

**Preliminary Site Assessment Report
Blauvelt Laundry and Dry Cleaning Center
Blauvelt, New York
NYSDEC Site ID #344037**

December 1995

Prepared for:

**New York State
Department Of Environmental Conservation**
50 Wolf Road, Albany, New York 12233

Michael Zagata
Commissioner

Division Of Hazardous Waste Remediation

Michael J. O'Toole, Jr., P.E.
Director

Prepared by:

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Executive Summary

Under contract with the New York State Department of Environmental Conservation (NYSDEC), Camp Dresser & McKee (CDM) completed a Preliminary Site Assessment (PSA) of the Blauvelt Laundry and Dry Cleaning Center (NYSDEC Site ID #344037) located in the Hamlet of Blauvelt, Orangetown, Rockland County, New York. The Blauvelt Laundry and Dry Cleaning Center has used the site as a dry cleaning business from 1985 to 1992. Prior to 1985, the site was occupied by a different dry cleaning establishment that reportedly began operations in the late 1960's to early 1970's. In 1992 Blauvelt Laundry and Dry Cleaning Center sold the dry cleaning business to Blue Hill Cleaners. Blue Hill Cleaners continues to use the site as a dry cleaning establishment.

The objective of this PSA was to determine the potential for the Blauvelt Laundry site of contaminating a public supply well field located approximately 1,500 feet east of the site, with tetrachloroethene. Historical water quality data collected from this well field identified persistent contamination by tetrachloroethene. Tetrachloroethene is the principal component of dry cleaning solvent.

This PSA included a soil gas survey, installation of three groundwater monitoring wells, and the collection of soil and groundwater samples for laboratory analysis. Due to limited site access, a true upgradient monitoring well could not be installed as part of this investigation.

The Blauvelt Laundry site is underlain by glacial till composed of red silty clay and gravel between 25 and 29 feet thick. Underlying this glacial till is Triassic aged sandstone. Due to the relatively massive nature of this sandstone, groundwater flow would be principally through fracture zones within this formation. Depth to water ranges between 22 and 23 feet below grade. Groundwater flows in a east to east-northeast direction through the site. Due to the likelihood that groundwater flow is principally through fracture zones, groundwater flow velocities are assumed to be highly variable and localized flow directions may be different from the estimated flow direction.

The soil gas survey identified the presence of tetrachloroethene within soil gas probes located adjacent to the site building with the highest observed concentrations located around Blue Hill Cleaners. Relatively high concentrations of combustible gases were also identified in a number of gas probes. The local gas utility was notified of this finding. After conducting their own investigation, the utility company informed CDM that the source of the elevated gas measurements was not associated with a gas line leak. The exact cause of the elevated gas measurements has not been determined.

Laboratory analysis of soil samples did not identify any contaminants at significant concentrations. Analysis of groundwater samples identified a

number of volatile organic compounds at low to trace concentrations. The highest observed volatile organic compound detected was tetrachloroethene detected in downgradient monitoring well MW-1 at 29 ug/l, exceeding the NYSDEC groundwater standard of 5 ug/l for this compound. Tetrachloroethene was detected in the two groundwater monitoring wells, MW-2 and MW-3 at 9 and 10 ug/l respectively. Analysis of the drill water sample identified a number of trihalomethane compounds as well as trichloroethene and tetrachloroethene at low to trace concentrations.

CDM has concluded based upon soil gas survey results and groundwater quality data that a release of tetrachloroethene has likely occurred onsite. Given the fact that the Spring Valley Water Authority well field is located approximately 1,500 feet east of the Blauvelt Laundry site and that groundwater is estimated to flow in an easterly direction, the historical contamination of this well field by tetrachloroethene could be attributed to the Blauvelt Laundry site. However, if information provided by the current site owner is correct regarding the historical uses of the site, Blauvelt Laundry and Dry Cleaning Center could not have initially contaminated the well field as the first recorded incident of contamination occurred in 1973, some twelve years before the establishment of Blauvelt Laundry and Dry Cleaning at this location. It has been reported from the Town of Orangetown Clerks office and the Building Department that a different dry cleaning establishment occupied the site from approximately 1970 to 1985.

