Interim Remedial Measurers (IRM) Report
Former Munsey Cleaners Site
Port Washington, New York
Site Number 130081

December 1997

Prepared For:

The Monfort Trusts
c/o Acadia Management Company
20 Soundview Market Place
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Prepared By:

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CA RICH CONSULTANTS, INC.
CERTIFIED GROUND-WATER AND
ENVIRONMENTAL SPECIALISTS

December 4, 1997

New York State Department of Conservation
Building 40
SUNY at
Stony Brook, New York 11790-2356

Attention: Michael Coscia, P.E.

Re: **Interim Remedial Measurers (IRM) Report**
Former Munsey Cleaners Site
Port Washington, New York
Site Number 130081

Dear Mr. Coscia:

Attached please find our Interim Remedial Measures (IRM) Report for the above-referenced site. If you have any questions regarding this document, please do not hesitate to call our office.

Sincerely,

CA RICH CONSULTANTS, INC.

Eric A. Weinstock
Associate

George Tyers
Project Manager

Robert H. Albanese, P.E.
Project Engineer

Attachments

cc: Robert Masters, Esq.
Ron Johnston
G. Anders Carlson, Ph.D.
Jeanna Hussey, Esq.

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Interim Remediation Measure Report
Former Munsey Cleaners Site

1.0 INTRODUCTION

CA RICH CONSULTANTS, INC. (CA RICH) is pleased to submit this Interim Remedial Measures (IRM) Report to the New York State Department of Environmental Conservation (NYSDEC) regarding the Former Munsey Cleaners Site located in the Village of Port Washington, Town of North Hempstead, Nassau County, New York (Figure 1). This Report has been prepared on behalf of the Montfort Trusts, the current owner of the property.

The Former Munsey Cleaners Site is a former dry cleaning facility that is currently classified as a NYSDEC Class 2 Inactive Hazardous Waste Disposal Site. Previous investigations by the New York State Department of Environmental Conservation and the Nassau County Department of Health (NCDH) identified volatile organic compounds (VOC), including perchloroethylene (PCE) and PCE degradation products, and several pesticide compounds in the soils underlying the building's basement and in the basement floor drains.

During June and July 1996, CA RICH performed a Preliminary Site Assessment (PSA) at the Site to identify and locate potential sources of contamination and to determine appropriate remedial measures that may be necessary. The PSA findings and the results of the earlier NYSDEC and NCDH investigations were the basis for an IRM Work Plan that was prepared by CA Rich and implemented beginning in February 1997 (Ref. 1 and 2).

The objective of the IRM was to remove the identified sources of contamination (i.e. product saturated soils) from the basement and the reduction of the remaining soil-sorbed VOC's in the underlying soils to below current state cleanup levels. This was to be accomplished using a combination of soil excavation and off-site disposal of the product-saturated soils followed by the installation and operation of a Soil Vapor Extraction (SVE) system.

The soil was removed using a truck mounted vacuum system and hose extending into the basement during late February and early March 1997. In addition, a concrete floor cover has been installed over the basement soils to eliminate the infiltration of liquids that can leach soil-sorbed contaminants downward to the water table.

At this time, the excavation program has been completed and the SVE system is installed and operating. The protocol for the eventual termination of the SVE system is presented in Section 3.0 of the IRM Work Plan.

2.0 SITE HISTORY AND BACKGROUND

2.1 Site Description and History

The former Munsey Cleaners (the Site) is located at 1029 Port Washington Boulevard in Port Washington, New York at the intersection of Port Washington Boulevard and Main Street. The Site consists of the northernmost space of a one-story masonry building constructed in 1949 with sidewalk frontage along both streets and paved parking areas at the rear of the building (Figure 2). The remaining portions of the building are occupied by other retail establishments.

Reportedly, the Site has always been used as a dry cleaning establishment except during periods of unoccupancy. The most recent tenant was Munsey Cleaners, who occupied the Site from approximately 1978 until 1995 when they relocated to another nearby space within the shopping plaza. The Site has been unoccupied since that time. Prior to 1978, Darien Cleaners occupied the Site since about 1950.

Previously, dry cleaning equipment was located on the street level floor. Wastewater has always been discharged into the municipal sewer system. There are no known cesspools on-site. Currently, the Site is vacant and all dry cleaning equipment has been removed.

Soil testing performed by NYSDEC in 1994 and the Nassau County Department of Health identified tetrachloroethene (*perchlorethylene or PCE*) and trichloroethylene (TCE) in soil samples collected from the basement floors and floor drains (Ref. 3). Additionally, the compounds DDD, DDE, DDT and Di-N-Butyl Phthalate were identified in concentrations exceeding the State Soil Cleanup Objectives, as were several Polynuclear Aromatic Hydrocarbons (PAH). Based upon these analytical results, NYSDEC listed the facility as a New York State Class 2a Hazardous Waste Site in 1995.

CA RICH subsequently performed a Preliminary Site Assessment in 1996. Testing performed during this PSA also identified halogenated VOC's, pesticide compounds, and PAH's in the soils. PCE was detected in the soils ranging from 2.1 parts per billion (ppb) to 12,000,000 ppb. Based upon visual observations and analytical data, the two exposed earth-floor rooms and the floor drains designated as FD-1 and FD-2 were determined to be the main source areas of contamination. These areas are illustrated on Figure 3.

3.0 IRM WORK SUMMARY

3.1 Work Area Preparation

Prior to commencing any remedial activities, the exterior staging area and basement work area were prepared in accordance with the IRM Work Plan. The basement was isolated from the adjacent building areas by placing six-mil thick plastic sheeting on the walls and floors and installing and operating a negative pressure-local exhaust ventilation system. The air filtration system ensured that negative air pressure relative to areas outside of the work area was maintained in order to prevent contaminated air from inside the basement from escaping into adjacent uncontaminated areas. The air filtration units were equipped with carbon filters to remove volatile organic vapors from the air stream prior to discharging through flexible ducting to the outside of the building. Fresh air was permitted to enter the work area through doorways draped with plastic flaps.

The exterior staging area was cordoned off with caution tape and orange traffic cones in order to restrict passersby from entering the area. Two 20 yard roll-off containers were placed behind the building within the staging area along with two 1,600 pound activated carbon units (vapor phase adsorbers) that were connected to the vacuum truck exhaust units.

Real-time air monitoring for volatile compounds was periodically performed using an HNU photoionization detector throughout the duration of the site work in accordance with the PSA Health & Safety Plan. Monitoring was performed along the exterior perimeter of the building and inside the building, both within and without the work area. Air quality monitoring recordings are presented in the data tables in Appendix A.

3.2 Soil Excavation Procedures

The objective of the soil excavation program was to remove the discolored and product-saturated soils from the basement floor areas (see Figure 3) and to construct trenches to be used for the installation of slotted PVC pipes to be used as vapor extraction vents during the operation of a soil vapor extraction system. The soil was removed from the basement using a truck-mounted vacuum system. Horizontal trenches were constructed in each room and the uppermost layer of discolored soil was removed from the two earthen floor rooms (i.e. Rooms NW and NE) (see Figure 4). Each of the four basement rooms were labeled according to their relative geographic position and described as such herein (e.g. northwest (NW), southwest (SW), southeast (SE) and northeast (NE)).

The vacuum truck was situated outside the building within the work site staging area (see Figure 5). A vacuum hose was extended from the truck into the building and down to the basement where the soil was removed under pressure through the hose. Carbon-filled, vapor phase adsorber canisters were connected to the vacuum truck air discharge units to remove VOC vapors before they were released into the atmosphere. At the conclusion of each day, the soil was transferred from the vacuum truck into a roll-off container situated on-site. Once full, the roll-off containers were picked up by a licensed waste hauler and transported off-site for disposal.

Site activities began on February 24, 1997 with the partial removal of the concrete floors in the SE and SW rooms. Trench excavation began on February 25th in the NW room. The upper foot of stained soil overlying the excavation areas illustrated on Figure 3 were removed down to visually clean soil using the vacuum hose and shovels. Four trenches were then excavated for the vapor extraction system detailed below.

Trench Location	Depth	Width	Length
NW	3 ft.	2 ft.	15 ft.
SW	3 ft.	2 ft.	12 ft.
NE	3 ft.	2 ft.	10 ft.
SE	3 ft.	2 ft.	14 ft.

The two floor drains (FD-1 and FD-2) were also cleaned out by removing soil with the vacuum hose in conjunction with an electric shop vacuum. Soil was removed from FD-1 and FD-2 to a depth of approximately 7.5 feet and 8 feet, respectively.

Approximately 31 tons of contaminated soil was removed from the basement in the manner described above. The excavated soil exhibited dark discoloration, particularly in the NW room where the soil was partially composed of a dark clayey layer mixed with rags, wire hangers and debris, which in some places was approximately 1 foot thick. The excavated soil was transported to the City Environmental, Inc. disposal facility in Detroit, Michigan (EPA ID No. MID054683479) as an F-listed hazardous waste. Copies of the waste manifests are included as Appendix B.

In order to collect soil endpoint samples from beneath the trenches, additional soil was removed from the center of each trench, except for the NW trench. Two endpoint samples were collected from the NW trench; one at the north end of the trench and one at the south end. Endpoint samples were collected at a depth of five feet below the bottom of each trench (i.e. 8 feet below the basement floor). The soil in floor drains FD-1 and FD-2 were also removed in the same manner followed by the collection of endpoint

samples. Results of the endpoint sample analyses are included on Tables 1 through 3, Figure 10 and in Section 4 of this Report.

Following the soil excavation procedure, slotted 2-inch PVC pipes were emplaced in the trenches in an envelope of pea gravel followed by a layer of filter fabric, clean sand and a layer of 6-mil reinforced plastic sheeting as illustrated on Figure 6. Similarly, a deeper vertical PVC well was installed in the SW room with pea gravel and sand filling the annular space surrounding the well. The floors and trenches were then covered with cement and the wells connected above the new concrete floor to a manifold leading to the SVE blower unit in the SE Room. Vertical sections of 2-inch and 1-inch diameter slotted PVC pipes were also installed in the two floor drains and beside the trenches to be used as vacuum monitoring points during the soil vapor extraction operation.

The completed soil vapor extraction system is shown in plan view on Figure 4. Pilot testing and operation of the SVE is described below in Section 3.3.

3.3 Vapor Extraction System

The soil vapor extraction system (SVE) was designed, installed and operated to remove VOC vapors from the unsaturated soils below the basement. SVE technology is a proven cost-effective and reliable method to remove subsurface VOC vapors, including halogenated compounds such as perchloroethylene, from the unsaturated zone. By applying a vacuum to the soils in the impacted area, air flow through the soil matrix is induced. The subsequent air flow removes the volatile compounds from the soil and transports them to the screened extraction well(s). The air emissions are controlled by capturing the volatiles onto absorbent media (i.e. activated carbon).

Because SVE is a proven technology and the site consists of a relatively small basement area, the SVE system was empirically designed based upon our understanding of the site conditions, site constraints, local geology and previous experience. Because of the inherent difficulty and limitations of working in a limited portion of a basement, the necessity to quickly pour concrete over the exposed soil floors to facilitate scheduled building renovations, and for health and safety purposes, the system was installed prior to any field testing. This allowed for the complete installation of the SVE system, including extraction wells and soil vapor monitoring points, prior to pouring the concrete. Once installed, field testing was performed to ensure that the system was properly designed and configured efficiently.

The Munsey Cleaners SVE system consists of a network of four, 2-inch diameter 0.030/0.060 slotted PVC pipes placed horizontally into shallow trenches, and one vertically emplaced 1¼-inch diameter PVC pipe equipped with a five (5) foot screened section of 0.020-inch slotted pipe in the basement areas as shown

on Figure 4 and 6. The vertical well is set at a depth of 13 feet below the basement floor with the screened interval extending from 8 to 13 feet below the floor level.

The horizontal wells are placed in a surrounding bed of pea gravel and sand and covered with a layer of filter fabric to prevent sand from migrating through the gravel and into the PVC slots. The vertical well is also surrounded by pea gravel and sand. The top side of the trenches are covered with a layer of plastic sheeting, clean fill and concrete as illustrated on Figure 6.

All of the SVE extraction wells are connected to a manifold that connects to the SVE blower unit in the SE Room. Valves and sampling ports were installed between each well and the manifold to allow each well to be independently operated. The soil vapor extractor system consists of a skid mounted 2.5 horsepower EG&G Rotron regenerative blower, moisture separator trap, air filter, air dilution valve, vacuum gauge, pressure gauge, and temperature gauge. A plan and side view of the system is illustrated on Figure 7.

The blower system discharges to the outside of the building through a four-inch diameter PVC pipe, into Carbtrol™ Corporation vapor phase adsorber units, and finally into the atmosphere through the discharge located two feet above the building roof line as per the NYSDEC Air Discharge Permit Application submitted to NYSDEC on April 15, 1997.

Initially, two Carbtrol™ G-7 adsorber units connected in series were utilized. These units have since been replaced with Carbtrol™ G-2P adsorbers. A generalized schematic of the installed system is shown in Figure 8. The Carbtrol G-7 adsorber units contain 1,600 lb. each of activated carbon, while the G-2P units contain 200 lb. each of activated carbon.

3.3.1 SVE System Testing

Following the installation of the SVE system, a pilot test was initiated on April 16, 1997 to determine the area that will be affected when a vacuum is applied to the extraction wells. The overall objective of the pilot test was to determine the optimal valve settings for each extraction well. Since each well is equipped with an individual regulator valve, any individual well or combination of zone treatment can be performed.

The pilot tests were performed over a period of approximately four hours. Typically, pilot tests result in a radial vacuum-zone of influence from a vertical well point. Although this was not feasible with the multiple horizontal network of wells, a series of tests and measurements were performed to determine the soil vacuum distribution for varying regulator and dilution valve settings. Flow rate, vacuum pressure, temperature, and HNU readings were collected at periodic intervals during each test. The stabilized measurements for each test are recorded on Figures 9a through 9i (Tests 1 through 9, respectively).

Beginning with all five regulator valves open and the dilution valve closed (Figure 9a), the system ran for one hour prior to collecting the data. The HNU readings indicate that volatile organic compounds were present in the extracted air stream. A sample of air was collected during Test #1 and analyzed for halogenated VOC's. The collected air was passed through a carbon adsorption tube at a calibrated rate for a specific period of time. The tube was then submitted to EcoTest, Labs, Inc. (North Babylon, NY) for analysis using approved NIOSH analytical methods. The laboratory results (Appendix C) indicate that the air being removed from the unsaturated zone beneath the basement contained a large concentration of perchlorethylene (5,300,000 ppm) and trichlorethylene (81,000 ppm). The compounds 1,2-dichloroethene (7,400 ppm) and chloroform (1,200 ppm) were also detected.

The pilot test data indicates that the soil vacuum distribution extends to every monitoring point in the basement, including those located beyond the zone of contamination (i.e. SW-2, NW-2, NE-2, and NE-3), at flow rates as low as 75 cubic feet per minute (CFM) (Test #3). Test #3, which was performed with all five extraction well valves open and the dilution valve fully open, produced a vacuum of 0.35 inches of water column at NW-2, the furthest monitoring point. Significant vacuum was measured at all points during each test, including the deeper set points at FD-1, FD-2, and Vert-V, even when just one extraction well regulator valve was open (Tests 6 through 9).

The lowest flow rate tested was 75 CFM during Test #3 and the highest was 145 CFM during Test #1. Regardless of the flow rates and valve configurations tested, a measurable vacuum was induced at all monitoring points. The configuration utilized for the initial start-up and subsequent operation of the system was a flow rate of 127 CFM, all regulator valves set in the open position, and the dilution valve half open, the same configuration used during Test #2.

3.3.2 SVE System Monitoring

The SVE system has been operating continuously, 24-hours per day, except when shut down to changeout the vapor phase carbon adsorbers. To evaluate the effectiveness of the system, the extracted air was initially tested for total VOC's using an HNU at a minimum of once per week. This testing was eventually reduced to once per month. The data in Table 4 and the graphs on Figure 11 reveal a steady decrease in the total VOC levels since the system began operating, except for rebounding effects following periods when the system was shut off.

As mentioned earlier, an air sample is collected each month by drawing air through a glass tube filled with an adsorbent media (i.e. activated carbon) at a specified flow rate for a specified period of time. The

tubes are then transported under chain-of-custody to the laboratory for Method 8010 analysis of the carbon.

The analysis of air samples collected monthly (April through October) also indicates a steady decrease of PCE concentration over time. The April sample contained a reported concentration of 5,300,000 ug/m^3 of PCE in the extracted soil vapor prior to treatment compared to 44,000 ug/m^3 in May; 18,000 ug/m^3 in June; 14,000 ug/m^3 in July; 3,000 ug/m^3 in August; 5,900 ug/m^3 in September; and 0.68 ug/m^3 in October. The September sample shows an increase from the August test following a period when the system was shut off during pulsing.

In addition to PCE, trichloroethylene (81,000 ug/m^3), 1,2-dichloroethene (7,400 ug/m^3), and chloroform (1,200 ug/m^3) were also detected in the April sample (INF-04/16). These compounds fluctuated during the ensuing months along with detections of methylene chloride (*See* laboratory data in Appendix C).

The SVE system has operated continuously, 24-hour per day until August 20 when the system was shut off and thence operated in a pulsed mode (i.e. two weeks on, two weeks off). The system will continue to be operated until the total VOCs reach a near constant or asymptotic concentration (i.e. until air monitoring indicates two or more consecutive quarterly concentrations with a net decrease of 5 percent or less of total VOCs).

4.0 SOIL ANALYTICAL TEST RESULTS

As mentioned earlier, endpoint soil samples were collected at a depth of five feet below the bottom of each trench (i.e. eight feet below the basement floor). One sample was collected from the middle of the NE, SW, & SE trench, as shown on Figure 10. Two endpoint samples were collected from the NW trench; one at the north end and one at the south end of the trench. Soil samples were also collected from within the floor drains designated FD-1 and FD-2 at depths of 7.5 feet and 8 feet, respectively. After soil was removed using the vacuum truck hose and/or the electric shop vacuum, a manually driven stainless steel bucket auger was used to collect the soil samples. In addition, a deeper sample designated as EP-6 was collected from the 10½ -foot depth point at the location of the vertical VES vent.

All sampling activities were performed in accordance with the Field Sampling Plan (FSP) outlined in the NYSDEC-approved IRM Work Plan. The samples were placed directly into laboratory cleaned bottles and stored in ice-filled coolers until transported to the laboratory on the same day of sampling. The samples were analyzed by Nytest Environmental Inc. (Port Washington, NY) for halogenated volatile organic compounds (EPA Method 8010), pesticides (EPA Method 8080), and semi-volatile organic compounds (EPA Method 8270 Base-Neutrals). Quality Control/Quality Assurance (QA/QC) samples and analysis

were performed in accordance with the Field Sampling Plan and NYSDEC ASP protocols, including VOC trip blanks, field blanks, duplicates, matrix spike and matrix spike duplicates.

