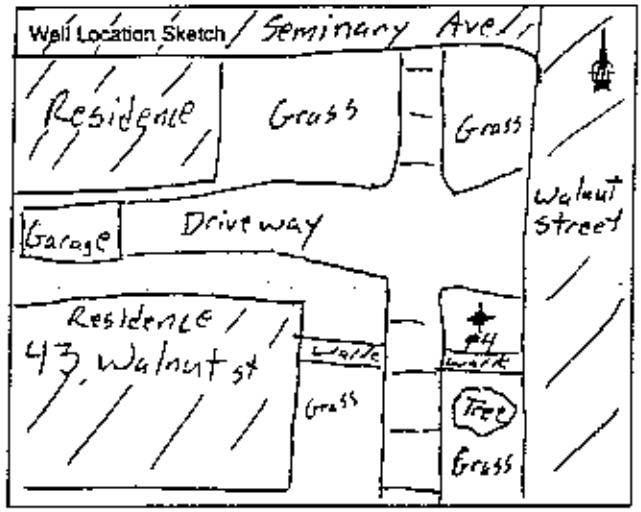
Auger/Split Spoon Refusal:

Total Depth of Borehole is: 21'

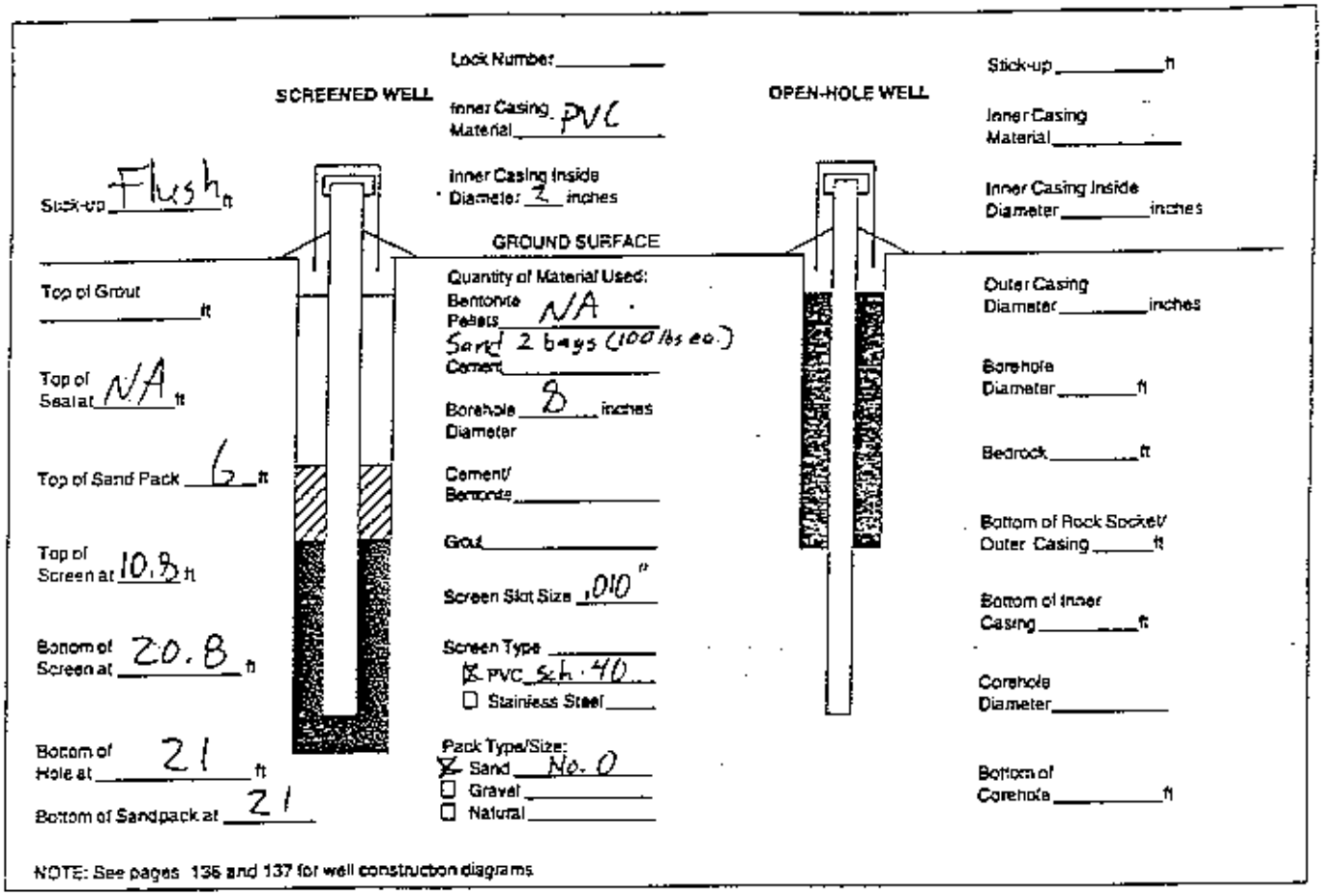
Total Depth of Corehole is:

Water Level (TOIC)		
Date	Time	Level (Feet)

Well Location Sketch / Seminary Ave



Depth (Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVM (ppm)	Comments
1										
2										
3										
4										
5	1	8 5 / 5 5				0.3'			0ppm	0ppm in hole
6										
7										
8										
9										
10	2	10 19 / 28 50/1.3				1.6'			0ppm	
11										
12										
13										
14										
15	3	24 22 / 52 34				1.6'			0ppm	



NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1	Augered 0' to 4' through med. Brown Silt with	○	⊗	⊗
2	Some VF to med. sand and little Rounded Gravel	○	⊗	⊗
3		○	⊗	○
4		○	⊗	○
5	4' to 6', Poor Recovery due to broken Cobble in shoe, obtained 0.3' of orange/brown Silt with little VF to med. Sand, trace clay & gravel	○	⊗	⊗
6		○	○	○
7		○	○	○
8		○	○	○
9		○	○	○
10	9' to 11', Brown/Gray SILT with Some rounded Gravel	○	⊗	○
11	Some VF to Coarse sand and trace clay	○	⊗	○
12	11' to 14', Augered through Gray Silt & weathered shale	⊗	⊗	○
13		⊗	⊗	○
14	14' to 16', Gray Weathered Shale and Silt with	○	⊗	○
15	trace - little clay & Sand.	○	⊗	○

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVM (ppm)	Comments
16	3	5 2 3 4					—			—	
17											
18											
19											Saturated @ 19' BGS
20	4	20 20					1.0'			0 ppm	W.L. in Augers = 12.5' BGS.
21		24 22									
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
33											
34											
35											
36											
37											
38											
39											
40											
41											
42											
43											
44											
45											

Depth(feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
16		○	○	○
17		○	○	○
18		○	○	○
19		○	○	○
20	19' to 21', Weathered Shale (~~of~~ silt to coarse sand	○	○	⊗
21	size grains) Angular gravel, with little clay (saturated)	○	○	⊗
22		○	○	○
23		○	○	○
24		○	○	○
25		○	○	○
26		○	○	○
27		○	○	○
28		○	○	○
29		○	○	○
30		○	○	○
31		○	○	○
32		○	○	○
33		○	○	○
34		○	○	○
35		○	○	○
36		○	○	○
37		○	○	○
38		○	○	○
39		○	○	○
40		○	○	○
41		○	○	○
42		○	○	○
43		○	○	○
44		○	○	○
45		○	○	○

Table 1

MONITORING WELL AND PIEZOMETER CONSTRUCTION DETAIL SUMMARY AMERICAN CLEANERS SITE

Well/ Piezometer ID	Date Installed	Total Depth (ft BGS)	Water Level* (ft BTOIC)	Screen Interval (ft BGS)	Sand Pack (ft BGS)	Development Volume (gal)	Water Level Elevation (ft AMSL)
MW-1	2-26-98	29	15.99	10-25	7.9-29	41	853.08
MW-2	2-25-98	21.3	10.15	11.1-21.1	9.1-21.1	10	856.83
MW-3	2-27-98	27.5	16.65	12.2-27.2	10-27.2	8	851.56
P-1	3-3-98	24	18.51	14-24	NA	NA	854.06
P-2	3-3-98	25.3	19.21	14-24	19-25.3	NA	846.52
P-3	3-2-98	21	13.03	10.1-20.1	17.5-21	NA	850.30
P-4	3-2-98	21	7.79	10.8-20.8	6-21	NA	858.40

* Water level measured on 3/17/98.

Key:

AMSL = Above mean sea level (NAD '27).
BGS = Below ground surface.
BTOIC = Below top of inner casing.
gal = Gallon.
ID = Identification.
NA = Not applicable.

Table 5

SUMMARY OF SURVEY DATA
AMERICAN CLEANERS SITE

Piezometer or Well Location	Horizontal Location		Elevation AMSL	
	Northing	Easting	Ground	TOIC
Piezometers				
P-1	4823.7643	5347.1669	873.22	872.57
P-2	5315.2282	5609.5350	866.38	865.73
P-3	5399.6465	5247.4113	863.75	863.33
P-4	4879.6849	4937.2308	867.13	866.19
Monitoring Wells				
MW-1	4950.9543	5093.0562	869.64	869.07
MW-2	5015.3682	5105.5462	867.37	866.98
MW-3	4971.4671	5056.3028	869.10	868.21

Note: Horizontal control is local with assumed coordinates and magnetic north, and vertical control was established by using a nearby National Geodetic Survey monument.

Key:

AMSL = Above mean sea level (NAD 27).
TOIC = Top of inner casing (PVC riser).

Table 2

SUMMARY OF WELL DEVELOPMENT DATA
AMERICAN CLEANERS SITE

Well ID	Date of Development	Development Volume (gal)	pH	Conductivity (umhos/cm)	Temperature (F°)	Turbidity (NTUs)	Odor
MW-1	3-3-98	41	7.28	1054	49.8	>1000	None noted
MW-2	3-3-98	10	7.25	860	45.9	>1000	None noted
MW-3	3-3-98	5	7.67	2260	48.3	>1000	None noted

Note: All values are final readings made during development.

Key:

gal = Gallon.
ID = Identification.
NTU = Nephelometric turbidity units.
umhos/cm = micromhos per centimeter.

Table 3

SUMMARY OF
INVESTIGATION DERIVED WASTES
AMERICAN CLEANERS SITE

Drum Number	Description of Source Materials
1	Soil from MW-2
2	Soil from MW-1
3	Soil from MW-3
4	Soil from P-3 and P-4
5	Soil from P-1, P-2 and P-4
6	Decontamination water

Table 4

SUMMARY OF SLUG TEST DATA
AMERICAN CLEANERS SITE
MARCH 17, 1998

Monitoring Well	Transmissivity (ft^2/sec)	Hydraulic Conductivity (ft/sec)
MW-1	4.70×10^{-4}	5.52×10^{-5}
MW-2	5.47×10^{-5}	5.19×10^{-6}
MW-3	9.25×10^{-5}	9.50×10^{-6}

DRILLING SUMMARY

Geologist:
Scott McCabe

Drilling Company:
Buffalo Drilling Co.

Driller:
Ted Bistoff

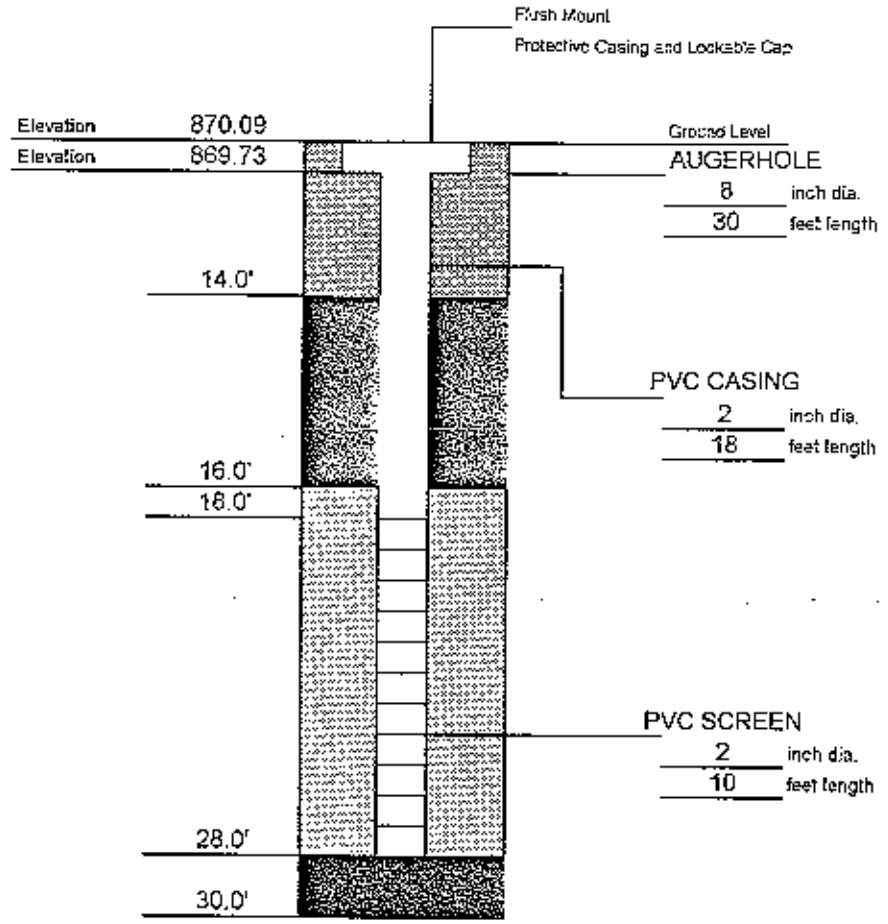
Rig Make/Model:
CME-75

Date:
01/31/2001

GEOLOGIC LOG

Depth(ft.)	Description
0-.4	Concrete
.4-4.0	Fill: Silty fine sand, some gravel, trace blacktop
1.0-9.5	Silty fine sand, some gravel
9.5-15.0	Fine to medium sand
24.0-30.0	Clayey silt, some shale fragments

DEPTH



WELL DESIGN

CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface: 6' Steel protective casing	Type: 2" diameter, Schedule 40 PVC	Type: #00 well sand Setting: 16.0-28.0'
Monitor: 2" diameter, Schedule 40 PVC	Slot Size: 0.010"	SEAL MATERIAL Type: Bentonite chips Setting: 14.0-16.0' Setting: 28.0-30.0'

COMMENTS:

LEGEND

- Cement/Bentonite Grout
- Bentonite Seal
- Silica Sandpack

Client: NYSDEC	Location: American Cleaners	Project No.: 0500035822.02
URS Corporation	MONITORING WELL CONSTRUCTION DETAILS	Well Number: MW-5

DRILLING SUMMARY

Geologist: Scott McCabe

Drilling Company: Buffalo Drilling Co.

Driller: Ted Bistoff

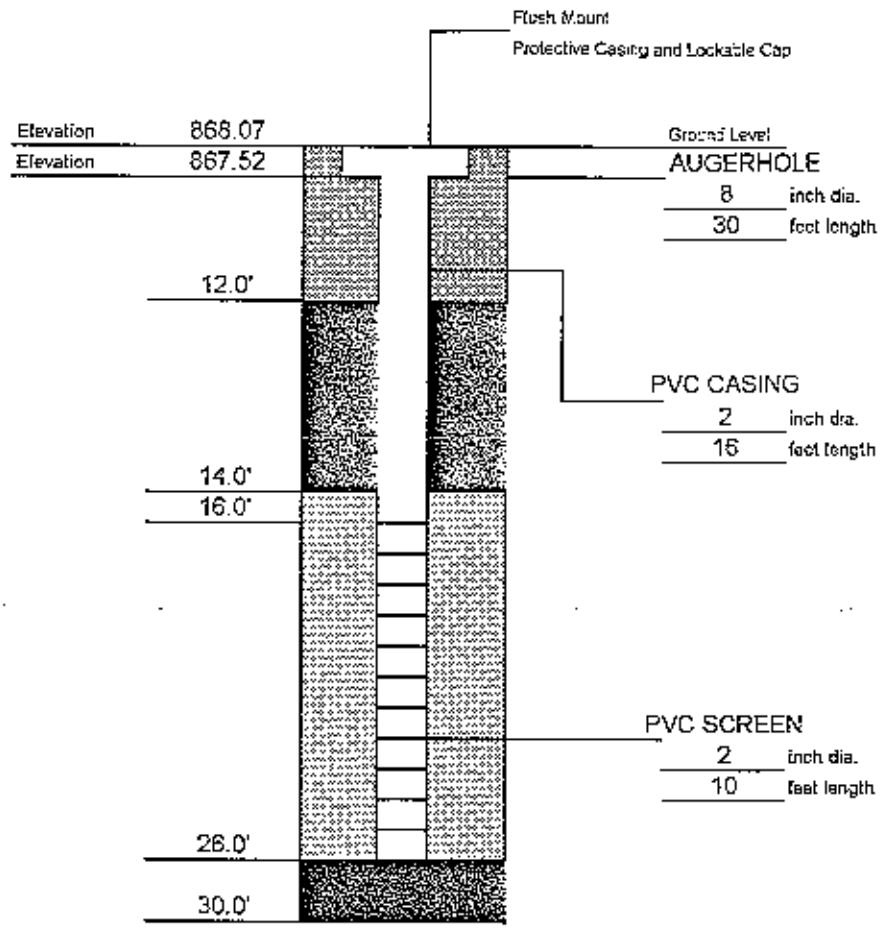
Rig Make/Model: CME-75

Date: 02/01/2001

GEOLOGIC LOG

Depth(ft.)	Description
0-.5	Concrete
.5-1.5	Fill: Clayey silt, some concrete and gravel
1.5-4.0	Silty fine sand, some gravel
4.0-24.0	Silt, some sand and gravel, trace clay and cobbles
24.0-30.0	Clayey silt, some shale fragments

DEPTH



WELL DESIGN

CASING MATERIAL		SCREEN MATERIAL		FILTER MATERIAL
Surface:	6' Steel protective casing	Type:	2" diameter, Schedule 40 PVC	Type: #00 well sand Setting: 14.0-26.0'
Monitor:	2" diameter, Schedule 40 PVC	Slot Size:	0.010"	SEAL MATERIAL Type: Bentonite chips Setting: 12.0-14.0' Setting: 26.0-30.0'

COMMENTS:

LEGEND

- Cement/Bentonite Grout
- Bentonite Seal
- Silica Sandpack

Client: NYSDEC	Location: American Cleaners	Project No.: 0500035822.02
URS Corporation	MONITORING WELL CONSTRUCTION DETAILS	Well Number: MW-4

DRILLING SUMMARY

Geologist: Scott Mccabe

Drilling Company: Natures Way

Driller: Bruce Bartz

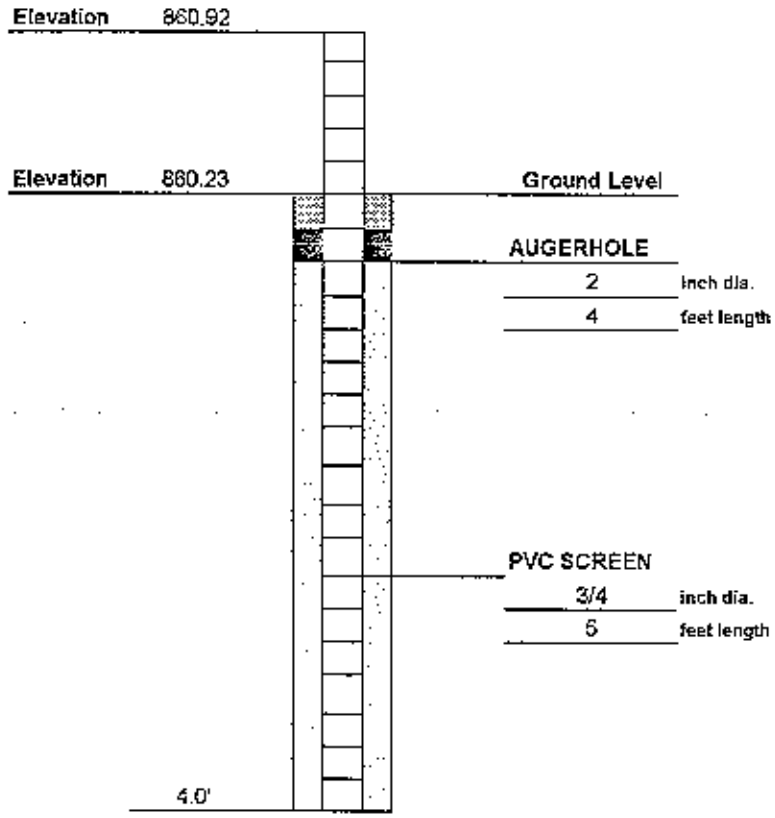
Rig Make/Model: Jack-hammer

Date: 11/29/2000

GEOLOGIC LOG

Depth(ft.)	Description
0-.2	Concrete
.2-.7	Silt and sand, some gravel
.7-2.6	Fine to medium sand, trace silt
2.6-4.0	Clayey silt, some angular gravel

DEPTH



NOT TO SCALE

WELL DESIGN

CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface: None	Type: 3/4 inch ID PVC	Type #2 sand Setting: .4-4.0'
Well: None	Slot Size: .010" - Continuous wrap	SEAL MATERIAL Type: Setting: Concrete 0-.2' Bentonite .2-.4'

COMMENTS: Piezometer is installed in SB-32.

LEGEND

- Cement/Bentonite Grout
- Bentonite Seal
- Silica Sandpack

Client: NYSDEC	Location: American Cleaners	Project No.: 0500035822.02
U R S Corporation	PIEZOMETER CONSTRUCTION DETAILS	Well Number: PZ-1

DRILLING SUMMARY

Geologist:
Scott Mccabe

Drilling Company:
Natures Way

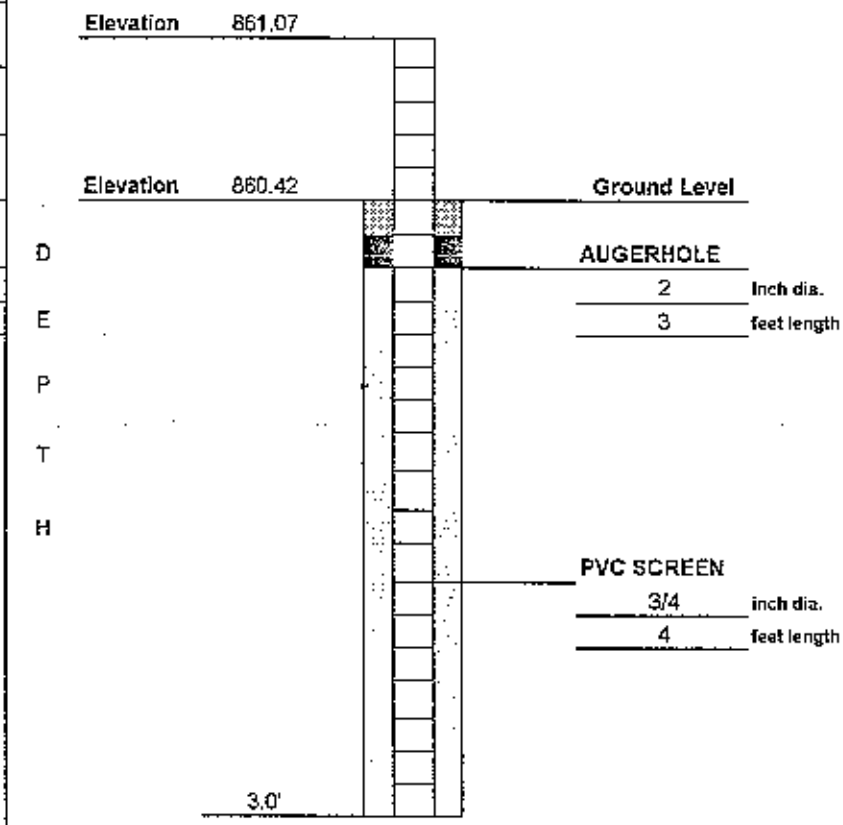
Driller:
Bruce Bartz

Rig Make/Model:
Jack-hammer

Date:
11/29/2000

GEOLOGIC LOG

Depth(ft.)	Description
0-.2	Concrete
.2-.4	Silt and sand, some gravel
.4-2.8	Fine to medium sand, trace silt
2.8-3.0	Clayey silt, some angular gravel



WELL DESIGN

CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface: None	Type: 3/4 inch ID PVC	Type #2 sand Setting: .4-3.0'
Well: None	Slot Size: .010" - Continuous wrap	SEAL MATERIAL Type: Setting: Concrete 0-.2' Bentonite .2-.4'

COMMENTS: Piezometer is installed in SB-37.

LEGEND

- Cement/Bentonite Grout
- Bentonite Seal
- Silica Sandpack

Client: NYSDEC	Location: American Cleaners	Project No.: 0500035822.02
U R S Corporation	PIEZOMETER CONSTRUCTION DETAILS	Well Number: PZ-2

DRILLING SUMMARY

Geologist:
Scott Mccabe

Drilling Company:
Natures Way

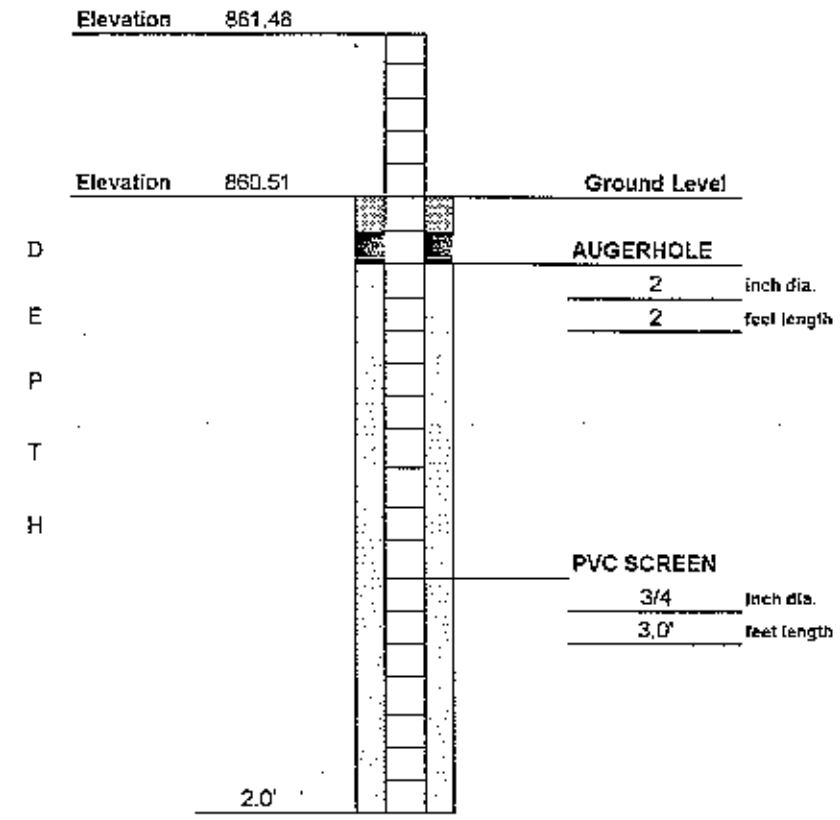
Driller:
Bruce Bartz

Rig Make/Model:
Jack-hammer

Date:
11/29/2000

GEOLOGIC LOG

Depth(ft.)	Description
0-.2	Concrete
.2-.5	Silt and sand, some gravel
.5-2.0	Clayey silt, some angular gravel



NOT TO SCALE

WELL DESIGN

CASING MATERIAL	*SCREEN MATERIAL*	*FILTER MATERIAL*
Surface: None	Type: 3/4 inch ID PVC	Type #2 sand Setting: .4-2.0
Well: None	Slot Size: .010" - Continuous wrap	*SEAL MATERIAL* Type: Setting: Concrete 0-.2' Bentonite .2-.4'

COMMENTS: Piezometer is installed in SB-1.