A Hazard Ranking System (HRS) score was calculated as part of this PSA to determine if available information indicates the Blauvelt Laundry Site is a potential threat to human health and the environment. The calculated HRS score of 16.07 indicates the site does not pose a significant threat to human health and/or the environment.

(b)execsum)

*Added by the NYS Department of Environmental Conservation
Errata information.*

The HRS is not a risk assessment tool but provides a measure of relative potential risk, by assessing threats to groundwater, surface water, soil, and air pathways. It is designed to evaluate and prioritize sites for inclusion on the Nation Priority List (NPL). Sites with an HRS score of less than 28.5 would not be considered for listing on the NPL, but may still present a threat to human health and/or the environment.

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(b)(7)(c)

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(b)(1)

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(b)(6)

Section 1 Introduction

1.1 Project Objective

As part of New York State's program to investigate potential hazardous waste sites, the New York State Department of Environmental Conservation (NYSDEC) has entered into a contract with Camp Dresser & McKee (CDM) to undertake a Preliminary Site Assessment (PSA) of the Blauvelt Laundromat and Dry Cleaning Center (NYSDEC Site ID #344037), Hamlet of Blauvelt, Rockland County, New York.

The objective of this PSA was to determine the potential for the Blauvelt Laundromat and Dry Cleaning Center of contaminating a public supply well field located approximately 1,500 feet downgradient of the site with tetrachloroethene. Sampling of this well field completed by NYSDEC in 1981 revealed tetrachloroethene up to a maximum concentration of 162 ug/l. Tetrachloroethene is the principal component of dry cleaning solvent.