A NYSDEC-ASP, Category-B deliverable data package was prepared by the laboratory and submitted to the project chemist for data validation. The data validation report and amended data package is included in Appendix D of this Report. The data validation was performed according to the USEPA Contract Laboratory Program Functional Guidelines for Organic Data Review, February 1994 and NYSDEC-ASP validation criteria. Overall, the data is considered valid and acceptable except those analyses which have been qualified, as noted in the data validation report and amended laboratory report.

The analytical data has been summarized in Tables 1 through 3. The data indicates that tetrachloroethene (PCE), and pesticide organic compounds, particularly 4,4-DDD, 4,4-DDT, and dieldrin, are present at elevated levels in the soils beneath the basement. PCE was detected at concentrations ranging from 10 ppb in sample EP-1 up to 2,300,000 ppb in sample FD-2. The reported levels of PCE exceed the NYSDEC January 24, 1994 Technical and Administrative Guidance Memorandum (TAGM) Recommended Soil Cleanup Level in four of the samples tested indicating that PCE is present at levels above the state cleanup objective in the soils below the trenches in the NW room (EP-3 at 180,000 ppb and T-30 at 260,000 ppb), SE room (EP-4 at 850,000 ppb), and in the former floor drain, FD-2 (2,300,000 ppb).

Importantly, PCE was detected at 78 ppb, which is below the state cleanup objective of 1,400 ppb, in sample EP-6, which was collected at a depth of 10½ feet below the basement floor; the deepest sample collected during the IRM program. Furthermore, two samples were collected from the floor drain designated FD-2; one at a depth of 5 feet below the basement floor (FD-2) and one at 8 feet (FD2-8). The PCE concentration drops off from 2,300,000 ppb in FD-2 to 90 ppb in FD2-8.

Semi-volatile organic compounds were not detected above the soil cleanup objectives in any of the endpoint samples tested.

The highest concentration of pesticide organic compounds was detected in sample T-30, a duplicate sample of EP-3, which was collected from the southern portion of the NW trench. DDD (170,000 ppb), DDT (18,000 ppb), and dieldrin (1,100 ppb) were detected at levels above their respective NYSDEC TAGM cleanup objectives in sample T-30, as well as in EP-3. DDD and DDT were also detected at levels above their cleanup objectives in samples EP-1, EP-4, EP-6, and FD-2.

5.0 SUMMARY

Soil contaminated with VOCs including PCE, pesticides, and polynuclear aromatic hydrocarbons has been removed from the basement of the former Munsey Cleaners Site to the extent possible followed by the installation and operation of a soil vapor extraction system. Approximately 31 tons of contaminated soil was removed and transported to an off-site disposal facility. The exposed areas were backfilled with clean fill and capped with a layer of 6-mil reinforced polyethylene sheeting and cement.

Laboratory analysis of endpoint samples collected at the conclusion of the soil excavation activities indicate that residual VOC and pesticide contamination remains within the subsurface soil underlying portions of the basement at a depth of at least 8 feet below the basement floor. The residual VOC soil contamination will be remediated through the operation of a soil vapor extraction system.

It is judged that the cement cap on the basement surface, in conjunction with recent repairs to the site storm drainage system performed by the property owner, will significantly reduce or eliminate storm water from entering into the building and leaching through the subsurface soils below the basement. This will prevent residual soil-sorbed pesticide compounds from being released and leaching through the soil column into the underlying groundwater, thus effectively immobilizing them in-place. Pesticides reportedly have not impacted the shallow groundwater table (Ref. 1).

The residual VOC soil contamination present in the unsaturated zone will be remediated by a soil vapor extraction system that was installed during the soil excavation program. This SVE system has been operating since April 16, 1997. Monthly monitoring and air testing indicates that the SVE system has been performing satisfactorily and that significant decreases in the concentration of PCE in the extracted soil vapor has been achieved. It is believed that the SVE system will provide on-going soil treatment to the satisfaction of NYSDEC with eventual closure of the IRM phase of the site cleanup. No further on-site soil removal is planned or recommended.

6.0 CERTIFICATION

We certify that to the best of our knowledge, after appropriate inquiries of all relevant persons involved in the preparartion of this Report, that the information submitted in this Report is true, accurate and complete.

Eric A. Weinstock, C.P.G.
Associate

12/3/97
Date

George Tyers
Project Manager

12/3/97
Date

Robert H. Albanese, P.E.
Project Engineer

12/3/97
Date

7.0 REFERENCES

1. CA Rich Consultants, Inc., *Preliminary Site Assessment Report, former Munsey Cleaners Site, 1029 Port Washington Boulevard, Port Washington, New York*, September 6, 1996.

2. CA Rich Consultants, Inc., *Interim Remedial Measures Work Plan, former Munsey Cleaners Site, 1029 Port Washington Boulevard, Port Washington, New York*, January 10, 1997.

3. Nassau County Department of Health, *Soil Contamination Investigation Report, Munsey Dry Cleaners, 1029 Port Washington Blvd., Port Washington, New York*, February 1995.

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TABLES

Table 1

Summary of Volatile Organic Compound Detections in Soil After Data Validation Former Munsey Cleaners Site

Sample ID	EP-1	EP-2	EP-3	T-30*	EP-4	EP-5	EP-6	FD-1	FD-2	FD2-8	NYSDEC TAGM**
Date Sampled	3/4/97	3/4/97	3/4/97	3/4/97	3/4/97	3/4/97	3/5/97	3/5/97	3/4/97	3/11/97	Cleanup Objectives
Sampling Depth Below Basement	8 ft.	8 ft.	8 ft.	8 ft.	8 ft.	8 ft.	10.5 ft.	7.5 ft.	5 ft.	8 ft.	
VOLATILE ORGANIC COMPOUNDS (EPA Method 8010)											
Units	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
Parameters:											
Tetrachloroethene	10	72	180,000	260,000	850,000	30	78	19	2,300,000	90	1,400
Trichloroethene	U	U	58	70 J	U	U	U	U	U	U	700
1,1,2,2-Tetrachloroethane	U	U	1.8	18 J	U	U	U	U	U	U	600
Chlorobenzene	U	U	86	130 J	U	U	U	U	U	U	1,700
1,2-Dichlorobenzene	U	U	1.5	2.7 J	U	U	U	U	U	U	7,900
1,4-Dichlorobenzene	U	U	6.1	8.9 J	U	U	U	U	U	U	8,500

NOTES:

µg/Kg- micrograms per Kilogram - parts per billion.
J - Indicates an estimated value.
U - Indicates compound was analyzed for but was not detected.

* Duplicate of Sample EP-3
** NYSDEC Technical and Administrative Guidence Memorandum: Determination of Cleanup Objectives and Cleanup Levels; 1/24/94

Shaded area indicates detection concentration above cleanup objective

Table 2

Summary of Semi-Volatile Organic Compound Detections in Soil After Data Validation Former Munsey Cleaners

Sample ID	FD-1	FD-100*	FD-2	FD2-8	EP-5	NYSDEC TAGM**
Date Sampled	3/5/97	3/5/97	3/4/97	3/11/97	3/4/97	Cleanup Objectives
Sampling Depth Below Basement	7.5 ft.	7.5 ft.	5 ft.	8 ft.	8 ft.	
SEMI-VOLATILE ORGANIC COMPOUNDS (EPA Method 8270)						
Units	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	ug/Kg
Parameters:						
Hexachloroethane	U	U	150 J	U	U	NV
Di-n-butylphthalate	U	U	470 J	U	41 J	8,100
Fluoranthene	68 J	U	U	U	U	50,000 ***
Pyrene	44 J	U	U	U	U	50,000 ***
Butylbenzylphthalate	U	U	1900	52 J	U	50,000 ***
Chrysene	36 J	U	U	U	U	400
bis (2-Ethylhexyl)phthalate	76 J	310 J	8800	300 J	48 J	50,000 ***
Di-n-octylphthalate	U	U	630 J	U	U	50,000 ***

NOTES:

µg/Kg- micrograms per Kilogram - parts per billion.
J - Indicates an estimated value.
U - Indicates compound was analyzed for but was not detected
NV - No Value Listed in TAGM

* Duplicate of Sample FD-1
** NYSDEC Technical and Administrative Guidence Memorandum: Determination of Cleanup Objectives and Cleanup Levels; 1/24/94
*** As per TAGM #4046, total Semi-VOCs < 500,000ppb and individual Semi-VOCs <50,000ppb

Table 3

Summary of Pesticides in Soil
After Data Validation
Former Munsey Cleaners

Sample ID	EP-1	EP-2	EP-3	T-30*	EP-4	EP-5	EP-6	FD-1	FD-2	FD2-8	NYSDEC TAGM**
Date Sampled	3/4/97	3/4/97	3/4/97	3/4/97	3/4/97	3/4/97	3/5/97	3/5/97	3/4/97	3/11/97	Cleanup Objectives
Sampling Depth below Basement	8 ft.	8 ft.	8 ft.	8 ft.	8 ft.	8 ft.	10.5 ft.	7.5 ft.	5 ft.	8 ft.	
TCL PESTICIDE	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Parameters:											
alpha-BHC	U	U	U	U	U	U	U	U	U	U	110
beta-BHC	U	U	U	U	U	U	U	U	U	U	200
delta-BHC	U	U	U	U	U	U	U	U	U	U	300
gamma-BHC (Lindane)	U	U	U	U	U	U	U	U	U	U	60
Heptachlor	U	U	U	U	U	U	U	U	U	U	100
Aldrin	U	U	U	U	U	U	U	U	U	U	41
Heptachlor Epoxide	U	U	U	U	U	U	U	U	U	U	20
Endosulfan I	U	U	U	U	U	U	U	U	U	U	900
Dieldrin	U	15 J	948 J	1,100 J	U	U	U	U	U	U	44
4,4' - DDE	130 J	23 JN	1,700 J	1,600 J	92 R	U	84 J	U	160 J	37	2,100
Endrin	U	U	U	U	U	U	U	U	U	U	100
Endosulfan II	U	U	U	U	U	U	U	U	U	U	900
4,4' - DDD	1,300 R	1,700 J	160,000	170,000	500 JN	21 J	3,500 J	35 J	1,400 R	180 JN	2,900
Endosulfan Sulfate	U	U	U	U	U	U	U	U	U	U	1,000
4,4' - DDT	10,000	96	21,000 J	18,000 J	2,900 J	U	9,000 J	110 J	15,000 J	1900 J	2,100
Methoxychlor	U	U	U	U	3,600 J	U	U	44 J	6,300 J	490	***
Endrin Ketone	U	U	U	U	U	U	U	U	U	U	NV
Endrin Aldehyde	U	U	U	U	U	U	U	U	U	U	NV
alpha-Chlordane	U	U	U	U	U	U	U	U	U	U	NV
gamma-Chlordane	U	U	U	U	U	U	U	U	U	U	540
Toxaphene	U	U	U	U	U	U	U	U	U	U	NV

NOTES:

µg/Kg- micrograms per Kilogram - (parts per billion).
J - Indicates an estimated value.
U - Indicates compound was analyzed for but was not detected above the detection limit for the sample
JN - Indicates presumptive data
R - Indicates that the result is rejected and does not meet minimum QA/QC criteria
NV - No Value Listed In TAGM

* Duplicate of Sample EP-3

** NYSDEC Technical and Administrative Guidance Memorandum: Determination of Cleanup Objectives and Cleanup Levels; HWR-94-4046, 1/24/94

*** As per TAGM #4046, total pesticides < 10,000 ppb

Shaded area indicates detection above cleanup objective

Table 4
Former Munsey Cleaners
VES Readings in ppm

Date	Number of Days In Operation	HNU Before Carbon	PCE Before Carbon	Comments
04/16/97	0	300	5300	System start-up
04/22/97	6	170		
04/24/97	8	140		
04/28/97	12	105		
05/01/97	15	100		
05/07/97	21	75		
05/09/97	23	80		Add one G-2 carbon unit
05/12/97	26	80		
05/15/97	29	70	44	
05/20/97	34	60		
05/23/97	37	45		
05/27/97	41	50		
05/29/97	43	50		System Shut-down for carbon change
06/02/97	47	120		System restarted
06/05/97	50	55		
06/09/97	54	50		
06/19/97	64	30	18	
06/25/97	70	30		Carbon units changed-out
06/26/97	71	85		extraction reduced to vents Vert-V and SE
07/01/97	76	70		
07/08/97	83	80		carbon drum changeout
07/18/97	93	50	14	
08/20/97	126	11	3	System shut-down on 8/21-begin pulse mode
09/09/97	146	25		System re-started
09/11/97	148	15	5.9	
09/23/97	160	9		System shut-down
10/10/97	177	40		System re-started
10/17/97	184	11	0.68	
10/27/97	194	9		System shut-down

PCE levels determined by laboratory GC analysis

Gateway:c:\123r4w\munsey\revtbl4.wk4

FIGURES

CA RICH CONSULTANTS, INC. Certified Ground-Water and Environmental Specialists 404 Glen Cove Avenue, Sea Cliff, N.Y. 11579	former Munsey Cleaners Port Washington, NY	
	Prepared By: GAT	Date: August1996
Scale: 1:36,900 13/4 " = 1 Mile	Reviewed By: EAW	Figure: 1

PORT WASHINGTON BOULEVARD

ONE STORY MASONRY BUILDING

MUNSEY CLEANERS

FORMER OFFICE (SW)

FORMER EARTHEN FLOOR (NW)

FORMER BOILER ROOM (SE)

FORMER EARTHEN FLOOR (NE)

ASPHALT PAVED PARKING AREA

CONCRETE WALL

MAIN STREET

CONCRETE WALK

N

LEGEND

- FLOOR DRAIN
- STORM DRAIN
- CONCRETE PILLAR
- EARTH FLOOR
- PROPERTY BOUNDARY

0 10 20 30 40

Scale in Feet

SOURCE:

SITE PLAN BASED ON THE SEAR-BROWN GROUP DRAWING ENTITLED "SURVEY OF PROPERTY" FOR API MANAGEMENT SERVICE 1029 THRU 961 PORT WASHINGTON BLVD., PORT WASHINGTON, NASSAU CO., NY DATED 12/14/93 AT A SCALE OF 1"=20'.

CA RICH CONSULTANTS, INC.
Certified Ground-Water and Environmental Specialists
404 Glen Cove Avenue, Sea Cliff, NY 11579

TITLE: SITE PLAN		DATE: 11/3/97
		SCALE: AS SHOWN
FIGURE: 2	MONTFORT TRUSTS 1029 PORT WASHINGTON BLVD. PORT WASHINGTON, NEW YORK	DRAWN BY: J.J.S.
DRAWING NO: MF2.1		APPR. BY: G.T.

PORT WASHINGTON BOULEVARD

MUNSEY CLEANERS

ONE STORY MASONRY BUILDING

MAIN STREET

CONCRETE WALK

FD-2

BOILER ROOM

FD-1

CONCRETE WALL

N

LEGEND

- FLOOR DRAIN
- STORM DRAIN
- AREAS OF SOIL EXCAVATION
- PROPERTY BOUNDARY

0 10 20 30 40

Scale in Feet

SOURCE:

SITE PLAN BASED ON THE SEAR-BROWN GROUP DRAWING ENTITLED "SURVEY OF PROPERTY" FOR API MANAGEMENT SERVICE 1029 THRU 961 PORT WASHINGTON BLVD., PORT WASHINGTON, NASSAU CO., NY DATED 12/14/93 AT A SCALE OF 1"=20'.

CA RICH CONSULTANTS, INC.

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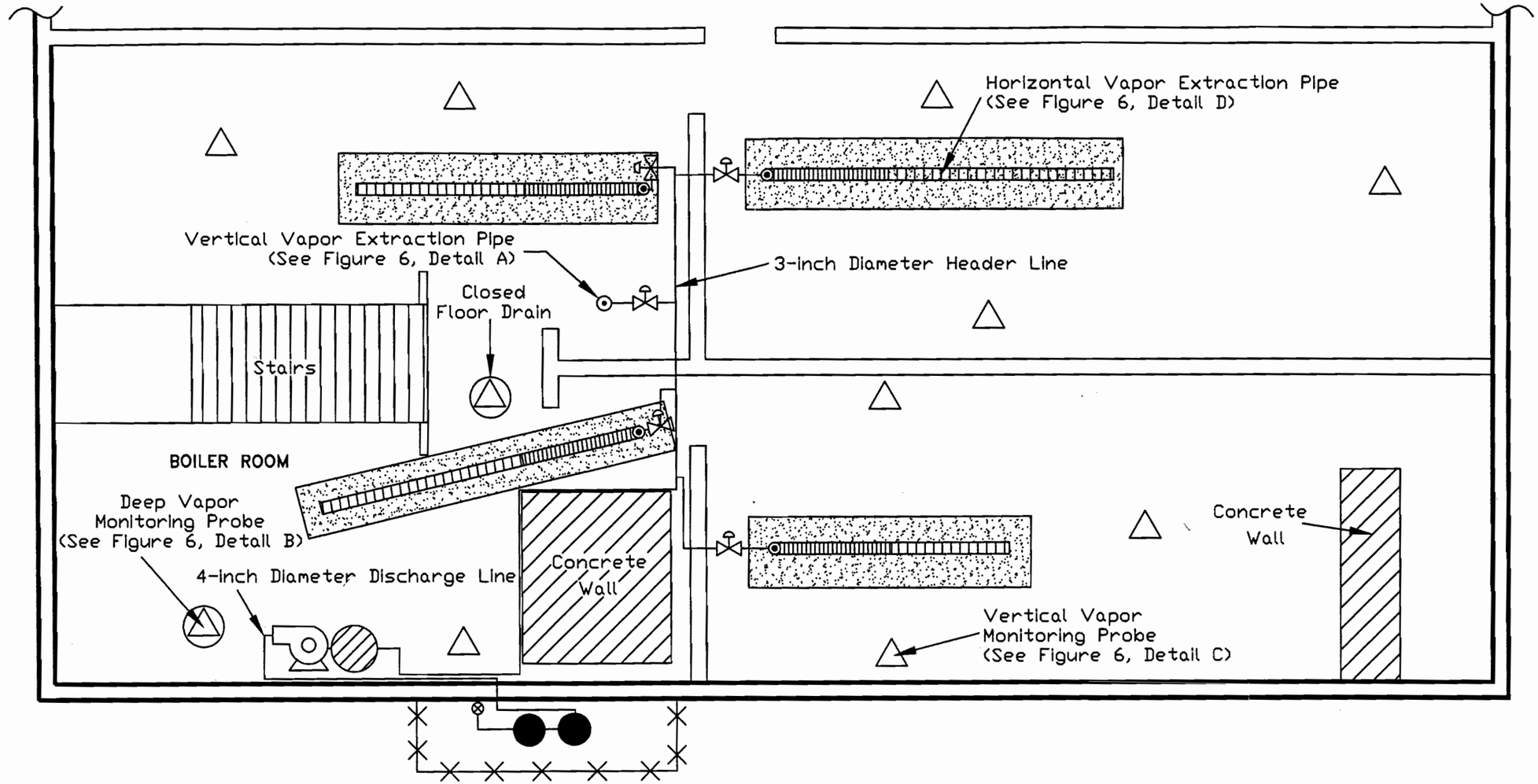
404 Glen Cove Avenue, Sea Cliff, NY 11579

TITLE: AREAS OF SOIL EXCAVATION		DATE: 11/3/97
		SCALE: AS SHOWN
FIGURE: 3	MONTFORT TRUSTS 1029 PORT WASHINGTON BLVD. PORT WASHINGTON NEW YORK	DRAWN BY: S.M.
DRAWING NO: MF3.2		APPR. BY: G.T.