LEGEND

- Cement/Bentonite Grout
- Bentonite Seal
- Silica Sandpack

Client: NYSDEC	**Location: American Cleaners**	**Project No.: 0500035822.02**
U R S Corporation	**PIEZOMETER CONSTRUCTION DETAILS**	**Well Number: PZ-3**

DRILLING SUMMARY

Geologist: Scott Mccabe

Drilling Company: Natures Way

Driller: Bruce Bartz

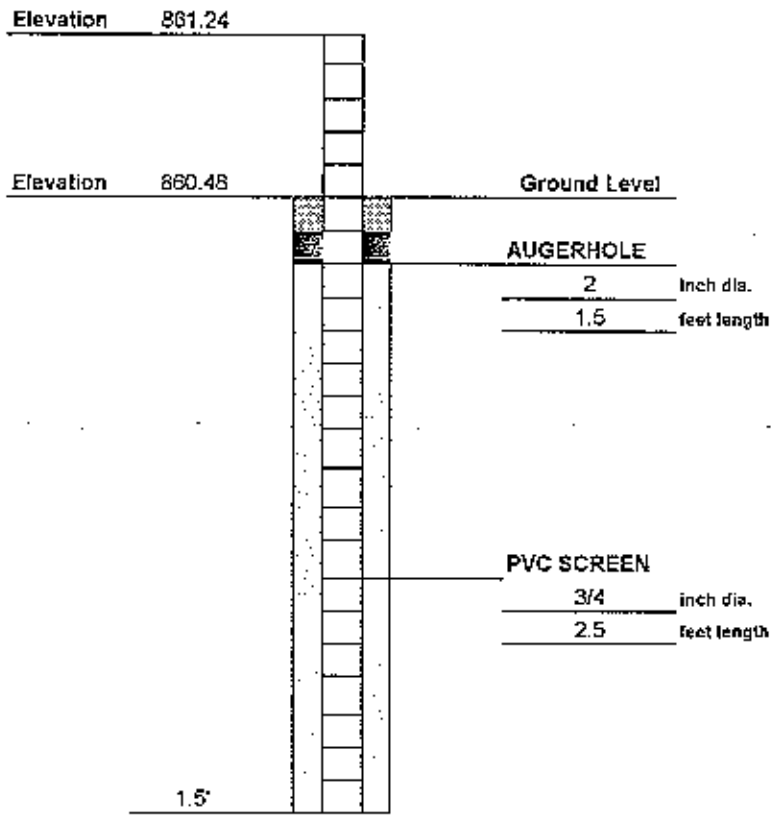
Rig Make/Model: Jack-hammer

Date: 11/29/2000

GEOLOGIC LOG

Depth(ft.)	Description
0-.2	Concrete
.2-.5	Silt and sand, some gravel
.5-1.5	Clayey silt, some angular gravel

DEPTH



NOT TO SCALE

WELL DESIGN

CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface: None	Type: 3/4 inch ID PVC	Type #2 sand Setting: 4-1.5'
Well: None	Slot Size: .010" - Continuous wrap	SEAL MATERIAL Type: Setting: Concrete 0-.2' Bentonite .2-.4'

COMMENTS: Piezometer is installed in SB-26.

LEGEND

- Cement/Bentonite Grout
- Bentonite Seal
- Silica Sandpack

Client: NYSDEC	Location: American Cleaners	Project No.: 0600035822.02
U R S Corporation	PIEZOMETER CONSTRUCTION DETAILS	Well Number: PZ-4

DRILLING SUMMARY

Geologist: Scott Mccabe

Drilling Company: Natures Way

Driller: Bruce Bartz

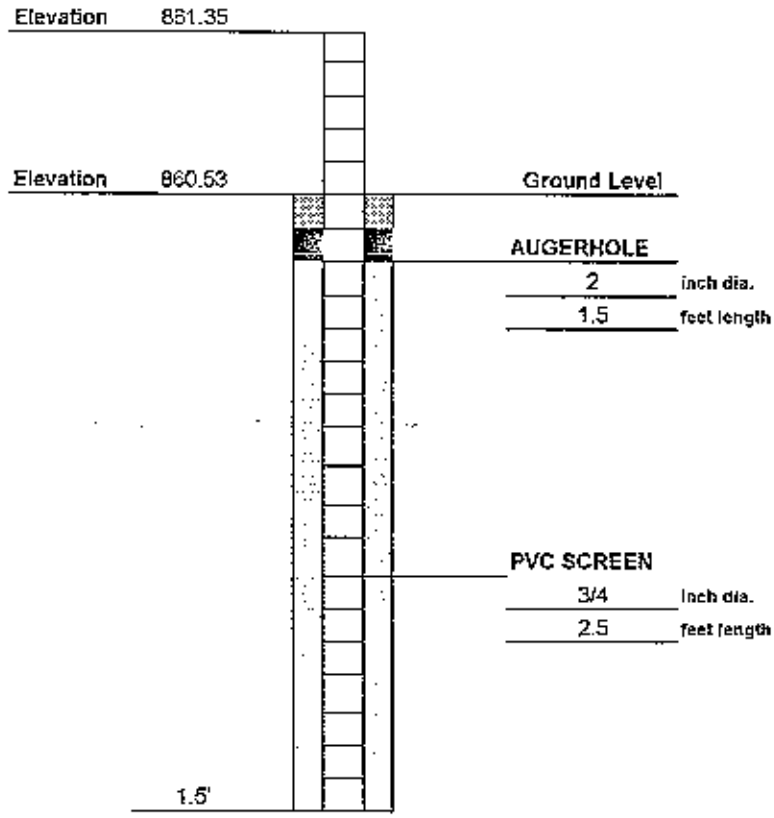
Rig Make/Model: Jack-hammer

Date: 11/29/2000

GEOLOGIC LOG

Depth(ft.)	Description
0-.2	Concrete
.2-.5	Silt and sand, some gravel
.5-1.5	Clayey silt, some angular gravel

DEPTH



WELL DESIGN

CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface: None	Type: 3/4 inch ID PVC	Type #2 sand Setting: .4-1.5'
Well: None	Slot Size: .010" - Continuous wrap	SEAL MATERIAL Type: Setting: Concrete 0-.2' Bentonite .2-.4'

COMMENTS: Piezometer is installed in SB-18.

LEGEND

- Cement/Bentonite Grout
- Bentonite Seal
- Silica Sandpack

Client: NYSDEC	Location: American Cleaners	Project No.: 0500035822.02
URS Corporation	PIEZOMETER CONSTRUCTION DETAILS	Well Number: PZ-5

APPENDIX C

MONITORING WELL DEVELOPMENT LOGS

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: American Cleaners WELL NO.: MW-1

PROJECT NO.: 0500035882.02 Page: 1 of 1

STAFF: Bob Fabian

DATE(S): 11/28/2000

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	24.41	1"	0.0
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	16.91	2"	0.2
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	7.50	3"	0.4
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.7
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	1.28	5"	1.0
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=	3.8	6"	1.5
7. VOLUME OF WATER REMOVED (GAL.)	=	6	8"	2.6

ACCUMULATED VOLUME PURGED (GALLONS)

PARAMETERS	0	1	2	3	4	5	6				
pH	7.02	6.92	6.80	6.78	6.78	6.78	6.79				
SPEC. COND. (umhos)	1060	960	1130	960	960	980	960				
TEMPERATURE (°F)	48.3	53.6	56.7	53.9	55.0	55.4	55.4				
TURBIDITY (NTU)	139	103	74	53	20	18	18				

COMMENTS:

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: American Cleaners WELL NO.: MW-2

PROJECT NO.: 0500035882.02 Page: 1 of 1

STAFF: Bob Fabian

DATE(S): 11/28/2000

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	20.66	1"	0.0
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	12.22	2"	0.2
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	8.44	3"	0.4
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.7
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	1.43	5"	1.0
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=	4.3	6"	1.5
7. VOLUME OF WATER REMOVED (GAL.)	=	4	8"	2.6

ACCUMULATED VOLUME PURGED (GALLONS)

PARAMETERS	0	1	2	3	4						
pH	6.86	6.78	6.72	6.71	6.79						
SPEC. COND. (umhos)	1040	630	590	600	620						
TEMPERATURE (°F)	49.4	52.7	53.5	52.5	53.2						
TURBIDITY (NTU)	18	11	2	27	43						

COMMENTS:

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: American Cleaners WELL NO : MW-3

PROJECT NO.: 0500035882.02 Page: 1 of 1

STAFF: Bob Fabian

DATE(S): 11/28/2000

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	26.21	1"	0.0
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	17.40	2"	0.2
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	8.81	3"	0.4
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.7
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	1.50	5"	1.0
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=	4.5	6"	1.5
7. VOLUME OF WATER REMOVED (GAL.)	=	6	8"	2.6

ACCUMULATED VOLUME PURGED (GALLONS)

PARAMETERS	0	1	2	3	4	5	6				
pH	6.80	6.73	6.70	6.68	6.69	6.80	6.82				
SPEC. COND. (umhos)	2180	1990	1930	2280	2480	2420	2390				
TEMPERATURE (°F)	50.2	55.1	56.0	53.6	55.4	55.1	55.1				
TURBIDITY (NTU)	1000<	1000<	1000<	101	77	43	22				

COMMENTS:

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: American Cleaners WELL NO.: MW-4

PROJECT NO.: 0500035882.02 Page: 1 of 2

STAFF: Scott McCabe

DATE(S): 02/02/02

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	27.60	1"	0.0
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	17.36	2"	0.2
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	10.24	3"	0.4
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.7
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	1.74	5"	1.0
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=	—	6"	1.5
7. VOLUME OF WATER REMOVED (GAL.)	=	38	8"	2.6

ACCUMULATED VOLUME PURGED (GALLONS)

PARAMETERS	0	2	4	6	8	10	12	14	16	18	20
pH	6.83	6.81	6.79	6.78	6.82	6.88	7.07	7.09	7.07	7.06	7.07
SPEC. COND. (umhos)	950	910	950	920	930	950	930	950	940	950	920
TEMPERATURE (°F)	47.2	49.3	48.2	49.3	50.9	51.3	51.1	50.5	52.3	51.5	52.7
TURBIDITY (NTU)	1000<	1000<	1000<	1000<	1000<	1000<	1000<	1000<	1000<	750	65

COMMENTS: Well purged with ISCO pump using dedicated/disposable tubing.

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: American Cleaners WELL NO.: MW-4

PROJECT NO.: 0500035882.02 Page: 2 of 2

STAFF: Scott McCabe

DATE(S): 02/02/02

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	27.60	1"	0.0
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	17.36	2"	0.2
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	10.24	3"	0.4
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.7
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	1.74	5"	1.0
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=	—	6"	1.5
7. VOLUME OF WATER REMOVED (GAL.)	=	38	8"	2.6

ACCUMULATED VOLUME PURGED (GALLONS)

PARAMETERS	22	24	26	28	30	32	34	36	38		
pH	6.99	6.87	6.89	6.85	6.92	6.94	7.01	7.05	6.98		
SPEC. COND. (umhos)	930	920	950	910	950	930	940	910	920		
TEMPERATURE (°F)	53.6	52.4	51.8	52.6	51.5	52.0	51.7	52.6	51.8		
TURBIDITY (NTU)	56	62	48	51	42	37	45	33	46		

COMMENTS: Well purged with ISCO pump using dedicated/disposable tubing.

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: American Cleaners WELL NO.: MW-5

PROJECT NO.: 0500035882.02 Page: 1 of 2

STAFF: Scott McCabe

DATE(S): 02/02/02

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	25.56	1"	0.0
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	15.89	2"	0.2
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	9.67	3"	0.4
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.7
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	1.64	5"	1.0
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=	---	6"	1.5
7. VOLUME OF WATER REMOVED (GAL.)	=	32	8"	2.6

ACCUMULATED VOLUME PURGED (GALLONS)

PARAMETERS	0	2	4	6	8	10	12	14	16	18	20
pH	7.21	7.16	6.99	6.79	6.80	6.84	6.87	6.71	6.72	6.72	6.71
SPEC. COND. (umhos)	1290	1070	1100	1000	1040	1060	1120	1150	1010	990	950
TEMPERATURE (°F)	47.8	47.2	49.0	51.2	51.9	52.3	52.3	52.9	48.6	49.4	48.1
TURBIDITY (NTU)	1000<	1000<	1000<	1000<	1000<	1000<	1000<	1000<	1000<	1000<	1000<

COMMENTS: Well purged with ISCO pump using dedicated/disposable tubing. Well dry after 2 gallons removed, recharged within 15 minutes.

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: American Cleaners WELL NO.: MW-5

PROJECT NO.: 0500035882.02 Page: 2 of 2

STAFF: Scott McCabe

DATE(S): 02/02/02

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	25.56	1"	0.0
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	15.89	2"	0.2
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	9.67	3"	0.4
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.7
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	1.64	5"	1.0
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=	—	6"	1.5
7. VOLUME OF WATER REMOVED (GAL.)	=	32	8"	2.6

ACCUMULATED VOLUME PURGED (GALLONS)

PARAMETERS	22	24	26	28	30	32					
pH	6.85	6.89	6.92	6.85	6.83	6.87					
SPEC. COND. (umhos)	980	990	1020	1050	1020	1030					
TEMPERATURE (°F)	48.1	48.9	50.2	51.6	52.1	50.9					
TURBIDITY (NTU)	464	187	69	52	41	37					

COMMENTS: Well purged with ISCO pump using dedicated/disposable tubing. Well dry after 2 gallons removed, recharged within 15 minutes.

APPENDIX D

MONITORING WELL PURGE LOGS

WELL PURGING LOG

URS Corporation

PROJECT TITLE: American Cleaners

WELL NO.: MW-1

PROJECT NO.: 0500035882.02

Page: 1 of 1

STAFF: Bob Fabian

START: 9:24

DATE(S): 11/30/2000

STOP: 9:40

SAMPLE: 10:45

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	24.40	1"	0.0
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	16.90	2"	0.2
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	7.50	3"	0.4
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.7
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	1.28	5"	1.0
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=	3.8	6"	1.5
7. VOLUME OF WATER REMOVED (GAL.)	=	4	8"	2.6

ACCUMULATED VOLUME PURGED (GALLONS)

PARAMETERS	0	1	2	3	4	SAMPLE					
pH	6.84	6.77	6.75	6.75	6.83	6.81					
SPEC. COND. (umhos)	1090	966	1048	982	987	803					
TEMPERATURE (°F)	49.8	54.1	53.5	53.0	52.4	47.9					
TURBIDITY (NTU)	104	119	62	41	23	11					

COMMENTS:

WELL PURGING LOG

URS Corporation

PROJECT TITLE: American Cleaners | WELL NO.: MW-2

PROJECT NO.: 0500035882.02 | Page: 1 of 1

STAFF: Bob Fabian | START: 8:00

DATE(S): 11/30/2000 | STOP: 8:10

SAMPLE: 9:20

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	20.68	1"	0.0
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	12.37	2"	0.2
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	8.31	3"	0.4
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.7
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	1.41	5"	1.0
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=	4.2	6"	1.5
7. VOLUME OF WATER REMOVED (GAL.)	=	3	8"	2.6

ACCUMULATED VOLUME PURGED (GALLONS)

PARAMETERS	0	1	2	3	SAMPLE						
pH	6.62	6.64	6.65	6.75	6.82						
SPEC. COND. (umhos)	698	565	615	592	1079						
TEMPERATURE (°F)	43.7	49.4	51.5	50.1	49.7						
TURBIDITY (NTU)	54	71	180	152	22						

COMMENTS:

WELL PURGING LOG

URS Corporation

PROJECT TITLE: American Cleaners

WELL NO.: MW-3

PROJECT NO.: 0500035882.02

Page: 1 of 1

STAFF: Bob Fabian

START: 8:39

DATE(S): 11/30/2000

STOP: 9:02

SAMPLE: 10:15

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	26.19	1"	0.0
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	17.25	2"	0.2
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	8.94	3"	0.4
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.7
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	1.52	5"	1.0
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=	4.6	6"	1.5
7. VOLUME OF WATER REMOVED (GAL.)	=	3.25	8"	2.6

ACCUMULATED VOLUME PURGED (GALLONS)

PARAMETERS	0	1	2	3	3.25	SAMPLE					
pH	6.86	6.77	6.80	6.79	6.73	6.68					
SPEC. COND. (umhos)	2190	2300	2350	2470	2450	2410					
TEMPERATURE (°F)	46.4	51.7	49.9	51.6	52.8	48.0					
TURBIDITY (NTU)	1000<	39	21	29	15	45					

COMMENTS:

WELL PURGING LOG

URS Corporation

PROJECT TITLE: American Cleaners WELL NO.: MW-1

PROJECT NO.: 0500035882.02 Page: 1 of 1

STAFF: Scott McCabe, Tom Moore START: 15:27

DATE(S): 2/15/01 STOP: 15:44

SAMPLE: 16:30

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	24.36	1"	0.0
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	16.30	2"	0.2
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	8.06	3"	0.4
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.7
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	1.37	5"	1.0
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=	4.1	6"	1.5
7. VOLUME OF WATER REMOVED (GAL.)	=	4	8"	2.6

ACCUMULATED VOLUME PURGED (GALLONS)

PARAMETERS	0	0.5	1	1.5	2	2.5	3	3.5	4	Sample	
pH	66.78	6.85	6.72	6.81	6.75	0.67	6.78	6.75	6.74	6.76	
SPEC. COND. (umhos)	2290	2290	2400	2410	2360	2370	2300	2270	2250	2230	
TEMPERATURE (°F)	46.5	48.5	49.2	49.1	49.1	49.1	49.1	49.1	49.7	47.5	
TURBIDITY (NTU)	301	174	48.9	36.9	27.7	25.0	20.1	12.6	8.9	6.5	

COMMENTS:

WELL PURGING LOG

URS Corporation

PROJECT TITLE: American Cleaners

WELL NO.: MW-2

PROJECT NO.: 0500035882.02

Page: 1 of 1

STAFF: Scott McCabe, Tom Moore

START: 13:30

DATE(S): 2/15/01

STOP: 13:58

SAMPLE: 16:15

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	20.64	1"	0.0
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	11.21	2"	0.2
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	9.43	3"	0.4
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.7
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	1.60	5"	1.0
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=	4.8	6"	1.5
7. VOLUME OF WATER REMOVED (GAL.)	=	4.5	8"	2.6

ACCUMULATED VOLUME PURGED (GALLONS)

PARAMETERS	0	0.5	1	1.5	2	2.5	3	3.5	4	4.5	Sample
pH	6.95	7.04	7.09	7.11	7.10	7.11	7.11	7.13	7.22	7.20	7.18
SPEC. COND. (umhos)	1590	1430	1430	1470	1440	1460	1490	1490	1520	1530	1510
TEMPERATURE (°F)	44.7	46.7	46.2	46.5	46.5	47.1	47.2	47.2	47.2	47	45.3
TURBIDITY (NTU)	114	21.1	19.6	14.9	13.2	14.5	20.8	19.3	10.6	10.2	8.7

COMMENTS:

WELL PURGING LOG

URS Corporation

PROJECT TITLE: American Cleaners

WELL NO.: MW-3

PROJECT NO.: 0500035882.02

Page: 1 of 1

STAFF: Scott McCabe, Tom Moore

START: 15:00

DATE(S): 2/15/01

STOP: 15:25

SAMPLE: 16:25

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	26.16	1"	0.0
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	16.51	2"	0.2
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	9.65	3"	0.4
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.7
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	1.64	5"	1.0
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=	4.9	6"	1.5
7. VOLUME OF WATER REMOVED (GAL.)	=	4.5	8"	2.6

ACCUMULATED VOLUME PURGED (GALLONS)

PARAMETERS	0	0.5	1	1.5	2	2.5	3	3.5	4	4.5	Sample
pH	6.75	6.71	6.78	6.82	6.79	6.75	6.71	6.69	6.67	6.68	6.64
SPEC. COND. (umhos)	3070	3020	3030	2780	2850	3000	3030	3010	3060	3040	3020
TEMPERATURE (°F)	48.6	48.8	49.3	49.6	50.3	50.1	50.5	49.8	48.6	48.9	48.5
TURBIDITY (NTU)	264	71.5	45.6	19.4	18.8	16.2	9.4	6.7	4.9	5.7	7.8

COMMENTS:

WELL PURGING LOG

URS Corporation

PROJECT TITLE: American Cleaners WELL NO.: MW-4

PROJECT NO.: 0500035882.02 Page: 1 of 1

STAFF: Scott McCabe, Tom Moore START: 14:20

DATE(S): 2/15/01 STOP: 14:58

SAMPLE: 16:20

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	25.55	1"	0.0
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	15.53	2"	0.2
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	10.02	3"	0.4
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.7
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	1.70	5"	1.0
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=	5.1	6"	1.5
7. VOLUME OF WATER REMOVED (GAL.)	=	9	8"	2.6

ACCUMULATED VOLUME PURGED (GALLONS)

PARAMETERS	0	1	2	3	4	5	6	7	8	9	Sample
pH	7.64	7.59	7.52	7.21	6.98	6.75	6.68	6.65	6.68	6.65	6.65
SPEC. COND. (umhos)	1900	2030	2030	2050	1970	1980	1960	1950	1960	1920	1940
TEMPERATURE (°F)	43.8	47.3	48.9	48.7	48.9	49.7	49.7	48.2	48.7	49.5	45.6
TURBIDITY (NTU)	180	192	264	>1000	363	172	77.3	42.7	47.6	26.2	28.4

COMMENTS:

WELL PURGING LOG

URS Corporation

PROJECT TITLE: American Cleaners

WELL NO.: MW-5

PROJECT NO.: 0500035882.02

Page: 1 of 1

STAFF: Scott McCabe, Tom Moore

START: 15:39

DATE(S): 2/15/01

STOP: 16:10

SAMPLE: 16:35

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	27.60	1"	0.0
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	16.98	2"	0.2
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	10.62	3"	0.4
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.7
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	1.81	5"	1.0
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=	5.4	6"	1.5
7. VOLUME OF WATER REMOVED (GAL.)	=	6	8"	2.6

ACCUMULATED VOLUME PURGED (GALLONS)

PARAMETERS	0	1	2	3	4	5	6	Sample			
pH	6.85	6.85	6.78	6.75	6.68	6.72	6.74	6.71			
SPEC. COND. (umhos)	1550	1660	1620	1570	1590	1580	1570	1590			
TEMPERATURE (°F)	47.7	49.6	50.9	51.1	50.3	51.1	50.8	51.4			
TURBIDITY (NTU)	768	134	63.6	37.8	35.8	39.2	25.7	29.1			

COMMENTS:

APPENDIX E

SURVEY DATA

2-15-01
AMERICAN CLEANERS

JOB · 35822.01

	NORTH	EAST	RIM	DESC Mw.asc
1	1192445.2777	105660.5226	868.07	MW4
2	1192402.7401	105751.8852	870.09	MW5

Top of RISER (MW-4) = 867.52

Top of RISER (MW-5) = 869.73

N E 50walnu

1,	5000.000000,	5000.000000,	100.000000,START
7,	1193408.717000,	105450.627000,	866.839000,CUT
8,	1193225.864000,	105877.251000,	873.075000,REBAR
10,	1192487.092510,	105634.888184,	866.567929,TRAV PK
11,	1192413.624709,	105662.812001,	868.687327,TRAV PK
12,	1192403.172872,	105742.468056,	869.952667,TRAV PK
13,	1192374.126238,	105921.811483,	872.985533,TRAV PK
14,	1192428.197086,	105732.969287,	868.445770,TRAV NAIL
15,	1192413.469304,	105725.777165,	860.341691,TRAV NAIL
16,	1192421.713332,	105694.748858,	860.585870,TRAV PK
17,	1192427.184779,	105672.509791,	860.541083,TRAV PK
18,	1192443.989817,	105702.568840,	863.393767,TRAV PK
50,	1192878.387154,	105735.633602,	863.457481,MW-P-3 CA
51,	1193219.568692,	105869.812437,	873.391300,NAIL
52,	1192633.725999,	105712.277132,	863.405115,FIP
53,	1192570.142026,	105694.791935,	864.443003,FREBAR
54,	1192521.125207,	105681.934053,	865.715413,FREBAR
55,	1192472.695670,	105669.094798,	867.340112,FREBAR
56,	1192294.321943,	105576.548905,	866.831353,MW-P-4 GR/CA
57,	1192406.924369,	105602.883746,	868.524350,SMH
58,	1192401.202294,	105626.321213,	868.729407,SMH
59,	1192383.254404,	105629.879944,	868.462880,EMH
60,	1192369.794381,	105621.773872,	868.131336,WV
61,	1192426.387527,	105635.804810,	868.420299,WV
62,	1192426.202551,	105646.854031,	868.322143,LUP
63,	1192375.311263,	105634.015277,	868.458442,LUP
64,	1192409.318253,	105656.130083,	868.007157,DI
65,	1192410.835515,	105654.773081,	868.370966,TC PC
66,	1192410.766714,	105654.733728,	867.939846,BC
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68,	1192414.989741,	105648.975855,	868.079669,TC
69,	1192419.683078,	105646.667931,	868.051187,TC
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71,	1192421.025836,	105646.279858,	867.999323,BC
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50walnu

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232,1192455.709855,105696.592222, 768.141607,PILAR1

PZ-3 Gr
Gr to Riser +0.97

PZ-5 Gr
Gr to Riser +0.42

PZ-4 Gr
Gr to Riser +0.76

PZ-1 Gr
Gr to Riser +0.69

PZ-2 Gr
Gr to Riser +0.65

50 WALNUT Binghamton

MW-PW-1 Gr/Ca
Gr/Ca to Ri -0.66

MW-PW-2 Gr/Ca
Gr/Ca To Ri -0.64 ~~3~~ 2

MW-PW-3 Gr/Ca
Gr/Ca To Ri -0.41 ~~2~~ 3

MW-PW-4 Gr/Ca
Gr/Ca To Ri -0.95

MW-3 Gr/Ca
Gr/Ca To -0.91

MW-2 Gr/Ca
Gr/Ca to -0.41

MW-1 Gr/Ca
Gr/Ca to Ri -0.57

APPENDIX F

DATA VALIDATION TABLES

APPENDIX F
GROUNDWATER ANALYTICAL RESULTS
AMERICAN CLEANERS

Location ID		MW-01	MW-01	MW-02	MW-02	MW-03
Sample ID		MW-1	MW-1	MW-2	MW-2	MW-3
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft.)		-	-	-	-	-
Date Sampled		11/30/00	02/15/01	11/30/00	02/15/01	11/30/00
Parameter	Units					
Volatiles						
Chloromethane	UG/L	20 U	10 U	10 U	10 U	10 U
Bromomethane	UG/L	20 U	10 UJ	10 U	10 UJ	10 U
Vinyl Chloride	UG/L	20 U	10 U	10 U	10 U	1 J
Chloroethane	UG/L	20 U	10 U	10 U	10 U	10 U
Methylene Chloride	UG/L	20 U	10 U	10 U	10 U	10 U
Acetone	UG/L	20 U	10 UJ	10 U	10 UJ	10 U
Carbon Disulfide	UG/L	20 U	10 U	10 U	10 U	10 U
1,1-Dichloroethene	UG/L	20 U	10 U	10 U	10 U	10 U
1,1-Dichloroethane	UG/L	20 U	10 UJ	10 U	10 UJ	10 U
1,2-Dichloroethene (Total)	UG/L	20 U	10 U	10 U	10 U	2 J
Chloroform	UG/L	20 U	10 U	10 U	10 U	10 U
1,2-Dichloroethane	UG/L	20 U	10 U	10 U	10 U	10 U
2-Butanone	UG/L	20 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	UG/L	20 U	10 U	10 U	10 U	10 U
Carbon Tetrachloride	UG/L	20 U	10 U	10 U	10 U	10 U
Bromodichloromethane	UG/L	20 U	10 U	10 U	10 U	10 U
1,2-Dichloropropane	UG/L	20 U	10 U	10 U	10 U	10 U
cis-1,3-Dichloropropene	UG/L	20 U	10 U	10 U	10 U	10 U
Trichloroethene	UG/L	20 U	10 U	10 U	10 U	10 U
Dibromochloromethane	UG/L	20 U	10 U	10 U	10 U	10 U
1,1,2-Trichloroethane	UG/L	20 U	10 U	10 U	10 U	10 U
Benzene	UG/L	20 U	10 U	10 U	10 U	10 U
trans-1,3-Dichloropropene	UG/L	20 U	10 U	10 U	10 U	10 U
Bromoform	UG/L	20 U	10 U	10 U	10 U	10 U

Flags assigned during chemistry validation are shown.