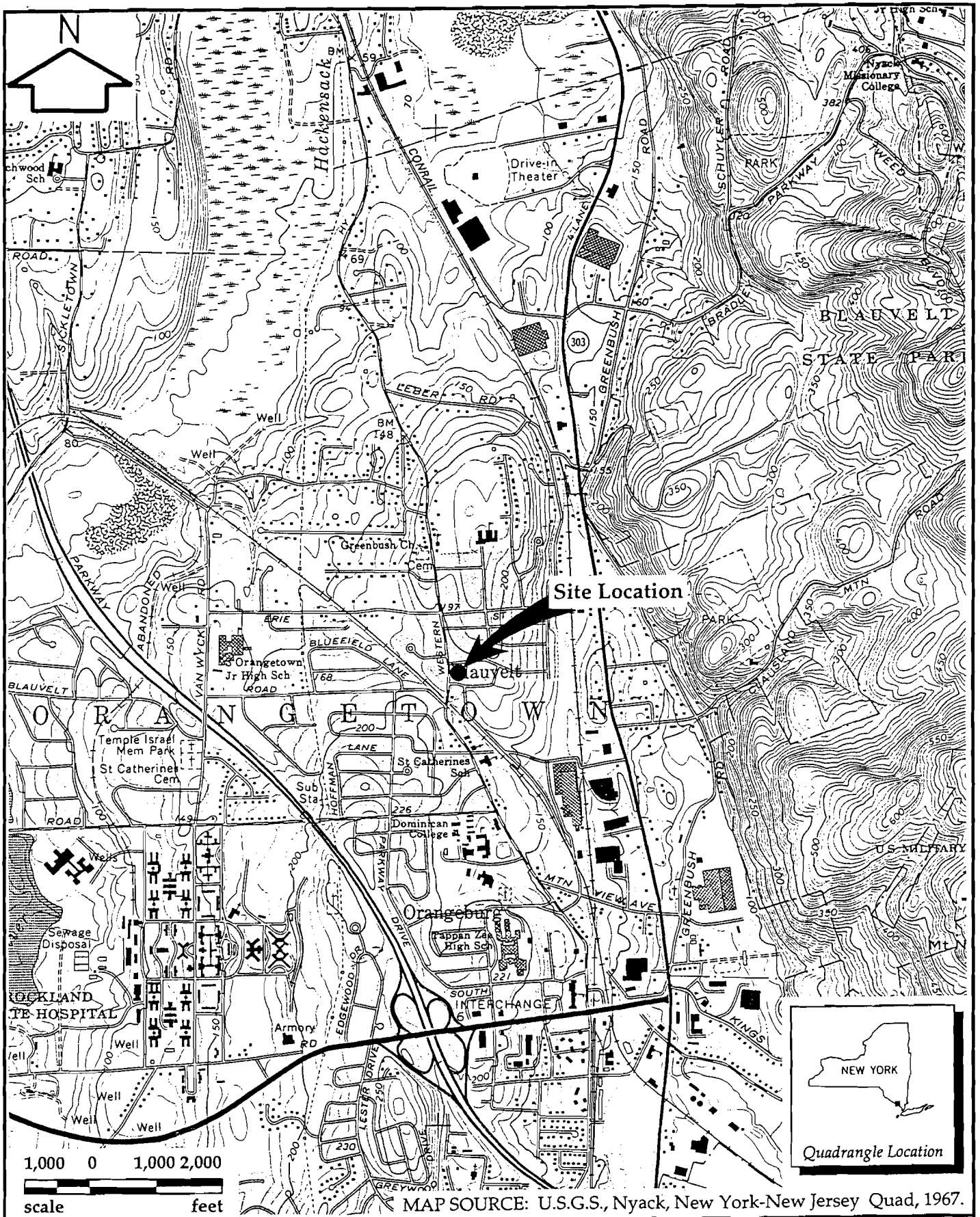
1.2 Site Location and Description

The Blauvelt Laundromat and Dry Cleaning Center site (the site) is located within a commercial/retail area of Blauvelt, Orangetown, Rockland County, New York as shown in Figure 1-1. The site is relatively flat and slopes gently to the south. The one half acre site is improved with a concrete brick building approximately 3,600 square feet in area, see Figure 1-2. The site is serviced with sanitary sewers. Currently, three retail stores are located at the site, including "Blauvelt Station 1", a deli and convenience store, "The Scoope" a stationary store, and "Blue Hill Cleaners", a dry cleaning establishment. Blauvelt Laundromat and Dry Cleaning Center business is no longer located at the site but was formerly located in the same store as Blue Hill Cleaners. The remaining property surrounding the site building consists of a small asphalt driveway on the west and east sides of the building, and a grass area further east of the building.

According to Mr. Hong, operator of Blue Hill Cleaners, approximately 10 to 12 gallons of dry cleaning solvent are used by the business per month. All waste solvents are currently removed from the site by Safety Kleen, Inc.

1.3 Site History

According to Mr. Eugene McCarthy, owner of the property, the site was developed sometime in 1954 with construction of the current building. Prior to development, the property was vacant woodland. Mr. McCarthy indicated that he bought the property in 1985 and converted it into three retail stores. His knowledge of site use prior to 1985 was limited, but he was informed that

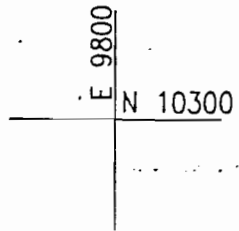
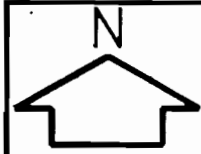


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Blauvelt Laundry, Blauvelt, New York
NYSDEC Site ID #344037
Site Location Map