LEGEND

- 30 SLOT 2-INCH PVC VAPOR EXTRACTION PIPE
- 60 SLOT 2-INCH PVC VAPOR EXTRACTION PIPE
- GRAVEL FILLED TRENCH
- AIR/WATER SEPARATOR
- BLOWER
- CARBON CANISTER
- VAPOR EXTRACTION VENT
- AIR DISCHARGE STACK
- REGULATOR VALVE
- VADOSE ZONE MONITORING POINT

0 5 10 15

Scale in Feet

N

CA RICH CONSULTANTS, INC.

Certified Groundwater and Environmental Specialists
404 Glen Cove Avenue, Sea Cliff, NY 11579

TITLE: VAPOR EXTRACTION SYSTEM AS BUILT DETAILS	DATE: 11/3/97
	SCALE: AS SHOWN
FIGURE: 4	DRAWN BY: S.M.
DRAWING NO: MF4.2	APPR. BY: E.A.W.

MONTFORT TRUSTS
1029 PORT WASHINGTON BLVD.
PORTWASINGTION, NEW YORK

PORT WASHINGTON BOULEVARD

ONE STORY MASONRY BUILDING

MAIN STREET

CONCRETE WALK

CARBON CANISTERS

ASPHALT PAVED PARKING AREA

VACUUM TRUCK

20 CUBIC YARD ROLL-OFF CONTAINERS

CONCRETE WALL

N

LEGEND

PROPERTY BOUNDARY

0 10 20 30 40

Scale in Feet

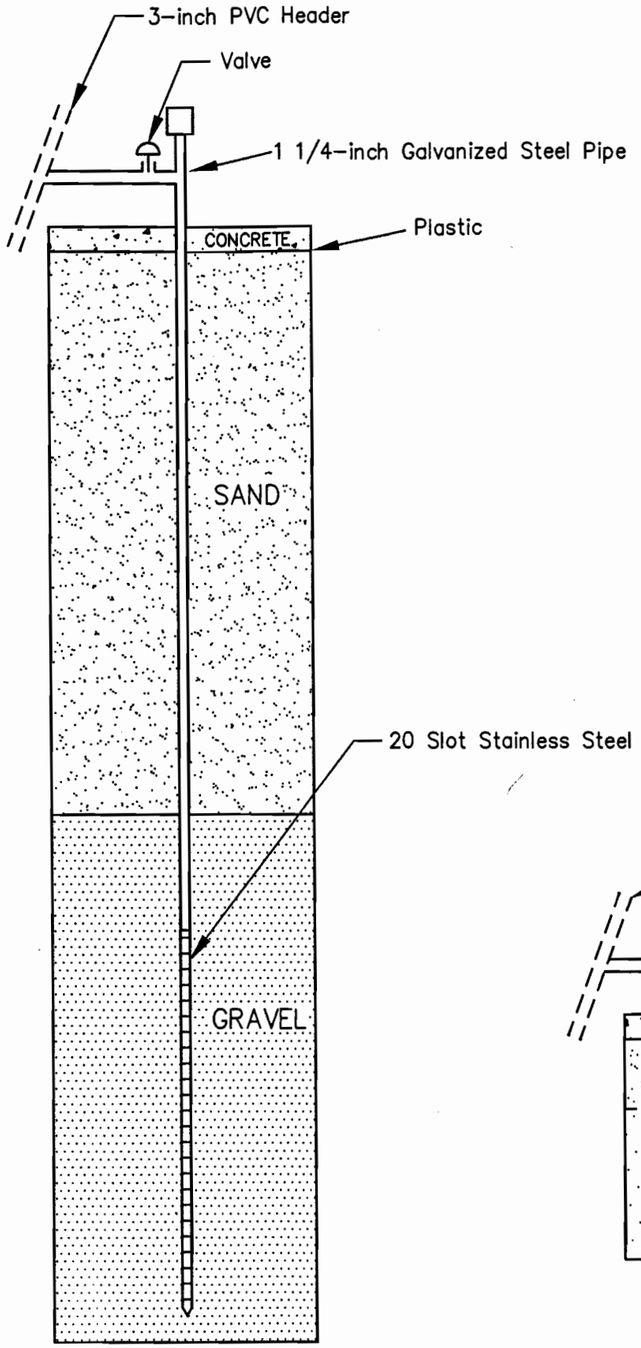
SOURCE:

SITE PLAN BASED ON THE SEAR-BROWN GROUP DRAWING ENTITLED "SURVEY OF PROPERTY" FOR API MANAGEMENT SERVICE 1029 THRU 961 PORT WASHINGTON BLVD., PORT WASHINGTON, NASSAU CO., NY DATED 12/14/93 AT A SCALE OF 1"=20'.

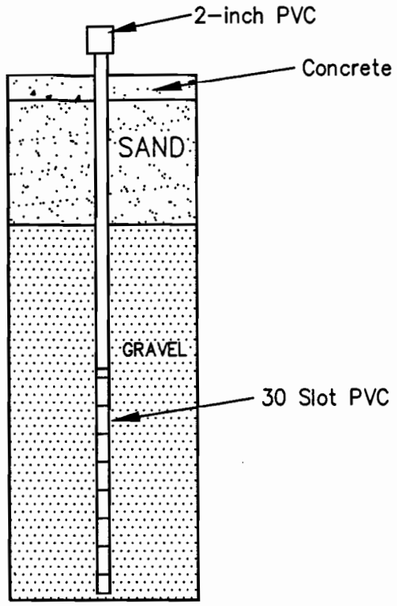
CA RICH CONSULTANTS, INC.

Certified Ground-Water and Environmental Specialists
404 Glen Cove Avenue, Sea Cliff, NY 11579

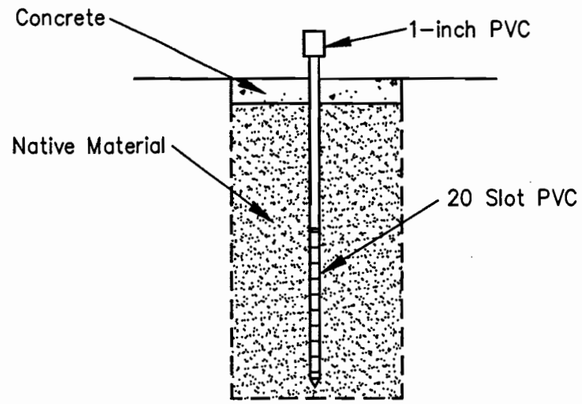
TITLE: STAGING AREA		DATE: 11/3/97
		SCALE: AS SHOWN
FIGURE: 5	MONTFORT TRUSTS 1029 PORT WASHINGTON BLVD. PORT WASHINGTON, NEW YORK	DRAWN BY: S.M.
DRAWING NO: MF5.2		APPR. BY: G.T.



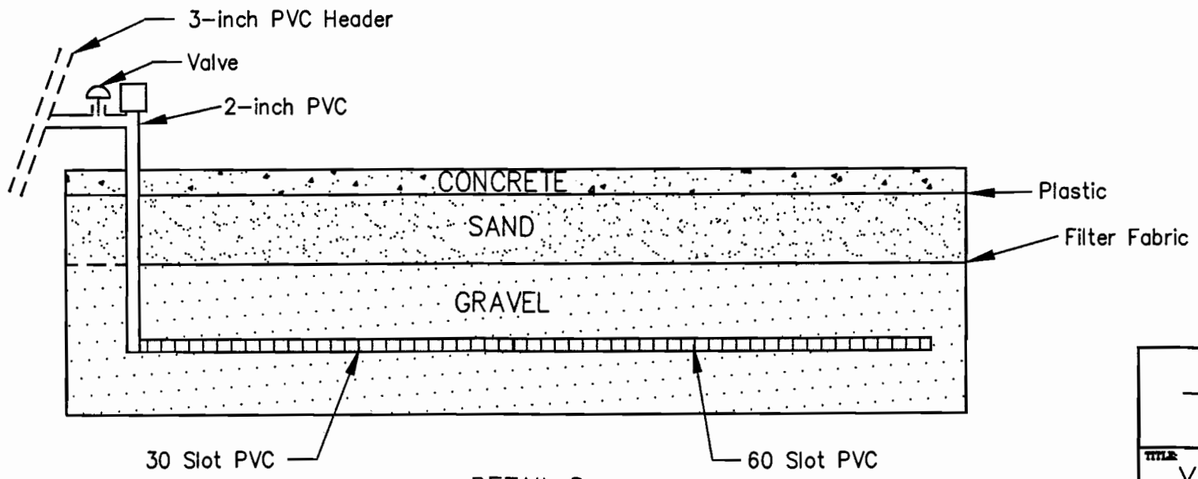
DETAIL A
Typical Vertical Vent



DETAIL B
Typical Deep Vapor Monitoring Probe



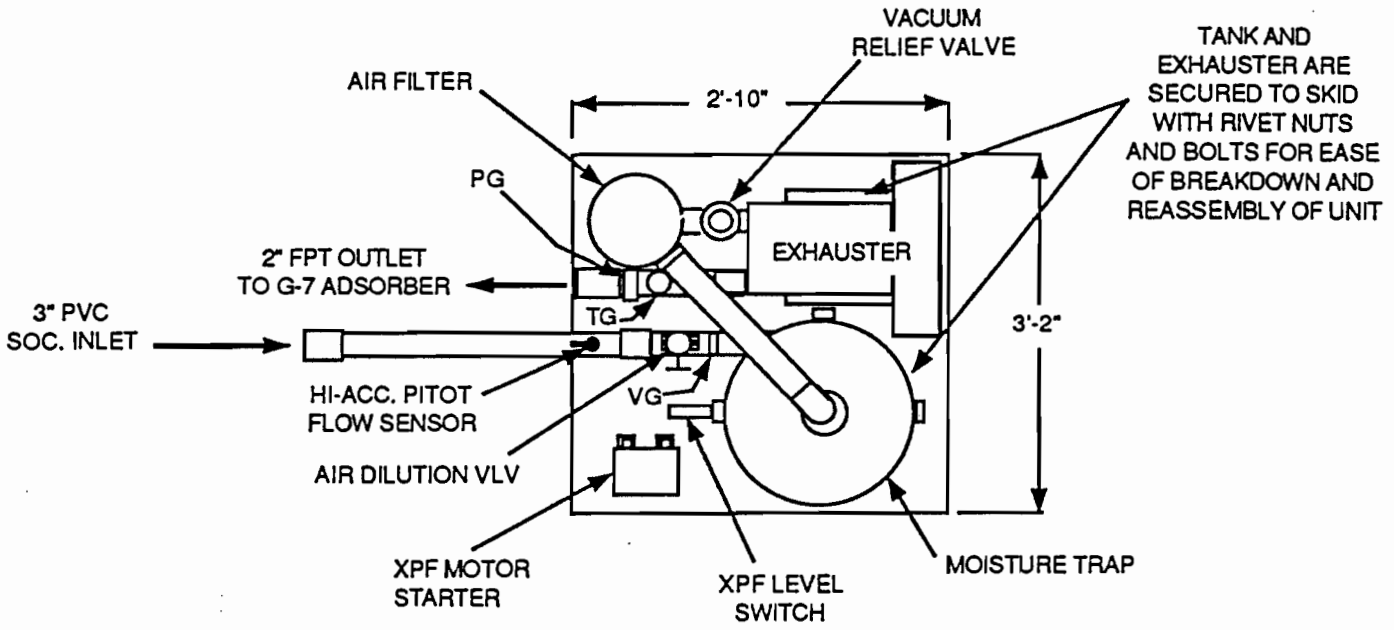
DETAIL C
Typical Vapor Monitoring Probe

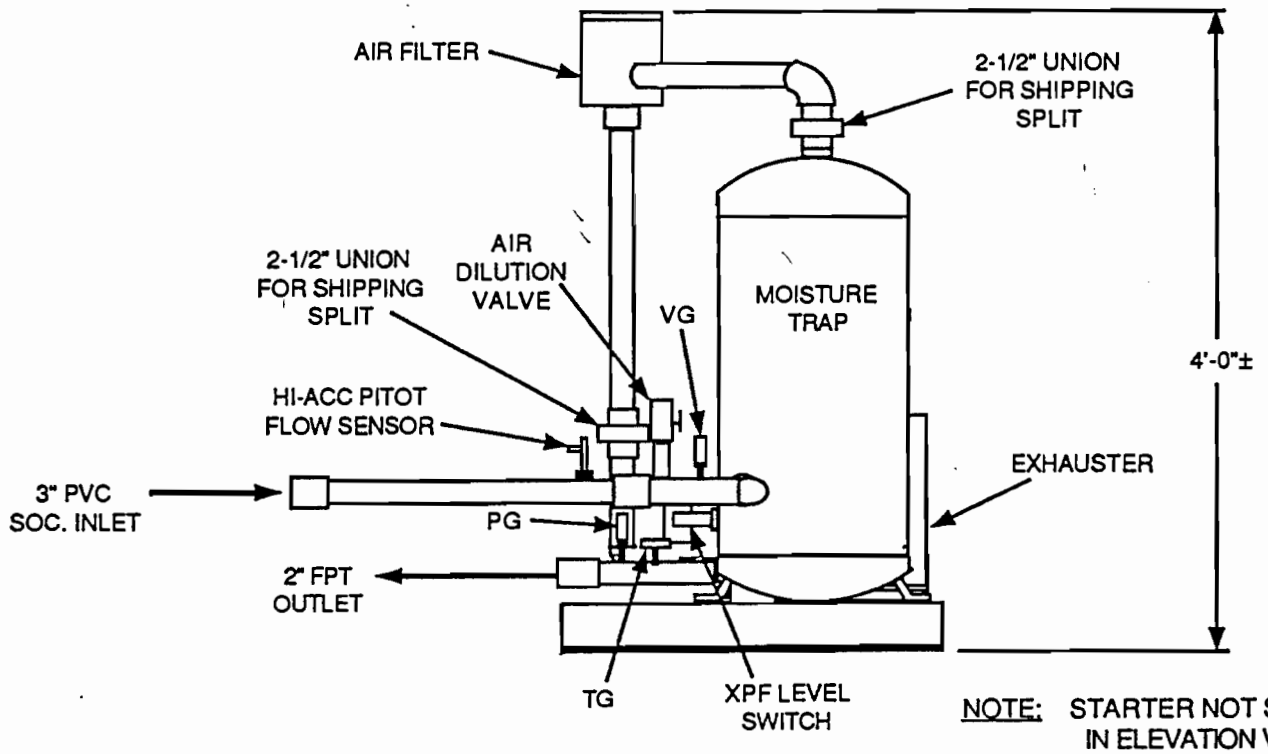


DETAIL D
Typical Horizontal Vent

CA RICH CONSULTANTS, INC.
Certified Groundwater and Environmental Specialists
404 Glen Cove Avenue, Sea Cliff, NY 11579

TITLE: VAPOR EXTRACTION SYSTEM TYPICAL VENT CONSTRUCTION DETAILS		DATE: 11/3/97
		SCALE: 1/2"=1'
FIGURE: 6	MONTFORT TRUSTS 1029 PORT WASHINGTON BLVD. PORT WASINGTION, NEW YORK	DRAWN BY: S.M.
DRAWING NO: MF6.2		APPR. BY: E.A.W.





NOTE: STARTER NOT SHOWN IN ELEVATION VIEW

LEGEND

PG = Pressure Gage
VG = Vacuum Gage
TG = Temperature Gage

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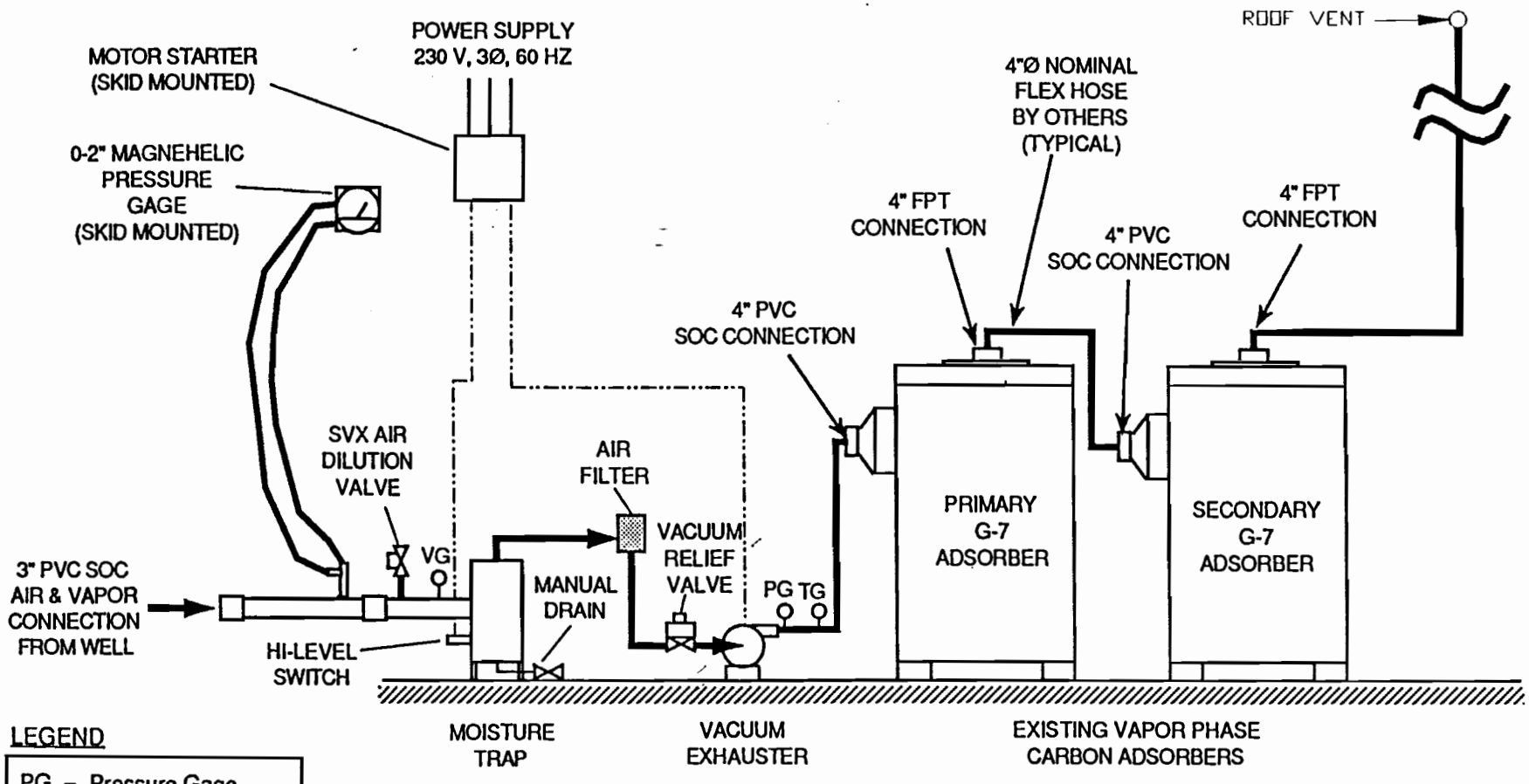
404 Glen Cove Avenue, Sea Cliff, NY 11579

TITLE: SOIL VAPOR EXTRACTOR		DATE: 4/29/97
		SCALE: -------
FIGURE: 7	MONTFORT TRUSTS 1029 PORT WASHINGTON BLVD. PORT WASHINGTON, NEW YORK	DRAWN BY: N.B.G.
DRAWING NO: 1016-1a		APPR. BY: G.A.T.