Detection Limits shown are PQL

APPENDIX F
GROUNDWATER ANALYTICAL RESULTS
AMERICAN CLEANERS

Location ID		MW-01	MW-01	MW-02	MW-02	MW-03
Sample ID		MW-1	MW-1	MW-2	MW-2	MW-3
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft.)		-	-	-	-	-
Date Sampled		11/30/00	02/15/01	11/30/00	02/15/01	11/30/00
Parameter	Units					
Volatiles						
4-Methyl-2-Pentanone	UG/L	20 U	10 U	10 U	10 U	10 UJ
2-Hexanone	UG/L	20 U	10 U	10 U	2 J	10 UJ
Tetrachloroethene	UG/L	220	550 D	10 U	10 U	7 J
1,1,2,2-Tetrachloroethane	UG/L	20 U	10 U	10 U	10 U	10 U
Toluene	UG/L	20 U	10 U	10 U	10 U	10 U
Chlorobenzene	UG/L	20 U	10 U	10 U	10 U	10 U
Ethylbenzene	UG/L	20 U	10 U	10 U	10 U	10 U
Styrene	UG/L	20 U	10 U	10 U	10 U	10 U
Xylene (Total)	UG/L	20 U	10 U	10 U	10 U	10 U

Flags assigned during chemistry validation are shown.

Detection Limits shown are PQL

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APPENDIX F
GROUNDWATER ANALYTICAL RESULTS
AMERICAN CLEANERS

Location ID		MW-03	MW-04	MW-05
Sample ID		MW-3	MW-4	MW-5
Matrix		Groundwater	Groundwater	Groundwater
Depth Interval (ft.)		-	-	-
Date Sampled		02/15/01	02/15/01	02/15/01
Parameter	Units			
Volatiles				
Chloromethane	UG/L	10 U	10 U	10 U
Bromomethane	UG/L	10 UJ	10 UJ	10 UJ
Vinyl Chloride	UG/L	10 U	10 U	10 U
Chloroethane	UG/L	10 U	10 U	10 U
Methylene Chloride	UG/L	10 U	10 U	10 U
Acetone	UG/L	10 UJ	24 UJ	10 UJ
Carbon Disulfide	UG/L	10 U	10 U	10 U
1,1-Dichloroethene	UG/L	10 U	10 U	10 U
1,1-Dichloroethane	UG/L	10 UJ	10 UJ	10 UJ
1,2-Dichloroethene (Total)	UG/L	1 J	10 U	10 U
Chloroform	UG/L	10 U	10 U	10 U
1,2-Dichloroethane	UG/L	10 U	10 U	10 U
2-Butanone	UG/L	10 U	10 U	10 U
1,1,1-Trichloroethane	UG/L	10 U	10 U	10 U
Carbon Tetrachloride	UG/L	10 U	10 U	10 U
Bromodichloromethane	UG/L	10 U	10 U	10 U
1,2-Dichloropropane	UG/L	10 U	10 U	10 U
cis-1,3-Dichloropropene	UG/L	10 U	10 U	10 U
Trichloroethene	UG/L	10 U	10 U	10 U
Dibromochloromethane	UG/L	10 U	10 U	10 U
1,1,2-Trichloroethane	UG/L	10 U	10 U	10 U
Benzene	UG/L	10 U	10 U	10 U
trans-1,3-Dichloropropene	UG/L	10 U	10 U	10 U
Bromoform	UG/L	10 U	10 U	10 U

Flags assigned during chemistry validation are shown.

Detection Limits shown are PQL.

APPENDIX F
GROUNDWATER ANALYTICAL RESULTS
AMERICAN CLEANERS

Location ID		MW-03	MW-04	MW-05
Sample ID		MW-3	MW-4	MW-5
Matrix		Groundwater	Groundwater	Groundwater
Depth Interval (ft.)		-	-	-
Date Sampled		02/15/01	02/15/01	02/15/01
Parameter	Units			
Volatiles				
4-Methyl-2-Pentanone	UGL	10 U	10 U	10 U
2-Hexanone	UGL	10 U	10 U	10 U
Tetrachloroethene	UGL	4 J	10 U	5 J
1,1,2,2-Tetrachloroethane	UGL	10 U	10 U	10 U
Toluene	UGL	10 U	10 U	10 U
Chlorobenzene	UGL	10 U	10 U	10 U
Ethylbenzene	UGL	10 U	10 U	10 U
Styrene	UGL	10 U	10 U	10 U
Xylene (Total)	UGL	10 U	10 U	10 U

Flags assigned during chemistry validation are shown.

Detection Limits shown are PQL

APPENDIX F
SOIL ANALYTICAL RESULTS
AMERICAN CLEANERS

Location ID		PZ-01	PZ-03	PZ-04	PZ-05	SB-03
Sample ID		SB32-1-3	SB1-0-2	SB26-0-1	SB18-0-1	SB3-2-3
Matrix		Soil	Soil	Soil	Soil	Soil
Depth Interval (ft.)		1.0-3.0	0.0-2.0	0.0-1.0	0.0-1.0	2.0-3.0
Date Sampled		11/29/00	11/26/00	11/28/00	11/29/00	11/28/00
Parameter	Units					
Volatiles						
Chloromethane	UG/KG	110 U	1400 U	11 UJ	1400 UJ	1300 U
Bromomethane	UG/KG	110 U	1400 U	11 UJ	1400 UJ	1300 U
Vinyl Chloride	UG/KG	110 U	1400 U	11 UJ	1400 UJ	1300 U
Chloroethane	UG/KG	110 U	1400 U	11 UJ	1400 UJ	1300 U
Methylene Chloride	UG/KG	110 U	1400 U	11 UJ	1400 UJ	1300 U
Acetone	UG/KG	30 NJ	1600 UJ	11 UJ	1400 UJ	1600 UJ
Carbon Disulfide	UG/KG	110 U	1400 U	11 UJ	1400 UJ	1300 U
1,1-Dichloroethene	UG/KG	110 U	1400 U	11 UJ	1400 UJ	1300 U
1,1-Dichloroethane	UG/KG	110 U	1400 U	11 UJ	1400 UJ	1300 U
1,2-Dichloroethene (Total)	UG/KG	110 U	1400 U	11 UJ	1400 UJ	1300 U
Chloroform	UG/KG	110 U	1400 U	11 UJ	1400 UJ	1300 U
1,2-Dichloroethane	UG/KG	110 U	1400 U	11 UJ	1400 UJ	1300 U
2-Butanone	UG/KG	110 U	1400 U	11 UJ	1400 UJ	1300 U
1,1,1-Trichloroethane	UG/KG	110 U	1400 U	11 UJ	1400 UJ	1300 U
Carbon Tetrachloride	UG/KG	110 U	1400 U	11 UJ	1400 UJ	1300 U
Bromodichloromethane	UG/KG	110 U	1400 U	11 UJ	1400 UJ	1300 U
1,2-Dichloropropane	UG/KG	110 U	1400 U	11 UJ	1400 UJ	1300 U
cis-1,3-Dichloropropene	UG/KG	110 U	1400 U	11 UJ	1400 UJ	1300 U
Trichloroethene	UG/KG	110 U	1400 U	11 UJ	1400 UJ	1300 U
Dibromochloromethane	UG/KG	110 U	1400 U	11 UJ	1400 UJ	1300 U
1,1,2-Trichloroethane	UG/KG	110 U	1400 U	11 UJ	1400 UJ	1300 U
Benzene	UG/KG	110 U	1400 U	11 UJ	1400 UJ	1300 U
trans-1,3-Dichloropropene	UG/KG	110 U	1400 U	11 UJ	1400 UJ	1300 U
Bromoform	UG/KG	110 U	1400 U	11 UJ	1400 UJ	1300 U

Flags assigned during chemistry validation are shown.

Detection Limits shown are PQL

APPENDIX F
SOIL ANALYTICAL RESULTS
AMERICAN CLEANERS

Location ID		PZ-01	PZ-03	PZ-04	PZ-05	SB-03
Sample ID		SB32-1-3	SB1-0-2	SB26-0-1	SB18-0-1	SB3-2-3
Matrix		Soil	Soil	Soil	Soil	Soil
Depth Interval (ft.)		1.0-3.0	0.0-2.0	0.0-1.0	0.0-1.0	2.0-3.0
Date Sampled		11/29/00	11/28/00	11/29/00	11/29/00	11/28/00
Parameter	Units					
Volatiles						
4-Methyl-2-Pentanone	UG/KG	110 U	190 J	11 UJ	1400 UJ	1300 U
2-Hexanone	UG/KG	110 U	1400 U	11 UJ	1400 UJ	1300 U
Tetrachloroethene	UG/KG	850	18000	54 J	6300 J	9000
1,1,2,2-Tetrachloroethane	UG/KG	110 U	1400 U	11 UJ	1400 UJ	1300 U
Toluene	UG/KG	110 U	1400 U	11 UJ	1400 UJ	1300 U
Chlorobenzene	UG/KG	110 U	1400 U	11 UJ	1400 UJ	1300 U
Ethylbenzene	UG/KG	110 U	1400 U	11 UJ	1400 UJ	1300 U
Styrene	UG/KG	110 U	1400 U	11 UJ	1400 UJ	1300 U
Xylene (Total)	UG/KG	110 U	1400 U	11 UJ	1400 UJ	1300 U

Flags assigned during chemistry validation are shown.

Detection Limits shown are PQL

APPENDIX F
SOIL ANALYTICAL RESULTS
AMERICAN CLEANERS

Location ID		SB-04	SB-08	SB-10	SB-11	SB-14
Sample ID		SB4-0-1	SB8-0-2	SB10-1-2	SB11-0-2	SB14-11-12
Matrix		Soil	Soil	Soil	Soil	Soil
Depth Interval (ft.)		0.0-1.0	0.0-2.0	1.0-2.0	0.0-2.0	11.0-12.0
Date Sampled		11/28/00	11/29/00	11/29/00	11/29/00	11/28/00
Parameter	Units					
Volatiles						
Chloromethane	UG/KG	1400 U	1400 U	2900 UJ	110 U	11 U
Bromomethane	UG/KG	1400 U	1400 U	2900 UJ	110 U	11 U
Vinyl Chloride	UG/KG	1400 U	1400 U	2900 UJ	110 U	11 U
Chloroethane	UG/KG	1400 U	1400 U	2900 UJ	110 U	11 U
Methylene Chloride	UG/KG	1400 U	1400 U	2900 UJ	110 U	11 U
Acetone	UG/KG	1800 UJ	2000 UJ	2900 UJ	25 NJ	11 U
Carbon Disulfide	UG/KG	1400 U	1400 U	2900 UJ	110 U	11 U
1,1-Dichloroethene	UG/KG	1400 U	1400 U	2900 UJ	110 U	11 U
1,1-Dichloroethane	UG/KG	1400 U	1400 U	2900 UJ	110 U	11 U
1,2-Dichloroethene (Total)	UG/KG	1400 U	1400 U	2900 UJ	110 U	11 U
Chloroform	UG/KG	1400 U	1400 U	2900 UJ	110 U	11 U
1,2-Dichloroethane	UG/KG	1400 U	1400 U	2900 UJ	110 U	11 U
2-Butanone	UG/KG	1400 U	1400 U	2900 UJ	110 U	11 U
1,1,1-Trichloroethane	UG/KG	1400 U	1400 U	2900 UJ	110 U	11 U
Carbon Tetrachloride	UG/KG	1400 U	1400 U	2900 UJ	110 U	11 U
Bromodichloromethane	UG/KG	1400 U	1400 U	2900 UJ	110 U	11 U
1,2-Dichloropropane	UG/KG	1400 U	1400 U	2900 UJ	110 U	11 U
cis-1,3-Dichloropropene	UG/KG	1400 U	1400 U	2900 UJ	110 U	11 U
Trichloroethene	UG/KG	1400 U	1400 U	2900 UJ	110 U	3 J
Dibromochloromethane	UG/KG	1400 U	1400 U	2900 UJ	110 U	11 U
1,1,2-Trichloroethane	UG/KG	1400 U	1400 U	2900 UJ	110 U	11 U
Benzene	UG/KG	1400 U	1400 U	2900 UJ	110 U	11 U
trans-1,3-Dichloropropene	UG/KG	1400 U	1400 U	2900 UJ	110 U	11 U
Bromoform	UG/KG	1400 U	1400 U	2900 UJ	110 U	11 U

Flags assigned during chemistry validation are shown.

Detection Limits shown are PQL

APPENDIX F
SOIL ANALYTICAL RESULTS
AMERICAN CLEANERS

Location ID		SB-04	SB-08	SB-10	SB-11	SB-14
Sample ID		SB4-0-1	SB8-0-2	SB10-1-2	SB11-0-2	SB14-11-12
Matrix		Soil	Soil	Soil	Soil	Soil
Depth Interval (ft.)		0.0-1.0	0.0-2.0	1.0-2.0	0.0-2.0	11.0-12.0
Date Sampled		11/28/00	11/28/00	11/29/00	11/29/00	11/28/00
Parameter	Units					
Volatiles						
4-Methyl-2-Pentanone	UG/KG	1400 U	1400 U	2900 UJ	110 U	11 U
2-Hexanone	UG/KG	1400 U	1400 U	2900 UJ	110 U	11 U
Tetrachloroethene	UG/KG	7700	5400	37000 J	660	510 D
1,1,2,2-Tetrachloroethane	UG/KG	1400 U	1400 U	2900 UJ	110 U	11 U
Toluene	UG/KG	1400 U	1400 U	2900 UJ	110 U	1 J
Chlorobenzene	UG/KG	1400 U	1400 U	2900 UJ	110 U	11 U
Ethylbenzene	UG/KG	1400 U	1400 U	2900 UJ	110 U	11 U
Styrene	UG/KG	1400 U	1400 U	2900 UJ	110 U	11 U
Xylene (Total)	UG/KG	1400 U	1400 U	2900 UJ	110 U	11 U

Flags assigned during chemistry validation are shown.

Detection Limits shown are PQL

APPENDIX F
SOIL ANALYTICAL RESULTS
AMERICAN CLEANERS

Location ID		SB-17	SB-19	SB-21	SB-22	SB-23
Sample ID		SB17-1-2	SB19-0-1	SB21-0-2	SB22-0-2	SB23-0-2
Matrix		Soil	Soil	Soil	Soil	Soil
Depth Interval (ft.)		1.0-2.0	0.0-1.0	0.0-2.0	0.0-2.0	0.0-2.0
Date Sampled		11/28/00	11/29/00	11/29/00	11/29/00	11/29/00
Parameter	Units					
Volatiles						
Chloromethane	UG/KG	10 U	69 U	23 U	11 U	10 U
Bromomethane	UG/KG	10 U	69 U	23 U	11 U	10 U
Vinyl Chloride	UG/KG	10 U	69 U	23 U	11 U	10 U
Chloroethane	UG/KG	10 U	69 U	23 U	11 U	10 U
Methylene Chloride	UG/KG	10 U	69 U	23 U	11 U	10 U
Acetone	UG/KG	10 U	26 NJ	14 NJ	3 NJ	4 NJ
Carbon Disulfide	UG/KG	10 U	69 U	23 U	11 U	10 U
1,1-Dichloroethene	UG/KG	10 U	69 U	23 U	11 U	10 U
1,1-Dichloroethane	UG/KG	10 U	69 U	23 U	11 U	10 U
1,2-Dichloroethene (Total)	UG/KG	10 U	69 U	23 U	11 U	10 U
Chloroform	UG/KG	10 U	69 U	23 U	11 U	10 U
1,2-Dichloroethane	UG/KG	10 U	69 U	23 U	11 U	10 U
2-Butanone	UG/KG	10 U	69 U	23 U	11 U	10 U
1,1,1-Trichloroethane	UG/KG	10 U	69 U	23 U	11 U	10 U
Carbon Tetrachloride	UG/KG	10 U	69 U	23 U	11 U	10 U
Bromodichloromethane	UG/KG	10 U	69 U	23 U	11 U	10 U
1,2-Dichloropropane	UG/KG	10 U	69 U	23 U	11 U	10 U
cis-1,3-Dichloropropene	UG/KG	10 U	69 U	23 U	11 U	10 U
Trichloroethene	UG/KG	10 U	69 U	23 U	11 U	10 U
Dibromochloromethane	UG/KG	10 U	69 U	23 U	11 U	10 U
1,1,2-Trichloroethane	UG/KG	10 U	69 U	23 U	11 U	10 U
Benzene	UG/KG	10 U	69 U	23 U	11 U	10 U
trans-1,3-Dichloropropene	UG/KG	10 U	69 U	23 U	11 U	10 U
Bromoform	UG/KG	10 U	69 U	23 U	11 U	10 U

Flags assigned during chemistry validation are shown.

Detection Limits shown are PQL

APPENDIX F
SOIL ANALYTICAL RESULTS
AMERICAN CLEANERS

Location ID		SB-17	SB-19	SB-21	SB-22	SB-23
Sample ID		SB17-1-2	SB19-0-1	SB21-0-2	SB22-0-2	SB23-0-2
Matrix		Soil	Soil	Soil	Soil	Soil
Depth Interval (ft.)		1.0-2.0	0.0-1.0	0.0-2.0	0.0-2.0	0.0-2.0
Date Sampled		11/28/00	11/29/00	11/29/00	11/29/00	11/29/00
Parameter	Units					
Volatiles						
4-Methyl-2-Pentanone	UG/KG	10 U	69 U	23 U	11 U	10 U
2-Hexanone	UG/KG	10 U	69 U	23 U	11 U	10 U
Tetrachloroethene	UG/KG	340 J	810	240	16	10 J
1,1,2,2-Tetrachloroethane	UG/KG	10 U	69 U	23 U	11 U	10 U
Toluene	UG/KG	10 U	69 U	23 U	11 U	10 U
Chlorobenzene	UG/KG	10 U	69 U	23 U	11 U	10 U
Ethylbenzene	UG/KG	10 U	69 U	23 U	11 U	10 U
Styrene	UG/KG	10 U	69 U	23 U	11 U	10 U
Xylene (Total)	UG/KG	10 U	69 U	23 U	11 U	10 U

Flags assigned during chemistry validation are shown.

Detection Limits shown are PQL.

APPENDIX F
SOIL ANALYTICAL RESULTS
AMERICAN CLEANERS

Location ID		SB-27	SB-28	SB-29	SB-34	SB-36
Sample ID		SB27-0-2	SB28-1-2	SB29-2-3	SB34-1-2	SB36-1-2
Matrix		Soil	Soil	Soil	Soil	Soil
Depth Interval (ft.)		0.0-2.0	1.0-2.0	2.0-3.0	1.0-2.0	1.0-2.0
Date Sampled		11/29/00	11/29/00	11/29/00	11/29/00	11/29/00
Parameter	Units					
Volatiles						
Chloromethane	UG/KG	11 U	57 U	11 UJ	1400 U	14 UJ
Bromomethane	UG/KG	11 U	57 U	11 UJ	1400 U	14 UJ
Vinyl Chloride	UG/KG	11 U	57 U	11 UJ	1400 U	14 UJ
Chloroethane	UG/KG	11 U	57 U	11 UJ	1400 U	14 UJ
Methylene Chloride	UG/KG	11 U	57 U	11 UJ	1400 U	14 UJ
Acetone	UG/KG	11 U	57 U	11 UJ	1600 UJ	14 UJ
Carbon Disulfide	UG/KG	11 U	57 U	11 UJ	1400 U	14 UJ
1,1-Dichloroethene	UG/KG	11 U	57 U	11 UJ	1400 U	14 UJ
1,1-Dichloroethane	UG/KG	11 U	57 U	11 UJ	1400 U	14 UJ
1,2-Dichloroethene (Total)	UG/KG	11 U	57 U	11 UJ	1400 U	14 UJ
Chloroform	UG/KG	11 U	57 U	11 UJ	1400 U	14 UJ
1,2-Dichloroethane	UG/KG	11 U	57 U	11 UJ	1400 U	14 UJ
2-Butanone	UG/KG	11 U	57 U	11 UJ	1400 U	14 UJ
1,1,1-Trichloroethane	UG/KG	11 U	57 U	11 UJ	1400 U	14 UJ
Carbon Tetrachloride	UG/KG	11 U	57 U	11 UJ	1400 U	14 UJ
Bromodichloromethane	UG/KG	11 U	57 U	11 UJ	1400 U	14 UJ
1,2-Dichloropropane	UG/KG	11 U	57 U	11 UJ	1400 U	14 UJ
cis-1,3-Dichloropropene	UG/KG	11 U	57 U	11 UJ	1400 U	14 UJ
Trichloroethene	UG/KG	11 U	57 U	11 UJ	1400 U	14 UJ
Dibromochloromethane	UG/KG	11 U	57 U	11 UJ	1400 U	14 UJ
1,1,2-Trichloroethane	UG/KG	11 U	57 U	11 UJ	1400 U	14 UJ
Benzene	UG/KG	11 U	57 U	11 UJ	1400 U	14 UJ
trans-1,3-Dichloropropene	UG/KG	11 U	57 U	11 UJ	1400 U	14 UJ
Bromoform	UG/KG	11 U	57 U	11 UJ	1400 U	14 UJ

Flags assigned during chemistry validation are shown.

Detection Limits shown are PQL

APPENDIX F
SOIL ANALYTICAL RESULTS
AMERICAN CLEANERS

Location ID		SB-27	SB-28	SB-29	SB-34	SB-36
Sample ID		SB27-0-2	SB28-1-2	SB29-2-3	SB34-1-2	SB36-1-2
Matrix		Soil	Soil	Soil	Soil	Soil
Depth Interval (ft.)		0.0-2.0	1.0-2.0	2.0-3.0	1.0-2.0	1.0-2.0
Date Sampled		11/29/00	11/28/00	11/28/00	11/29/00	11/29/00
Parameter	Units					
Volatiles						
4-Methyl-2-Pentanone	UG/KG	11 U	57 U	11 UJ	1400 U	14 UJ
2-Hexanone	UG/KG	11 U	57 U	11 UJ	1400 U	14 UJ
Tetrachloroethene	UG/KG	19	650	96 J	2700	140 J
1,1,2,2-Tetrachloroethane	UG/KG	11 U	57 U	11 UJ	1400 U	14 UJ
Toluene	UG/KG	11 U	57 U	11 UJ	1400 U	14 UJ
Chlorobenzene	UG/KG	11 U	57 U	11 UJ	1400 U	14 UJ
Ethylbenzene	UG/KG	11 U	57 U	11 UJ	1400 U	14 UJ
Styrene	UG/KG	11 U	57 U	11 UJ	1400 U	14 UJ
Xylene (Total)	UG/KG	11 U	57 U	11 UJ	1400 U	14 UJ

Flags assigned during chemistry validation are shown.

Detection Limits shown are PQL

APPENDIX F
SUMP WATER ANALYTICAL RESULTS
AMERICAN CLEANERS

Location ID		SW-01	SW-02
Sample ID		SW-1	SW-2
Matrix		Sump Water	Sump Water
Depth Interval (ft.)		-	-
Date Sampled		11/30/00	11/30/00
Parameter	Units		
Volatiles			
Chloromethane	UG/L	200 U	10 U
Bromomethane	UG/L	200 U	10 U
Vinyl Chloride	UG/L	200 U	10 U
Chloroethane	UG/L	200 U	10 U
Methylene Chloride	UG/L	200 U	10 U
Acetone	UG/L	200 U	10 U
Carbon Disulfide	UG/L	200 U	10 U
1,1-Dichloroethene	UG/L	200 U	10 U
1,1-Dichloroethane	UG/L	200 U	10 U
1,2-Dichloroethene (Total)	UG/L	46 J	10 U
Chloroform	UG/L	200 U	10 U
1,2-Dichloroethane	UG/L	200 U	10 U
2-Butanone	UG/L	200 U	10 U
1,1,1-Trichloroethane	UG/L	200 U	10 U
Carbon Tetrachloride	UG/L	200 U	10 U
Bromodichloromethane	UG/L	200 U	10 U
1,2-Dichloropropane	UG/L	200 U	10 U
cis-1,3-Dichloropropene	UG/L	200 U	10 U
Trichloroethene	UG/L	140 J	10 U
Dibromochloromethane	UG/L	200 U	10 U
1,1,2-Trichloroethane	UG/L	200 U	10 U
Benzene	UG/L	200 U	10 U
trans-1,3-Dichloropropene	UG/L	200 U	10 U
Bromoform	UG/L	200 U	10 U

Flags assigned during chemistry validation are shown.

Detection Limits shown are PQL

APPENDIX F
SUMP WATER ANALYTICAL RESULTS
AMERICAN CLEANERS

Location ID		SW-01	SW-02
Sample ID		SW-1	SW-2
Matrix		Sump Water	Sump Water
Depth Interval (ft.)		-	-
Date Sampled		11/30/00	11/30/00
Parameter	Units		
Volatiles			
4-Methyl-2-Pentanone	UG/L	200 UJ	10 U
2-Hexanone	UG/L	200 UJ	10 U
Tetrachloroethene	UG/L	1800	4 J
1,1,2,2-Tetrachloroethane	UG/L	200 U	10 U
Toluene	UG/L	200 U	10 U
Chlorobenzene	UG/L	200 U	10 U
Ethylbenzene	UG/L	200 U	10 U
Styrene	UG/L	200 U	10 U
Xylene (Total)	UG/L	200 U	10 U

Flags assigned during chemistry validation are shown.