Figure 1-1



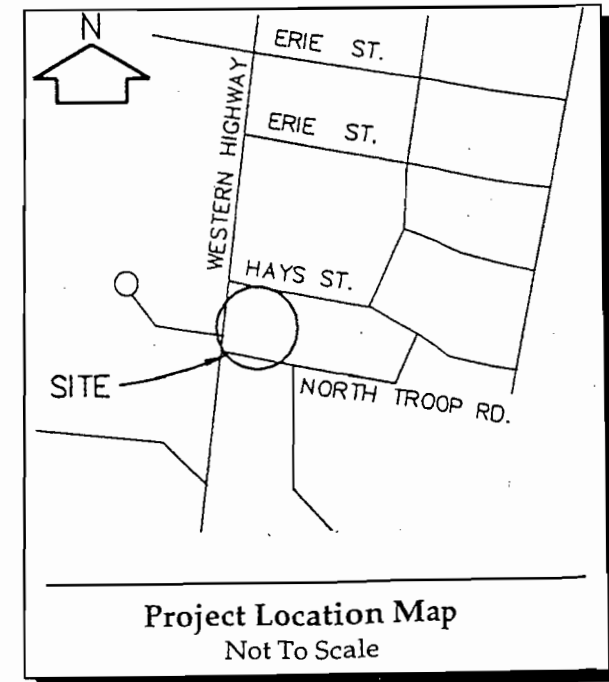
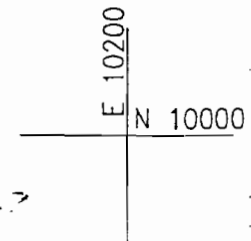
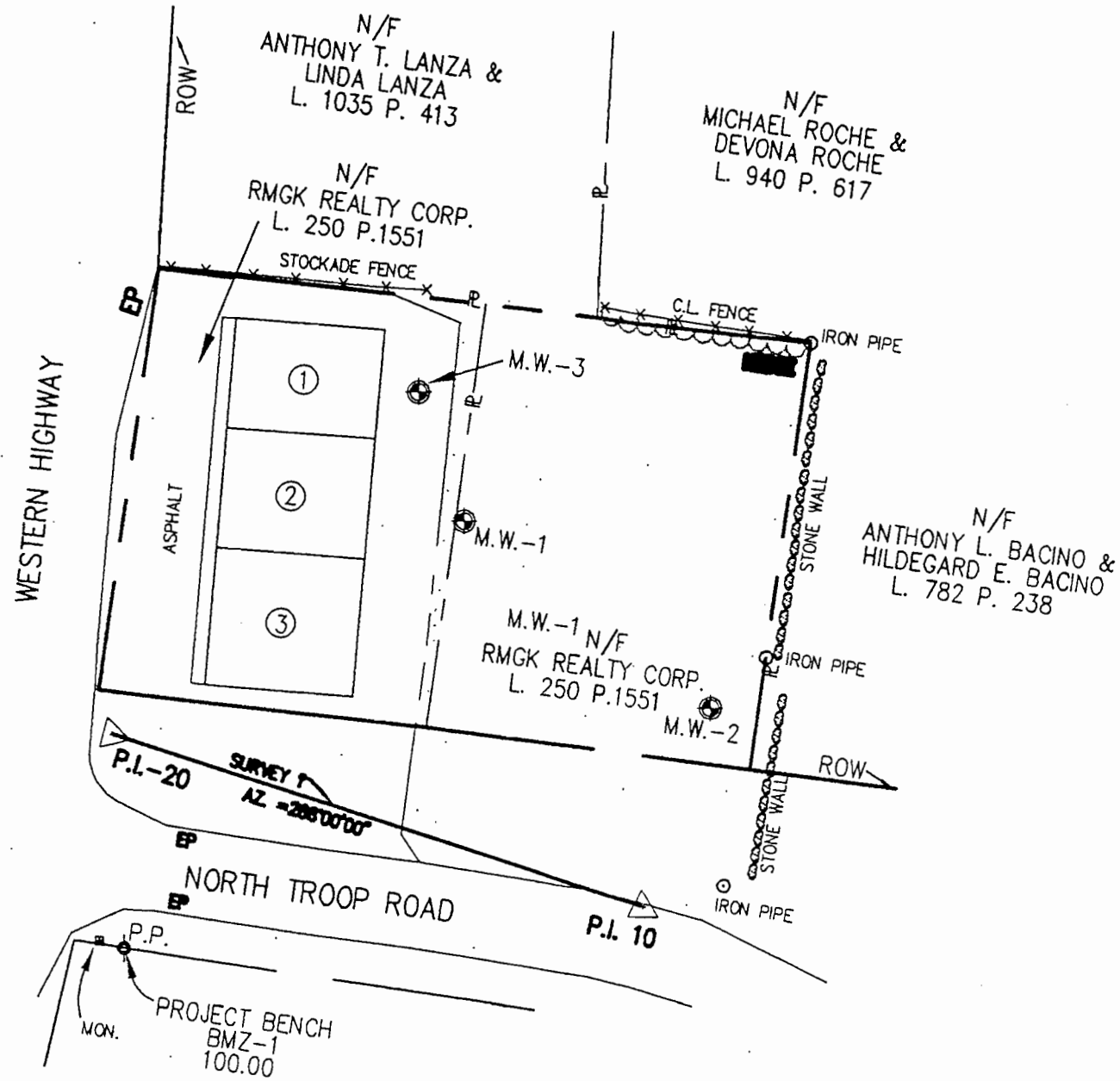
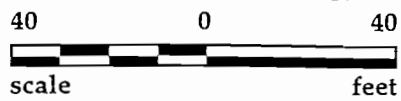
- ① THE SCOOP
- ② BLUE HILL CLEANERS
- ③ BLAUVELT STATION 1