LEGEND

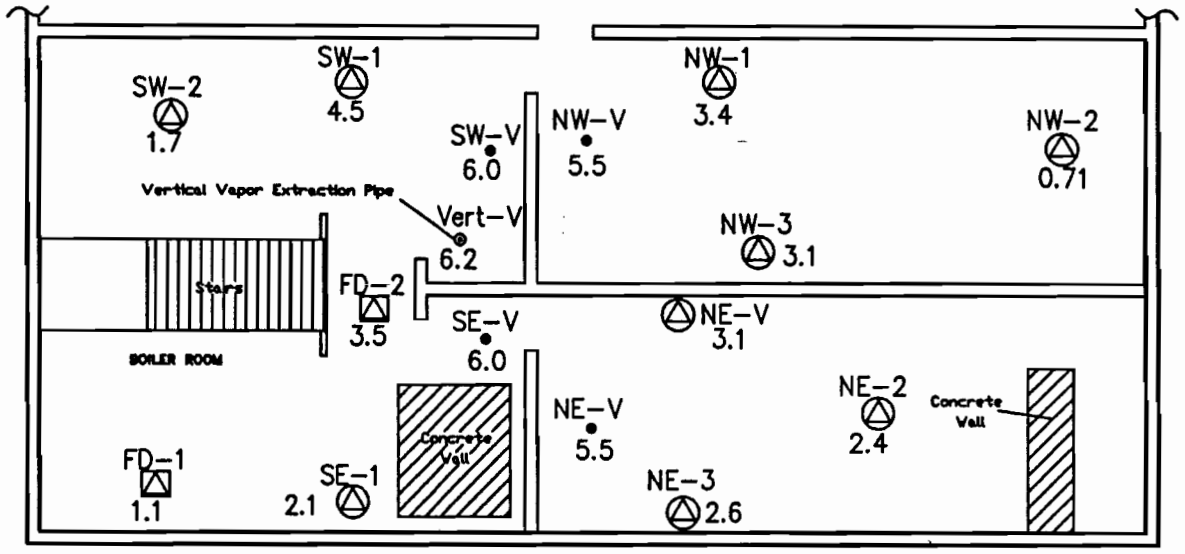
PG = Pressure Gage
VG = Vacuum Gage
TG = Temperature Gage

SOIL VAPOR EXTRACTION SYSTEM
WITH XPF MOTOR

CA RICH CONSULTANTS, INC.

Certified Ground-Water and Environmental Specialists
404 Glen Cove Avenue, Sea Cliff, NY 11579

TITLE: SVE TREATMENT SYSTEM		DATE: 4/29/97
		SCALE: -------
FIGURE: 8	MONTFORT TRUSTS 1029 PORT WASHINGTON BLVD. PORT WASHINGTON, NEW YORK	DRAWN BY: N.B.G.
DRAWING NO: 1017-1a		APPR BY: G.A.T.



TEST #1

LEGEND

2.0 FLOW IN INCHES OF H20

⊙ VAPOR EXTRACTION VENT

⊗ AIR DISCHARGE STACK

△ VADOSE ZONE MONITORING PILOT

◬ 1 INCH PVC, 3 FEET BELOW GRADE

⧋ 2 INCH PVC

0 5 10 15
Scale in Feet

4/16/97 ON-10:00am OFF-11:00am HNU=320ppm

	Open	Closed
SW-V	X	
SE-V	X	
NW-V	X	
NE-V	X	
Vert-V	X	

Flow: meter 1.30 inches of H20

145 cfm

Intake vacuum 8 inches of H20

Output Pressure 4.5 inches of H20

Output temperature 80 degrees F

Dilution Valve Closed

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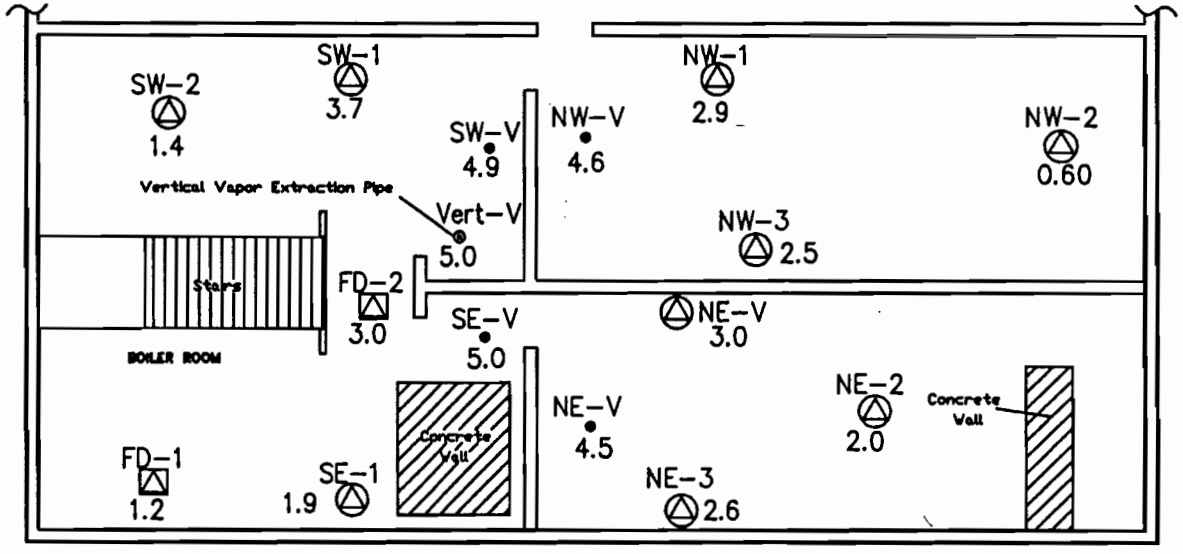
404 Glen Cove Avenue, Sea Cliff, NY 11579

TITLE: VAPOR EXTRACTION SYSTEM PILOT TEST		DATE: 4/24/97
		SCALE: As Shown
FIGURE: 9a	MONTFORT TRUSTS 1029 PORT WASHINGTON BLVD. PORTWASINGTION, NEW YORK	DRAWN BY: N.B.G.
DRAWING NO: 1015-1a		APPR. BY: E.A.W.



TEST #2

LEGEND

2.0 FLOW IN INCHES OF H20

⊙ VAPOR EXTRACTION VENT

⊗ AIR DISCHARGE STACK

△ VADOSE ZONE MONITORING PILOT

◬ 1 INCH PVC, 3 FEET BELOW GRADE

⧋ 2 INCH PVC

0 5 10 15

Scale in Feet

4/16/97 ON-11:00am OFF-11:10am HNU=300ppm

	Open	Closed
SW-V	X	
SE-V	X	
NW-V	X	
NE-V	X	
Vert-V	X	

Flow: meter 1.0 inches of H20

127 cfm

Intake vacuum 6.0 inches of H20

Output Pressure 4.5 inches of H20

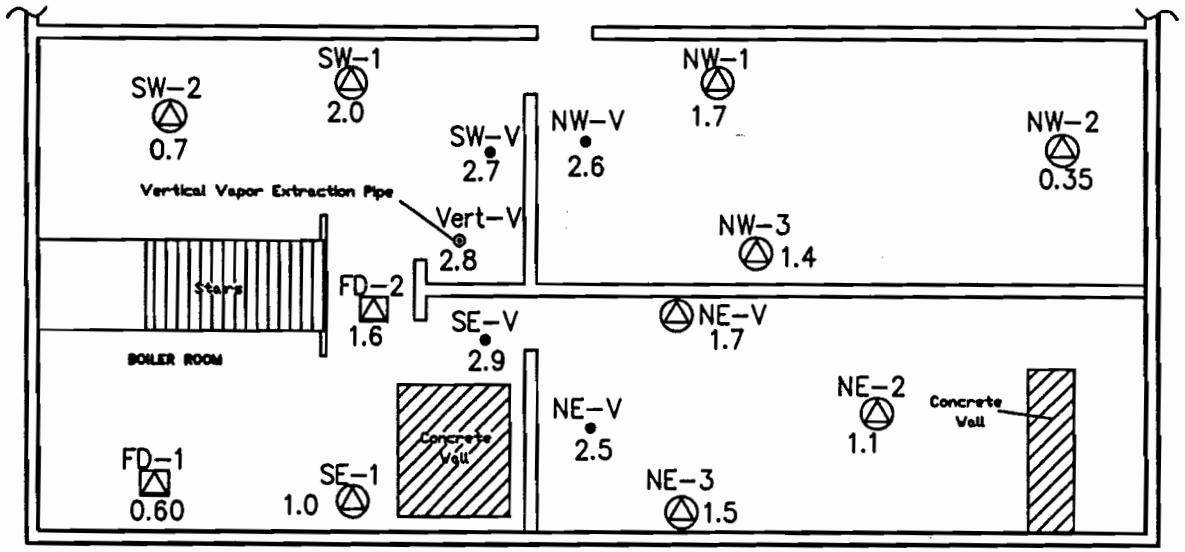
Output temperature 90 degrees F

Dilution Valve 1/2 Open

CA RICH CONSULTANTS, INC.

Certified Groundwater and Environmental Specialists
404 Glen Cove Avenue, Sea Cliff, NY 11579

TITLE: VAPOR EXTRACTION SYSTEM PILOT TEST		DATE: 4/24/97
		SCALE: As Shown
FIGURE: 9b	MONTFORT TRUSTS 1029 PORT WASHINGTON BLVD. PORTWASINGTION, NEW YORK	DRAWN BY: N.B.G.
DRAWING NO: 1015-1b		APPR. BY: E.A.W.



TEST #3

4/16/97 ON-11:10am OFF-11:20am HNU=270ppm

	Open	Closed
SW-V	X	
SE-V	X	
NW-V	X	
NE-V	X	
Vert-V	X	

Flow: meter 0.35 inches of H20

75 cfm

Intake vacuum 1.0 inches of H20

Output Pressure 5.0 inches of H20

Output temperature 88 degrees F

Dilution Valve Open

LEGEND

2.0 FLOW IN INCHES OF H20

⊙ VAPOR EXTRACTION VENT

⊗ AIR DISCHARGE STACK

△ VADOSE ZONE MONITORING PILOT

◬ 1 INCH PVC, 3 FEET BELOW GRADE

⧈ 2 INCH PVC

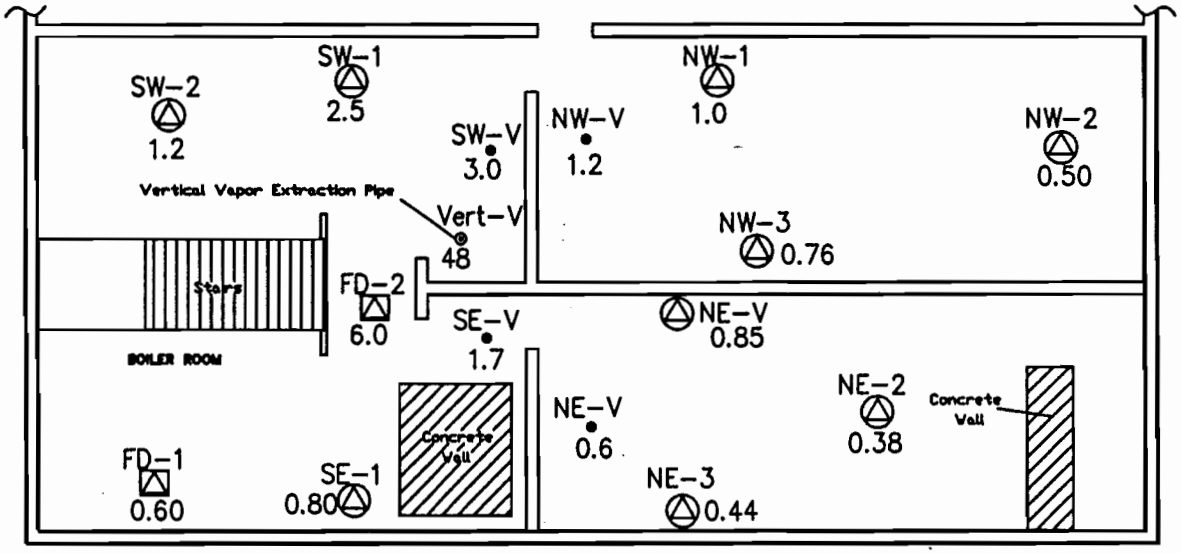
0 5 10 15

Scale in Feet

CA RICH CONSULTANTS, INC.

Certified Groundwater and Environmental Specialists
404 Glen Cove Avenue, Sea Cliff, NY 11579

TITLE: VAPOR EXTRACTION SYSTEM PILOT TEST		DATE: 4/24/97
		SCALE: As Shown
FIGURE: 9c	MONTFORT TRUSTS 1029 PORT WASHINGTON BLVD. PORTWASINGTION, NEW YORK	DRAWN BY: N.B.G.
DRAWING NO: 1015-1c		APPR. BY: E.A.W.



TEST #4

LEGEND

2.0 FLOW IN INCHES OF H20

⊙ VAPOR EXTRACTION VENT

⊗ AIR DISCHARGE STACK

△ VADOSE ZONE MONITORING PILOT

◬ 1 INCH PVC, 3 FEET BELOW GRADE

◬ 2 INCH PVC

0 5 10 15

Scale in Feet

4/16/97 ON–11:35am OFF–11:55am HNU=250ppm

	Open	Closed
SW–V		X
SE–V		X
NW–V		X
NE–V		X
Vert–V	X	

Flow: meter 0.60 inches of H20

98 cfm

Intake vacuum 48 inches of H20

Output Pressure 1 inches of H20

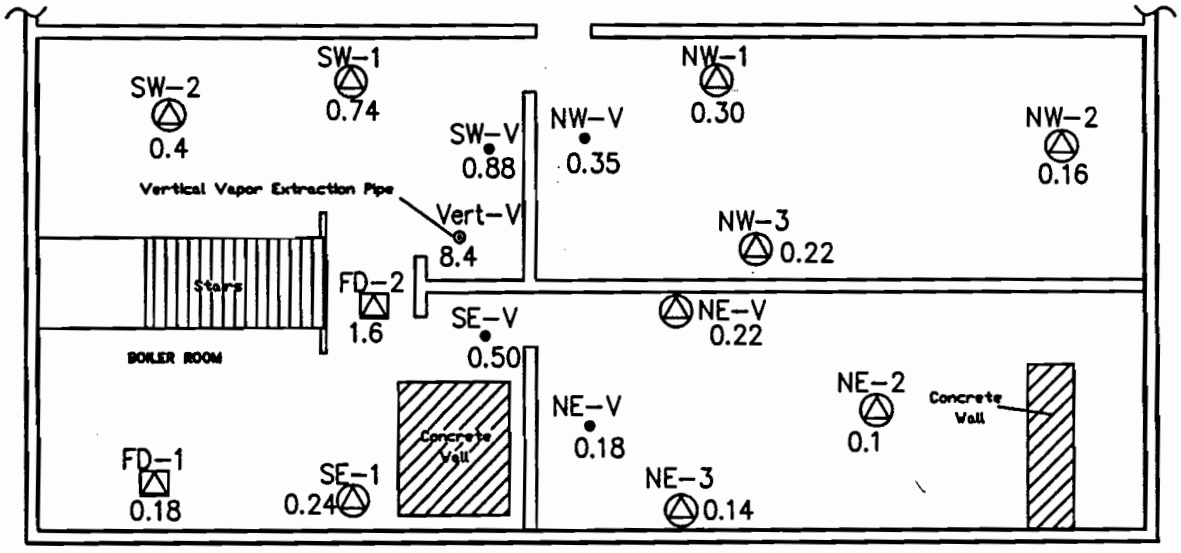
Output temperature 110 degrees F

Dilution Valve Closed

CA RICH CONSULTANTS, INC.

Certified Groundwater and Environmental Specialists
404 Glen Cove Avenue, Sea Cliff, NY 11579

TITLE: VAPOR EXTRACTION SYSTEM PILOT TEST		DATE: 4/24/97
		SCALE: As Shown
FIGURE: 9d	MONTFORT TRUSTS 1029 PORT WASHINGTON BLVD. PORTWASINGTION, NEW YORK	DRAWN BY: N.B.G.
DRAWING NO: 1015-1d		APPR. BY: E.A.W.