Detection Limits shown are PQL

APPENDIX G

SITE PHOTOGRAPHS

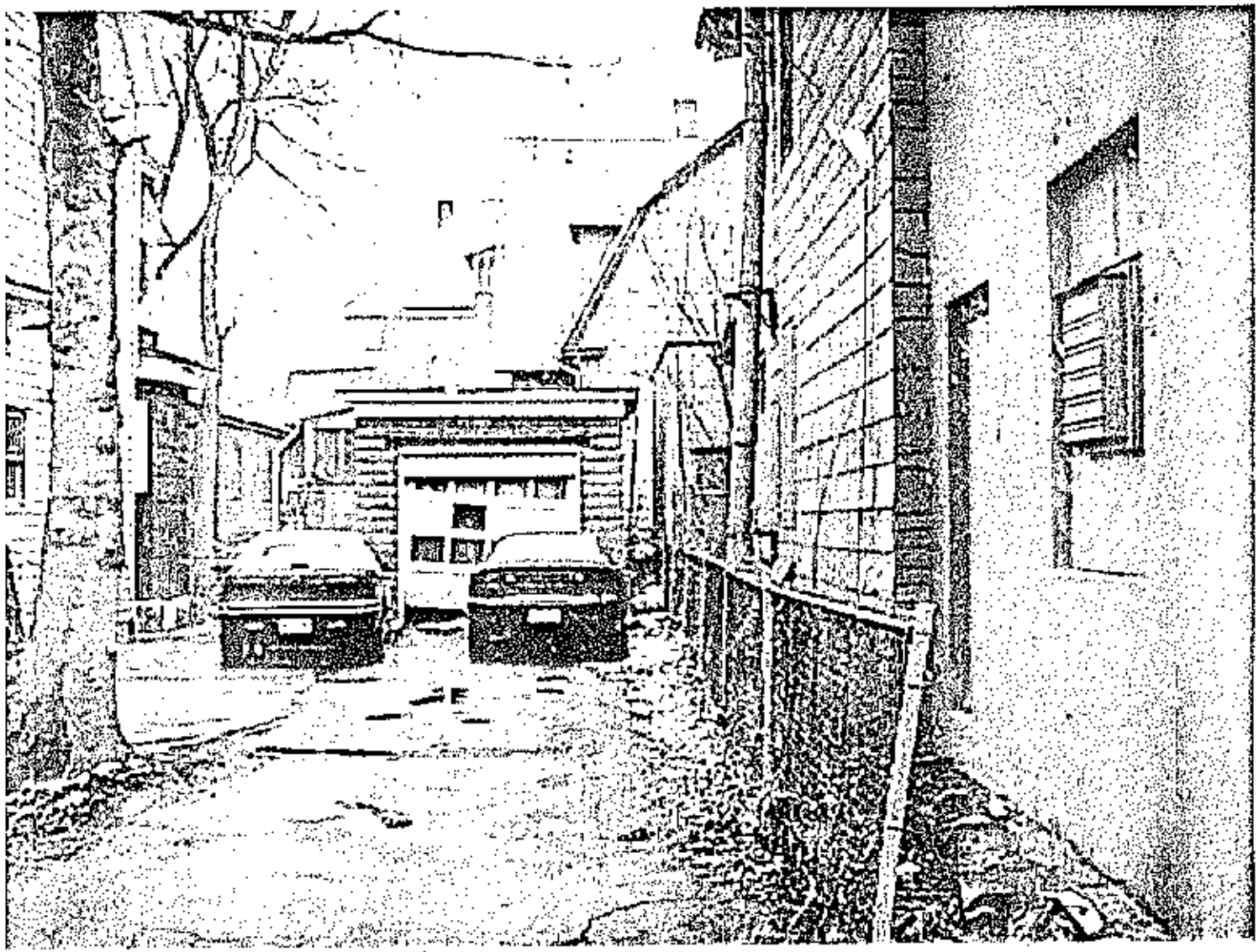
AG16516A-25822.02-0327DI-GCM

URS

SOUTH SIDE OF SITE LOOKING EAST FROM
WALNUT AND SEMINARY INTERSECTION

ATTACHMENT A

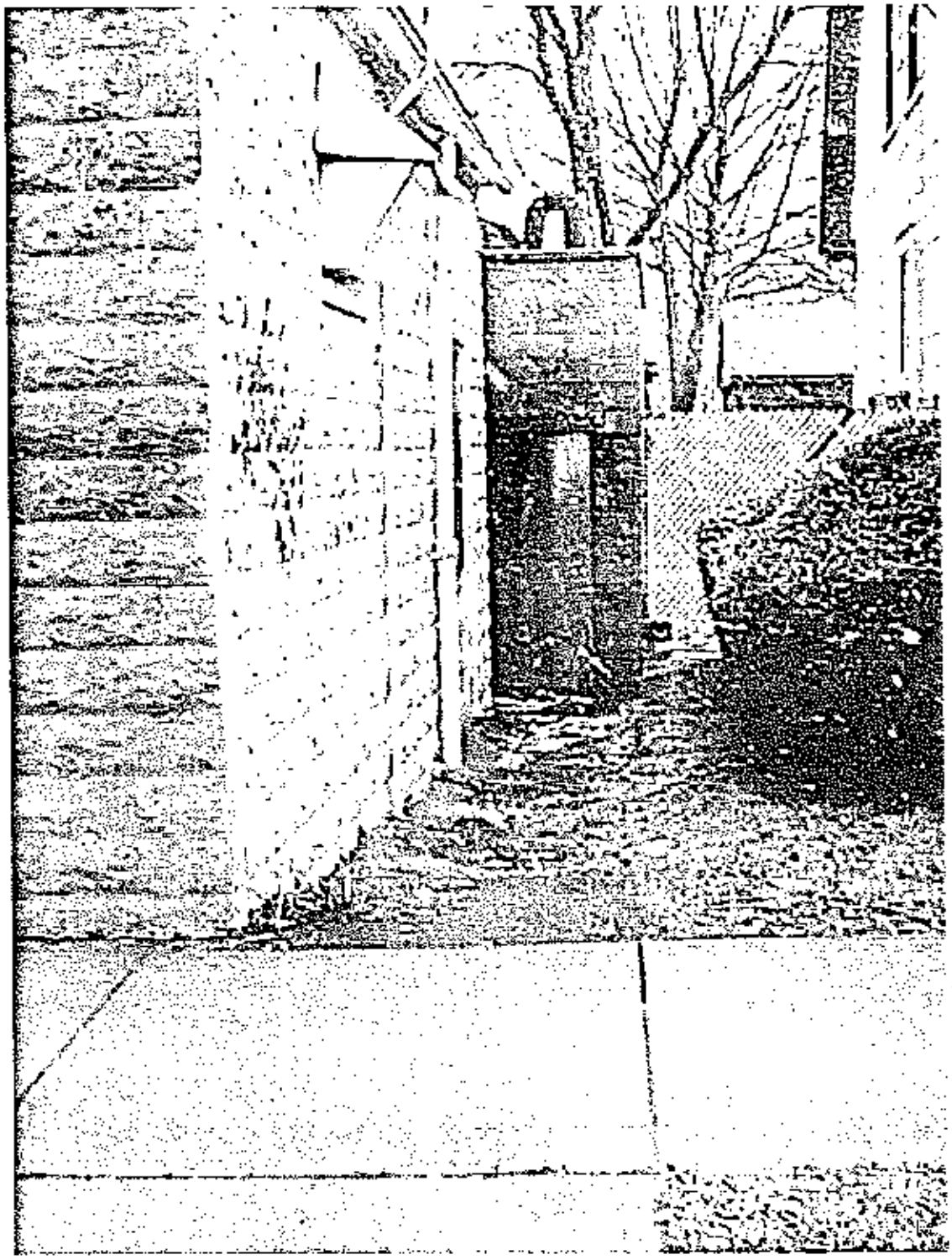
AG16518B-25922.02-032701-GCM



URS

NORTH SIDE OF SITE LOOKING EAST

ATTACHMENT B



URS	CLOSE-UP OF EAST SIDE OF SITE LOOKING NORTH	ATTACHMENT C

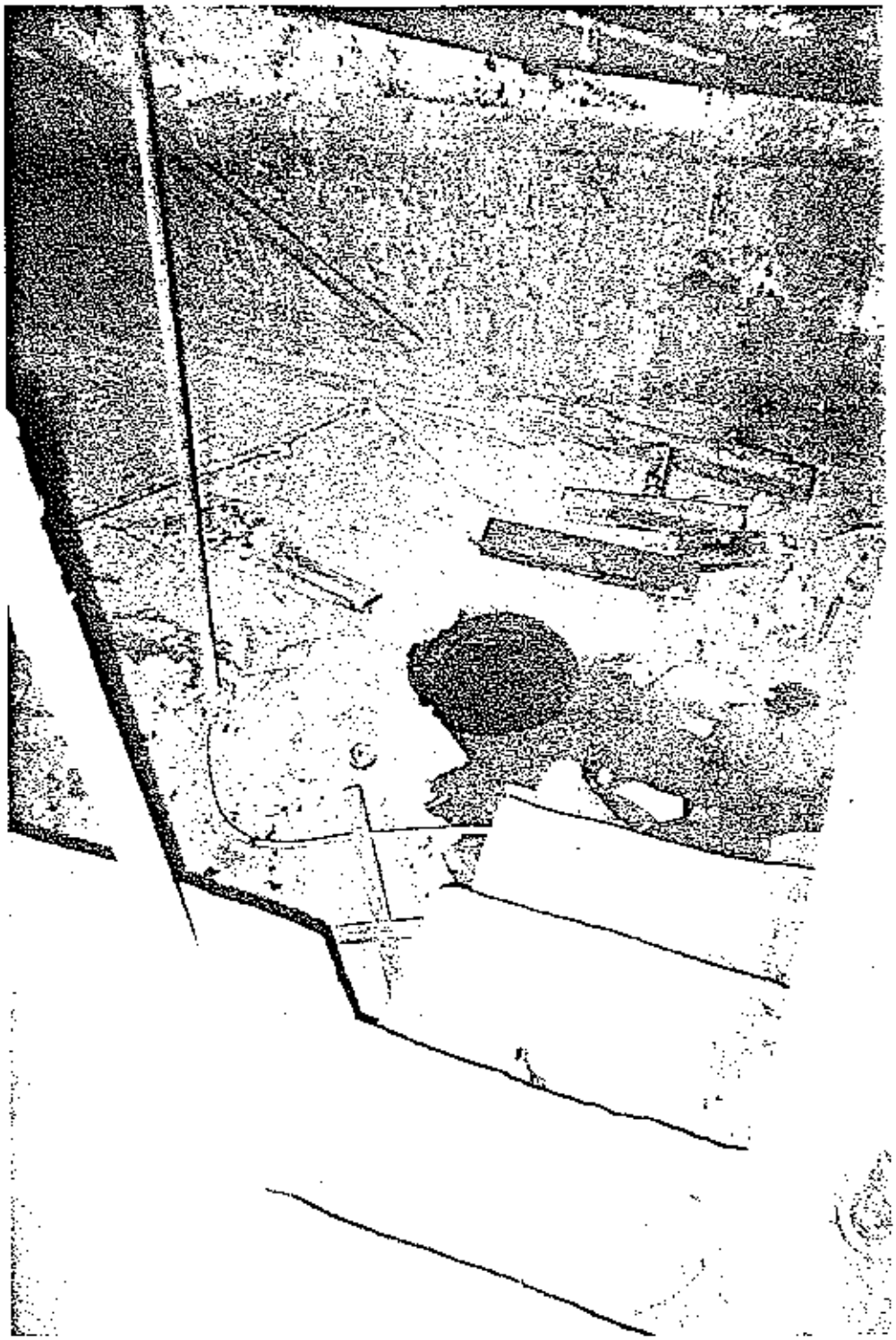
AG16510C-35822.07-0327D1-GCM

AG16518D-35822.02-032701-GCM

URS

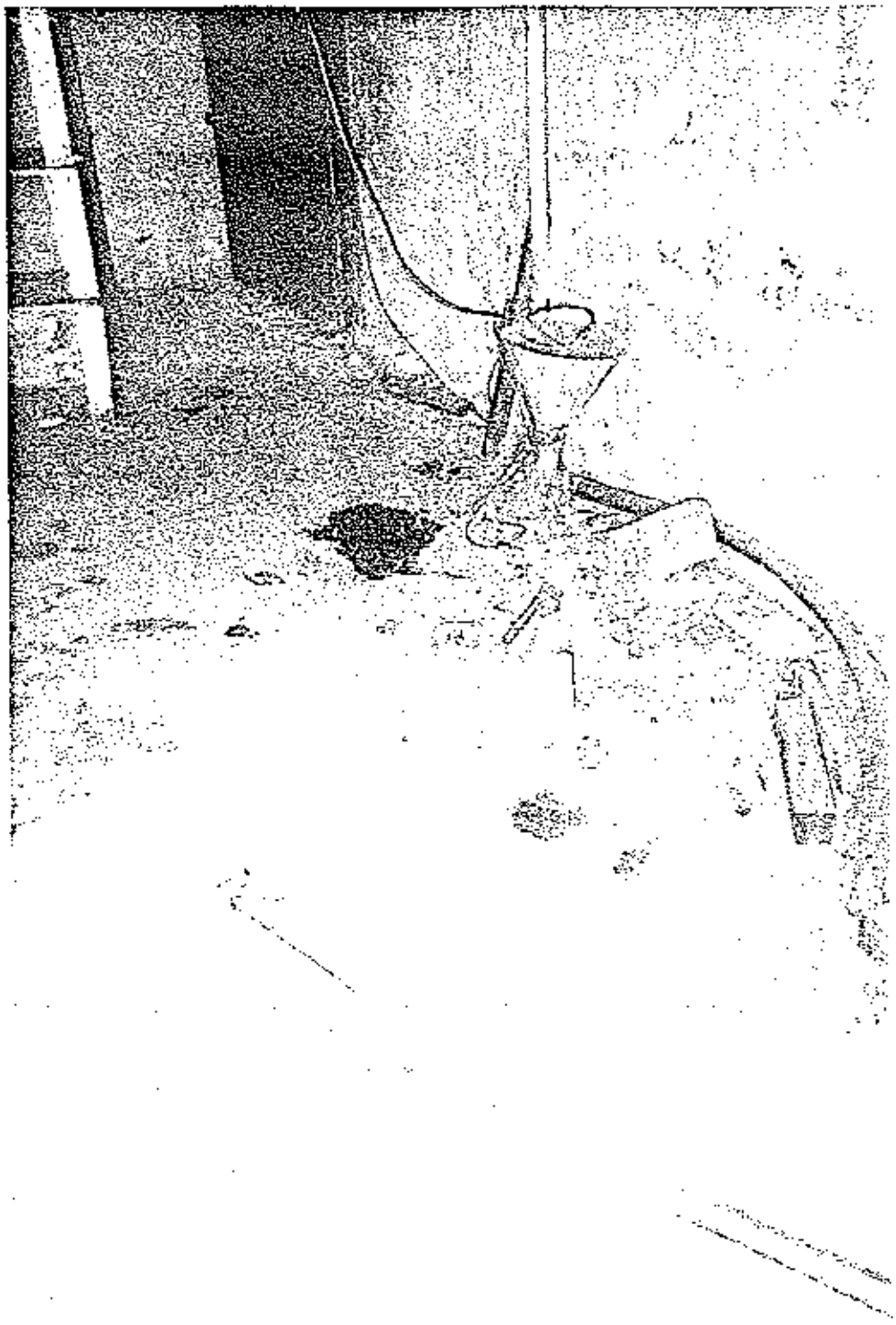
EAST SIDE OF SITE LOOKING NORTH

ATTACHMENT D



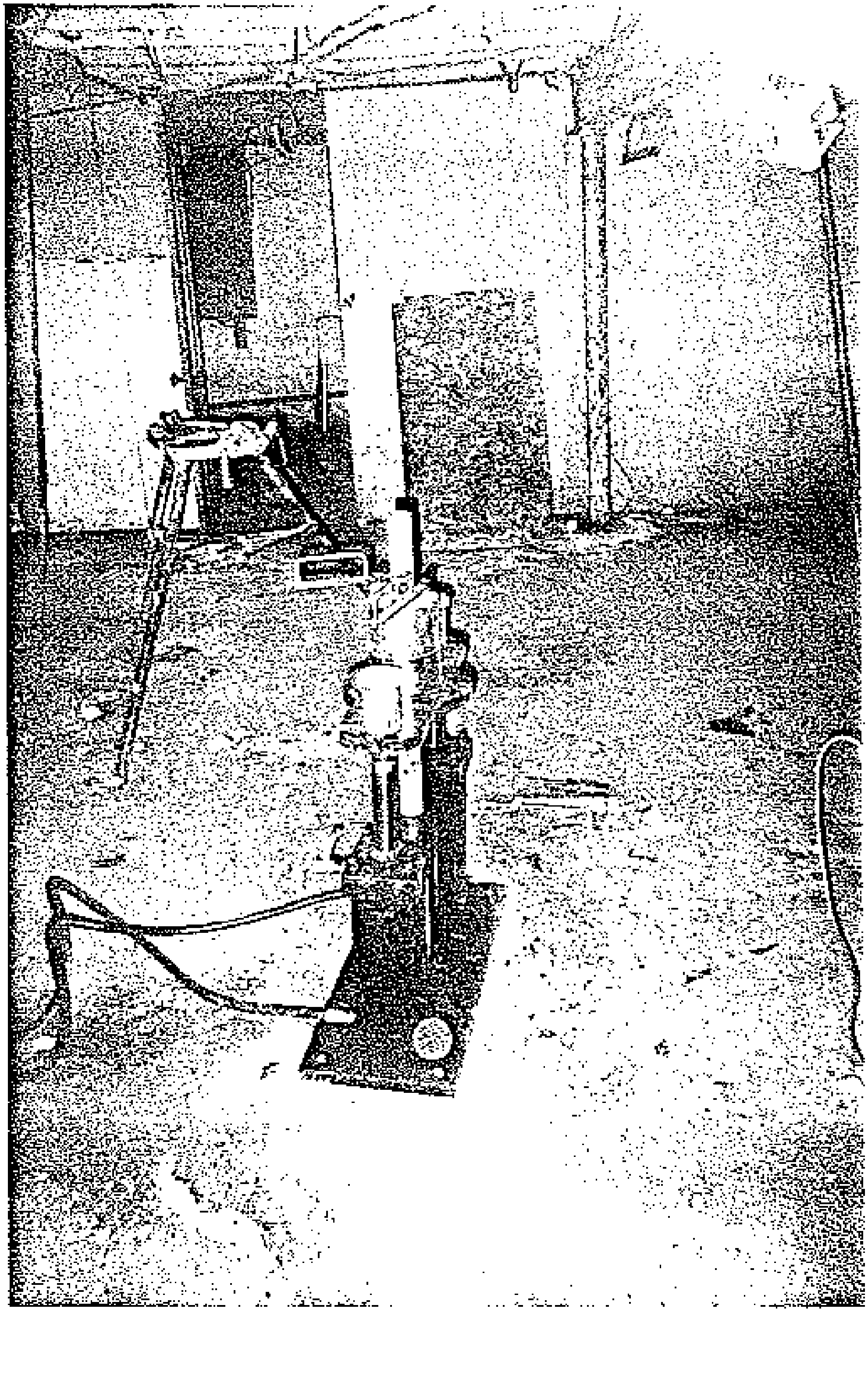
URS	PHOTO OF SW-1 LOCATION	ATTACHMENT E

AG16615.35822.02-041801-NPV



URS	PHOTO OF PZ-1 WITH DRAIN AND FUNNEL DRAIN IN BACKGROUND	ATTACHMENT F

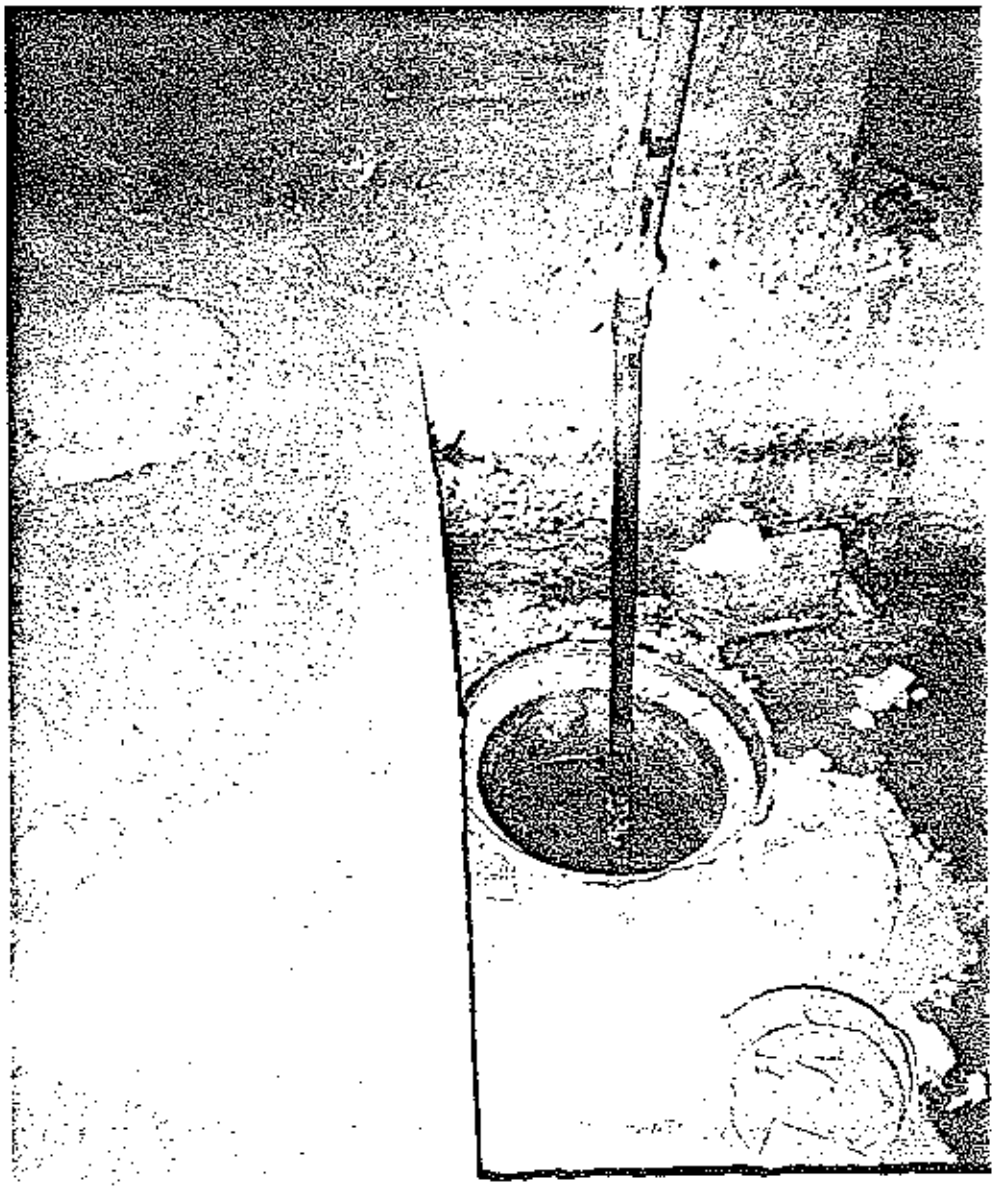
AG166154-35822.02-0418D1-NPW



URS

PNEUMATIC EXTRACTOR REMOVING
SPLIT-SPOON AT SB-4

ATTACHMENT G



URS	PHOTO OF SW-2 LOCATION	ATTACHMENT H

AG166150C-35923.02-04160I-XPV

APPENDIX H

MEMORANDA FROM CITY OF BINGHAMTON, JOHNSON CITY

City of Binghamton

OFFICE OF BUILDING & CONSTRUCTION

Richard A. Bucci, Mayor

February 20, 2001

URS Corporation

Attention: Scott McCabe

RE: 48-50 WALNUT STREET

Dear Scott:

The property located at the above captioned address is situated in an R-5 zone and its use as a dry cleaners a legal, non-conforming use according to the Zoning Ordinance of the City of Binghamton.

A Certificate of Occupancy is issued for new construction only.

Respectfully,

G. Ted Tedino
Zoning Officer

GTT/jas

R-5 IS CLASSIFIED AS HIGH DENSITY RESIDENTIAL.

City of Binghamton

Richard A. Bucci, Mayor

BUREAU OF WATER

CC: CD
S. McCabe
M. Gutmann
G. Kisluk

April 9, 2001

Scott McCabe
URS
282 Delaware Ave.
Buffalo, NY 14202

RE: City of Binghamton Source of Water Supply Location

Dear Mr. McCabe:

The City of Binghamton has two public water supply sources: one is the main source which supplies the filtration plant, which is the Susquehanna River just east of the Tompkins Street bridge (NYS Rte. 7); the other is an emergency back-up supply, which is a well called the Olmstead Well, located just east of the Chenango River approximately 1.8 miles north of the confluence of the Chenango and Susquehanna Rivers.

Relative to the location you are concerned with on Seminary Avenue, the filtration plant intake is about 1.5 miles east, upstream on the Susquehanna River; the well is about 1.6 miles northeast, upstream on the Chenango River, and on the opposite side of the Chenango River.

It would not appear to me that there would be any concern about the site you are dealing with affecting the City's water supply sources. If you have further questions, please call me at (607) 772-7210.

Very truly yours,

Andrew R. Huray

Andrew R. Huray, P.E.
Water/Sewer Superintendent

HOME OF THE SQUARE DEAL
HARRY G. LEWIS
MAYOR

DEPARTMENT OF PUBLIC WORKS
VILLAGE OF JOHNSON CITY
124 BROWN STREET • JOHNSON CITY, NEW YORK 13790
PHONE (607) 797-3031
FAX (607) 798-9553
e-mail: jcplan@pronetisp.net

April 10, 2001

RECEIVED
URS Greiner Woodward Clyde
APR 11 2001
JOB # 05000358322.01 (C-1)
cc:
C. Dowd
M. Grossman
G. Kohl
S. McCabe

Mr. Scott McCabe
U.R.S.
282 Delaware Avenue
Buffalo, NY 14202

Re: Village Water Wells

Dear Mr. McCabe:

The Village of Johnson City has seven (7) water supply wells and are listed below:

WELL	LOCATION	STATUS
#1	Main Plant, Camden St., Westover	Compacted- Not in Use
#2	Main Plant, Camden St., Westover	Primary Well
#3	Main Plant, Camden St., Westover	Primary Well
#4	Olive Street, Johnson City	Out- of – Service
#5	Fifth Street, Westover	Back-Up Well Not in Use
#6	Olive St. & Burns St. , Johnson City	Rotate w/ well #7 as a backup well
#7	N. Broad St. & Carlton St., Johnson City	Rotate w/ well #6 as a backup well

If you require any additional information please contact me.

Sincerely,

Robert A. Bennett

Robert A. Bennett, P.E.
Director of Public Services

APPENDIX I

INDOOR AIR BADGE ANALYTICAL RESULTS

URS

Memorandum

Date: February 19, 2001

To: James Candiloro, NYSDEC Bureau of Western Remedial Action

From: George Kisluk

Subject: **Analytical Results for Air Badge Samples at American Cleaners Site No. 7-04-030, Work Assignment D003825-28**

As per the January 25, 2001 e-mail, URS collected three air samples plus one field blank on February 1, 2001 for the analysis of volatile organics using 3M® 3500 Organic Vapor Monitor badges. The collection of air badge samples was performed in addition to the environmental sampling specified in the Project Management Work Plan (Final, November 2000). The badges were suspended from the basement ceiling rafters approximately 5 feet above the basement floor (breathing zone) and directly above soil boring locations SB-3, SB-31, and between SB-22 and SB-23 (locations from the November 2000 sampling event). The badges were exposed for an eight-hour interval, from 8 AM to 4 PM. The high temperature in Binghamton on 2/01/00 was 35°F, and relative humidity was 83%. The air temperature in the basement was not recorded. As recommended, the samples were analyzed by Galson Laboratories located in East Syracuse, New York. The hard copy analytical data report (attached) was received by URS on February 16, 2001.

URS performed a limited review of the analytical data, which included holding time compliance, surrogate recovery, blank contamination, calibration standards, and completeness of deliverables. No problems were noted in the review. No detections were reported in the samples.

As discussed on 2/14/00, the analytical results for the air badge samples will not be include in the Data Usability Summary Report (DUSR) for the American Cleaners RI/FS soil and groundwater samples.

cc: C. Dusel, URS
Job File 05-000-35822 (C-1)

Attached: Galson Laboratories Analytical Report No. L68148.

Galson Laboratories

6601 Kirkville Road
E. Syracuse, NY 13057-0369
Phone: (315) 432-5227
Fax: (315) 437-0571
www.galsonlabs.com

(A-1)

February 13, 2001

DOH ELAP# 11626

Mr. Scott McCabe
URS Greiner Woodward Clyde
282 Delaware Avenue
Buffalo, NY 14202

Client Account# 10234 Login# L68148

Dear Mr. McCabe:

Enclosed are the analytical results of the samples received by our laboratory February 06, 2001.

Results in this report are based on the sampling data provided by the client. Unless otherwise requested, all samples will be discarded two weeks from the date of this report.

We strive to make our reporting format clear and understandable and hope you are thoroughly satisfied with our services.

Galson Laboratories is uniquely qualified to meet your needs for accurate and timely industrial hygiene analyses. Accredited by the American Industrial Hygiene Association since 1976, we perform all analyses according to NIOSH or OSHA-approved analytical methods. Galson Laboratories is committed to providing quality analyses and exceptional customer service.

Please contact your client service representative, Pam Weaver at (888) 577-5227, extension 116, if you would like any additional information regarding this report.

Thank you for using Galson Laboratories.