LEGEND

- △ SURVEY CONTROL POINT
- MONUMENT
- IRON PIPE
- ◇ BVSG
- BENCH MARK
- ⊕ MONITORING WELL

SURVEY NOTES

- 1.) ALL LOCATIONS ON THIS MAP ARE BASED ON AN ASSUMED COORDINATE SYSTEM WITH MAGNETIC ORIENTATION.
- 2.) ALL ELEVATIONS SHOWN ON THIS MAP ARE REFERENCED TO THE PROJECT BENCH WITH AN ASSUMED ELEVATION OF 100.00'.
- 3.) ALL LOCATIONS SHOWN WERE INFERRED FROM SURFACE EVIDENCE ONLY. NO SUBSURFACE UTILITIES WERE LOCATED.
- 4.) ALL PROPERTY LINE AND RIGHT OF WAY WERE DETERMINED FROM ROCKLAND COUNTY TAX MAPS.



SOURCE: OM P. Popli, P.E., L.S., P.C.

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 NYSDEC Site ID #344037
Site Survey

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it was used as a butcher shop. Reports obtained through the Building Department and Town Clerks office, of the Town of Orangetown, New York, indicate that a dry cleaning establishment did occupy the site prior to purchase by Mr. McCarthy. The original dry cleaner reportedly began operations in the late 1960's or early 1970's and operated until sometime in the 1980's). Mr. McCarthy indicated that Blauvelt Laundromat and Dry Cleaning used the site for approximately seven years, from 1985 to 1992. In 1992, the dry cleaning business was bought by Blue Hill Cleaners.

1.4 NYSDEC Records Review

CDM completed a review of all available NYSDEC and Rockland County records on January 31, 1995, concerning the Blauvelt Laundry site. A summary of each document available for review is provided as Table 1-1. Documents dated between April 1973 and March of 1987 concerns the Spring Valley Water Authority's (SVWA's) well #15 and includes water quality data documenting the persistence of tetrachloroethene identified in 76 samples collected from the well during the period from August of 1978 to July of 1982. The highest concentration being observed on October 5, 1981 at 162 ug/l. On March 10, 1987, the NYSDEC notified SVWA that well #15 has been reclassified to a class 2 hazardous waste disposal site, indicating the well poses a significant threat to public health or the environment and action is required. On August 27, 1992, NYSDEC notified RMG Realty Corporation that NYSDEC intended to conduct an investigation at the Blauvelt Laundry to determine if hazardous wastes were disposed of onsite.

(b/sec1)

Table 1-1
Summary Of Selected Public Records Files
 Blauvelt Dry Cleaners (*) - NYSDEC Site Code 344037
 Blauvelt, New York (Rockland County)
 Grant Hardware Work Assignment
 New York State Standby Contract D-002925-9