TEST #5

LEGEND

2.0 FLOW IN INCHES OF H20

⊙ VAPOR EXTRACTION VENT

⊗ AIR DISCHARGE STACK

△ VADOSE ZONE MONITORING PILOT

◬ 1 INCH PVC, 3 FEET BELOW GRADE

▱ 2 INCH PVC

0 5 10 15

Scale in Feet

4/16/97 ON-12:00pm OFF-12:15pm HNU=300ppm

	Open	Closed
SW-V		X
SE-V		X
NW-V		X
NE-V		X
Vert-V	X	

Flow: meter 0.50 inches of H20

90 cfm

Intake vacuum 9 inches of H20

Output Pressure 4.5 inches of H20

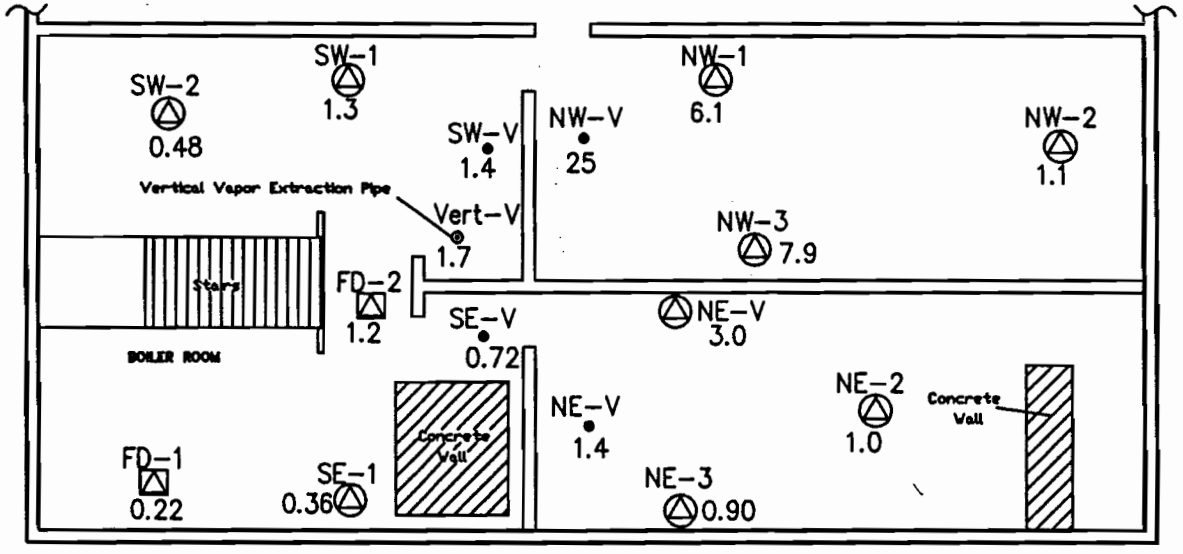
Output temperature 90 degrees F

Dilution Valve Open

CA RICH CONSULTANTS, INC.

Certified Groundwater and Environmental Specialists
404 Glen Cove Avenue, Sea Cliff, NY 11579

TITLE: VAPOR EXTRACTION SYSTEM PILOT TEST		DATE: 4/24/97
		SCALE: As Shown
FIGURE: 9e	MONTFORT TRUSTS 1029 PORT WASHINGTON BLVD. PORTWASINGTION, NEW YORK	DRAWN BY: N.B.G.
DRAWING NO: 1015-1e		APPR. BY: E.A.W.



TEST #6

LEGEND

2.0 FLOW IN INCHES OF H20

⊙ VAPOR EXTRACTION VENT

⊗ AIR DISCHARGE STACK

△ VADOSE ZONE MONITORING PILOT

◬ 1 INCH PVC, 3 FEET BELOW GRADE

⧄ 2 INCH PVC

0 5 10 15

Scale in Feet

4/16/97 ON-12:15pm OFF-12:30pm HNU=250ppm

	Open	Closed
SW-V		X
SE-V		X
NW-V	X	
NE-V		X
Vert-V		X

Flow: meter 0.95 inches of H20

124 cfm

Intake vacuum 25 inches of H20

Output Pressure 2.8 inches of H20

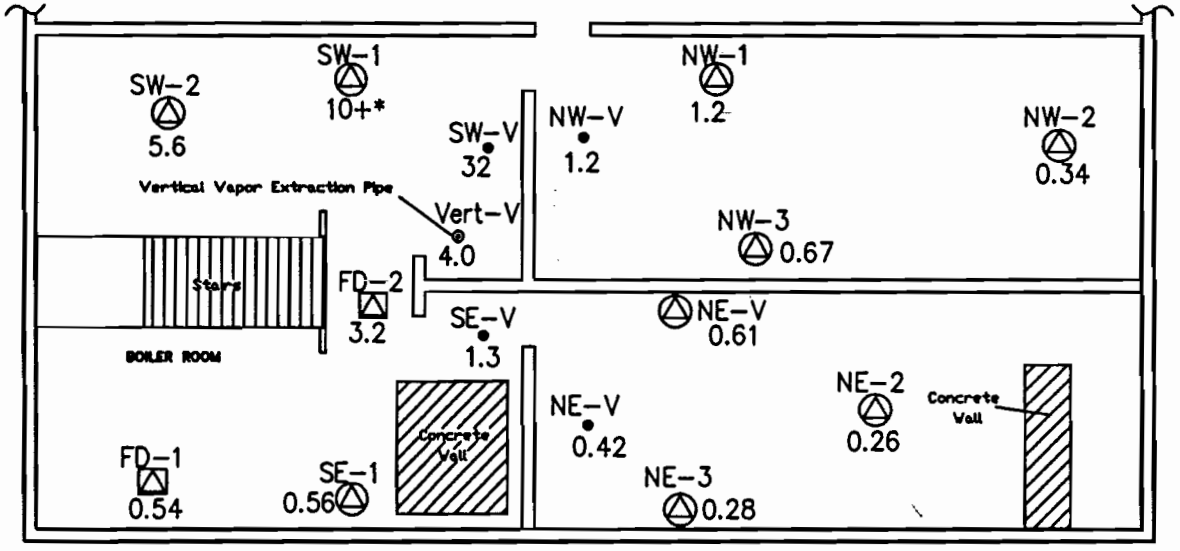
Output temperature 100 degrees F

Dilution Valve Closed

CA RICH CONSULTANTS, INC.

Certified Groundwater and Environmental Specialists
404 Glen Cove Avenue, Sea Cliff, NY 11579

TITLE: VAPOR EXTRACTION SYSTEM PILOT TEST		DATE: 4/24/97
		SCALE: As Shown
FIGURE: 9f	MONTFORT TRUSTS 1029 PORT WASHINGTON BLVD. PORTWASINGTION, NEW YORK	DRAWN BY: N.B.G.
DRAWING NO: 1015-1f		APPR. BY: E.A.W.



TEST #7

LEGEND

2.0 FLOW IN INCHES OF H20

⊙ VAPOR EXTRACTION VENT

⊗ AIR DISCHARGE STACK

△ VADOSE ZONE MONITORING PILOT

◬ 1 INCH PVC, 3 FEET BELOW GRADE

⧈ 2 INCH PVC

+* MAGNEHELIC READS A MAXIMUM OF 10 INCHES OF H20

0 5 10 15
Scale in Feet

4/16/97 ON-12:30pm OFF-12:45pm HNU=275ppm

	Open	Closed
SW-V	X	
SE-V		X
NW-V		X
NE-V		X
Vert-V		X

Flow: meter 0.80 inches of H20
113 cfm

Intake vacuum 32 inches of H20

Output Pressure 2.3 inches of H20

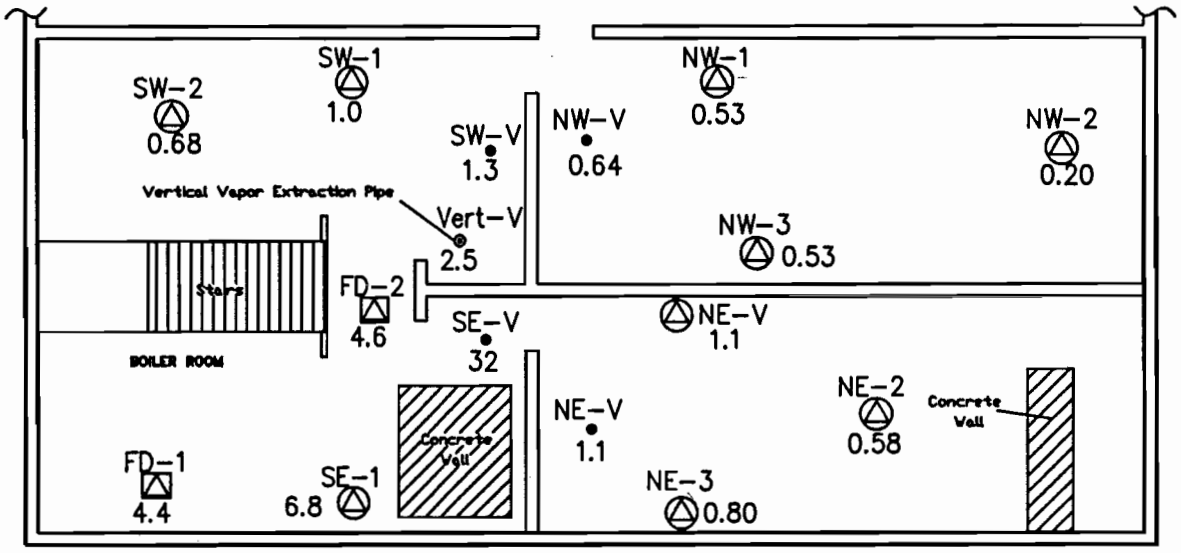
Output temperature 104 degrees F

Dilution Valve Closed

CA RICH CONSULTANTS, INC.
Certified Groundwater and Environmental Specialists
404 Glen Cove Avenue, Sea Cliff, NY 11579

TITLE: VAPOR EXTRACTION SYSTEM PILOT TEST	DATE: 4/24/97
	SCALE: As Shown
FIGURE: 9g	DRAWN BY: N.B.G.
DRAWING NO: 1015-1g	APPR. BY: E.A.W.

MONTFORT TRUSTS
1029 PORT WASHINGTON BLVD.
PORTWASINGTION, NEW YORK



TEST #8

LEGEND

2.0 FLOW IN INCHES OF H20

⊙ VAPOR EXTRACTION VENT

⊗ AIR DISCHARGE STACK

△ VADOSE ZONE MONITORING PILOT

◬ 1 INCH PVC, 3 FEET BELOW GRADE

⧈ 2 INCH PVC

0 5 10 15
Scale in Feet

4/16/97 ON-12:45pm OFF-1:00pm HNU=250ppm

	Open	Closed
SW-V		X
SE-V	X	
NW-V		X
NE-V		X
Vert-V		X

Flow: meter 0.85 inches of H20
117 cfm

Intake vacuum 32 inches of H20

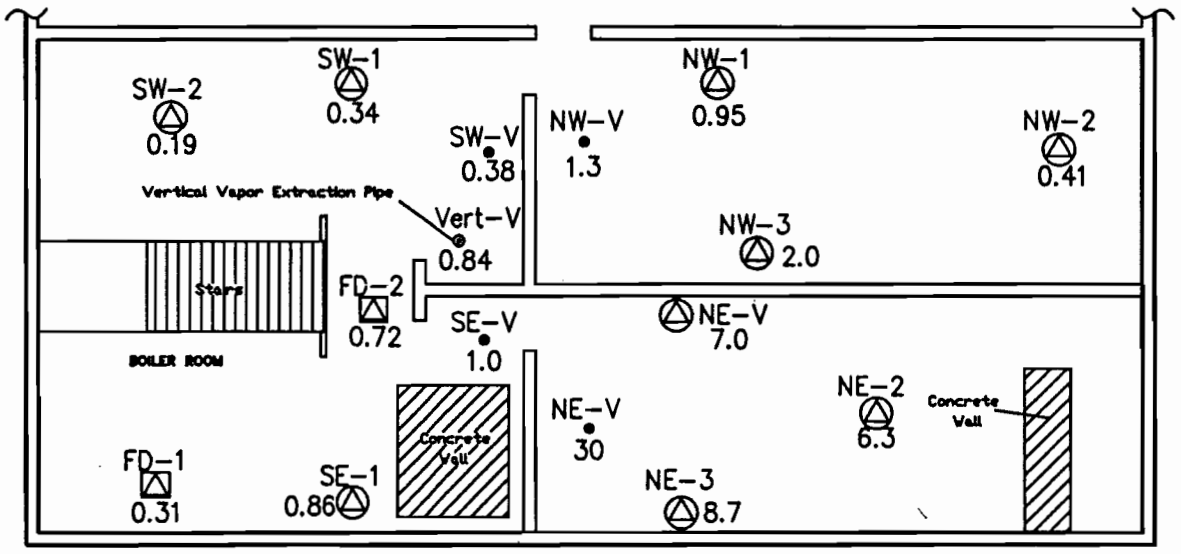
Output Pressure 2.4 inches of H20

Output temperature 104 degrees F

Dilution Valve Closed

CA RICH CONSULTANTS, INC.
Certified Groundwater and Environmental Specialists
404 Glen Cove Avenue, Sea Cliff, NY 11579

TITLE: VAPOR EXTRACTION SYSTEM PILOT TEST		DATE: 4/24/97
		SCALE: As Shown
FIGURE: 9h	MONTFORT TRUSTS 1029 PORT WASHINGTON BLVD. PORTWASINGTION, NEW YORK	DRAWN BY: N.B.G.
DRAWING NO: 1015-1h		APPR. BY: E.A.W.



TEST #9

LEGEND

2.0 FLOW IN INCHES OF H20

⊙ VAPOR EXTRACTION VENT

⊗ AIR DISCHARGE STACK

△ VADOSE ZONE MONITORING PILOT

⏢ 1 INCH PVC, 3 FEET BELOW GRADE

⏢ 2 INCH PVC

0 5 10 15
Scale in Feet

4/16/97 ON-1:00pm OFF-1:15pm HNU=250ppm

	Open	Closed
SW-V		X
SE-V		X
NW-V		X
NE-V	X	
Vert-V		X

Flow: meter 0.90 inches of H20
120 cfm

Intake vacuum 30 inches of H20

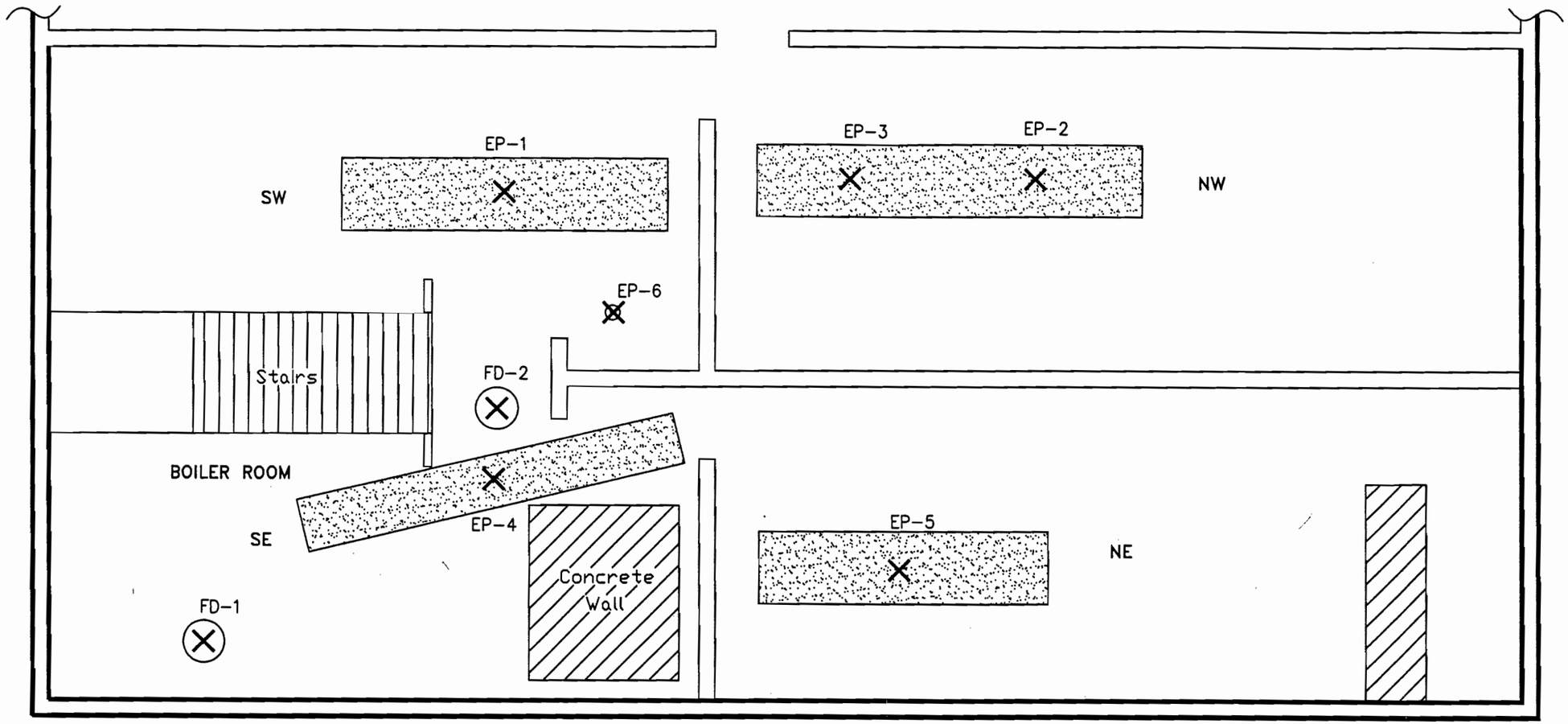
Output Pressure 2.6 inches of H20

Output temperature 102 degrees F

Dilution Valve Closed

CA RICH CONSULTANTS, INC.
Certified Groundwater and Environmental Specialists
404 Glen Cove Avenue, Sea Cliff, NY 11579

TITLE: VAPOR EXTRACTION SYSTEM PILOT TEST		DATE: 4/24/97
		SCALE: As Shown
FIGURE: 9i	MONTFORT TRUSTS 1029 PORT WASHINGTON BLVD. PORTWASINGTION, NEW YORK	DRAWN BY: N.B.G.
DRAWING NO: 1015-1i		APPR. BY: E.A.W.