Sincerely,

Galson Laboratories

F. Joseph Unangst
Laboratory Director

Enclosure(s)

CHAIN OF CUSTODY RECORD

URS

PROJECT NO. 05000-3522.02

SITE NAME: AMERICAN CLEANERS

SAMPLERS (PRINT/SIGNATURE): Scott McCabe

DELIVERY SERVICE: ______ AIRBILL NO. ______

LAB: Columbia

COOLER 1 of 1

PAGE 1 of 1

TESTS: Volatile Organic Air #8

BOTTLE TYPE AND PRESERVATIVE: 3.4L Summa, Organic Vapor

LOCATION IDENTIFIER	DATE	TIME	COMP/GRAB	SAMPLE ID	MATRIX	TOTAL NO. # OF CONTAINERS	Volatile Organic Air #8	REMARKS	SAMPLE TYPE	BEGINNING DEPTH (IN FEET)	ENDING DEPTH (IN FEET)	FIELD LOT NO. #
SB 3	2/1/01	8 hrs	G	AC-AA-SB3	AA	1	1		N1	—	—	
SB 2223	↓	↓	↓	AC-AA-SB2223	AA	1	1		N1	—	—	
SB 31	↓	↓	↓	AC-AA-SB31	AA	1	1		N1	—	—	
Ambient	↓	—	↓	AC-AB-Ambient	AA	1	1	Ambient	TB1			

MATRIX CODES

SAMPLE TYPE CODES

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME
[signature]	2/5/01	1200			
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED FOR LAB BY (SIGNATURE)	DATE	TIME
			Bruce Baxter [signature]	2/6/01	1000

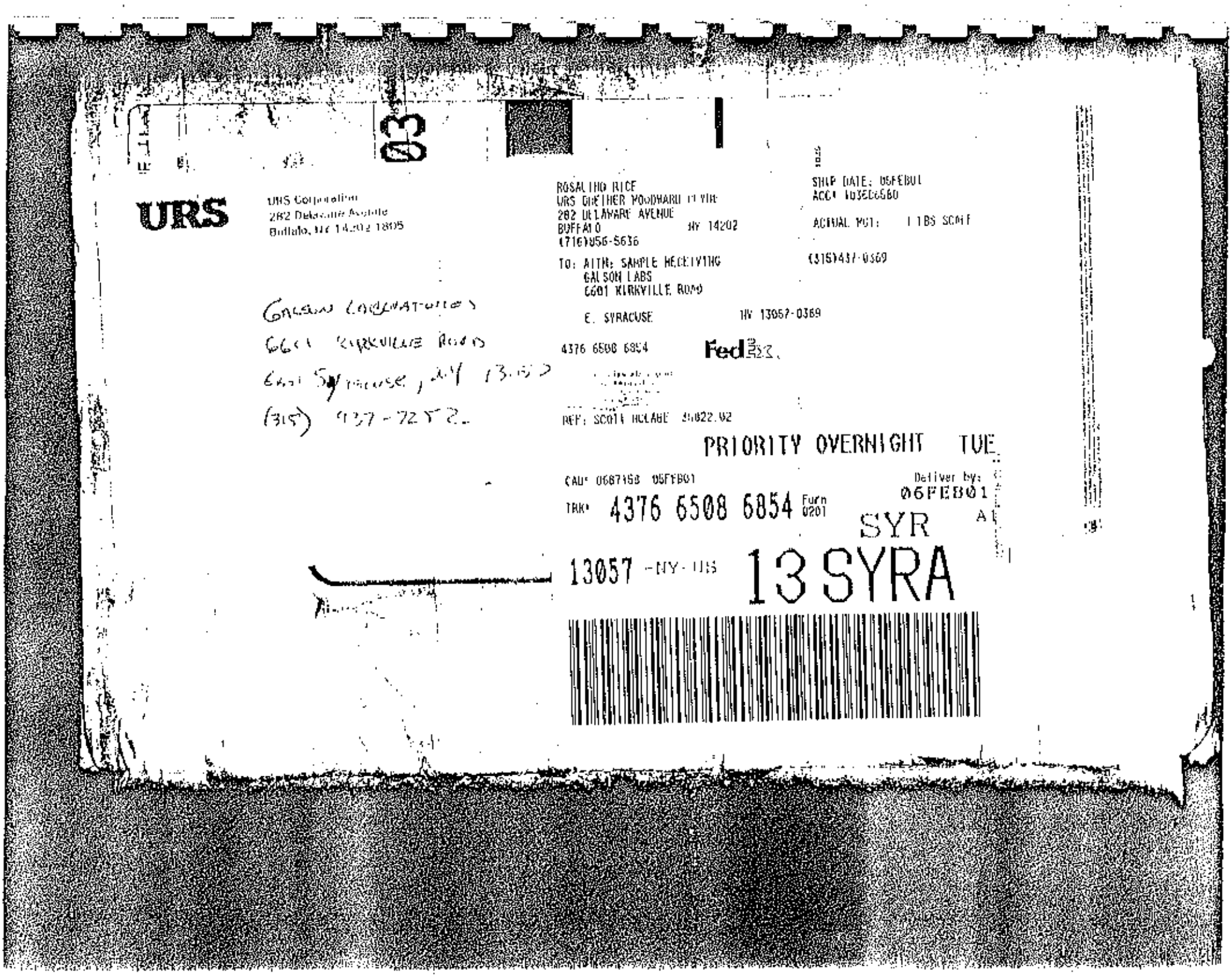
SPECIAL INSTRUCTIONS

Full Deliverables

Normal TAT

10# RU-01-G1016

Distribution: Original accompanies shipment, copy to coordinator field files



URS

URS Corporation
282 Delaware Avenue
Buffalo, NY 14202-1805

ROSALIND RICE
URS GREINER WOODWARD CLYDE
282 DELAWARE AVENUE
BUFFALO NY 14202
(716)856-5636

SHIP DATE: 05FEB01
ACCT# 1036C6580

ACTUAL WGT: 1 LBS SCALE

TO: ATTN: SAMPLE RECEIVING (315)437-0369
GALSON LABS
6601 KIRKVILLE ROAD

E. SYRACUSE NY 13057-0369

4376 6508 6854

REF: SCOTT HOLAGE 26022.02

PRIORITY OVERNIGHT TUE

CAD# 0687158 05FEB01

Deliver by:
06FEB01

TRK# 4376 6508 6854 Form 0201

SYR

13057 -NY- US

13 SYRA

Galson Laboratories
6601 Kirkville Road
East Syracuse, NY 13057
(315) 437-7252

Sample Data

Galson Laboratories

6601 Kirkville Road
E. Syracuse, NY 13057-0369
Phone: (315) 432-5227
Fax: (315) 437-0571
www.galsonlabs.com

LABORATORY ANALYSIS REPORT

Client : URS Greiner Woodward Clyde
Site : American Cleaners
Project No. : 0500035822.02

Date Sampled : 01-FEB-01
Date Received : 06-FEB-01
Date Analyzed : 07-FEB-01

Account No.: 10234
Login No. : L68148

Client ID : AC-AA-SB3 **Lab ID : L68148-1** **Air Volume : 480 minutes**

Parameter	LOQ ug	Total ug	ppm
1,1,2-Trichloroethane	8	<8	< 0.1
1,1,1-Trichloroethane	8	<8	< 0.1
1,1-Dichloroethane	8	<8	< 0.1
1,2-Dichloroethane	4	<4	< 0.07
Acetone	4	<4	< 0.1
Alpha-Methylstyrene	3	<3	< 0.05
Benzene	3	<3	< 0.06
Carbon Tetrachloride	30	<30	< 0.3
Cellosolve Acetate	8	<8	< 0.2
Chlorobenzene	3	<3	< 0.05
Chloroform	15	<15	< 0.2
Cyclohexane	3	<3	< 0.05
Cyclohexanone	4	<4	< 0.08
Cyclohexene	3	<3	< 0.06
Ethyl Benzene	3	<3	< 0.05
Methyl Ethyl Ketone	3	<3	< 0.06
Methyl Isobutyl Ketone	3	<3	< 0.05
Methyl n-Propyl Ketone	4	<4	< 0.08
n-Butyl Acetate	4	<4	< 0.05
n-Hexane	3	<3	< 0.05
n-Propyl Acetate	4	<4	< 0.07
o-Dichlorobenzene	4	<4	< 0.06
Octane	3	<3	< 0.05
p-tert-Butyl toluene	3	<3	< 0.05
Tetrachloroethylene	8	<8	< 0.08

Collection Media : OVM

Submitted by: LEO LUCISANO
Approved by : jal
Date : 13-FEB-01
QC by:
NYS DOH # : 11626

< -Less Than	mg -Milligrams	m3 -Cubic Meters	kg -Kilograms
> -Greater Than	ug -Micrograms	l -Liters	NS -Not Specified
NA -Not Applicable	ND -Not Detected	ppm -Parts per Million	LOQ-Limit of Quantitation

Field sampling was not performed by Galson. Galson presents results based on sampling data provided by clients.

LABORATORY ANALYSIS REPORT

Galson Laboratories
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Client : URS Greiner Woodward Clyde
Site : American Cleaners
Project No. : 0500035822.02

Date Sampled : 01-FEB-01
Date Received : 06-FEB-01
Date Analyzed : 07-FEB-01

Account No.: 10234
Login No. : L68148

Client ID : AC-AA-SB3 **Lab ID : L68148-1** **Air Volume : 480 minutes**

Parameter	LOQ ug	Total ug	ppm
Tetrahydrofuran	4	<4	< 0.08
Toluene	3	<3	< 0.05
Vinylidene Chloride	8	<8	< 0.1
Xylene	6	<6	< 0.1

Collection Media : OVM

Submitted by: LEO LUCISANO
Approved by : jal
Date : 13-FEB-01
QC by:
NYS DOH #: 11626

< -Less Than	mg -Milligrams	m3 -Cubic Meters	kg -Kilograms
> -Greater Than	ug -Micrograms	l -Liters	NS -Not Specified
NA -Not Applicable	ND -Not Detected	ppm -Parts per Million	LOQ-Limit of Quantitation

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Client : URS Greiner Woodward Clyde
Site : American Cleaners
Project No. : 0500035822.02

Date Sampled : 01-FEB-01
Date Received : 06-FEB-01
Date Analyzed : 07-FEB-01

Account No.: 10234
Login No. : L68148

Client ID : AC-AA-SB2223 **Lab ID : L68148-2** **Air Volume : 480 minutes**

Parameter	LOQ ug	Total ug	ppm
1,1,2-Trichloroethane	8	<8	< 0.1
1,1,1-Trichloroethane	8	<8	< 0.1
1,1-Dichloroethane	8	<8	< 0.1
1,2-Dichloroethane	4	<4	< 0.07
Acetone	4	<4	< 0.1
Alpha-Methylstyrene	3	<3	< 0.05
Benzene	3	<3	< 0.06
Carbon Tetrachloride	30	<30	< 0.3
Cellosolve Acetate	8	<8	< 0.2
Chlorobenzene	3	<3	< 0.05
Chloroform	15	<15	< 0.2
Cyclohexane	3	<3	< 0.05
Cyclohexanone	4	<4	< 0.08
Cyclohexene	3	<3	< 0.06
Ethyl Benzene	3	<3	< 0.05
Methyl Ethyl Ketone	3	<3	< 0.06
Methyl Isobutyl Ketone	3	<3	< 0.05
Methyl n-Propyl Ketone	4	<4	< 0.08
n-Butyl Acetate	4	<4	< 0.05
n-Hexane	3	<3	< 0.05
n-Propyl Acetate	4	<4	< 0.07
o-Dichlorobenzene	4	<4	< 0.06
Octane	3	<3	< 0.05
p-tert-Butyl toluene	3	<3	< 0.05
Tetrachloroethylene	8	<8	< 0.08

Collection Media : OVM

Submitted by: LEO LUCISANO
Approved by : jal
Date : 13-FEB-01
QC by:
NYS DOH # 11626

< -Less Than
> -Greater Than
NA -Not Applicable
mg -Milligrams
ug -Micrograms
ND -Not Detected
m3 -Cubic Meters
l -Liters
ppm -Parts per Million
kg -Kilograms
NS -Not Specified
LOQ-Limit of Quantitation

Field sampling was not performed by Galson. Galson presents results based on sampling data provided by clients.

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Client : URS Greiner Woodward Clyde
Site : American Cleaners
Project No. : 0500035822.02

Date Sampled : 01-FEB-01
Date Received : 06-FEB-01
Date Analyzed : 07-FEB-01

Account No.: 10234
Login No. : L68148

Client ID : AC-AA-SB2223 **Lab ID : L68148-2** **Air Volume : 480 minutes**

Parameter	LOQ ug	Total ug	ppm
Tetrahydrofuran	4	<4	< 0.08
Toluene	3	<3	< 0.05
Vinylidene Chloride	8	<8	< 0.1
Xylene	6	<6	< 0.1

Collection Media : OVM

Submitted by: LEO LUCISANO
Approved by : jal
Date : 13-FEB-01
QC by:
NYS DOH #: 11626

< -Less Than	mg -Milligrams	m3 -Cubic Meters	kg -Kilograms
> -Greater Than	ug -Micrograms	l -Liters	NS -Not Specified
NA -Not Applicable	ND -Not Detected	ppm -Parts per Million	LOQ-Limit of Quantitation

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Client : URS Greiner Woodward Clyde
Site : American Cleaners
Project No. : 0500035822.02

Date Sampled : 01-FEB-01
Date Received : 06-FEB-01
Date Analyzed : 07-FEB-01

Account No.: 10234
Login No. : L68148

Client ID : AC-AA-SB31 Lab ID : L68148-3 Air Volume : 480 minutes

Parameter	LOQ ug	Total ug	ppm
1,1,2-Trichloroethane	8	<8	< 0.1
1,1,1-Trichloroethane	8	<8	< 0.1
1,1-Dichloroethane	8	<8	< 0.1
1,2-Dichloroethane	4	<4	< 0.07
Acetone	4	<4	< 0.1
Alpha-Methylstyrene	3	<3	< 0.05
Benzene	3	<3	< 0.06
Carbon Tetrachloride	30	<30	< 0.3
Cellosolve Acetate	8	<8	< 0.2
Chlorobenzene	3	<3	< 0.05
Chloroform	15	<15	< 0.2
Cyclohexane	3	<3	< 0.05
Cyclohexanone	4	<4	< 0.08
Cyclohexene	3	<3	< 0.06
Ethyl Benzene	3	<3	< 0.05
Methyl Ethyl Ketone	3	<3	< 0.06
Methyl Isobutyl Ketone	3	<3	< 0.05
Methyl n-Propyl Ketone	4	<4	< 0.08
n-Butyl Acetate	4	<4	< 0.05
n-Hexane	3	<3	< 0.05
n-Propyl Acetate	4	<4	< 0.07
o-Dichlorobenzene	4	<4	< 0.06
Octane	3	<3	< 0.05
p-tert-Butyl toluene	3	<3	< 0.05
Tetrachloroethylene	8	<8	< 0.08

Collection Media : OVM

Submitted by: LEO LUCISANO
Approved by : jal
Date : 13-FEB-01
QC by:
NYS DOH # 11626

< -Less Than	mg -Milligrams	m3 -Cubic Meters	kg -Kilograms
> -Greater Than	ug -Micrograms	l -Liters	NS -Not Specified
NA -Not Applicable	ND -Not Detected	ppm -Parts per Million	LOQ-Limit of Quantitation

Field sampling was not performed by Galson. Galson presents results based on sampling data provided by clients.

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Client : URS Greiner Woodward Clyde
Site : American Cleaners
Project No. : 0500035822.02

Date Sampled : 01-FEB-01
Date Received : 06-FEB-01
Date Analyzed : 07-FEB-01

Account No.: 10234
Login No. : L68148

Client ID : AC-AA-SB31 **Lab ID : L68148-3** **Air Volume : 480 minutes**

Parameter	LOQ ug	Total ug	ppm
Tetrahydrofuran	4	<4	< 0.08
Toluene	3	<3	< 0.05
Vinylidene Chloride	8	<8	< 0.1
Xylene	6	<6	< 0.1

Collection Media : OVM

Submitted by: LEO LUCISANO
Approved by : jal
Date : 13-FEB-01
QC by:
NYS DOH # : 11626

< -Less Than
> -Greater Than
NA -Not Applicable
mg -Milligrams
ug -Micrograms
ND -Not Detected
m3 -Cubic Meters
l -Liters
ppm -Parts per Million
kg -Kilograms
NS -Not Specified
LOQ-Limit of Quantitation

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Client : URS Greiner Woodward Clyde
Site : American Cleaners
Project No. : 0500035822.02

Date Sampled : 01-FEB-01
Date Received : 06-FEB-01
Date Analyzed : 07-FEB-01

Account No.: 10234
Login No. : L68148

Client ID : BLANK 1 **Lab ID : L68148-4** **Air Volume : NA**

Parameter	LOQ ug	Total ug
1,1,2-Trichloroethane	8	<8
1,1,1-Trichloroethane	8	<8
1,1-Dichloroethane	8	<8
1,2-Dichloroethane	4	<4
Acetone	4	<4
Alpha-Methylstyrene	3	<3
Benzene	3	<3
Carbon Tetrachloride	30	<30
Cellosolve Acetate	8	<8
Chlorobenzene	3	<3
Chloroform	15	<15
Cyclohexane	3	<3
Cyclohexanone	4	<4
Cyclohexene	3	<3
Ethyl Benzene	3	<3
Methyl Ethyl Ketone	3	<3
Methyl Isobutyl Ketone	3	<3
Methyl n-Propyl Ketone	4	<4
n-Butyl Acetate	4	<4
n-Hexane	3	<3
n-Propyl Acetate	4	<4
o-Dichlorobenzene	4	<4
Octane	3	<3
p-tert-Butyl toluene	3	<3
Tetrachloroethylene	8	<8

Collection Media : OVM

Submitted by: LEO LUCISANO
Approved by : jal
Date : 13-FEB-01
QC by:
NYS DOH # 11626

< -Less Than
> -Greater Than
NA -Not Applicable
mg -Milligrams
ug -Micrograms
ND -Not Detected
m3 -Cubic Meters
l -Liters
ppm -Parts per Million
kg -Kilograms
NS -Not Specified
LOQ-Limit of Quantitation

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Client : URS Greiner Woodward Clyde
Site : American Cleaners
Project No. : 0500035822.02

Date Sampled : 01-FEB-01
Date Received : 06-FEB-01
Date Analyzed : 07-FEB-01

Account No.: 10234
Login No. : L68148

Client ID : BLANK 1 **Lab ID : L68148-4** **Air Volume : NA**

Parameter	LOQ ug	Total ug
Tetrahydrofuran	4	<4
Toluene	3	<3
Vinylidene Chloride	8	<8
Xylene	6	<6

Collection Media : OVM

Submitted by: LEO LUCISANO
Approved by : jal
Date : 13-FEB-01
QC by:
NYS DOH # : 11626

< -Less Than mg -Milligrams m3 -Cubic Meters kg -Kilograms
> -Greater Than ug -Micrograms l -Liters NS -Not Specified
NA -Not Applicable ND -Not Detected ppm -Parts per Million LOQ-Limit of Quantitation

Field sampling was not performed by Galson. Galson presents results based on sampling data provided by clients.

Software Version	: 6.1.0.2:G07	Date	: 02/08/01 07:57:34 AM
Operator	: manager	Sample Name	: L68148-1,WG29741,ORGSBADGE
Sample Number	: 25		
AutoSampler	: HP7673A	Study	:
Instrument Name	: HP-2	Rack/Vial	: 1/25
Instrument Serial #	: None	Channel	: A
Delay Time	: 0.00 min	A/D mV Range	: 1000
Sampling Rate	: 5.0000 pts/s	End Time	: 60.00 min
Volume Injected	: 1.000000 µL		
Sample Amount	: 1.5000	Area Reject	: 100.000000
Data Acquisition Time	: 02/07/01 04:41:55 PM	Dilution Factor	: 1.00
		Cycle	: 25

Raw Data File : C:\PenExe\TcWS\Hp-2\020601A025.raw
Result File : C:\PenExe\TcWS\Hp-2\020601A025.rst
Inst Method : c:\penexe\tcws\hp-2\hp#2_orgprof from C:\PenExe\TcWS\Hp-2\020601A025.rst
Proc Method : c:\penexe\tcws\hp-2\hp#2_orgprof.mth
Calib Method : c:\penexe\tcws\hp-2\hp#2_orgprof.mth
Sequence File : C:\PenExe\TcWS\Hp-2\020601.seq

ANALYTICAL REPORT

ANALYTICAL METHOD:_____ Column: RTX 502.2 105M X 0.53mm ID

Component Name	Ret.time [min]	Area	Calibration Response	Conc. ug/mL	DE.vol mL	DF	Total ug
	3.82	127	1000000	0.00	1.5	1	0.0002
	4.92	196	1000000	0.00	1.5	1	0.0003
CS2	9.46	351262	1000000	0.35	1.5	1	0.5269
	12.57	118	1000000	0.00	1.5	1	0.0002
UNDECANE	49.64	90951	3472	26.19	1.5	1	39.2910

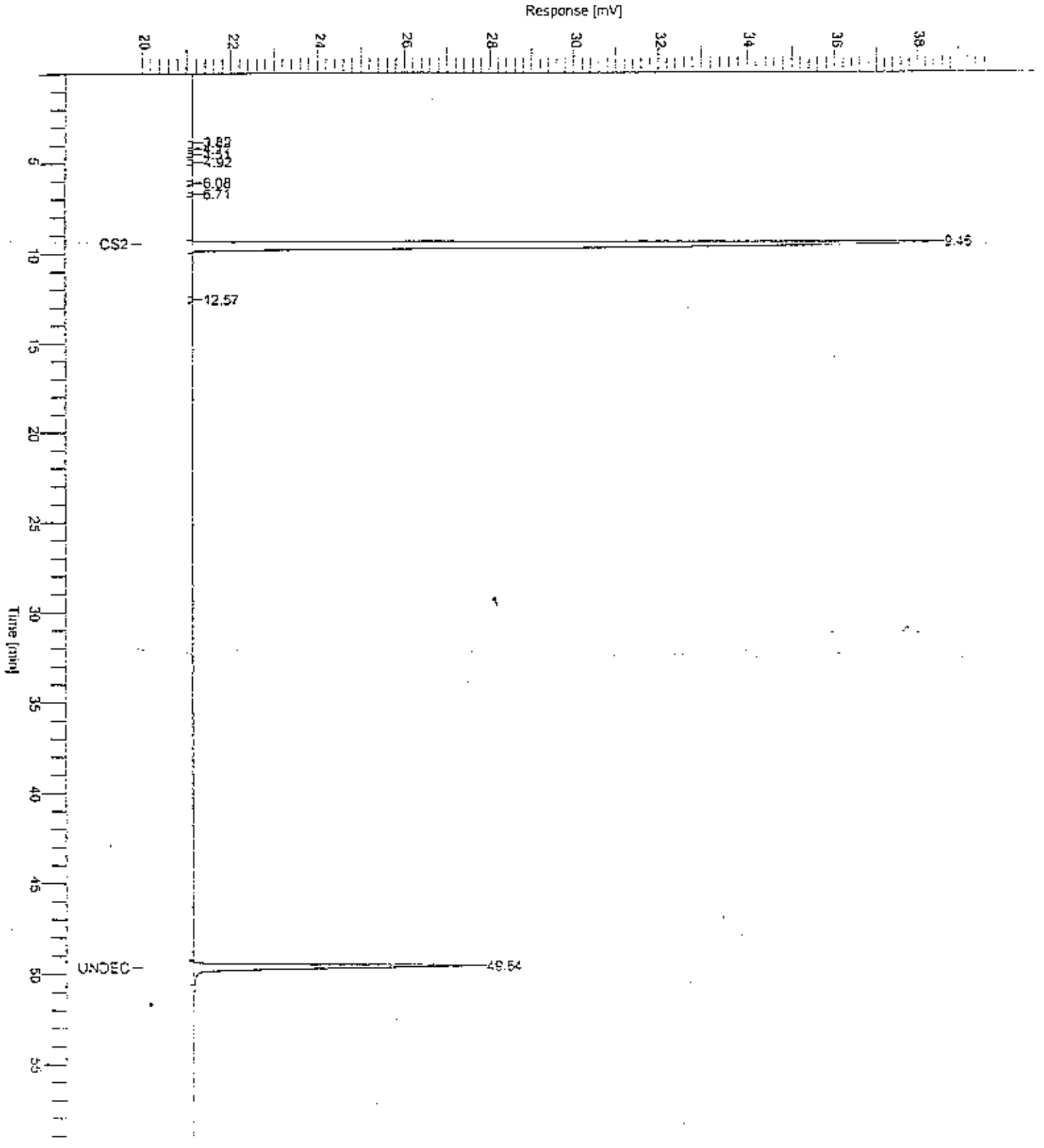
IG:MEK 1:5 → LOL

Reviewed by:_____ Date:_____

Report stored in ASCII file: C:\PenExe\TcWS\Hp-2\020601A025.TX0

Chromatogram

Sample Name : L68146-1,WG29741,ORGSBADGE Sample #: 25 Page 1 of 1
FileName : C:\PenExe\TcWS\Hp-2\020601A025.raw
Date : 02/08/01 07:57:35 AM
Method : hp#2_orgprof Time of Injection: 02/07/01 04:41:55 PM
Start Time : 0.00 min End Time : 60.00 min Low Point : 20.00 mV High Point : 40.00 mV
Scale Factor: 0.0 Plot Offset: 20.00 mV Plot Scale: 20.0 mV



Software Version	: 6.1.0.2:G07	Date	: 02/08/01 07:57:39 AM
Operator	: manager	Sample Name	: L68148-2,WG29741,ORGSBADGE
Sample Number	: 26		
AutoSampler	: HP7673A	Study	:
Instrument Name	: HP-2	Rack/Vial	: 1/26
Instrument Serial #	: None	Channel	: A
Delay Time	: 0.00 min	A/D mV Range	: 1000
Sampling Rate	: 5.0000 pts/s	End Time	: 60.00 min
Volume Injected	: 1.000000 µL		
Sample Amount	: 1.5000	Area Reject	: 100.000000
Data Acquisition Time	: 02/07/01 05:48:10 PM	Dilution Factor	: 1.00
		Cycle	: 26

Raw Data File : C:\PenExe\TcWS\Hp-2\020601A026.raw
Result File : C:\PenExe\TcWS\Hp-2\020601A026.rst
Inst Method : c:\penexe\tcws\hp-2\hp#2_orgprof from C:\PenExe\TcWS\Hp-2\020601A026.rst
Proc Method : c:\penexe\tcws\hp-2\hp#2_orgprof.mth
Calib Method : c:\penexe\tcws\hp-2\hp#2_orgprof.mth
Sequence File : C:\PenExe\TcWS\Hp-2\020601.seq

ANALYTICAL REPORT

ANALYTICAL METHOD:_____ Column: RTX 502.2 105M X 0.53mm ID

Component Name	Ret.time [min]	Area	Calibration Response	Conc. ug/mL	DE.vol mL	DF	Total ug
	3.82	137	1000000	0.00	1.5	1	0.0002
	4.93	187	1000000	0.00	1.5	1	0.0003
	6.09	133	1000000	0.00	1.5	1	0.0002
CS2	9.47	351971	1000000	0.35	1.5	1	0.5280
	12.58	199	1000000	0.00	1.5	1	0.0003
UNDECANE	49.65	91153	3472	26.25	1.5	1	39.3780