<i>Date</i>	<i>Document</i>	<i>From</i>	<i>Of</i>	<i>To</i>	<i>Of</i>	<i>Contents (1)</i>
04/18/73	NYSDOH inspection of Ground Water Supply Report.	R.J. Mansfield	NYSDOH	File	NA	Provides well installation materials, pump information and well capacity details for Blauvelt Well #15.
08/24/76	Annual Inspection Public Water Supply.	R.J. Mansfield	NYSDOH	File	NA	Summary of annual water supply inspection SVWA Blauvelt Well #15. Includes water quality results and water treatment information.
03/29/79	Individual Well Summary	Unknown	Unknown	Unknown	Unknown	Provides water quality results obtained from Blauvelt Well #15 between 08/78 and 07/82. Documents persistent presence of PCE in well water (76 sampling results). Highest concentration 162 ppb, 10/05/81.
	Analytical Results	Unknown	Unknown	Unknown	Unknown	Miscellaneous analytical results from SVWA Blauvelt Well #15.
02/06/86	Correspondence	J. A. Hroncich	Hackensack Water Company	T. Raymond	York Waste Water	Concern raised over potential threats of SVWA and Hackensack water supplies from Glenshaw Glass Company.
03/10/87	Correspondence	H. G. Williams	NYSDEC	SVWA	Unknown	Notification that Blauvelt Well Field #15 has been reclassified. Site classification changed from 3 (does not pose significant threat to public health or environment - action may be deferred) to 2 (significant threat to public health or environmental - action required).
08/27/92	Correspondence	R. Marino	NYSDEC	RMG Realty Corp.	Unknown	Notifies owner of property that under ECL, NYSDEC will conduct an investigation to determine the validity of the suspicion that hazardous wastes were disposed on-site.

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Summary Of Selected Public Records Files
 Blauvelt Dry Cleaners (*) - NYSDEC Site Code 344037
 Blauvelt, New York (Rockland County)
 Grant Hardware Work Assignment
 New York State Standby Contract D-002925-9

<i>Date</i>	<i>Document</i>	<i>From</i>	<i>Of</i>	<i>To</i>	<i>Of</i>	<i>Contents (1)</i>
09/10/92	Correspondence	R. Bring	Bring & Savad	J. Swartout	NYSDEC	Advises NYSDEC that Bring & Savad represent RMG Realty and that to the owners knowledge, no hazardous waste are presently on-site. Owner denies existence of waste on-site.

NOTE:

(1) - This section provides a brief summary of the contents of each selected document. The reader is advised to thoroughly examine the complete document and/or file for complete evaluation, interpretation and intent of said document and/or file.

KEY:

(*) - File contains no documents pertaining to Blauvelt Dry Cleaners.

FILE SOURCE: Rockland County Department of Health, Pomona, New York
 New York State Department of Environmental Conservation, Albany, New York

Section 2

Investigation Methods

2.0 Introduction

All investigative procedures followed those outlines in the Site Operations Plan/Quality Assurance Project Plans (SOP/QAPP). Any deviations to those procedures were preapproved by the NYSDEC project manager and/or NYSDEC on-site representative.

2.1 Soil Gas Survey

On November 8 and 9, 1994, CDM completed a soil gas study within the eastern grass area of the site. A total of 22 precleaned stainless steel soil gas probes were installed to a depth of four feet below grade at the locations shown in Figure 2-1. After setting the probe to the predetermined depth, a vacuum pump was used to purge the probe for approximately two minutes at a pump rate of approximately one liter per minute.