LEGEND

TRENCH

END POINT SAMPLE LOCATION

N

0 5 10 15

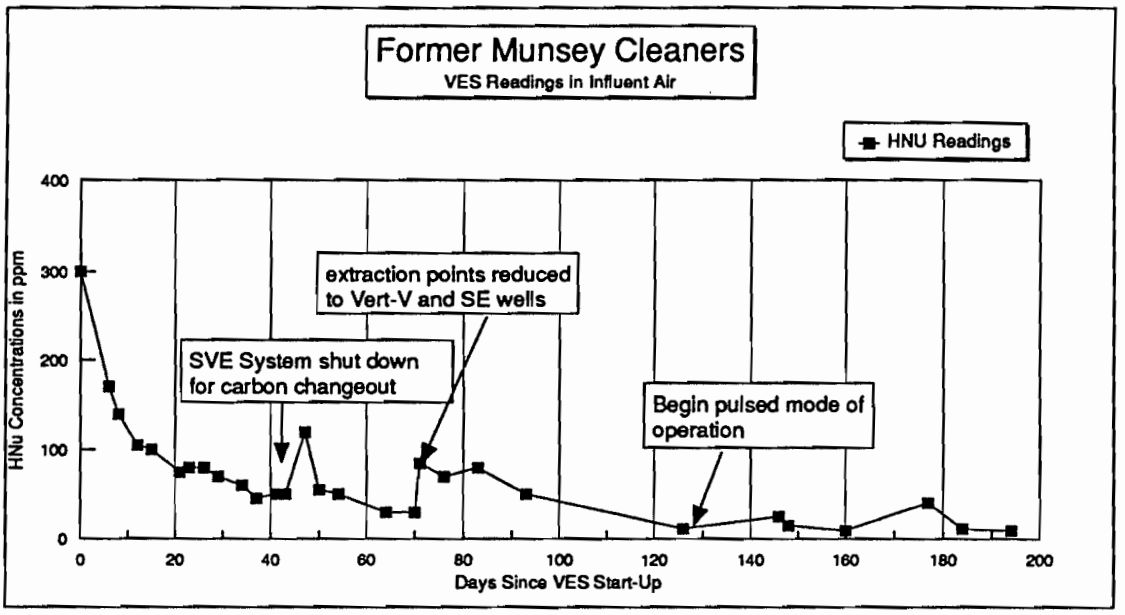
Scale in Feet

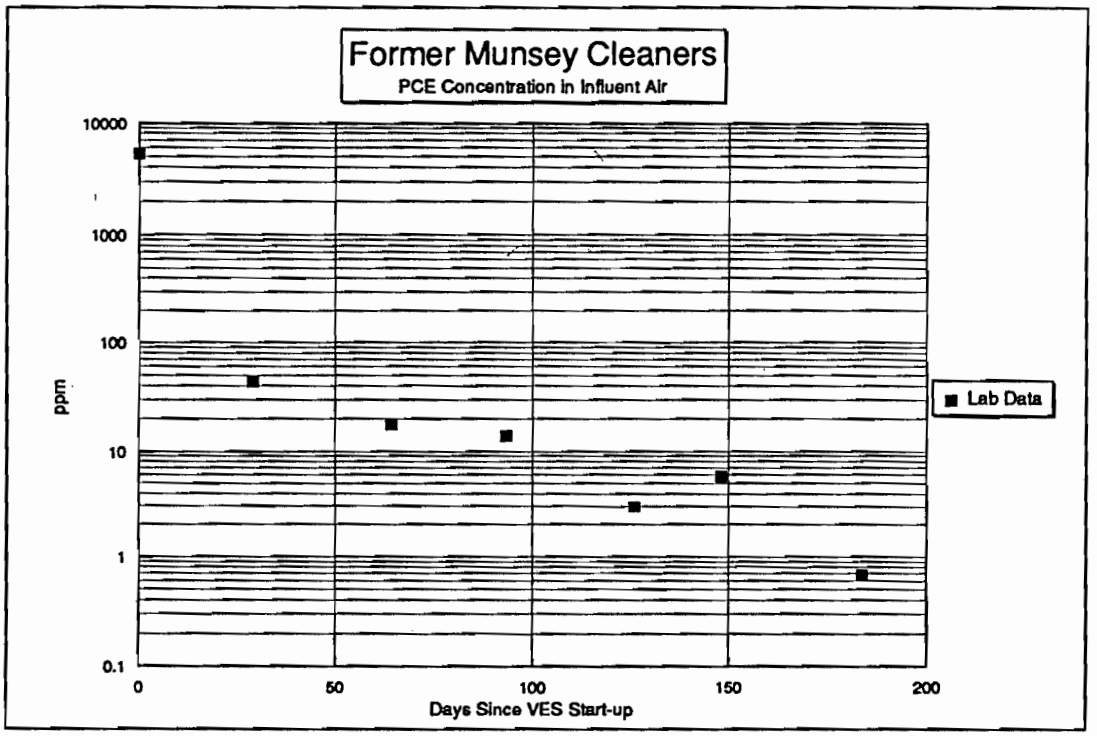
CA RICH CONSULTANTS, INC.

Certified Groundwater and Environmental Specialists
404 Glen Cove Avenue, Sea Cliff, NY 11579

TITLE: ENDPOINT SAMPLE LOCATION MAP		DATE: 11/3/97
		SCALE: AS SHOWN
FIGURE: 10	MONTFORT TRUSTS 1029 PORT WASHINGTON BLVD. PORT WASINGTION, NEW YORK	DRAWN BY: S.M.
DRAWING NO: MF4.2		APPR. BY: E.A.W.

Figure 11





Gateway:c:\123r4w\munsey\fig11.wk4

APPENDIX A

AMBIENT AIR SCREENING
MUNSEY CLEANERS

DATE	2/25/97	2/25/97	2/25/97	2/25/97	2/25/97	2/26/97	2/26/97	2/26/97	2/26/97	2/26/97	2/27/97	2/27/97
Time	9:15 AM	11:00 AM	12:00 PM	1:30 PM	2:20 PM	9:00 AM	9:50 AM	11:40 AM	12:50 PM	1:45 PM	8:20 AM	9:00 AM
Basement												
NW Room	1	1	4	5	2	2	2	*	*	*	5	10
SW Room	1	1	4	5	2	*	*	*	*	*	5	10
SE Room	1	1	4	5	2	*	*	*	*	*	18	10
NE Room	1	1	4	5	2	9	9	*	*	*	18	10
Basement Staging Room	*	ND	ND	ND	ND	1	<1	*	<1	<1	*	<1
First Floor	*	ND	ND	ND	ND	ND	ND	*	<1	<1	*	ND
Building Perimeter												
East	*	ND	ND	ND	<1	ND	ND	ND	ND	ND	*	ND
West	*	ND	ND	ND	<1	ND	ND	ND	ND	ND	*	ND
North	*	ND	ND	ND	<1	ND	ND	ND	ND	ND	*	ND
South	*	ND	ND	ND	<1	ND	ND	ND	ND	ND	*	ND

DATE	2/27/97	2/27/97	2/27/97	2/28/97	3/4/97	3/4/97	3/4/97	3/5/97	2/28/97	2/28/97	3/3/97	3/3/97
Time	10:00 AM	11:30 AM	2:00 AM	9:00 AM	9:45 AM	11:00 AM	3:00 PM	8:45 AM	11:00 AM	1:30 AM	8:30 AM	9:30 AM
Basement												
NW Room	*	*	20	1	7	15	10	20	1	5	15	6
SW Room	*	*	20	1	7	15	10	20	1	5	15	6
SE Room	*	*	20	1	7	15	10	20	1	5	15	6
NE Room	*	*	20	1	7	15	10	20	1	5	15	6
Basement Staging Room	<1	<1	<1	<1	ND	<1	<1	1	ND	ND	<1	*
First Floor	<1	<1	<1	ND	ND	ND	ND	ND	ND	ND	ND	ND
Building Perimeter												
East	ND	ND	ND	ND	ND	*	ND	ND	ND	ND	ND	ND
West	ND	ND	ND	ND	ND	*	ND	ND	ND	ND	ND	ND
North	ND	ND	ND	ND	ND	*	ND	ND	ND	ND	ND	ND
South	ND	ND	ND	ND	ND	*	ND	ND	ND	ND	ND	ND

DATE	3/3/97	3/3/97	3/3/97	3/4/97	3/5/97	3/6/97	3/6/97	3/6/97	3/7/97	3/7/97	3/11/97	
Time	11:30 AM	12:30 PM	3:00 PM	8:30 AM	1:30 PM	9:00 AM	11:30 AM	1:30 PM	9:30 AM	11:30 AM	2:00 PM	
Basement												
NW Room	3	*	10	10	20	6	5	20	2	1	15	
SW Room	3	*	10	10	20	6	5	20	2	1	15	
SE Room	3	*	10	10	20	6	5	20	2	1	15	
NE Room	3	*	10	10	20	6	5	20	2	1	15	
Basement Staging Room	*	<1	*	1.5	5	<1	ND	ND	ND	ND		
First Floor	ND	<1	ND	ND	ND	ND	ND	<1	ND	<1	ND	
Building Perimeter												
East	ND	<1	ND	ND	ND	ND	ND	ND	ND	ND	ND	
West	ND	<1	ND	ND	ND	ND	ND	ND	ND	ND	ND	
North	ND	<1	ND	ND	ND	ND	ND	ND	ND	ND	ND	
South	ND	<1	ND	ND	ND	ND	ND	ND	ND	ND	ND	

Notes:

** Indicates reading was not taken.*

APPENDIX B

DNR WASTE MANAGEMENT DIVISION
MICHIGAN DEPARTMENT OF NATURAL RESOURCES

DO NOT WRITE IN THIS SPACE
ATT. ☐ DIS. ☐ REJ. ☐ PR. ☐

Part 121 of Act 451, 1994, as amended.

Failure to file may subject you to criminal and/or civil penalties, under Sections 324.11151 or 324.12116 MCL.

Please print or type.

Form Approved. OMB No. 2050-0039 Expires 9-30-9

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. NYD051873297 — Manifest Document No.

2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Montfort Trust
20 Soundview Market Place;Pt. Washington, NY 11050

4. Generator's Phone (516 586-0002

A. State Manifest Document Number MI 4458908

B. State Generator's ID Same

5. Transporter 1 Company Name: Freehold Cartage, Inc.

6. US EPA ID Number: NJD054126164

C. State Transporter's ID

D. Transporter's Phone 908/462-1001

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address
City Environmental, Inc.
1550 Harper Street
Detroit, MI 48211

10. US EPA ID Number: MID054683479

G. State Facility's ID

H. Facility's Phone 313/923-0080

11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID NUMBER). HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.	N/H
a. RQ, Hazardous Waste Solid, N.O.S., 9, NA3077, PGIII	001	CIM	10020	CY	F002	
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above
A.App#18869-H

K. Handling Codes for Wastes Listed Above
a/ /
b/ /
c/ /
d/ /

15. Special Handling Instructions and Additional Information Site:1029 PT. Washington Blvd;Pt. Washington,NY
Emergency Contact: Capitol Environmental Services (703) 356-3135 ERG-171

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR; if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

GENERATOR

Printed/Typed Name: [illegible] — Signature: [illegible] — Date: Month Day Year

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Timothy B Conklin — Signature: Timothy B Conklin — Date: Month 3 Day 9 Year 9[illegible]

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name — Signature — Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name: KEV STITZ — Signature: [illegible] — Date: Month 3 Day 9 Year 9[illegible]

ALL SPILLS MUST BE REPORTED TO THE MICHIGAN POLLUTION EMERGENCY ALERTING SYSTEM, IN MICHIGAN AT 1-800-292-4706 OR OUT OF STATE AT 517-373-7660 AND THE NATIONAL RESPONSE CENTER AT 1-800-424-8802 24 HOURS PER DAY.

EPA Form 8700-22 (Rev. 9/88)

PR 5110 Rev. 5/95

GENERATOR 2nd COPY

DNR WASTE MANAGEMENT DIVISION
MICHIGAN DEPARTMENT OF NATURAL RESOURCES

DO NOT WRITE IN THIS SPACE
ATT. ☐ DIS. ☐ REJ. ☐ PR. ☐

Failure to file may subject you to criminal and/or civil penalties, under Sections 324.11151 or 324.12116 MCL.

Please print or type.

Form Approved. OMB No. 2050-0039 Expires 9-3

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. N Y D 0 5 1 8 7 3 2 9 7 — Manifest Document No. 3 3 9 0 1 7

2. Page 1 of 1 — Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Montfort Trust
20 Soundview Market Place;Pt. Washington, NY 11050

4. Generator's Phone (516 586-0002

A. State Manifest Document Number: MI 4458907

B. State Generator's ID: Same

5. Transporter 1 Company Name: Freehold Cartage, Inc.

6. US EPA ID Number: N J D 0 5 4 1 2 6 1 6 4

C. State Transporter's ID

D. Transporter's Phone: 908/462-1001

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address
City Environmental,Inc.
1550 Harper Street
Detroit, MI 48211

10. US EPA ID Number: M I D 0 5 4 6 8 3 4 7 9

G. State Facility's ID

H. Facility's Phone: 313/923-0080

	11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID NUMBER). HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	RQ, Hazardous Waste Solid, N.O.S., 9, NA3077, PGIII	X X 1	CIM	X X X 1 5	CY	F 0 0 2
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above
A.App#18869-H

K. Handling Codes for Wastes Listed Above
a/ /
b/ /
c/ /
d/ /

15. Special Handling Instructions and Additional Information Site:1029 PT. Washington Blvd;Pt. Washington,NY
Emergency Contact: Capitol Environmental Services (703) 356-3135 ERG-171

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determine to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes th present and future threat to human health and the environment; OR; if I am a small quantity generator, I have made a good faith effort to minimize my was generation and select the best waste management method that is available to me and that I can afford.

GENERATOR

Printed/Typed Name — Signature — Date (Month Day Ye)

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: DENNIS J HIGGINS — Signature — Date (Month Day Ye): 9 13 9

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name — Signature — Date (Month Day Ye)

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name: KEN STITZ — Signature — Date (Month Day Ye): 9 13 9

ALL SPILLS MUST BE REPORTED TO THE MICHIGAN POLLUTION EMERGENCY ALERTING SYSTEM, IN MICHIGAN AT 1-800-292-4706 OR OUT OF STATE AT 517-373-7660 AND THE NATIONAL RESPONSE CENTER AT 1-800-424-8802 24 HOURS PER DAY.

EPA Form 8700-22 (Rev. 9/88)

PR 5
Rev.

APPENDIX C

ECOTEST LABORATORIES, INC. ENVIRONMENTAL TESTING

377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (516) 422-5777 • FAX (516) 422-5770

LAB NO.C971640 04/24/97

C.A. Rich Consultants, Incorporated
404 Glen Cove Avenue
Sea Cliff, NY 11579
ATTN: Eric Weinstock

SOURCE OF SAMPLE: Munsey Cleaners
COLLECTED BY: Client DATE COL'D:04/16/97 RECEIVED:04/16/97

SAMPLE: Air sample, INF-04/16, 10:45 am

ANALYTICAL PARAMETERS			ANALYTICAL PARAMETERS		
Chloromethane	ug/m3	<300	Chlorobenzene	ug/m3	<300
Bromomethane	ug/m3	<300	1,3 Dichlorobenzene	ug/m3	<600
Dichlordifluomethane	ug/m3	<600	1,2 Dichlorobenzene	ug/m3	<600
Vinyl Chloride	ug/m3	<300	1,4 Dichlorobenzene	ug/m3	<600
Chloroethane	ug/m3	<300			
Methylene Chloride	ug/m3	<300			
Trichlorofluomethane	ug/m3	<600			
1,1 Dichloroethene	ug/m3	<300			
1,1 Dichloroethane	ug/m3	<300			
1,2 Dichloroethene	ug/m3	7400			
Chloroform	ug/m3	1200			
1,2 Dichloroethane	ug/m3	<300			
111 Trichloroethane	ug/m3	<300			
Carbon Tetrachloride	ug/m3	<300			
Bromodichloromethane	ug/m3	<300			
1,2 Dichloropropane	ug/m3	<300			
t-1,3Dichloropropene	ug/m3	<600			
Trichloroethylene	ug/m3	81000			
Chlorodibromomethane	ug/m3	<300			
112 Trichloroethane	ug/m3	<600			
c-1,3Dichloropropene	ug/m3	<600			
2chloroethvinylether	ug/m3	<600			
Bromoform	ug/m3	<600			
1122Tetrachloroethan	ug/m3	<600			
Tetrachloroethene	ug/m3	5300000			

cc:

REMARKS:

DIRECTOR

rn= 10869 NYSDOH ID# 10320

ECOTEST LABORATORIES, INC. *ENVIRONMENTAL TESTING*

377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (516) 422-5777 • FAX (516) 422-5770

LAB NO.C972097 10/20/97

C.A. Rich Consultants, Incorporated
404 Glen Cove Avenue
Sea Cliff, NY 11579
ATTN: Eric Weinstock

SOURCE OF SAMPLE: Munsey Cleaners
COLLECTED BY: Client DATE COL'D:05/15/97 RECEIVED:05/15/97

SAMPLE: Air sample, INF-5/15, 1440

ANALYTICAL PARAMETERS		
Chloromethane	ug/m3	<110
Bromomethane	ug/m3	<110
Dichlordifluomethane	ug/m3	<220
Vinyl Chloride	ug/m3	<110
Chloroethane	ug/m3	<110
Methylene Chloride	ug/m3	<110
Trichlorofluomethane	ug/m3	<220
1,1 Dichloroethene	ug/m3	<110
1,1 Dichloroethane	ug/m3	<110
1,2 Dichloroethene	ug/m3	<110
Chloroform	ug/m3	<110
1,2 Dichloroethane	ug/m3	<110
111 Trichloroethane	ug/m3	<110
Carbon Tetrachloride	ug/m3	<110
Bromodichloromethane	ug/m3	<110
1,2 Dichloropropane	ug/m3	<110
t-1,3Dichloropropene	ug/m3	<220
Trichloroethylene	ug/m3	110
Chlorodibromomethane	ug/m3	<110
112 Trichloroethane	ug/m3	<220
c-1,3Dichloropropene	ug/m3	<220
2chloroethvinylether	ug/m3	<220
Bromoform	ug/m3	<220
1122Tetrachloroethan	ug/m3	<220
Tetrachloroethene	ug/m3	44000

ANALYTICAL PARAMETERS		
Chlorobenzene	ug/m3	<110
1,3 Dichlorobenzene	ug/m3	<220
1,2 Dichlorobenzene	ug/m3	<220
1,4 Dichlorobenzene	ug/m3	<220

cc:

REMARKS: Corrected Report.

DIRECTOR

rn= 13743 NYSDOH ID# 10320

ECOTEST LABORATORIES, INC. *ENVIRONMENTAL TESTING*

377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (516) 422-5777 • FAX (516) 422-5770

LAB NO.C972659 10/20/97

C.A. Rich Consultants, Incorporated
404 Glen Cove Avenue
Sea Cliff, NY 11579
ATTN: Eric Weinstock

SOURCE OF SAMPLE: Munsey Cleaners
COLLECTED BY: Client DATE COL'D:06/19/97 RECEIVED:06/20/97

SAMPLE: Air sample, Influent, 10:55 am

ANALYTICAL PARAMETERS			ANALYTICAL PARAMETERS		
Chloromethane	ug/m3	<45	Chlorobenzene	ug/m3	<45
Bromomethane	ug/m3	<45	1,3 Dichlorobenzene	ug/m3	<90
Dichlordifluomethane	ug/m3	<90	1,2 Dichlorobenzene	ug/m3	<90
Vinyl Chloride	ug/m3	<45	1,4 Dichlorobenzene	ug/m3	<90
Chloroethane	ug/m3	<45			
Methylene Chloride	ug/m3	<45			
Trichlorofluomethane	ug/m3	<90			
1,1 Dichloroethene	ug/m3	<45			
1,1 Dichloroethane	ug/m3	<45			
1,2 Dichloroethene	ug/m3	<45			
Chloroform	ug/m3	<45			
1,2 Dichloroethane	ug/m3	<45			
111 Trichloroethane	ug/m3	<45			
Carbon Tetrachloride	ug/m3	<45			
Bromodichloromethane	ug/m3	<45			
1,2 Dichloropropane	ug/m3	<45			
t-1,3Dichloropropene	ug/m3	<90			
Trichloroethylene	ug/m3	<45			
Chlorodibromomethane	ug/m3	<45			
112 Trichloroethane	ug/m3	<90			
c-1,3Dichloropropene	ug/m3	<90			
2chloroethvinylether	ug/m3	<90			
Bromoform	ug/m3	<90			
1122Tetrachloroethan	ug/m3	<90			
Tetrachloroethene	ug/m3	18000			

cc:

REMARKS: Corrected Report.