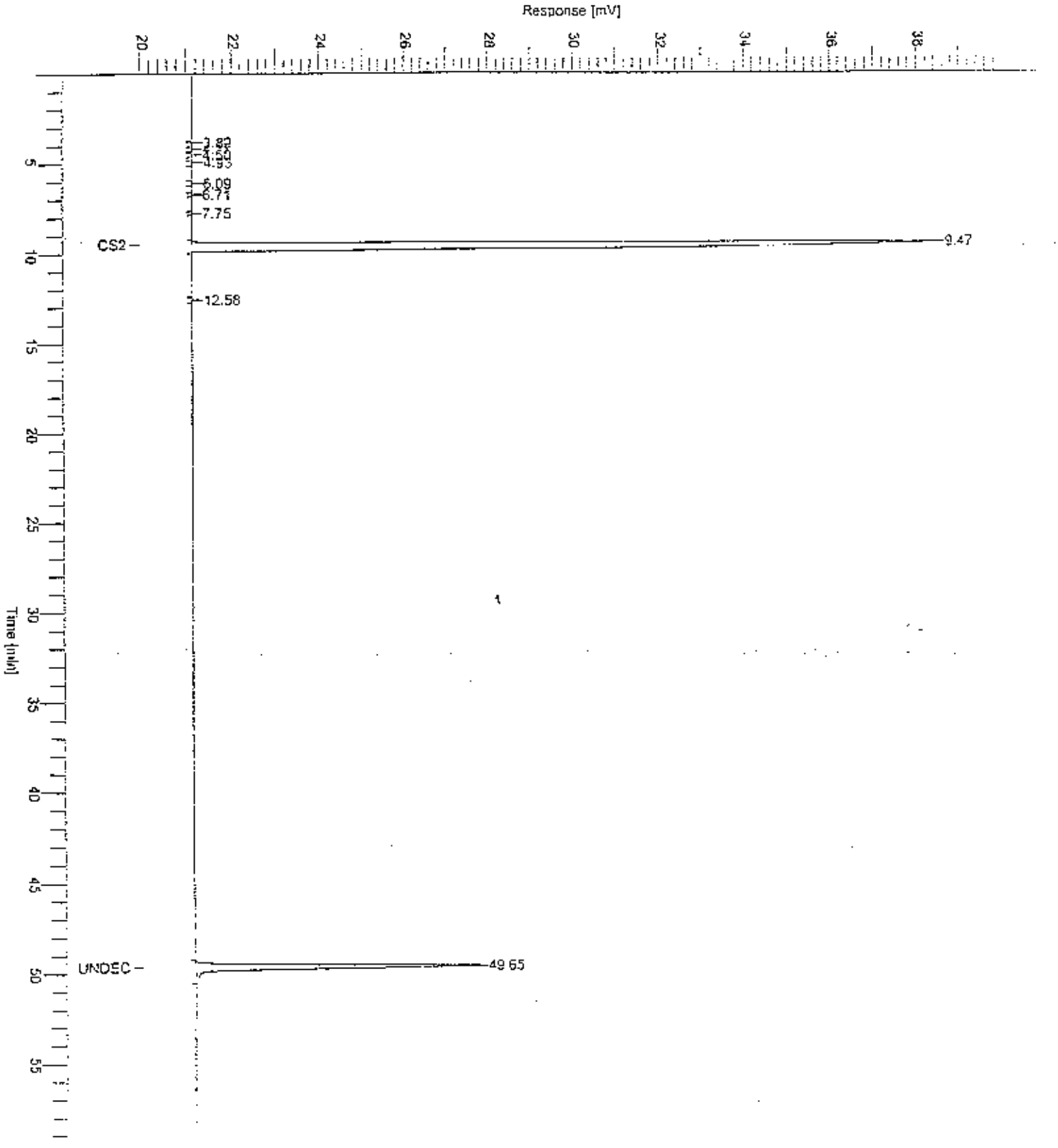
IGMEK, Sug

Reviewed by:_____ Date:_____

Report stored in ASCII file: C:\PenExe\TcWS\Hp-2\020601A026.TX0

Chromatogram

Sample Name : L68148-2,WG29741,ORGSBADGE Sample #: 26 Page 1 of 1
FileName : C:\PenExe\TcWS\hp-2\020601A026.raw
Date : 02/08/01 07:57:40 AM
Method : hp#2_orgprof Time of Injection: 02/07/01 05:48:10 PM
Start Time : 0.00 min End Time : 60.00 min Low Point : 20.00 mV High Point : 42.90 mV
Scale Factor: 0.0 Plot Offset: 20.00 mV Plot Scale: 20.0 mV



Software Version	: 6.1.0.2:G07	Date	: 02/08/01 07:57:44 AM
Operator	: manager	Sample Name	: L68148-3,WG29741,ORGSBADGE
Sample Number	: 27		
AutoSampler	: HP7673A	Study	:
Instrument Name	: HP-2	Rack/Vial	: 1/27
Instrument Serial #	: None	Channel	: A
Delay Time	: 0.00 min	A/D mV Range	: 1000
Sampling Rate	: 5.0000 pts/s	End Time	: 60.00 min
Volume Injected	: 1.000000 µL		
Sample Amount	: 1.5000	Area Reject	: 100.000000
Data Acquisition Time	: 02/07/01 06:54:38 PM	Dilution Factor	: 1.00
		Cycle	: 27

Raw Data File : C:\PenExe\TcWS\Hp-2\020601A027.raw
Result File : C:\PenExe\TcWS\Hp-2\020601A027.rst
Inst Method : c:\penexe\tcws\hp-2\hp#2_orgprof from C:\PenExe\TcWS\Hp-2\020601A027.rst
Proc Method : c:\penexe\tcws\hp-2\hp#2_orgprof.mth
Calib Method : c:\penexe\tcws\hp-2\hp#2_orgprof.mth
Sequence File : C:\PenExe\TcWS\Hp-2\020601.seq

ANALYTICAL REPORT

ANALYTICAL METHOD:_____ Column: RTX 502.2 105M X 0.53mm ID

Component Name	Ret.time [min]	Area	Calibration Response	Conc. ug/mL	DE.vol mL	DF	Total ug
	3.82	121	1000000	0.00	1.5	1	0.0002
	4.92	196	1000000	0.00	1.5	1	0.0003
	6.10	124	1000000	0.00	1.5	1	0.0002
CS2	9.46	353994	1000000	0.35	1.5	1	0.5310
	12.58	127	~~1000000~~	0.00	1.5	1	0.0002
UNDECANE	49.63	92698	3472	26.70	1.5	1	40.0457
	59.62	219	1000000	0.00	1.5	1	0.0003

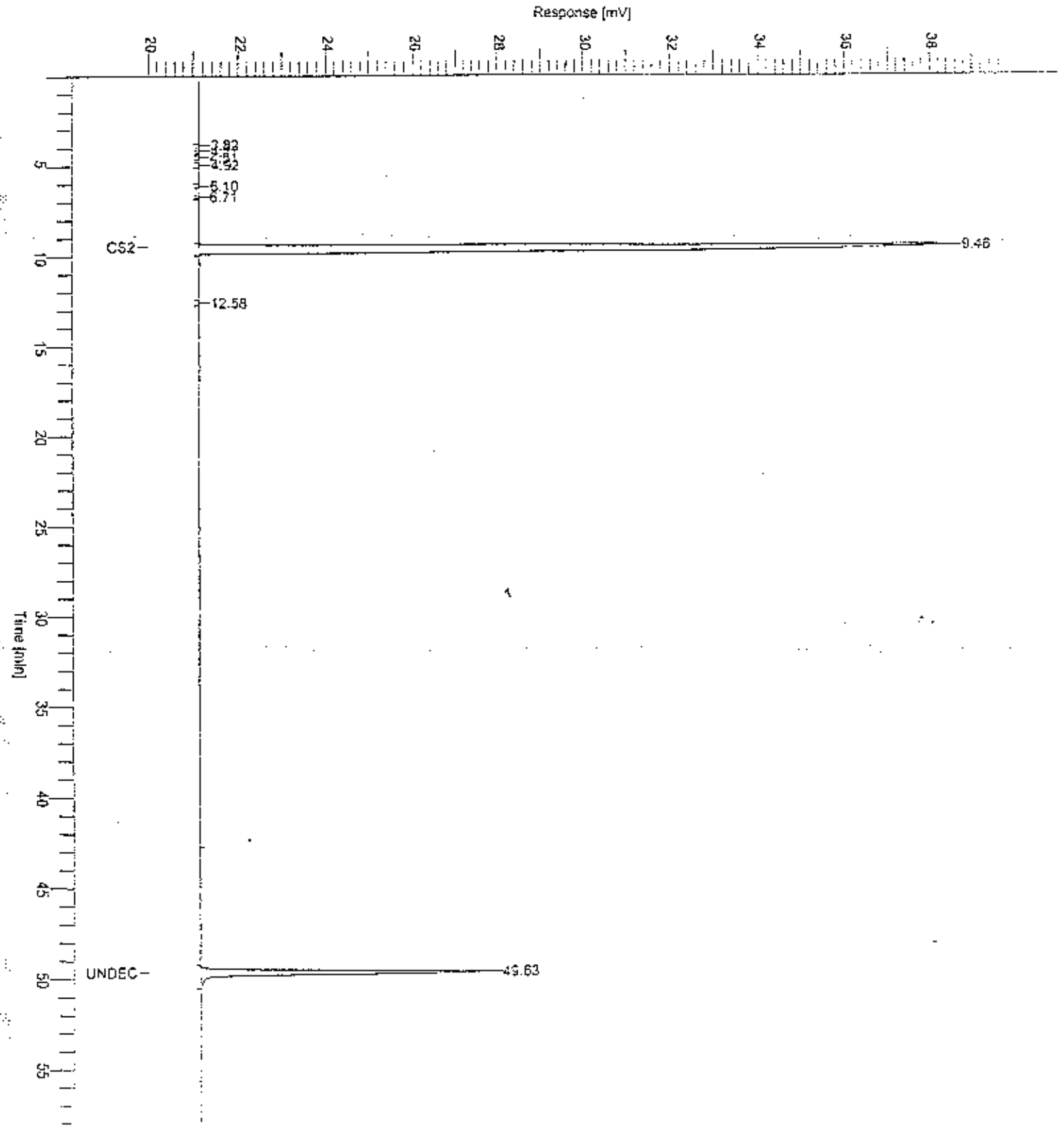
IGNEK, S-9

Reviewed by:_____ Date:_____

Report stored in ASCII file: C:\PenExe\TcWS\Hp-2\020601A027.TX0

Chromatogram

Sample Name : L68148-3,WG29741,ORGSBADGE Sample #: 27 Page 1 of 1
FileName : C:\PenExe\TcWS\Hp-2\020501A027.raw
Date : 02/08/01 07:57:45 AM
Method : hp#2_orgprof Time of Injection: 02/07/01 06:54:38 PM
Start Time : 0.00 min End Time : 60.00 min Low Point : 20.00 mV High Point : 40.00 mV
Scale Factor: 0.0 Plot Offset: 20.00 mV Plot Scale: 20.0 mV



Software Version	: 6.1.0.2:G07	Date	: 02/08/01 07:57:49 AM
Operator	: manager	Sample Name	: L68148-4,WG29741,ORGSBADGE
Sample Number	: 28		
AutoSampler	: HP7673A	Study	:
Instrument Name	: HP-2	Rack/Vial	: 1/28
Instrument Serial #	: None	Channel	: A
Delay Time	: 0.00 min	A/D mV Range	: 1000
Sampling Rate	: 5.0000 pts/s	End Time	: 60.00 min
Volume Injected	: 1.000000 µL		
Sample Amount	: 1.5000	Area Reject	: 100.000000
Data Acquisition Time	: 02/07/01 08:01:11 PM	Dilution Factor	: 1.00
		Cycle	: 28

Raw Data File : C:\PenExe\TcWS\Hp-2\020601A028.raw
Result File : C:\PenExe\TcWS\Hp-2\020601A028.rst
Inst Method : c:\penexe\tcws\hp-2\hp#2_orgprof from C:\PenExe\TcWS\Hp-2\020601A028.rst
Proc Method : c:\penexe\tcws\hp-2\hp#2_orgprof.mth
Calib Method : c:\penexe\tcws\hp-2\hp#2_orgprof.mth
Sequence File : C:\PenExe\TcWS\Hp-2\020601.seq

ANALYTICAL REPORT

ANALYTICAL METHOD:_____ Column: RTX 502.2 105M X 0.53mm ID

Component Name	Ret.time [min]	Area	Calibration Response	Conc. ug/mL	DE.vol mL	DF	Total ug
	4.93	167	1000000	0.00	1.5	1	0.0003
CS2	9.46	354274	1000000	0.35	1.5	1	0.5314
	12.58	150	1000000	0.00	1.5	1	0.0002
UNDECANE	49.63	92798	3472	26.73	1.5	1	40.0887
	59.59	392	1000000	0.00	1.5	1	0.0006

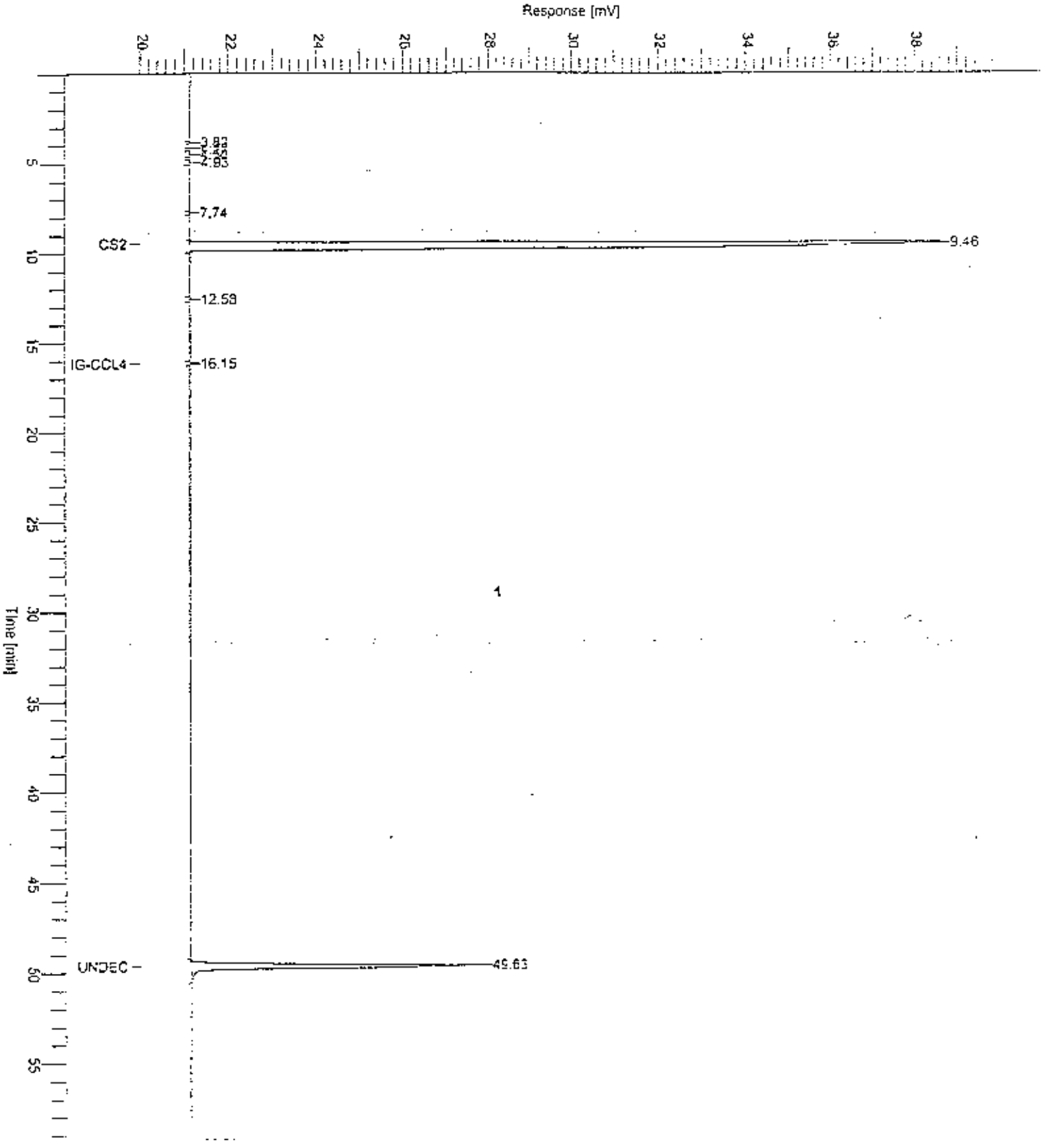
JGMEK 6/05

Reviewed by:_____ Date:_____

Report stored in ASCII file: C:\PenExe\TcWS\Hp-2\020601A028.TX0

Chromatogram

Sample Name : L68148-4,WG29741,ORGSBADGE Sample #: 28 Page 1 of 1
FileName : C:\PenExe\TcWS\Hp-2\020601A028.raw
Date : 02/08/01 07:57:50 AM
Method : hp#2_orgprof Time of Injection: 02/07/01 08:01:11 PM
Start Time : 0.00 min End Time : 60.00 min Low Point : 20.00 mV High Point : 40.00 mV
Scale Factor: 0.0 Plot Offset: 20.00 mV Plot Scale: 20.0 mV



Continuing Calibration Standards

Continuing Calibration

Instrument HP-2
Date Run 2/6/01

	Known ug/ml	Found ug/ml	%R
1,1,2-Trichloroethane	203	227	111
1,1,1-Trichloroethane	196	226	115
1,1-Dichloroethane	169	188	112
1,2-Dichloroethane	180	204	113
Acetone	118	105	89
Alpha-Methylstyrene	132	144	109
Benzene	126	136	108
Carbon Tetrachloride	226	234	104
Cellosolve Acetate	139	146	105
Chlorobenzene	159	171	108
Chloroform	210	221	105
Cyclohexane	110	120	109
Cyclohexanone	137	143	105
Cyclohexene	116	126	108
Ethyl Benzene	124	130	105
Methyl Ethyl Ketone	118	123	105
Methyl Isobutyl Ketone	116	117	101
Methyl n-Propyl Ketone	117	123	106
n-Butyl Acetate	126	132	104
n-Hexane	95	97	102
n-Propyl Acetate	127	137	108
o-Dichlorobenzene	186	204	110
Octane	100	102	102
p-tert-butyl toluene	123	128	105
Tetrachloroethylene	231	264	114
Tetrahydrofuran	129	126	98
Toluene	124	134	108
Vinylidene Chloride	176	190	108
Xylene	373	404	108

Recovery limit 85-115%

Continuing Calibration

Instrument HP-2
Date Run 2/6/01

	Known ug/ml	Found ug/ml	%R
1,1,2-Trichloroethane	388	442	114
1,1,1-Trichloroethane	374	430	115
1,1-Dichloroethane	322	368	114
1,2-Dichloroethane	345	397	115
Acetone	225	196	87
Alpha-Methylstyrene	252	289	115
Benzene	241	265	110
Carbon Tetrachloride	431	495	115
Cellosolve Acetate	265	294	111
Chlorobenzene	304	339	111
Chloroform	401	430	107
Cyclohexane	211	234	111
Cyclohexanone	261	280	107
Cyclohexene	222	248	112
Ethyl Benzene	237	254	107
Methyl Ethyl Ketone	225	239	106
Methyl Isobutyl Ketone	221	231	105
Methyl n-Propyl Ketone	223	251	113
n-Butyl Acetate	241	259	107
n-Hexane	181	189	104
n-Propyl Acetate	242	277	115
o-Dichlorobenzene	355	397	112
Octane	192	200	104
p-tert-butyl toluene	235	260	111
Tetrachloroethylene	441	504	114
Tetrahydrofuran	245	247	101
Toluene	237	272	115
Vinylidene Chloride	335	361	108
Xylene	713	821	115

Recovery limit 85-115%

Standard Number	Date Made	Analyst	Analyte	Weight(g)	Conc. Ug/ml	1:21 Dil	1:11 Dil
IH11465	1/8/01	LL	CS2	10.0 ml			
			ETOH	0.025	2500	119	227
			VNECL	0.0369	3690	176	335
			MEK	0.0247	2470	118	225
			THF	0.027	2700	129	245
			MC	0.0411	4110	196	374
			12DCLET	0.0379	3790	180	345
			CYHXE	0.0244	2440	116	222
			MIBK	0.0243	2430	116	221
			112TCLET	0.0427	4270	203	388
			CLBZ	0.0334	3340	159	304
			CELACT	0.0291	2910	139	265
			VNTL	0.0274	2740	130	249
			PTERTBUTL	0.0258	2580	123	235

Standard Number	Date Made	Analyst	Analyte	Weight(g)	Conc. Ug/ml	1:21 Dil	1:11 Dil
IH11466	1/8/01	LL	CS2	10.0 ml			
			IPROH	0.024	2400	114	218
			NHX	0.0199	1990	95	181
			IBUOH	0.0246	2460	117	224
			CYHX	0.0232	2320	110	211
			NBUOH	0.0251	2510	120	228
			BZ	0.0265	2650	126	241
			TCLETE	0.0434	4340	207	395
			OC	0.0211	2110	100	192
			NBUACT	0.0265	2650	126	241
			ETBZ	0.0261	2610	124	237
			CYHXONE	0.0287	2870	137	261
			MDCLBZ	0.0386	3860	184	351
			PDCLBZ	0.0287	2870	137	261
			ODCLBZ	0.039	3900	186	355

Standard Number	Date Made	Analyst	Analyte	Weight(g)	Conc. Ug/ml	1:21 Dil	1:11 Dil
IH11467	1/8/01	LL	CS2	10.0 ml			
			AT	0.0247	2470	118	225
			11DCLET	0.0354	3540	169	322
			CLF	0.0441	4410	210	401
			CCL4	0.0474	4740	226	431
			MPK	0.0245	2450	117	223
			NPRACT	0.0266	2660	127	242
			TL	0.0261	2610	124	237
			TETCLETE	0.0485	4850	231	441
			XY		7840	373	713
			M-XY	0.0261			
			P-XY	0.026			
			O-XY	0.0263			
			AMEST4	0.0277	2770	132	252

Software Version	: 6.1.0.2:G07	Date	: 02/13/01 09:16:17 AM
Operator	: manager	Sample Name	: WG29741-1,IH11465.21
Sample Number	: 01	Study	:
AutoSampler	: HP7673A	Rack/Vial	: 1/1
Instrument Name	: HP-2	Channel	: A
Instrument Serial #	: None	A/D mV Range	: 1000
Delay Time	: 0.00 min	End Time	: 60.00 min
Sampling Rate	: 5.0000 pts/s		
Volume Injected	: 1.000000 µL	Area Reject	: 100.000000
Sample Amount	: 1.0000	Dilution Factor	: 1.00
Data Acquisition Time	: 02/06/01 02:01:13 PM	Cycle	: 1

Raw Data File : E:\PenExe\TcWS\Hp-2\020601A001.raw
Result File : E:\PenExe\TcWS\Hp-2\020601A001.rst
Inst Method : c:\penexe\tcws\hp-2\hp#2_orgprof from E:\PenExe\TcWS\Hp-2\020601A001.rst
Proc Method : E:\PenExe\TcWS\Hp-2\hp#2_orgprof.mth from
E:\PenExe\TcWS\Hp-2\020601A001.rst
Calib Method : E:\PenExe\TcWS\Hp-2\hp#2_orgprof.mth from
E:\PenExe\TcWS\Hp-2\020601A001.rst
Sequence File : C:\PenExe\TcWS\Hp-2\020601.seq

ANALYTICAL REPORT

ANALYTICAL METHOD:_____ Column: RTX 502.2 105M X 0.53mm ID

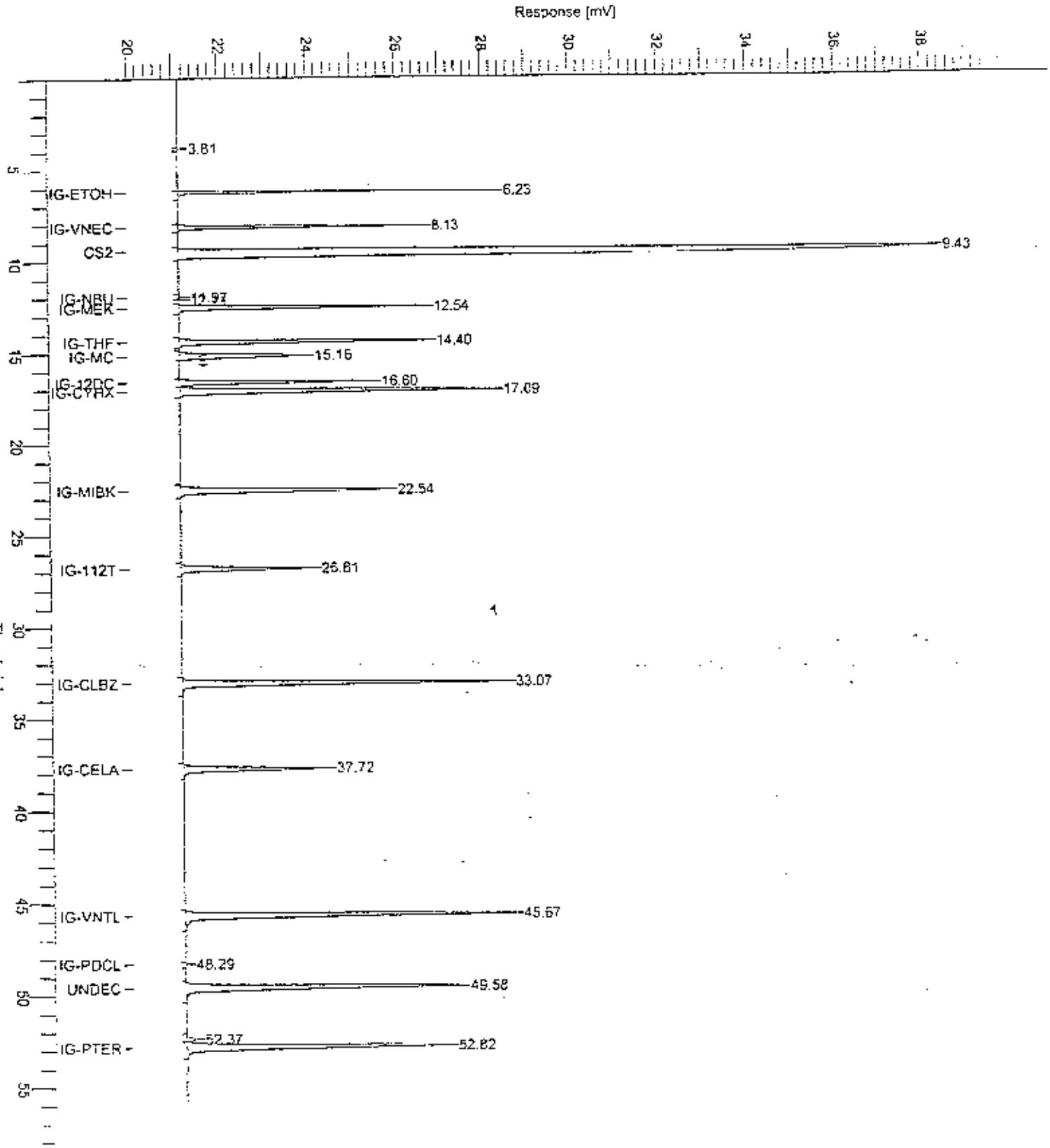
Component Name	Ret.time [min]	Area	Calibration Response	Conc. ug/mL	DE.vol mL	DF	Total ug
IG-ETOH	6.23	30486	272	112.26	1.0	1	112.2621
IG-VNECL	8.13	38033	200	189.73	1.0	1	189.7261
CS2	9.43	344691	1000000	0.34	1.0	1	0.3447
IG-NBUOH	11.97	193	403	0.48	1.0	1	0.4801
	12.11	170	1000000	0.00	1.0	1	0.0002
IG-MEK	12.54	47474	385	123.27	1.0	1	123.2703
IG-THF	14.40	52941	420	126.00	1.0	1	125.9975
IG-MC	15.16	33671	149	225.55	1.0	1	225.5460
IG-12DCLET	16.60	39021	191	204.46	1.0	1	204.4558
IG-CYHXE	17.09	82413	656	125.62	1.0	1	125.6220
IG-MIBK	22.54	57455	491	117.08	1.0	1	117.0821
IG-112TCLET	26.81	33652	149	226.53	1.0	1	226.5329
IG-CLBZ	33.07	85904	502	170.97	1.0	1	170.9717
IG-CELACT	37.72	38598	265	145.61	1.0	1	145.6105
IG-VNTL	45.67	93931	669	140.51	1.0	1	140.5063
IG-PDCLBZ	48.29	117	379	0.31	1.0	1	0.3094
UNDECANE	49.58	84632	3472	24.37	1.0	1	24.3740
	52.37	2411	1000000	0.00	1.0	1	0.0024
IG-PTERTBUTL	52.82	84496	658	128.47	1.0	1	128.4721