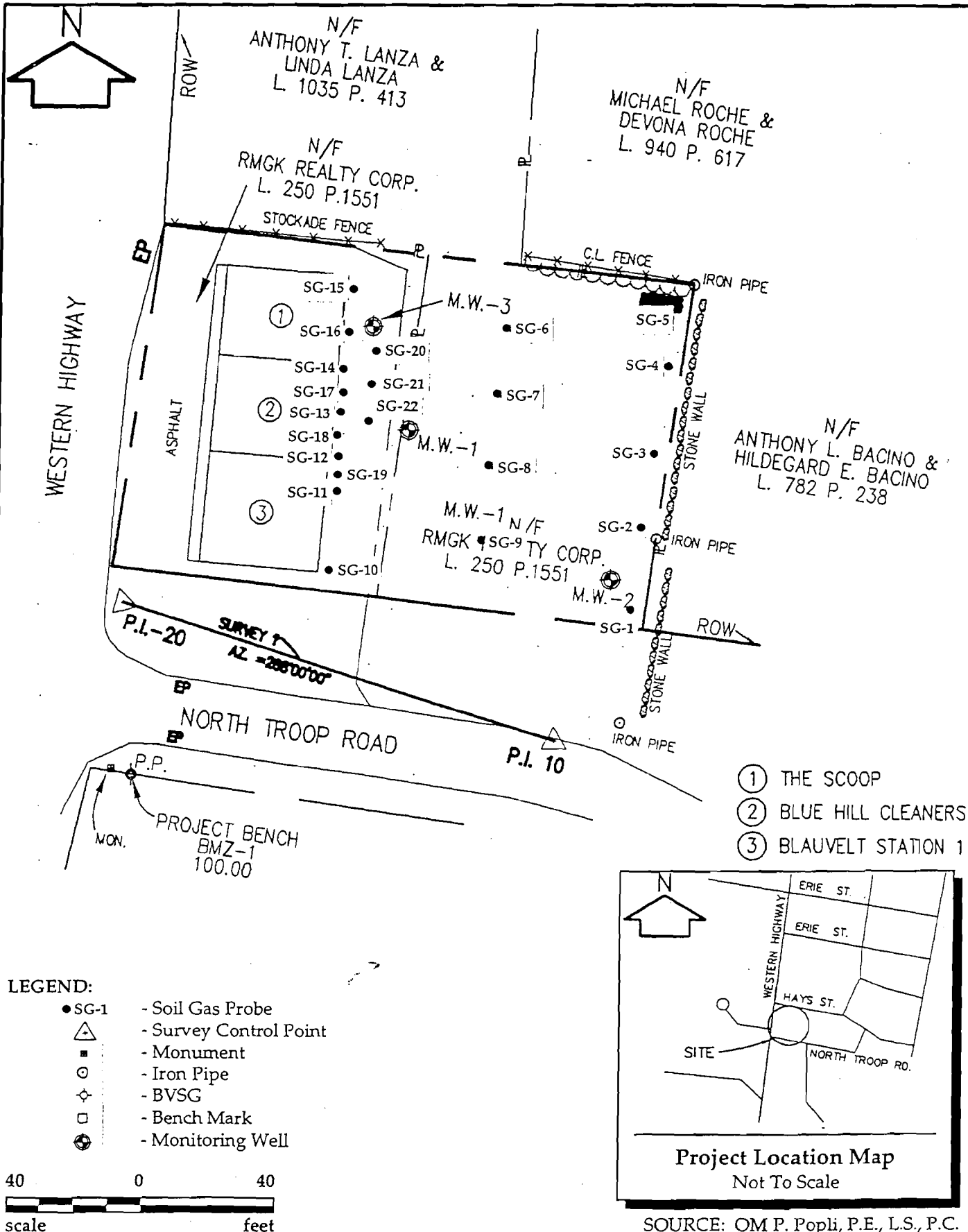
After purging of each probe, CDM collected organic vapor concentration measurements using a photoionization detector (PID) and organic vapor analyzer (OVA). Thereafter, tetrachloroethene and trichloroethene concentrations were measured using a portable gas chromatograph (GC). All field instrumentation was in good working order and properly calibrated during the collection of data. Upon collection of data, the soil gas probes were removed from the ground and each sample location marked with a small flag. Results of the soil gas survey are discussed in Section 4.1.

2.2 Geophysical Survey

CDM conducted a magnetometer survey at the site within areas designated for monitoring well installation on December 12, 1994. The objective of the survey was to determine if any metallic utilities were located within these areas prior to well installation operations.

2.3 Monitoring Well Installation

Under subcontract with CDM, SJB Drilling Services of Buffalo, New York began the installation of three monitoring wells (MW-1, MW-2, MW-3) at the site on December 13, 1994 and completed the work by December 15, 1994. Location of monitoring wells were approved by the onsite NYSDEC representative. An upgradient location, west of the site building, could not be obtained due to overhead powerlines and no access to offsite properties west of the site could be secured. Therefore, MW-3 was located onsite as far north as possible in an effort to make the well representative of lateral upgradient groundwater conditions. All work was completed under the supervision of a CDM geologist. Installation was accomplished using a hollow stem auger



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Soil Gas Probe Locations

Figure 2-1

CME 75 drill rig. After drilling through unconsolidated sediment and weathered bedrock with hollow stem augers and not encountering the water table, SJB Drilling Services switched to a rock core drill using potable water as a drilling fluid to complete the borehole through the competent sandstone bedrock.