DIRECTOR

rn= 16806 NYSDOH ID# 10320

ECOTEST LABORATORIES, INC. *ENVIRONMENTAL TESTING*

377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (516) 422-5777 • FAX (516) 422-5770

LAB NO.C973033 10/20/97

C.A. Rich Consultants, Incorporated
404 Glen Cove Avenue
Sea Cliff, NY 11579
ATTN: Eric Weinstock

SOURCE OF SAMPLE: Munsey Cleaners
COLLECTED BY: Client DATE COL'D:07/18/97 RECEIVED:07/18/97

SAMPLE: Air sample, INF-7/18, 10:19 am

ANALYTICAL PARAMETERS		
Chloromethane	ug/m3	<45
Bromomethane	ug/m3	<45
Dichlordifluomethane	ug/m3	<90
Vinyl Chloride	ug/m3	<45
Chloroethane	ug/m3	<45
Methylene Chloride	ug/m3	<45
Trichlorofluomethane	ug/m3	<90
1,1 Dichloroethene	ug/m3	<45
1,1 Dichloroethane	ug/m3	<45
1,2 Dichloroethene	ug/m3	140
Chloroform	ug/m3	<45
1,2 Dichloroethane	ug/m3	<45
111 Trichloroethane	ug/m3	<45
Carbon Tetrachloride	ug/m3	<45
Bromodichloromethane	ug/m3	<45
1,2 Dichloropropane	ug/m3	<45
t-1,3Dichloropropene	ug/m3	<90
Trichloroethylene	ug/m3	<45
Chlorodibromomethane	ug/m3	<45
112 Trichloroethane	ug/m3	<90
c-1,3Dichloropropene	ug/m3	<90
2chloroethvinylether	ug/m3	<90
Bromoform	ug/m3	<90
1122Tetrachloroethan	ug/m3	<90
Tetrachloroethene	ug/m3	14000

ANALYTICAL PARAMETERS		
Chlorobenzene	ug/m3	<45
1,3 Dichlorobenzene	ug/m3	<90
1,2 Dichlorobenzene	ug/m3	<90
1,4 Dichlorobenzene	ug/m3	<90

cc:

REMARKS: Corrected Report.

DIRECTOR

rn= 19020 NYSDOH ID# 10320

ECOTEST LABORATORIES, INC. *ENVIRONMENTAL TESTING*

377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (516) 422-5777 • FAX (516) 422-5770

LAB NO.C973495 10/20/97

C.A. Rich Consultants, Incorporated
404 Glen Cove Avenue
Sea Cliff, NY 11579
ATTN: George Tyers

SOURCE OF SAMPLE: Munsey Cleaners
COLLECTED BY: Client DATE COL'D:08/20/97 RECEIVED:08/20/97

SAMPLE: Air sample, INF-8/20, 0823

ANALYTICAL PARAMETERS			ANALYTICAL PARAMETERS		
Chloromethane	ug/m3	<50	Chlorobenzene	ug/m3	<50
Bromomethane	ug/m3	<50	1,3 Dichlorobenzene	ug/m3	<100
Dichlordifluomethane	ug/m3	<100	1,2 Dichlorobenzene	ug/m3	<100
Vinyl Chloride	ug/m3	<50	1,4 Dichlorobenzene	ug/m3	<100
Chloroethane	ug/m3	<50			
Methylene Chloride	ug/m3	250			
Trichlorofluomethane	ug/m3	<100			
1,1 Dichloroethene	ug/m3	<50			
1,1 Dichloroethane	ug/m3	<50			
1,2 Dichloroethene	ug/m3	100			
Chloroform	ug/m3	<50			
1,2 Dichloroethane	ug/m3	<50			
111 Trichloroethane	ug/m3	<50			
Carbon Tetrachloride	ug/m3	<50			
Bromodichloromethane	ug/m3	<50			
1,2 Dichloropropane	ug/m3	<50			
t-1,3Dichloropropene	ug/m3	<100			
Trichloroethylene	ug/m3	<50			
Chlorodibromomethane	ug/m3	<50			
112 Trichloroethane	ug/m3	<100			
c-1,3Dichloropropene	ug/m3	<100			
2chloroethvinylether	ug/m3	<100			
Bromoform	ug/m3	<100			
1122Tetrachloroethan	ug/m3	<100			
Tetrachloroethene	ug/m3	3000			

cc:

REMARKS: Corrected Report.

DIRECTOR

rn= 22120 NYSDOH ID# 10320

ECOTEST LABORATORIES, INC. *ENVIRONMENTAL TESTING*

377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (516) 422-5777 • FAX (516) 422-5770

LAB NO.C973825 10/20/97

C.A. Rich Consultants, Incorporated
404 Glen Cove Avenue
Sea Cliff, NY 11579
ATTN: George Tyers

SOURCE OF SAMPLE: Munsey Cleaners
COLLECTED BY: Client DATE COL'D:09/11/97 RECEIVED:09/11/97

SAMPLE: Air sample, INF 9/11, 10:20 am

ANALYTICAL PARAMETERS		
Chloromethane	ug/m3	<45
Bromomethane	ug/m3	<45
Dichlordifluomethane	ug/m3	<90
Vinyl Chloride	ug/m3	<45
Chloroethane	ug/m3	<45
Methylene Chloride	ug/m3	150
Trichlorofluomethane	ug/m3	<90
1,1 Dichloroethene	ug/m3	<45
1,1 Dichloroethane	ug/m3	<45
1,2 Dichloroethene	ug/m3	350
Chloroform	ug/m3	<45
1,2 Dichloroethane	ug/m3	<45
111 Trichloroethane	ug/m3	<45
Carbon Tetrachloride	ug/m3	<45
Bromodichloromethane	ug/m3	<45
1,2 Dichloropropane	ug/m3	<45
t-1,3Dichloropropene	ug/m3	<90
Trichloroethylene	ug/m3	<45
Chlorodibromomethane	ug/m3	<45
112 Trichloroethane	ug/m3	<90
c-1,3Dichloropropene	ug/m3	<90
2chloroethvinylether	ug/m3	<90
Bromoform	ug/m3	<90
1122Tetrachloroethan	ug/m3	<90
Tetrachloroethene	ug/m3	5900

ANALYTICAL PARAMETERS		
Chlorobenzene	ug/m3	<45
1,3 Dichlorobenzene	ug/m3	<90
1,2 Dichlorobenzene	ug/m3	<90
1,4 Dichlorobenzene	ug/m3	<90

cc:

REMARKS: Corrected Report.

DIRECTOR

rn= 24086 NYSDOH ID# 10320

ECOTEST LABORATORIES, INC. *ENVIRONMENTAL TESTING*

377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (516) 422-5777 • FAX (516) 422-5770

LAB NO.C974358 10/30/97

C.A. Rich Consultants, Incorporated
404 Glen Cove Avenue
Sea Cliff, NY 11579
ATTN: George Tyers

SOURCE OF SAMPLE: Munsey Cleaners
COLLECTED BY: Client DATE COL'D:10/15/97 RECEIVED:10/17/97

SAMPLE: Air sample, INF-1017, 11:37 am

ANALYTICAL PARAMETERS		
Chloromethane	ug/m3	<45
Bromomethane	ug/m3	<45
Dichlordifluomethane	ug/m3	<90
Vinyl Chloride	ug/m3	<45
Chloroethane	ug/m3	<45
Methylene Chloride	ug/m3	<45
Trichlorofluomethane	ug/m3	<90
1,1 Dichloroethene	ug/m3	<45
1,1 Dichloroethane	ug/m3	<45
1,2 Dichloroethene	ug/m3	130
Chloroform	ug/m3	<45
1,2 Dichloroethane	ug/m3	<45
111 Trichloroethane	ug/m3	<45
Carbon Tetrachloride	ug/m3	<45
Bromodichloromethane	ug/m3	<45
1,2 Dichloropropane	ug/m3	<45
t-1,3Dichloropropene	ug/m3	<90
Trichloroethylene	ug/m3	<45
Chlorodibromomethane	ug/m3	<45
112 Trichloroethane	ug/m3	<90
c-1,3Dichloropropene	ug/m3	<90
2chloroethvinylether	ug/m3	<90
Bromoform	ug/m3	<90
1122Tetrachloroethan	ug/m3	<90
Tetrachloroethene	ug/m3	680

ANALYTICAL PARAMETERS		
Chlorobenzene	ug/m3	<45
1,3 Dichlorobenzene	ug/m3	<90
1,2 Dichlorobenzene	ug/m3	<90
1,4 Dichlorobenzene	ug/m3	<90

cc:

REMARKS:

DIRECTOR

rn= 26976 NYSDOH ID# 10320

APPENDIX D

QUALITY ASSURANCE AND DATA USABILITY REPORT
SOIL SAMPLES

Former Munsey Cleaners Site
Port Washington, New York

1.0 INTRODUCTION

This Quality Assurance and Data Usability Report reviews field and laboratory data obtained during the collection of endpoint soil samples on March 4, March 5 and March 11, 1997 at the Former Munsey Cleaners Site located in Port Washington, New York. This report presents a summary of the results of performance and system audits, an assessment of data accuracy, precision and completeness, and the analytical data validation report. This report incorporates the Data Quality Objectives (DQO's) outlined in the Quality Assurance Project Plan (QAPjP) prepared for the Former Munsey Cleaners Site approved by NYSDEC and dated January 1997.

A total of nine (9) endpoint soil samples were collected from excavation areas at the site and submitted to the laboratory for chemical analyses. These nine (9) samples - designated EP-1 through EP-6, FD-1, FD-2, and FD2-8 - were analyzed for Volatile Organic Compounds (VOCs-EPA Method 8010) and Pesticide Compounds (EPA Method 8080) with duplicate analysis conducted on sample EP-3 (Sample T-30). Samples FD-1, FD-2, FD2-8, and EP-5 were also analyzed for semi-volatile organic compounds (EPA Method 8270, B-N) with duplicate analysis conducted on sample FD-1 (FD-100). In addition, analysis of field and trip blanks, and matrix spike/matrix spike duplicate samples were conducted. Chemical analyses of all samples were conducted by Nytest Environmental, Inc. (Nytest) of Port Washington, New York.

2.0 QUALITY ASSURANCE REVIEW

The following sections summarize the results of performance and system audits, an assessment of data accuracy, precision and completeness, and the analytical data validation report. After consideration of the following items, this quality assurance review has determined that all of the soil data is usable, except for pesticides in several samples as noted.

2.1 Performance and System Audits

Performance and system audits were completed in the field and at the laboratory during the conductance of the Remediation Work Plan. Field audits were conducted by the Project Manager and/or the Quality Assurance Officer or their designee to ensure that DQO's were adhered to during all data collection activities.

The field audits were conducted to verify that procedures conducted in the field were completed in accordance with established protocols presented in the Remediation Work Plan and to identify any deficiencies that would potentially impact data quality. The completed field audits did not identify deficiencies that could potentially impact data quality. Copies of applicable Field Quality Control check sheets are included in Attachment A. Laboratory audits were performed internally by Nytest in accordance with NYSDEC ASP (December 1991) deliverables. Any deficiencies were identified either in the laboratory's case narrative or through the data validation procedure and are discussed further in Section 2.3

2.2 Data Assessment

Field and analytical data generated during the Remediation Work Plan field activities were evaluated with respect to precision, accuracy and completeness.

2.2.1 Precision

- **Field** - Field precision was controlled through the use of properly calibrated meters and duplicated field measurements. Review of daily log book entries and field quality control checks did not indicate evidence of field performance that would compromise the usability of field measurement results.

- **Laboratory** - Measurement of precision was assessed through the collection of field duplicated samples. Samples designated in the field as EP-3 and FD-1 were duplicated with sample designation T-30 and FD-100, respectively. Data precision can be calculated using the following relative percent difference (RPD) equation:

$$RPD = \frac{(A-B)}{(A+B)/2} \times 100$$

where; A = analytical result of one of the duplicated measurements.
B = analytical result of the second measurement.

Results of this analysis are presented below as % difference:

Volatile Oraganic Compounds:

Compound	Sample EP-3 (Conc. ug/kg)	Sample T-30 (Conc. ug/kg)	%Difference
Tetrachloroethene	180,000	260,000	36
Trichloroethene	58	70	19
1,1,2,2,-Tetrachloroethane	1.8	18	163
Chlorobenzene	86	130	41
1,2-Dichlorobenzene	1.5J	2.7J	57
1,4-Dichlorobenzene	6.1	8.9	37

Base-Neutral Organic Compounds:

Compound	Sample FD-1 (Conc. ug/kg)	Sample FD-100 (Conc. ug/kg)	%Difference
Fluoranthene	68J	ND	-
Pyrene	44J	ND	-
Chrysene	36J	ND	-
bis(2-ethylhexyl)phthalate	76J	310J	121

Pesticides:

Compound	Sample EP-3 (Conc. ug/kg)	Sample T-30 (Conc. ug/kg)	%Difference
4,4'-DDE	1700J	1600J	6
Dieldrin	948J	1100J	15
4,4'-DDD	160,000	170,000	6
4,4'-DDT	21,000	18,000	15

2.2.2 Accuracy

- **Field** - Field accuracy was controlled through the use of properly calibrated meters and adherence to established protocols. Review of daily log book entries and field quality control checks did not indicate evidence of field performance that would compromise the usability of field measurement results.

- **Laboratory** - Laboratory accuracy was assessed via the use of matrix spike (MS) and matrix spike duplicate (MSD) samples associated with sample EP-5. Accuracy is calculated as a percent recovery as follows:

$$\text{Accuracy} = \frac{A-X}{B} \times 100$$

where; A = Value measured in spiked sample.
X = Value measured in original sample.
B = True value of the amount added to sample.

Based on the results of data validation, the following was observed:

Volatile Organic Compounds: The results for the matrix spike and matrix spike duplicate analyses met QC requirments.

Base-Neutral Organic Compounds: The recoveries for 2,4-Dinitrotoluene and 1,4-Dichlorobenzene in the matrix spike analyses did not meet the QC requirements. No action was taken based on these analyses.

Pesticide Compounds: The recoveries for Dieldrin, Endrin, and 4,4'-DDT in the matrix spike and matrix spike duplicate analyses were high. No action is required for these analyses.

2.2.3 Completeness

- **Field/Laboratory**- Field/laboratory completeness was measured by comparing the number of samples collected and analyzed to the proposed number indicated on Table 1 of the QAPjP and is calculated by the following equation:

$$\text{Completeness} = \frac{\text{Number of samples collected/analyzed}}{\text{Proposed Number of samples}} \times 100$$

The Field Sampling Plan estimated the collection of eight to fourteen endpoint samples to be collected and analyzed for volatile organics (EPA Method 8010) and pesticides (EPA Method 8080) as well as one sample to be collected and analyzed for semi-volatile base-neutral organics (EPA Method 8270).

Nine (9) of the estimated eight to fourteen (8-14) samples proposed for VOC and pesticide analyses were collected and analyzed resulting in a 64% - 112% completion of the endpoint soil sampling program for VOC and pesticides.

Five (5) of the of the estimated one (1) sample proposed for SVOC analyses were collected and analyzed resulting in a 500% completion of the endpoint soil sampling program for SVOC.

2.3 Data Validation

The data validation review was conducted by Premier Environmental Services in accordance with the USEPA Contract Laboratory Program "National Functional Guidelines for Organic Data Review", February 1994 and NYSDEC-ASP validation criteria. Tables 1 through 3 present a summary of the samples subjected to data validation. A copy of the data validation report is included in Attachment B and summarized below. Based on the review and interpretation of quality control results, all data are considered valid and acceptable except those analytes which have been qualified as detailed in the data validation report. These data qualifications allow the data end-user to best understand the usability of the analysis results.

2.3.1 Volatile Organic Data

Positive results for Methylene Chloride were found in the method blanks, field blank, and trip blanks. Initial calibration criteria were exceeded for two compounds. Recoveries for one surrogate standard in one sample was high. Associated results were appropriately qualified. Recoveries for internal standards met QC criteria. Blank spike and matrix spike recoveries met QC criteria.

2.3.2 Base-Neutral Data

Percent (%) RSD and %D criteria were exceeded for several compounds. Recoveries for two surrogate standards were exceeded in the field blank. Associated results were appropriately qualified. Recoveries for two compounds did not meet QC requirements for the matrix spike and blank spike analysis. No action was required. Recoveries for all internal standards met QC criteria. No contamination was found in the method or field blanks. Tuning and response factor criteria were met.

2.3.3 Pesticide Data

Results for pesticides in several samples were rejected due to high %Differences between the two columns used. Several pesticides were detected in the field blank. %RSD criteria was exceeded for several compounds. Samples were appropritaely qualified. Recoveries for several pesticides in the blank spike and matrix spike exceeded QC limits. Surrogate standard recoveries exceeded suggested limits. No action was required. No contamination was found in the method blanks. %Difference criteria was met.

3.0 DATA USABILITY

Overall, the field and laboratory data generated during the Interim Remediation Measures (IRM) Program conducted at the Former Munsey Cleaners Site is considered acceptable for use along with the data validation qualifications, except for the pesticide results for 4,4'-DDD in samples EP-1, FD-2, and FD-2-8 and the pesticide results for 4,4'-DDE in sample EP-4.

Review of log book entries, equipment calibration/maintenance records, and results of the field quality control checks did not indicate reasons which suggest that the data obtained is unreliable.

Based upon this review and the Data Validation Report findings, CA RICH believes that the use of the analytical data is acceptable after consideration and understanding of the data qualifiers

4.0 CERTIFICATION

I certify that to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of this Report, that the information submitted is true, accurate and complete.

Respectfully Submitted,

CA RICH CONSULTANTS, INC.