Reviewed by:_____ Date:_____

Report stored in ASCII file: E:\PenExe\TcWS\Hp-2\020601A001.TX0

Chromatogram

Sample Name : WG29741-1,IH11465,21 Sample #: 01 Page 1 of 1
FileName : E:\PenExe\TcWS\Hp-2\020601A001.raw
Date : 02/13/01 09:16:20 AM
Method :
Time of Injection: 02/06/01 02:01:13 PM
Start Time : 0.00 min End Time : 60.00 min Low Point : 20.00 mV High Point : 40.00 mV
Scale Factor: 0.0 Plot Offset: 20.00 mV Plot Scale: 20.0 mV



Software Version	: 6.1.0.2:G07	Date	: 02/13/01 09:18:21 AM
Operator	: manager	Sample Name	: WG29741-2,IH11466,21
Sample Number	: 02	Study	:
AutoSampler	: HP7673A	Rack/Vial	: 1/2
Instrument Name	: HP-2	Channel	: A
Instrument Serial #	: None	A/D mV Range	: 1000
Delay Time	: 0.00 min	End Time	: 60.00 min
Sampling Rate	: 5.0000 pts/s		
Volume Injected	: 1.000000 µL	Area Reject	: 100.000000
Sample Amount	: 1.0000	Dilution Factor	: 1.00
Data Acquisition Time	: 02/06/01 03:08:27 PM	Cycle	: 2

Raw Data File : E:\PenExe\TcWS\Hp-2\020601A002.raw
Result File : E:\PenExe\TcWS\Hp-2\020601A002.rst
Inst Method : c:\penexe\tcws\hp-2\hp#2_orgprof from E:\PenExe\TcWS\Hp-2\020601A002.rst
Proc Method : E:\PenExe\TcWS\Hp-2\hp#2_orgprof.mth from
E:\PenExe\TcWS\Hp-2\020601A002.rst
Calib Method : E:\PenExe\TcWS\Hp-2\hp#2_orgprof.mth from
E:\PenExe\TcWS\Hp-2\020601A002.rst
Sequence File : E:\PenExe\TcWS\Hp-2\020601.seq

ANALYTICAL REPORT

ANALYTICAL METHOD:_____ Column: RTX 502.2 105M X 0.53mm ID

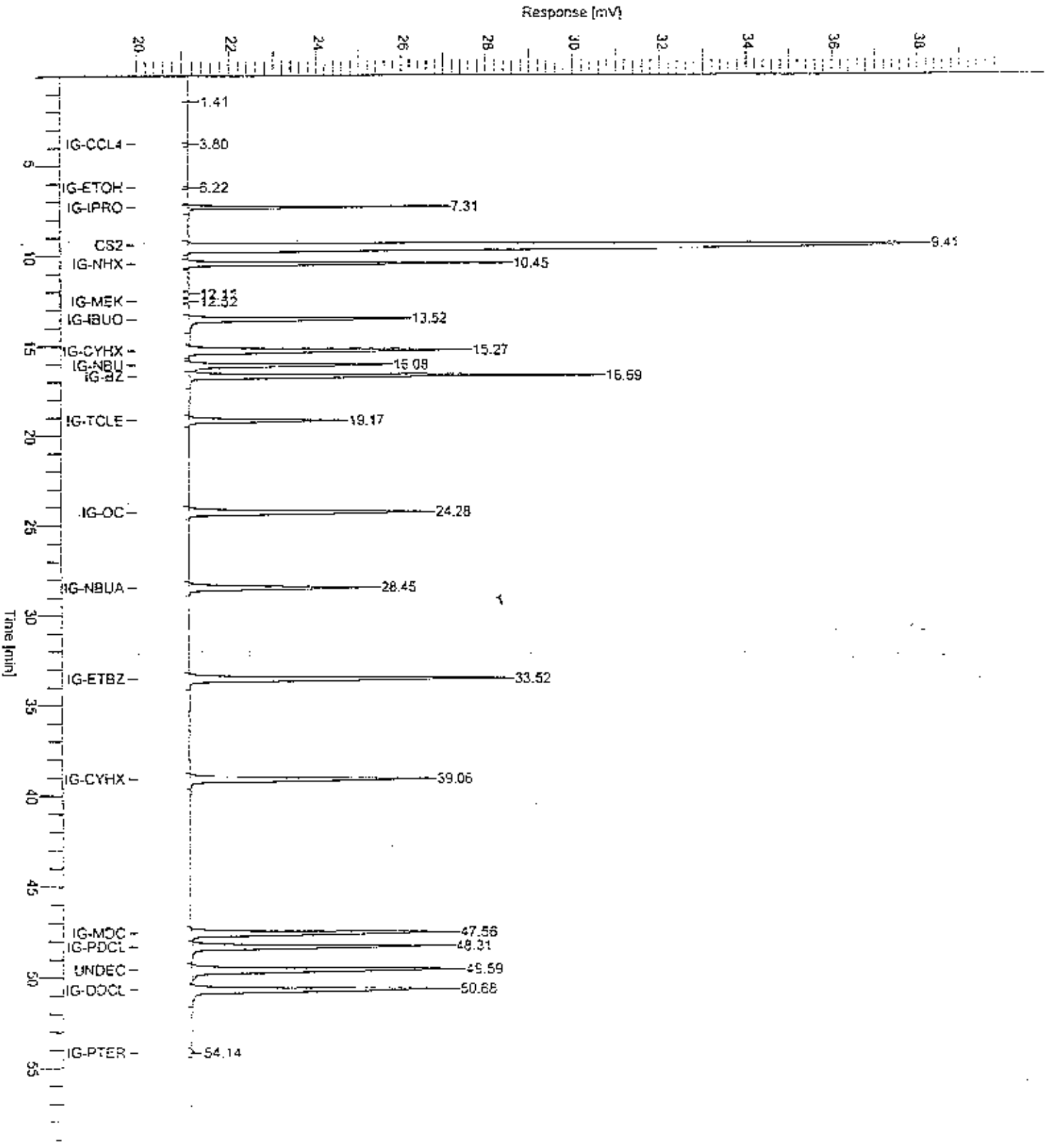
Component Name	Ret.time [min]	Area	Calibration Response	Conc. ug/mL	DE.vol mL	DF	Total ug
IG-IPROH	7.31	36689	329	111.39	1.0	1	111.3867
CS2	9.41	343239	1000000	0.34	1.0	1	0.3432
IG-NHX	10.45	63313	655	96.66	1.0	1	96.6604
	12.11	117	1000000	0.00	1.0	1	0.0001
IG-IBUOH	13.52	51861	460	112.62	1.0	1	112.6245
IG-CYHX	15.27	78943	656	120.33	1.0	1	120.3325
IG-NBUOH	16.08	45531	403	113.02	1.0	1	113.0221
IG-BZ	16.69	97543	715	136.41	1.0	1	136.4107
IG-TCLETE	19.17	35338	152	232.27	1.0	1	232.2741
IG-OC	24.28	67838	664	102.19	1.0	1	102.1898
IG-NBUACT	28.45	49340	375	131.72	1.0	1	131.7241
IG-ETBZ	33.52	89754	690	130.03	1.0	1	130.0282
IG-CYHXONE	39.06	67896	475	143.05	1.0	1	143.0483
IG-MDCLBZ	47.56	74850	376	198.84	1.0	1	198.8405
IG-PDCLBZ	48.31	71828	379	189.67	1.0	1	189.6712
UNDECANE	49.59	83970	3472	24.18	1.0	1	24.1835
IG-ODCLBZ	50.68	76661	376	203.68	1.0	1	203.6826
IG-PTERTBUTL	54.14	454	658	0.69	1.0	1	0.6907

Reviewed by:_____ Date:_____

Report stored in ASCII file: E:\PenExe\TcWS\Hp-2\020601A002.TX0

Chromatogram

Sample Name : WG29741-2,IH11466,21 Sample #: 02 Page 1 of 1
FileName : E:\PenExel\ToWS\Hp-2\020601A002.raw
Date : 02/13/01 09:18:24 AM
Method :
Time of Injection: 02/06/01 03:08:27 PM
Start Time : 0.00 min End Time : 60.00 min Low Point : 20.00 mV High Point : 40.00 mV
Scale Factor: 0.0 Plot Offset: 20.00 mV Plot Scale: 20.0 mV



Software Version	: 6.1.0.2:G07	Date	: 02/13/01 09:19:31 AM
Operator	: manager	Sample Name	: WG29741-3,IH11467,21
Sample Number	: 03	Study	:
AutoSampler	: HP7673A	Rack/Vial	: 1/3
Instrument Name	: HP-2	Channel	: A
Instrument Serial #	: None	A/D mV Range	: 1000
Delay Time	: 0.00 min	End Time	: 60.00 min
Sampling Rate	: 5.0000 pts/s		
Volume Injected	: 1.000000 µL	Area Reject	: 100.000000
Sample Amount	: 1.0000	Dilution Factor	: 1.00
Data Acquisition Time	: 02/06/01 04:15:56 PM	Cycle	: 3

Raw Data File : E:\PenExe\TcWS\Hp-2\020601A003.raw
Result File : E:\PenExe\TcWS\Hp-2\020601A003.rst
Inst Method : c:\penexe\tcws\hp-2\hp#2_orgprof from E:\PenExe\TcWS\Hp-2\020601A003.rst
Proc Method : E:\PenExe\TcWS\Hp-2\hp#2_orgprof.mth from
E:\PenExe\TcWS\Hp-2\020601A003.rst
Calib Method : E:\PenExe\TcWS\Hp-2\hp#2_orgprof.mth from
E:\PenExe\TcWS\Hp-2\020601A003.rst
Sequence File : E:\PenExe\TcWS\Hp-2\020601.seq

ANALYTICAL REPORT

ANALYTICAL METHOD:_____ Column: RTX 502.2 105M X 0.53mm ID

Component Name	Ret.time [min]	Area	Calibration Response	Conc. ug/mL	DE.vol mL	DF	Total ug
	6.11	296	1000000	0.00	1.0	1	0.0003
IG-ETOH	6.23	206	272	0.76	1.0	1	0.7600
IG-AT	7.70	33469	318	105.12	1.0	1	105.1178
	9.01	199	1000000	0.00	1.0	1	0.0002
CS2	9.42	341297	1000000	0.34	1.0	1	0.3413
IG-11DCLET	11.34	34587	184	188.07	1.0	1	188.0697
IG-NBUOH	11.94	115	403	0.28	1.0	1	0.2846
IG-MEK	12.51	454	385	1.18	1.0	1	1.1797
IG-CLF	13.75	13701	62	220.64	1.0	1	220.6386
IG-CCL4	16.11	6678	28	234.33	1.0	1	234.3290
IG-12DCLET	16.48	127	191	0.67	1.0	1	0.6671
IG-MPK	18.61	52126	423	123.37	1.0	1	123.3742
	19.37	281	1000000	0.00	1.0	1	0.0003
IG-NPRACT	20.12	45794	334	137.10	1.0	1	137.0991
	20.97	1339	1000000	0.00	1.0	1	0.0013
IG-TL	25.08	93353	698	133.76	1.0	1	133.7615
IG-TETCLETE	28.51	36202	137	263.62	1.0	1	263.6154
IG-XY	34.01	272403	674	404.38	1.0	1	404.3771
IG-AMEST4	44.63	95315	661	144.24	1.0	1	144.2400
UNDECANE	49.60	84745	3472	24.41	1.0	1	24.4067

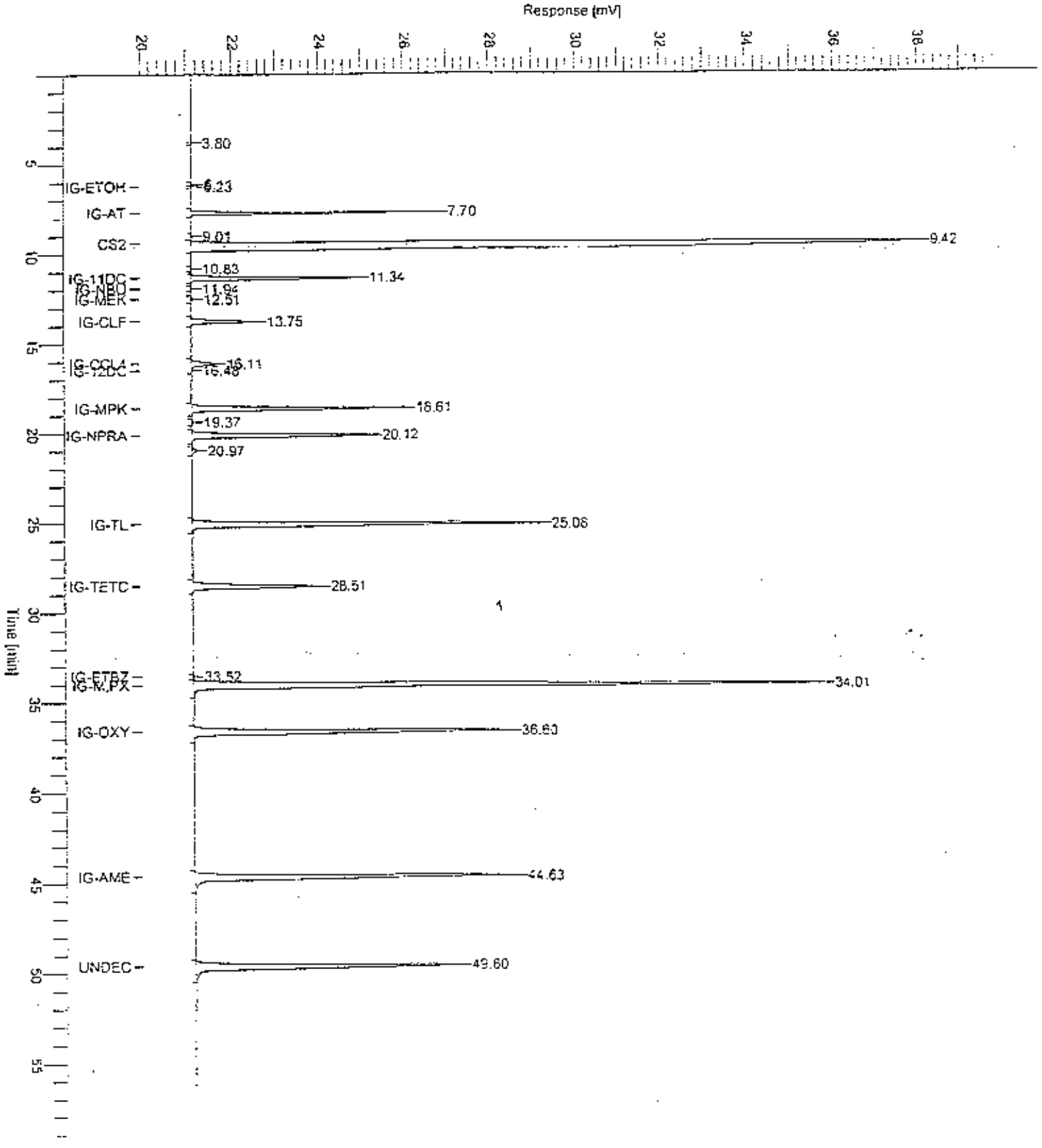
Reviewed by:_____ Date:_____

02/13/01 09:19:31 AM Result: E:\PenExe\TcWS\Hp-2\020601A003.rst

Report stored in ASCII file: E:\PenExe\TcWS\Hp-2\020601A003.TX0

Chromatogram

Sample Name : WG29741-3,IH11467,21 Sample #: 03 Page 1 of 1
FileName : E:\PenExe\TcWS\Hp-2\020601A003.raw
Date : 02/13/01 09:19:34 AM
Method :
Time of Injection: 02/06/01 04:15:56 PM
Start Time : 0.00 min End Time : 60.00 min Low Point : 20.00 mV High Point : 40.00 mV
Scale Factor: 0.0 Plot Offset: 20.00 mV Plot Scale: 20.0 mV



Software Version	: 6.1.0.2:G07	Date	: 02/12/01 11:38:44 AM
Operator	: manager	Sample Name	: WG29741-5,IH11465,11
Sample Number	: 30	Study	:
AutoSampler	: HP7673A	Rack/Vial	: 1/30
Instrument Name	: HP-2	Channel	: A
Instrument Serial #	: None	A/D mV Range	: 1000
Delay Time	: 0.00 min	End Time	: 60.00 min
Sampling Rate	: 5.0000 pts/s		
Volume Injected	: 1.000000 µL	Area Reject	: 100.000000
Sample Amount	: 1.0000	Dilution Factor	: 1.00
Data Acquisition Time	: 02/07/01 10:14:09 PM	Cycle	: 30

Raw Data File : E:\PenExe\TcWS\Hp-2\020601A030.raw
Inst Method : c:\penexe\tcws\hp-2\hp#2_orgprof from E:\PenExe\TcWS\Hp-2\020601A030.raw
Proc Method : E:\PenExe\TcWS\Hp-2\hp#2_orgprof.mth
Calib Method : E:\PenExe\TcWS\Hp-2\hp#2_orgprof.mth
Sequence File : C:\PenExe\TcWS\Hp-2\020601.seq

ANALYTICAL REPORT

ANALYTICAL METHOD:_____ Column: RTX 502.2 105M X 0.53mm ID

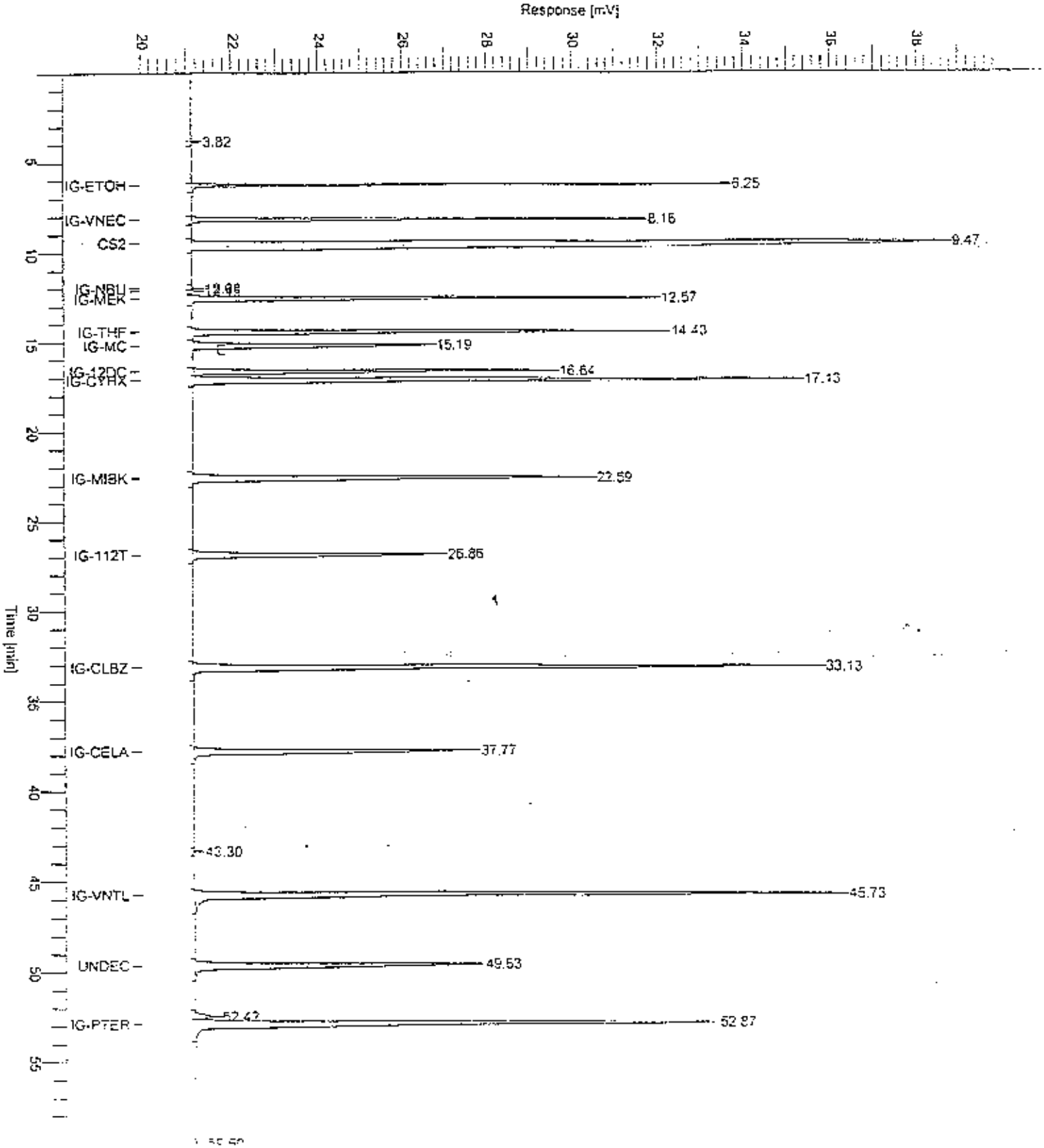
Component Name	Ret.time [min]	Area	Calibration Response	Conc. ug/mL	DE.vol mL	DF	Total ug
	3.82	138	1000000	0.00	1.0	1	0.0001
IG-ETOH	6.25	53171	272	195.80	1.0	1	195.7980 ✓
IG-VNECL	8.16	72296	200	360.65	1.0	1	360.6455 ✓
CS2	9.47	354405	1000000	0.35	1.0	1	0.3544
IG-NBUOH	12.00	346	403	0.86	1.0	1	0.8578
IG-BZ	12.15	364	715	0.51	1.0	1	0.5095
IG-MEK	12.57	92216	385	239.45	1.0	1	239.4471 ✓
IG-THF	14.43	103930	420	247.35	1.0	1	247.3474 ✓
IG-MC	15.19	64150	149	429.71	1.0	1	429.7143 ✓
IG-12DCLET	16.64	75834	191	397.34	1.0	1	397.3418 ✓
IG-CYHXE	17.13	162642	656	247.91	1.0	1	247.9143 ✓
IG-MIBK	22.59	113511	491	231.31	1.0	1	231.3142 ✓
IG-112TCLET	25.86	65730	149	442.47	1.0	1	442.4669 ✓
IG-CLBZ	33.13	170282	502	338.91	1.0	1	338.9078 ✓
IG-CELACT	37.77	77945	265	294.05	1.0	1	294.0491 ✓
	43.30	225	1000000	0.00	1.0	1	0.0002
IG-VNTL	45.73	189701	669	283.76	1.0	1	283.7627 ✓
UNDECANE	49.63	89611	3472	25.81	1.0	1	25.8081
	52.42	4991	1000000	0.00	1.0	1	0.0050
IG-PTERTBUTL	52.87	170843	658	259.76	1.0	1	259.7569 ✓
	59.60	324	1000000	0.00	1.0	1	0.0003

Reviewed by:_____ Date:_____

Report stored in ASCII file: .TX0

Chromatogram

Sample Name : WG29741-5,#H11465,11 Sample #: 30 Page 1 of 1
FileName : E:\PenExe\TcWS\Hp-2\020601A033.raw
Date : 02/12/01 11:38:47 AM
Method : hp#2_orgprof.mth Time of Injection: 02/07/01 10:14:09 P.M.
Start Time : 0.00 min End Time : 60.00 min Low Point : 20.00 mV High Point : 40.00 mV
Scale Factor: 0.0 Plot Offset: 20.00 mV Plot Scale: 20.0 mV



Software Version	: 6.1.0.2:G07	Date	: 02/12/01 12:00:40 PM
Operator	: manager	Sample Name	: WG29741-6,IH11466.11
Sample Number	: 31	Study	:
AutoSampler	: HP7673A	Rack/Vial	: 1/31
Instrument Name	: HP-2	Channel	: A
Instrument Serial #	: None	A/D mV Range	: 1000
Delay Time	: 0.00 min	End Time	: 60.00 min
Sampling Rate	: 5.0000 pts/s		
Volume Injected	: 1.000000 µL	Area Reject	: 100.000000
Sample Amount	: 1.0000	Dilution Factor	: 1.00
Data Acquisition Time	: 02/07/01 11:20:33 PM	Cycle	: 31

Raw Data File : E:\PenExe\TcWS\Hp-2\020601A031.raw
Result File : E:\PenExe\TcWS\Hp-2\020601A031.rst
Inst Method : c:\penexe\tcws\hp-2\hp#2_orgprof from E:\PenExe\TcWS\Hp-2\020601A031.rst
Proc Method : E:\PenExe\TcWS\Hp-2\hp#2_orgprof.mth
Calib Method : E:\PenExe\TcWS\Hp-2\hp#2_orgprof.mth
Sequence File : E:\PenExe\TcWS\Hp-2\020601.seq

ANALYTICAL REPORT

ANALYTICAL METHOD:_____ Column: RTX 502.2 105M X 0.53mm ID

Component Name	Ret.time [min]	Area	Calibration Response	Conc. ug/mL	DE.vol mL	DF	Total ug	
	3.85	132	1000000	0.00	1.0	1	0.0001	✓
IG-IPROH	7.34	72653	329	220.57	1.0	1	220.5705	✓
CS2	9.46	354807	1000000	0.35	1.0	1	0.3548	
IG-NHX	10.49	123506	655	188.56	1.0	1	188.5581	✓
IG-TETCLETE	12.15	241	137	1.75	1.0	1	1.7538	
IG-MEK	12.57	237	385	0.62	1.0	1	0.6161	
IG-CCL4	12.80	156	28	5.49	1.0	1	5.4862	
IG-IBUOH	13.57	104325	460	226.56	1.0	1	226.5572	✓
IG-CYHX	15.32	153654	656	234.21	1.0	1	234.2132	✓
IG-NBUOH	16.13	92544	403	229.72	1.0	1	229.7212	✓
IG-BZ	16.74	189498	715	265.01	1.0	1	265.0069	✓
IG-TCLETE	19.22	68245	152	448.56	1.0	1	448.5645	✓
	22.13	139	1000000	0.00	1.0	1	0.0001	✓
IG-OC	24.33	132621	664	199.78	1.0	1	199.7773	✓
IG-NBUACT	28.50	96956	375	258.85	1.0	1	258.8466	✓
IG-ETBZ	33.57	175106	690	253.68	1.0	1	253.6800	✓
IG-CYHXONE	39.11	132984	475	280.18	1.0	1	280.1787	✓
IG-MDCLBZ	47.61	146152	376	388.26	1.0	1	388.2562	✓
IG-PDCLBZ	48.35	140213	379	370.25	1.0	1	370.2496	✓
UNDECANE	49.64	86205	3472	24.83	1.0	1	24.8271	✓
IG-ODCLBZ	50.73	149535	376	397.30	1.0	1	397.3004	✓
IG-PTERTBUTL	52.89	262	658	0.40	1.0	1	0.3991	
	54.19	1003	1000000	0.00	1.0	1	0.0010	