Steven Sobstyl (ma)
Steven Sobstyl
Quality Assurance Officer

Eric Weinstock
Eric A. Weinstock, CPG
Project Manager

Gateway:c:/winword/gt/munsey/datause.doc

ATTACHMENT A
Field Quality Control Check Forms

CA RICH CONSULTANTS, INC.
Field Quality Control Checks

Date: 3/4/97 **By:** Chris Guides

Check List	**Were the following performed (Yes or No)**
• **Field Measurements** - To verify the quality of data collected using field instrumentation, at least one duplicate measurement will be obtained per day and reported for all field analytical measurements.	yes
• **Equipment Calibration** - Meters should be calibrated within 24-hours prior to use.	yes
• **Equipment Decon** - Sampling equipment should be deconed as stated in the Sampling & Analysis Plan	yes
• **Sample Containers** - Certified-clean sample containers in accordance with Exhibit I of the NYSDEC ASP (Dec. 1991) will be supplied by the NEI.	yes
• **Field Duplicates** - Field duplicates will be collected to check reproducibility of the sampling methods. Field duplicates will be prepared as discussed in the FSP. In general, field duplicates will be analyzed at a five percent frequency (every 20 samples). Table 1 provides an estimated number of field duplicates for each applicable parameter and matrix.	yes
• **Field Rinse Blanks** - Field rinse blanks are used to monitor the cleanliness of the sampling equipment and the effectiveness of the cleaning procedures. Laboratory-demonstrated, analyte-free water shall be passed through or over the sampling equipment being used on that particular day. The water shall be collected in the laboratory-cleaned containers at a frequency of one per sampling day and analyzed for the same parameters as the field samples. Table 1 provides an estimated number of rinse blanks collected during the field work.	yes
• **Trip Blanks** - Trip blanks will be used to assess whether site samples have been exposed to non-site-related volatile constituents during storage and transport. Trip blanks will be analyzed at a frequency of once per day, and will be analyzed for volatile organic constituents. A trip blank will consist of a container filled with analyte-free water (supplied by the laboratory) which remains unopened with field samples throughout the sampling event. Trip blanks will only be analyzed for volatile organic constituents. Table 1 provides an estimated number of trip blanks collected for each matrix and parameter during the field activities.	yes

CA RICH CONSULTANTS, INC.
Field Quality Control Checks

Date: 3/5/97 **By:** Chris Geicles

Check List	**Were the following performed (Yes or No)**
• **Field Measurements** - To verify the quality of data collected using field instrumentation, at least one duplicate measurement will be obtained per day and reported for all field analytical measurements.	yes
• **Equipment Calibration** - Meters should be calibrated within 24-hours prior to use.	yes
• **Equipment Decon** - Sampling equipment should be deconed as stated in the Sampling & Analysis Plan	yes
• **Sample Containers** - Certified-clean sample containers in accordance with Exhibit I of the NYSDEC ASP (Dec. 1991) will be supplied by the NEI.	yes
• **Field Duplicates** - Field duplicates will be collected to check reproducibility of the sampling methods. Field duplicates will be prepared as discussed in the FSP. In general, field duplicates will be analyzed at a five percent frequency (every 20 samples). Table 1 provides an estimated number of field duplicates for each applicable parameter and matrix.	yes
• **Field Rinse Blanks** - Field rinse blanks are used to monitor the cleanliness of the sampling equipment and the effectiveness of the cleaning procedures. Laboratory-demonstrated, analyte-free water shall be passed through or over the sampling equipment being used on that particular day. The water shall be collected in the laboratory-cleaned containers at a frequency of one per sampling day and analyzed for the same parameters as the field samples. Table 1 provides an estimated number of rinse blanks collected during the field work.	yes
• **Trip Blanks** - Trip blanks will be used to assess whether site samples have been exposed to non-site-related volatile constituents during storage and transport. Trip blanks will be analyzed at a frequency of once per day, and will be analyzed for volatile organic constituents. A trip blank will consist of a container filled with analyte-free water (supplied by the laboratory) which remains unopened with field samples throughout the sampling event. Trip blanks will only be analyzed for volatile organic constituents. Table 1 provides an estimated number of trip blanks collected for each matrix and parameter during the field activities.	yes

CA RICH CONSULTANTS, INC.
Field Quality Control Checks

Date: 3/11/97 By: [signature]

Check List	Were the following performed (Yes or No)
• **Field Measurements** - To verify the quality of data collected using field instrumentation, at least one duplicate measurement will be obtained per day and reported for all field analytical measurements.	YES
• **Equipment Calibration** - Meters should be calibrated within 24-hours prior to use.	YES
• **Equipment Decon** - Sampling equipment should be deconed as stated in the Sampling & Analysis Plan	YES
• **Sample Containers** - Certified-clean sample containers in accordance with Exhibit I of the NYSDEC ASP (Dec. 1991) will be supplied by the NEI.	YES
• **Field Duplicates** - Field duplicates will be collected to check reproducibility of the sampling methods. Field duplicates will be prepared as discussed in the FSP. In general, field duplicates will be analyzed at a five percent frequency (every 20 samples). Table 1 provides an estimated number of field duplicates for each applicable parameter and matrix.	N/A
• **Field Rinse Blanks** - Field rinse blanks are used to monitor the cleanliness of the sampling equipment and the effectiveness of the cleaning procedures. Laboratory-demonstrated, analyte-free water shall be passed through or over the sampling equipment being used on that particular day. The water shall be collected in the laboratory-cleaned containers at a frequency of one per sampling day and analyzed for the same parameters as the field samples. Table 1 provides an estimated number of rinse blanks collected during the field work.	N/A
• **Trip Blanks** - Trip blanks will be used to assess whether site samples have been exposed to non-site-related volatile constituents during storage and transport. Trip blanks will be analyzed at a frequency of once per day, and will be analyzed for volatile organic constituents. A trip blank will consist of a container filled with analyte-free water (supplied by the laboratory) which remains unopened with field samples throughout the sampling event. Trip blanks will only be analyzed for volatile organic constituents. Table 1 provides an estimated number of trip blanks collected for each matrix and parameter during the field activities.	YES 8010 VOC

ATTACHMENT B
Data Validation Report

DATA VALIDATION FOR:

SITE:	MUNSEY CLEANERS
CASE NO's.	SDG # MUN1, MUN2
CONTRACT LAB:	NYTEST ENVIRONMENTAL, INC.
REVIEWER:	JANET JOSHER
REVIEW COMPLETED:	JUNE 2, 1997
MATRIX:	AQUEOUS AND SOIL

The data validation was performed according to the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, February, 1994 and NYSDEC-ASP validation criteria. The volatile and pesticide fractions were reviewed for adherence to SW-846 Methods 8010 and 8081. For results that did not meet the SW-846 criteria, qualifiers were applied as per USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, February, 1994 and NYSDEC validation criteria. All data are considered valid and acceptable except those analytes which have been qualified as detailed in this report. A "J" qualification indicates an estimated value. A "UJ" qualification indicates an undetected analyte with the detection limit estimated. A "JN" qualification indicates presumptive data. An "R" qualification indicates that the result is rejected and does not meet minimum QA/QC criteria. Any results that are rejected should not be used. Persons using this data should be aware that no result is guaranteed to be accurate even if it has passed all QC tests. The main purpose of this review is to appropriately qualify outliers and to determine whether the results were generated within the requirements of the methods employed.

This data assessment is for the fifteen samples as listed below.

EP-1	FIELD BLANK
EP-2	TRPBLK (3-5-97)
EP-3	FD2-8
T-30	TRIP(3-11-97)
EP-4	
EP-5	
EP-6	
FD-1	
FD-100	
FD-2	
TRPBLK(3-4-97)	

DATA ASSESSMENT

1. HOLDING TIME:

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Volatile organics analysis are required to be performed within 14 days of collection. Semivolatile analysis and Pesticide/PCB analysis require extraction within 7 days of collection and subsequent analysis within forty days of extraction.

All samples were extracted and analyzed within the method holding time. No qualifications were required.

DATA ASSESSMENT

2. BLANK CONTAMINATION:

Quality assurance (QA) blanks, such as the method, trip, field, or rinse blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross-contamination of samples during field operations. Positive results of less than ten times the method detection limit for common laboratory solvents such as Methylene Chloride, Acetone and 2-Butanone and less than five times for other volatile compounds that are found in the samples for compounds that are also found in the method, field, and trip blanks are negated with the qualification "U". The following analytes in the samples shown were qualified "U" for these reasons:

A) Method blank contamination

VOA: Positive results for Methylene Chloride were found in the method blanks, therefore, Methylene Chloride was negated in samples FD2-8, EP-1, EP-2, EP-3, T-30, EP-4, EP-5, EP-6, FD-1, and FD-2.

BN: No contamination was found in the method blanks.

PESTICIDES: No contamination was found in the method blanks.

B) Field or rinse blank contamination

VOA: Methylene Chloride was found in the field blank, however, since all samples were previously qualified for Methylene Chloride contamination in the method blanks, no further action was required.

BN: N/A

PESTICIDES: The field blank contained 4,4'-DDD and 4,4'-DDT. No action was taken since all positive sample results for 4,4'-DDD and 4,4'-DDT exceeded the concentrations found in the field blank by more than ten times the contract required detection limit.

C) Trip blank contamination

VOA: Methylene Chloride contamination was found in the trip blank, however, since the samples were previously qualified for Methylene Chloride contamination in the method blanks, no further action was required.

DATA ASSESSMENT

3. MASS SPECTROMETER TUNING:

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds, and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for semi-volatiles is Decafluorotriphenylphosphine (DFTPP).

If the mass calibration is in error, or missing, all associated data will be classified as unusable, "R".

VOA: The results provided for this analysis were for confirmation purposes only, hence, tuning data were not provided.

BN: The tuning criteria were met.

4. RESPONSE FACTOR

The response factor measures the instruments's response to specific chemical compounds. A value outside that criteria indicates a serious detection and quantitation problem (poor sensitivity).

VOA: The results provided for this analysis were for confirmation purposes only, hence, response data were not provided.

BN: Response factor criteria were met.

DATA ASSESSMENT

5.CALIBRATION :

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument is giving satisfactory daily performance.

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent difference (%D) compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance.

The following analytes in the samples shown were qualified for %RSD and %D.

INITIAL CALIBRATION (IC):

VOA: %RSD for Bromomethane and Methylene Chloride exceeded the method criteria, therefore, associated results in samples EP-1, EP-2, EP-3, T-30, EP-4, EP-5, EP-6, and FD-1 were qualified "J".

BN: %RSD for 4-Chloroaniline exceeded the method criteria, therefore, all associated results in sample FD-100, FD-2, EP-5, FD-1, FD2-8, and the field blank were qualified "J".

%RSD for 3-Nitroaniline exceeded the method criteria, therefore, all associated results in sample FD2-8 were qualified "J".

%RSD for Hexachlorocyclopentadiene exceeded the method criteria, therefore, all associated results in sample FD-100, FD-2, EP-5, FD-1, and the field blank were qualified "J".

PESTICIDES: %RSD for alpha-BHC, delta-BHC, and 4,4'-DDD exceeded the method criteria, therefore, all associated results in sample FD2-8 and FD2-8DL were qualified "J". %RSD for 4,4'-DDT exceeded the method criteria, therefore, associated results in sample FD2-8DL were qualified "J".

%RSD exceeded method criteria for alpha-BHC and gamma-BHC, therefore, all associated results in samples EP-1, EP-2, EP-3, T-30, EP-4, FD-2, EP-6, and FD-1 were qualified "J".

%RSD exceeded method criteria for 4,4'-DDE, therefore, all associated results in samples EP-1, EP-2, and EP-3 were qualified "J".

%RSD exceeded method criteria for 4,4'-DDT, therefore, all associated results in samples EP-4DL, EP-6DL, and FD-1 were qualified "J".

Calibration continued.....

%RSD exceeded method criteria for 4,4'-DDD, therefore, all associated results in samples EP-2DL, EP-5, FD-2, EP-6DL, and FD-1 were qualified "J".

CONTINUING CALIBRATION (CC):

VOA: %Difference criteria were met.

BN: %Difference exceeded method criteria for 4-Nitroaniline, Hexachlorocyclopentadiene, 3-Nitroaniline, and 3,3'-Dichlorobenzidine, therefore, all associated results in sample FD2-8 were qualified "J".

%Difference for 4-Chloroaniline, Hexachlorocyclopentadiene, and 3-Nitroaniline also exceeded method criteria for continuing calibration, however, since associated results were previously qualified for %RSD criteria exceedence, no further action was taken.

PESTICIDES: %Difference criteria were met.

DATA ASSESSMENT

6.SURROGATES/SYSTEM MONITORING COMPOUNDS (SMC):

All samples are spiked with surrogate/SMC compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate/SMC concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below. The following analytes for the samples shown were qualified because of surrogate/SMC recovery:

VOA: Recoveries for one system monitoring compound in samples T-30 and EP-4 were high, therefore, all associated positive results were qualified "J".

BN: Recoveries for two system monitoring compounds were high in the field blank, therefore, all results were qualified "J".

PESTICIDES: Surrogate recoveries for samples FD2-8, EP-1, EP-2, EP-2DL, EP-4, EP-4DL, EP-5, FD-2, EP-6, and FD-1 exceeded the suggested limits, however, since these are for advisory purposes only, no action was taken.

DATA ASSESSMENT

7.INTERNAL STANDARDS PERFORMANCE:

Internal standard (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 2 (-50%to +150%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than $\pm$30 seconds from the associated continuing calibration standard.

The following analytes in the samples shown were qualified because of internal standard performance.

VOA: Recoveries for all internal standards met QC requirements.

BN: Recoveries for all internal standards met QC requirements.

DATA ASSESSMENT

8.COMPOUND IDENTIFICATION:

VOLATILE AND SEMI-VOLATILE FRACTIONS

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and ion spectra. For the results to be a positive hit, the sample peak must be within ± 0.06 RRT units of the standard compound, and have an ion spectra which has a ratio of the primary and secondary ion intensities with 20% of that in the standard compound. For tentatively identified compounds (TIC), the ion spectra must match accurately. The following analytes in the samples shown here were qualified for compound identification:

Identification criteria were met for both fractions. The results for the volatile fraction are for qualitative purposes only.

PESTICIDES: The retention times of reported compounds must fall within the retention time windows for the two chromatographic columns. The percent difference (%D) of the positive results obtained on the two columns should be ≤25%. Positive results for the two columns that exceeded 25% were qualified as follows:

>25% but less than 50%..... "J"

>50% but less than 90%..... "JN"

>90%..... "R"

SAMPLE ID	PESTICIDE	% DIFFERENCE	QUALIFICATION
EP-1	4,4'-DDD	11	NONE
EP-1DL	4,4'-DDD	112	R
	4,4'-DDT	1	NONE
EP-2	4,4'-DDE	58	JN
	4,4'-DDT	4	NONE
	Dieldrin	50	J
EP-2DL	4,4'-DDD	1	NONE
EP-3	4,4'-DDE	27	J
	Dieldrin	14	NONE
EP-3DL	4,4'-DDD	3	NONE

	4,4'-DDT	28	J
T-30	4,4'-DDE	33	J
	Dieldrin	4	NONE
T-30DL	4,4'-DDD	4	NONE
	4,4'-DDT	36	J
EP-4	4,4-DDE	148	R
EP-4DL	4,4'-DDD	80	JN
	4,4'-DDT	4	NONE
	Methoxychlor	6	NONE
EP-5	4,4'-DDD	13	NONE
FD-2	4,4'-DDE	20	NONE
	4,4'-DDD	91	R
FD-2DL	4,4'-DDT	10	NONE
	Methoxychlor	5	NONE
EP-6	4,4'-DDE	31	J
EP-6DL	4,4'-DDE	49	J
	4,4'-DDT	8	NONE
FD-1	4,4'-DDD	48	J
	4,4'-DDT	10	NONE
	Methoxychlor	7	NONE
FIELD BLANK	4,4'-DDD	14	NONE
	4,4'-DDT	1	NONE
FD2-8	4,4'-DDE	13	NONE
	4,4'-DDD	84	JN
	Methoxychlor	16	NONE
FD2-8DL	4,4'-DDE	5	NONE
	4,4'-DDD	106	R
	4,4'-DDT	4	NONE
	Methoxychlor	2	NONE

DATA ASSESSMENT

9. MATRIX SPIKE/SPIKE DUPLICATE ANALYSIS:

The MS/SD data are generated to determine the precision and accuracy of the analytical method. This data may be used in conjunction with other QC criteria for additional qualification of data. The following results were noted for MS/MSD analysis:

VOA: The results for the blank spike and blank spike duplicate, as well as the matrix spike and matrix spike duplicate analyses met QC requirements.

BN: The recoveries for 2,4-Dinitrotoluene and 1,4-Dichlorobenzene in the blank spike and matrix spike analyses did not meet QC requirements. No action is taken based on these analyses.

PESTICIDES: Recoveries for Dieldrin, Endrin, and 4,4'-DDT in the blank spike and blank spike duplicate analyses as well as the matrix spike and matrix spike duplicate analyses were high. No action is required for these analyses.

DATA ASSESSMENT

10. DUPLICATE SAMPLE ANALYSIS

Field duplicate analysis is performed to determine the precision of field operations and as a check on the reproducibility of the laboratory analysis. Results of this analysis are presented below as %difference.

VOA:

Compound	Sample EP-3 (Conc.)	Sample T-30 (Conc.)	%Difference
Trichloroethene	58	70	19
Tetrachloroethene	180000	260000	28
1,1,2,2-Tetrachloroethane	1.8	18	163
Chlorobenzene	86	130	41
1,2-Dichlorobenzene	1.5J	2.7J	57
1,4-Dichlorobenzene	6.1	8.9	37

BN:

Compound	Sample FD-1 (Conc.)	Sample FD-100 (Conc.)	%Difference
Fluoranthene	68J	ND	---
Pyrene	44J	ND	---
Chrysene	36J	ND	---
bis(2-Ethylhexyl)phthalate	76J	310J	121

PESTICIDES:

Compound	Sample EP-3 (Conc.)	Sample T-30 (Conc.)	%Difference
4,4'-DDE	1700J	1600J	6
Dieldrin	948J	1100J	15
4,4'-DDD	160000	170000	6
4,4'-DDT	21000	18000	15

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

VOA: Positive results for Methylene Chloride were found in the method blanks, field blank, and trip blanks. Initial calibration criteria were exceeded for two compounds. Recoveries for one surrogate standard in one sample was high. Associated results were appropriately qualified. Recoveries for internal standards met QC criteria. Blank spike and matrix spike recoveries met QC criteria.

BN: %RSD and %D criteria were exceeded for several compounds. Recoveries for two surrogate standards were exceeded in the field blank. Associated results were appropriately qualified. Recoveries for two compounds did not meet QC requirements for the matrix spike and blank spike analysis. No action was required. Recoveries for all internal standards met QC criteria. No contamination was found in the method or field blanks. Tuning and response factor criteria were met.

PESTICIDES: Results for pesticides in several samples were rejected due to high %differences between the two columns used. Several pesticides were detected in the field blank. %RSD criteria was exceeded for several compounds. Samples were appropriately qualified. Recoveries for several pesticides in the blank spike and matrix spike exceeded QC limits. Surrogate standard recoveries exceeded suggested limits. No action was required. No contamination was found in the method blanks. %Difference criteria was met.

Overall the data is usable along with the above made data validation qualifications.