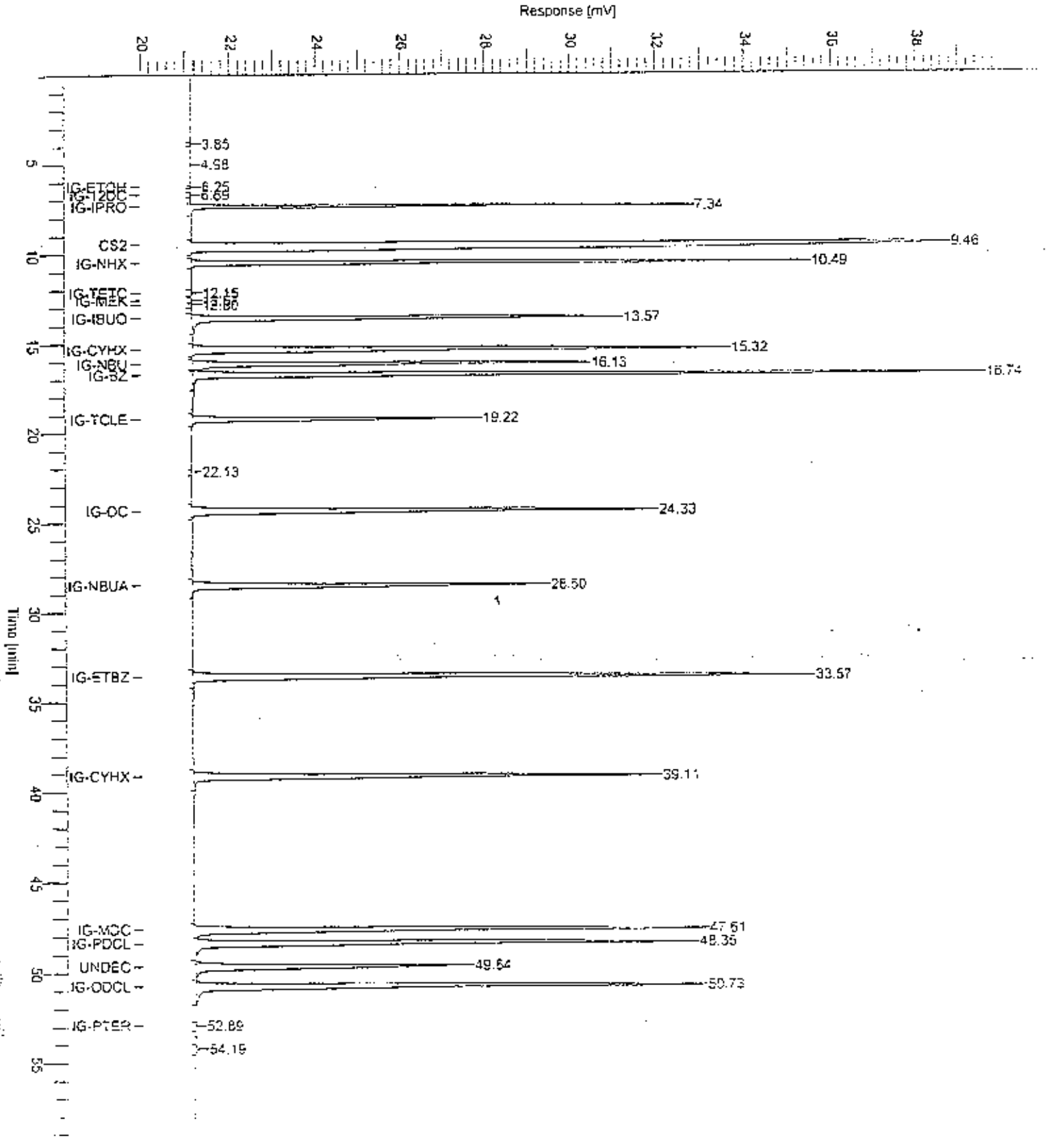
Reviewed by:_____ Date:_____

02/12/01 12:00:40 PM Result:

Report stored in ASCII file: E:\PenExe\TcWS\Hp-2\020601A03?.TX0

Chromatogram

Sample Name : WG29741-6,IH11466,11 Sample #: 31 Page 1 of 1
FileName : E:\PenExel\TcWS\Hp-2\020601A031.raw
Date : 02/12/01 12:00:43 PM
Method : hp#2_orgprof Time of Injection: 02/07/01 11:20:33 PM
Start Time : 0.00 min End Time : 60.00 min Low Point : 20.00 mV High Point : 40.00 mV
Scale Factor: 0.0 Plot Offset: 20.00 mV Plot Scale: 20.0 mV



Software Version	: 6.1.0.2:G07	Date	: 02/12/01 12:22:49 PM
Operator	: manager	Sample Name	: WG29741-7,IH11457,11
Sample Number	: 32	Study	:
AutoSampler	: HP7673A	Rack/Vial	: 1/32
Instrument Name	: HP-2	Channel	: A
Instrument Serial #	: None	A/D mV Range	: 1000
Delay Time	: 0.00 min	End Time	: 60.00 min
Sampling Rate	: 5.0000 pts/s		
Volume Injected	: 1.000000 µL	Area Reject	: 100.000000
Sample Amount	: 1.0000	Dilution Factor	: 1.00
Data Acquisition Time	: 02/08/01 12:26:53 AM	Cycle	: 32

Raw Data File : E:\PenExe\TcWS\Hp-2\020601A032.raw
Inst Method : c:\penexe\tcws\hp-2\hp#2_orgprof from E:\PenExe\TcWS\Hp-2\020601A032.raw
Proc Method : E:\PenExe\TcWS\Hp-2\hp#2_orgprof.mth
Calib Method : E:\PenExe\TcWS\Hp-2\hp#2_orgprof.mth
Sequence File : C:\PenExe\TcWS\Hp-2\020601.seq

ANALYTICAL REPORT

ANALYTICAL METHOD:_____ Column: RTX 502.2 105M X 0.53mm ID

Component Name	Ret.time [min]	Area	Calibration Response	Conc. ug/mL	DE.vol mL	DF	Total ug	
IG-ETOH	6.13	514	272	1.89	1.0	1	1.8924	
	6.25	389	1000000	0.00	1.0	1	0.0004	✓
IG-AT	7.73	62352	318	195.83	1.0	1	195.8311	
	9.04	458	1000000	0.00	1.0	1	0.0005	
CS2	9.46	354628	1000000	0.35	1.0	1	0.3546	
	10.86	214	1000000	0.00	1.0	1	0.0002	
IG-11DCLET	11.38	67755	184	368.42	1.0	1	368.4247	✓
	11.97	238	1000000	0.00	1.0	1	0.0002	
IG-MEK	12.55	918	385	2.38	1.0	1	2.3845	
IG-CLF	13.78	26694	62	429.86	1.0	1	429.8631	✓
IG-MC	15.20	129	149	0.87	1.0	1	0.8667	✓
IG-CCL4	16.14	14106	28	495.01	1.0	1	495.0071	
IG-NBUOH	16.53	237	403	0.59	1.0	1	0.5892	
IG-MPK	18.64	106022	423	250.94	1.0	1	250.9380	✓
	19.40	694	1000000	0.00	1.0	1	0.0007	
IG-NPRACT	20.15	92671	334	277.44	1.0	1	277.4370	✓
	21.01	2731	1000000	0.00	1.0	1	0.0027	
IG-TL	25.12	189853	698	272.03	1.0	1	272.0330	✓
IG-TETCLETE	28.55	69202	137	503.92	1.0	1	503.9192	✓
IG-ETBZ	33.56	159	690	0.23	1.0	1	0.2310	
IG-XY	34.05	552789	674	820.60	1.0	1	820.6042	✓
	39.00	152	1000000	0.00	1.0	1	0.0002	✓
IG-AMEST4	44.67	191247	661	289.41	1.0	1	289.4129	
	46.37	189	1000000	0.00	1.0	1	0.0002	
UNDECANE	49.63	89112	3472	25.66	1.0	1	25.6642	

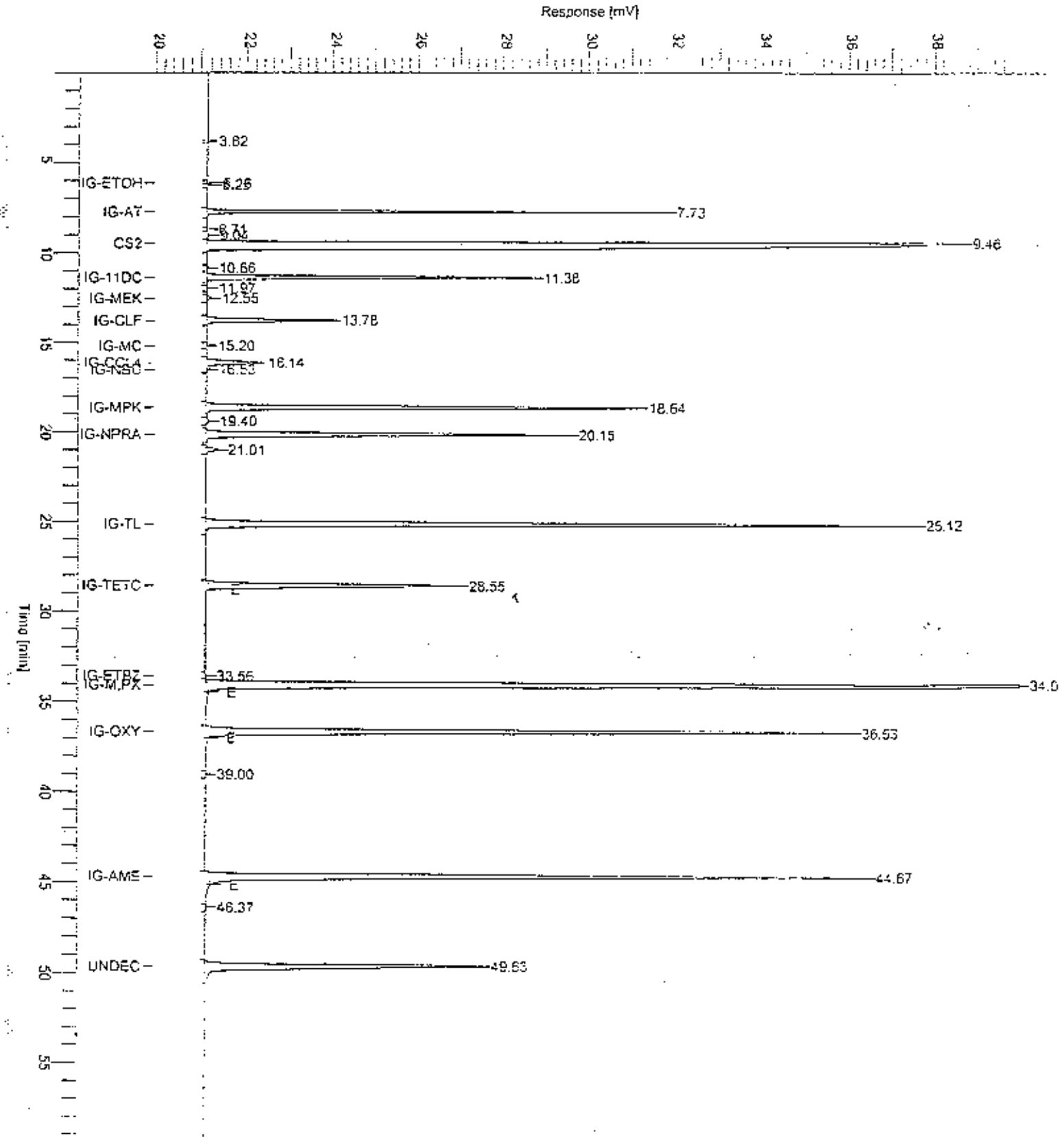
Reviewed by:_____ Date:_____

02/12/01 12:22:49 PM Result:

Report stored in ASCII file: .TX0

Chromatogram

Sample Name : WG29741-7,IH11467,11 Sample #: 32 Page 1 of 1
FileName : E:\PenExe\TcWS\Hp-2\020601A032.raw
Date : 02/12/01 12:22:52 PM
Method : hp#2_orgprof.mth Time of Injection: 02/08/01 12:26:53 AM
Start Time : 0.00 min End Time : 60.00 min Low Point : 20.00 mV High Point : 40.00 mV
Scale Factor: 0.0 Plot Offset: 20.00 mV Plot Scale: 20.0 mV



Sample Raw Data

IHGC STANDARD PREP LOG

STD NUMBER	DATE	ANALYST	ANALYTE	WEIGHT(g)	CONC. (ug/ml)	STOCK #	BIN #
IH11461	1/5/01	AMW	CS2				
			DICYPENT				SC#3
IH11462	1/5/01	AMW	CS2	1.2685			
			CYPENT	.0022	2181		SC#3
IH11465	1/8/01	AMW	CS2				
			ETOH	.0250			
			VNECL	.0369			4A
			MEK	.0247			7A
			THF	.0270			5F
			MC	.0411			9B
			12DCLET	.0379			4B
			CYHXE	.0244			2D
			MIBK	.0243			
			112TCLET	.0427			12G
			CLBZ	.0334			14B
			CELACT	.0291			3E
			VNTL	.0274			S.F. #4

**Conc(ug/ml) = (wgt of analyte in grams * 1000000)/(total wgt in grams/density of solvent)

IHGC STANDARD PREP LOG

STD NUMBER	DATE	ANALYST	ANALYTE	WEIGHT(g)	CONC. (ug/ml)	STOCK #	BIN #
			PTERTBUTZ	.0258			
IHH1461	1/1/01		CS2				14E
			IPROH	.0240			
			MIBK	.0199			9H
			IBUOH	.0246			10D
			CYHX	.0232			13C
			NBUOH	.0251			
			BZ	.0265			BD
			TCLETE	.0434			10E
			OC	.0211			2B
			NBUACT	.0265			10H
			ETBZ	.0261			9C
			CYHXONE	.0287			8B
			MDCLBZ	.0386			11B
			PDCLBZ	.0297			9C3
			ODCLBZ	.0390			

IHGC STANDARD PREP LOG

STD NUMBER	DATE	ANALYST	ANALYTE	WEIGHT(g)	CONC. (ug/ml)	STOCK #	BIN #
IH 1467	1/8/01	LL	CS2	10ml			
			AT	.0247			7G
			HEXLET	.0354			3G
			CLF	.0491			
			CCl4	.0474			7F
			MEK	.0245			14F
			NHEXT	.0266			8D
			TL	.0261			9F
			TETCLETE	.0485			1C
			M-XYLENE	.0261			9E
			P-XYLENE	.0260			
			O-XYLENE	.0263			8G
			AMESTH	.0277			7D
IH 1468	1/8/01	AMW	MeOH	.7694			
			AA	.0030	3055		6G
IH 1472	1/9/01	AMW	CS2	1.2729			
			STY	.0028	2766		9D

**Conc(ug/ml) = (wgt of analyte in grams * 1000000)/(total wgt in grams/density of solvent)

(4)

INDUSTRIAL HYGIENE SAMPLE PREP LOG

DATE	TECH.	CLIENT	TASK	SAMPLE#	ELUENT	TUBE SZ	DES. VOL.	COMMENTS
2/5/01	SF	Calden Corp.	L68022	1-5	CS2	sm	1.0ml	IG-MAK/MPK/IBSCACT(PEINN)
2/5/01	SF	Vermont State Health	L67923	1-2	CS2	sm	1.0ml	IG-AN
2/5/01	SF	Sanes & Stanley	L67256	4-6	CS2	LG	2.0ml	IG-HC
2/5/01	CC	Air Products & Chem	L68088	6-12	CS2	sm	1.0ml	IG-BZ
2/6/01	Jph	ITT Corp.	L68061	1-20	CS2	OVM	1.5ml	IG-PERC311-9
↓	↓	Ultralife Batteries	L68042	1-3	5% methanol	sm	1.0ml	IG-DME
		Kleinfelder	L68064	4-7	5% methanol	sm	1.0ml	IG-HXGL
		Workplace Hygiene	L68051	1-2	5% methanol	sm	1.0ml	IG-ACETOPHENONE
↓	↓	↓	↓	3-4	CS2	sm	1.0ml	~~IG-[illegible]~~ IG-VYNCYHXENE
2/6/01	JK	URS Greiner Woodward	L68148	1-4	CS2	OVM	1.5mL	IG-ORGPROF
2/6/01	JK	Concept Tech.	L68144	3-4	CS2	sm	1.0mL	IG-ORGPROF
2/6/01	JK	EORM	L68147	1-3	CS2	lg	1.0mL	IG-ORGPROF
2/7/01	SF	Cocciardi & Assoc	L68137	1-4	CS2	sm	1.0mL	IG-Tetlete
	"	"	"	9-12	CS2	sm	1.0mL	IG-MeCl2
2/7/01	JK	Environment SCN	L68038	1-2	CS2	OVM	1.5mL	IG-BZ/ETBZ/TL/XY/SS
2/7/01	JK	SAIF	L68053	1-2	CS2	sm	1.0mL	IG-BZ/ETBZ/NHX/SS/TL
		"	"	3-4	CS2	Assay	1.0mL	IG-BZ/ETBZ/NHX/TL
2/7/01	JK	Colden Corp.	L68075	1-20	1%DMF/CS2	sm	1.0mL	IG-MeCl280
2/7/01	JK	Gervay Corp	L68090	1-3	1%DMF/CS2	sm	1.0mL	IG-MeCl280
2/7/01	SF	Severn Trent	L68087	1-12	1%DMF/CS2	sm	1.0mL	IG-MeCl280
[illegible]	[illegible]	[illegible]	[illegible]					
2/7/01	SF	Eastman Kodak	L68057	1-13	CS2	sm	1.0mL	IG-MEMACRT
2/7/01	SF	Frels, Inc.	L68063	1-10	CS2	lg	1.0mL	IG-STY
2/7/01	SF	American Bondiano	L68008	6-10	CS2	sm	1.0mL	IG-AT/MAK/MEK/MPK/SS
2/7/01	SF	SAIF Corp	L68092	1	CS2	Assay	1.0mL	IG-TCLETE
2/7/01	SF	Jack Lauber	L68113	1	CS2	OVM	1.5	IG-Tetclete
2/7/01	SF	Jack Lauber	L68114	1	CS2	OVM	1.5	IG-Tetclete
2/7/01	SF	Jack Lauber	L68115	1	CS2	OVM	1.5	IG-Tetclete
2/7/01	SF	Barron & Assoc.	L68117	1-2	CS2	OVM	1.5	IG-AT
2/7/01	PL	Sherwin Williams	L67986	3	CS2	OVM	1.5	IG-HC2/MeCl2
↓	↓	Nysdol	L68152	6-9	CS2	sm	1.0ml	IG-HC

Turbochrom Sequence File E:\PenExe\TcWS\Hp-2\020601.seq
Printed by : manager on: 02/13/01 09:30:58 AM
Created by : manager on: 02/06/01 01:59:52 PM
Edited by : manager on: 02/08/01 08:37:31 AM
Number of Times Edited : 2
Description:

Sequence File Header Information:
Number of Rows : 35
Instrument Type : HP5890A GC with HP7673A Autosampler
Injection Type : SINGLE

Sequence Sample Descriptions - Channel A

Row	Name	Number	Sample Amt
1	WG29741-1,IH11465,21	01	1.000000
2	WG29741-2,IH11466,21	02	1.000000
3	WG29741-3,IH11467,21	03	1.000000
4	WG29741-4,10169,21	04	1.000000
5	CS2 BLANK	05	1.000000
6	L68088-6A BZ CONFIRM	06	1.000000
7	L68088-7A BZ CONFIRM	07	1.000000
8	L68088-8A BZ CONFIRM	08	1.000000
9	L68088-9A BZ CONFIRM	09	1.000000
10	L68088-10A BZ CONFIRM	10	1.000000
11	L68088-11A BZ CONFIRM	11	1.000000
12	L68061-1,WG29741,ORGSBADGE	12	1.500000
13	L68061-2,WG29741,ORGSBADGE	13	1.500000
14	L68061-3,WG29741,ORGSBADGE	14	1.500000
15	L68144-3A,WG29741,ORGSTUBE	15	1.000000
16	L68144-3B,WG29741,ORGSTUBE	16	1.000000
17	L68144-4A,WG29741,ORGSTUBE	17	1.000000
18	L68144-4B,WG29741,ORGSTUBE	18	1.000000
19	L68147-1A,WG29741,ORGLTUBE	19	2.000000
20	L68147-1B,WG29741,ORGLTUBE	20	2.000000
21	L68147-2A,WG29741,ORGLTUBE	21	2.000000
22	L68147-2B,WG29741,ORGLTUBE	22	2.000000
23	L68147-3A,WG29741,ORGLTUBE	23	2.000000
24	L68147-3B,WG29741,ORGLTUBE	24	2.000000
25	L68148-1,WG29741,ORGSBADGE	25	1.500000
26	L68148-2,WG29741,ORGSBADGE	26	1.500000
27	L68148-3,WG29741,ORGSBADGE	27	1.500000
28	L68148-4,WG29741,ORGSBADGE	28	1.500000
29	L68061-1,WG29741,STD1BADGE	29	1.500000
30	WG29741-5,IH11465,11	30	1.000000
31	WG29741-6,IH11466,11	31	1.000000
32	WG29741-7,IH11467,11	32	1.000000
33	WG29741-8,10169,11	33	1.000000
34	BENZENE 1UG	34	1.000000
35	L68053-1A BZ CONFIRM	35	1.000000

Sequence Process Information - Channel A

Row	Site	Vial	Inst Method	Rpt Fmt File	Raw Data File
1	A	1	c:\penexe\tcws\hp-2\hp#2_orgprof	c:\penexe\tcws\hp-2\hp#2_orgprof	C:\PenExe\TcWS\Hp-2\020601A001
2	A	2	c:\penexe\tcws\hp-2\hp#2_orgprof	c:\penexe\tcws\hp-2\hp#2_orgprof	C:\PenExe\TcWS\Hp-2\020601A002
3	A	3	c:\penexe\tcws\hp-2\hp#2_orgprof	c:\penexe\tcws\hp-2\hp#2_orgprof	C:\PenExe\TcWS\Hp-2\020601A003
4	A	4	c:\penexe\tcws\hp-2\hp#2_orgprof	c:\penexe\tcws\hp-2\hp#2_orgprof	C:\PenExe\TcWS\Hp-2\020601A004
5	A	5	c:\penexe\tcws\hp-2\hp#2_orgprof	c:\penexe\tcws\hp-2\hp#2_orgprof	C:\PenExe\TcWS\Hp-2\020601A005
6	A	6	c:\penexe\tcws\hp-2\hp#2_orgprof	c:\penexe\tcws\hp-2\hp#2_orgprof	C:\PenExe\TcWS\Hp-2\020601A006
7	A	7	c:\penexe\tcws\hp-2\hp#2_orgprof	c:\penexe\tcws\hp-2\hp#2_orgprof	C:\PenExe\TcWS\Hp-2\020601A007
8	A	8	c:\penexe\tcws\hp-2\hp#2_orgprof	c:\penexe\tcws\hp-2\hp#2_orgprof	C:\PenExe\TcWS\Hp-2\020601A008
9	A	9	c:\penexe\tcws\hp-2\hp#2_orgprof	c:\penexe\tcws\hp-2\hp#2_orgprof	C:\PenExe\TcWS\Hp-2\020601A009
10	A	10	c:\penexe\tcws\hp-2\hp#2_orgprof	c:\penexe\tcws\hp-2\hp#2_orgprof	C:\PenExe\TcWS\Hp-2\020601A010
11	A	11	c:\penexe\tcws\hp-2\hp#2_orgprof	c:\penexe\tcws\hp-2\hp#2_orgprof	C:\PenExe\TcWS\Hp-2\020601A011
12	A	12	c:\penexe\tcws\hp-2\hp#2_orgprof	c:\penexe\tcws\hp-2\hp#2_orgprof	C:\PenExe\TcWS\Hp-2\020601A012
13	A	13	c:\penexe\tcws\hp-2\hp#2_orgprof	c:\penexe\tcws\hp-2\hp#2_orgprof	C:\PenExe\TcWS\Hp-2\020601A013
14	A	14	c:\penexe\tcws\hp-2\hp#2_orgprof	c:\penexe\tcws\hp-2\hp#2_orgprof	C:\PenExe\TcWS\Hp-2\020601A014
15	A	15	c:\penexe\tcws\hp-2\hp#2_orgprof	c:\penexe\tcws\hp-2\hp#2_orgprof	C:\PenExe\TcWS\Hp-2\020601A015
16	A	16	c:\penexe\tcws\hp-2\hp#2_orgprof	c:\penexe\tcws\hp-2\hp#2_orgprof	C:\PenExe\TcWS\Hp-2\020601A016
17	A	17	c:\penexe\tcws\hp-2\hp#2_orgprof	c:\penexe\tcws\hp-2\hp#2_orgprof	C:\PenExe\TcWS\Hp-2\020601A017
18	A	18	c:\penexe\tcws\hp-2\hp#2_orgprof	c:\penexe\tcws\hp-2\hp#2_orgprof	C:\PenExe\TcWS\Hp-2\020601A018
19	A	19	c:\penexe\tcws\hp-2\hp#2_orgprof	c:\penexe\tcws\hp-2\hp#2_orgprof	C:\PenExe\TcWS\Hp-2\020601A019
20	A	20	c:\penexe\tcws\hp-2\hp#2_orgprof	c:\penexe\tcws\hp-2\hp#2_orgprof	C:\PenExe\TcWS\Hp-2\020601A020
21	A	21	c:\penexe\tcws\hp-2\hp#2_orgprof	c:\penexe\tcws\hp-2\hp#2_orgprof	C:\PenExe\TcWS\Hp-2\020601A021
22	A	22	c:\penexe\tcws\hp-2\hp#2_orgprof	c:\penexe\tcws\hp-2\hp#2_orgprof	C:\PenExe\TcWS\Hp-2\020601A022
23	A	23	c:\penexe\tcws\hp-2\hp#2_orgprof	c:\penexe\tcws\hp-2\hp#2_orgprof	C:\PenExe\TcWS\Hp-2\020601A023
24	A	24	c:\penexe\tcws\hp-2\hp#2_orgprof	c:\penexe\tcws\hp-2\hp#2_orgprof	C:\PenExe\TcWS\Hp-2\020601A024
25	A	25	c:\penexe\tcws\hp-2\hp#2_orgprof	c:\penexe\tcws\hp-2\hp#2_orgprof	C:\PenExe\TcWS\Hp-2\020601A025
26	A	26	c:\penexe\tcws\hp-2\hp#2_orgprof	c:\penexe\tcws\hp-2\hp#2_orgprof	C:\PenExe\TcWS\Hp-2\020601A026

02/13/01 09:30:58 AM Sequence: E:\PenExe\TcWS\Hp-2\020601.seq

Sequence Process Information - Channel A

Row	Site	Vial	Inst Method	Rpt Fmt File	Raw Data File
27	A	27	c:\penexe\tcws\hp-2\hp#2_orgprof	c:\penexe\tcws\hp-2\hp#2_orgprof	C:\PenExe\TcWS\Hp-2\020601A027
28	A	28	c:\penexe\tcws\hp-2\hp#2_orgprof	c:\penexe\tcws\hp-2\hp#2_orgprof	C:\PenExe\TcWS\Hp-2\020601A028
29	A	29	c:\penexe\tcws\hp-2\hp#2_orgprof	c:\penexe\tcws\hp-2\hp#2_orgprof	C:\PenExe\TcWS\Hp-2\020601A029
30	A	30	c:\penexe\tcws\hp-2\hp#2_orgprof	c:\penexe\tcws\hp-2\hp#2_orgprof	C:\PenExe\TcWS\Hp-2\020601A030
31	A	31	c:\penexe\tcws\hp-2\hp#2_orgprof	c:\penexe\tcws\hp-2\hp#2_orgprof	C:\PenExe\TcWS\Hp-2\020601A031
32	A	32	c:\penexe\tcws\hp-2\hp#2_orgprof	c:\penexe\tcws\hp-2\hp#2_orgprof	C:\PenExe\TcWS\Hp-2\020601A032
33	A	33	c:\penexe\tcws\hp-2\hp#2_orgprof	c:\penexe\tcws\hp-2\hp#2_orgprof	C:\PenExe\TcWS\Hp-2\020601A033
34	A	1	c:\penexe\tcws\hp-2\hp#2_orgprof	c:\penexe\tcws\hp-2\hp#2_orgprof	C:\PenExe\TcWS\Hp-2\020601A034
35	A	2	c:\penexe\tcws\hp-2\hp#2_orgprof	c:\penexe\tcws\hp-2\hp#2_orgprof	C:\PenExe\TcWS\Hp-2\020601A035