A 30 foot length of three inch diameter schedule 80 PVC riser was set into the unconsolidated overburden grouted five feet into the bedrock. After setting the riser pipe, SJB Drilling Services drilled a two inch borehole through the bedrock. All monitoring wells were completed as bedrock wells with the open bedrock borehole serving as the water yielding portion of the well. All drill cuttings generated during the drilling were field screened with a PID, found to contain no detectable VOCs, and, as per the direction of the NYSDEC representative, left onsite. Rock cores are currently being archived by CDM. All monitoring wells were finished with a flush mounted manhole cover with locking cap. A copy of the locking cap key was provided to the NYSDEC project manager. Figure 1-2 provides the location of each installed monitoring well.

During the drilling through unconsolidated overburden, soil samples were collected at five foot intervals using split spoon soil samples. Continuous rock core samples were obtained during the bedrock drilling. Upon recovery of each soil sample, it was immediately screened in the field by the CDM geologist for the presence of VOCs using a PID. PID measurements are provided in the boring logs provided in Appendix A. CDM selected one soil sample from each boring location for laboratory analysis. Since no elevated PID measurements were observed, each sample collected immediately above the water table was selected for laboratory analysis. A sample of water used in the drilling process was also collected for laboratory analysis.

Analysis of soil and drill water samples was completed by Energy & Environmental Engineering, Inc. (E3I) under subcontract with CDM and included volatile organic compounds (VOCs), semivolatile organics/pesticides and PCBs and TCL metals in accordance with NYSDEC Analytical Service Protocols (ASP), December 1991. Section 4-2 discusses the results of the soil sample analysis.

Development of the three monitoring wells was completed on December 16 and 27, 1994 by SJB Drilling Services using a submersible pump. All monitoring wells were developed until pumped groundwater yielded a turbidity value of 50 NTU or less. Monitoring well MW-2 could only obtain a turbidity of 70 NTU due to the low yield of the well. Development water was discharged to the ground surface and allowed to drain back into site soils.

All drilling equipment, including hollow stem augers, split spoons, drill rods, etc., was decontaminated by SJB Drilling Services using a steam cleaner with onsite potable water as the water source. Decontamination was completed

before undertaking drilling activities and between the completion of each monitoring well. The submersible pump and associated piping was decontaminated using an Alconox/potable water solution before development of each well.

Well completion and boring logs for the three monitoring wells are provided in Appendix A. A discussion of soil and rock types encountered, depth to water measurements, etc. is provided in Section 3.3.

2.4 Site Survey

In March of 1995, OM P. Popli, a New York Licensed Surveyor of Rochester, New York, completed a site survey of the Blauvelt Laundry property. All property line and right-of-ways were based on Rockland County tax maps. The horizontal and vertical location of the three monitoring wells were also surveyed. All elevations provided by the surveyor are based on using a bench mark with an assumed elevation of 100 feet mean sea level (MSL). Figure 1-2 is the end product of this surveying task.

2.5 Groundwater Level Measurements

One round of groundwater level measurements was collected by CDM from the three monitoring wells on January 12, 1995. Measurements were taken from the surveyed top of casing at each well, using a water level indicator with an accuracy of 0.01 ft. Depth to water level measurements are provided in Figure 3-1.

2.6 Groundwater Sampling

CDM completed the sampling of the three monitoring wells on January 12, 1995, after purging a minimum of three well volumes from each well using disposable pre-cleaned bailers. Purged water was allowed to discharge back to site soil. Three groundwater samples, a blind duplicate from monitoring well MW-1, and a matrix spike/matrix spike duplicate (MS/MSD) from monitoring well MW-3, were collected for laboratory analysis. Additionally, one trip blank was provided by the contract laboratory along with the groundwater samples. All groundwater samples were analyzed by E3I for volatile organic compounds (VOCs), semivolatile organics, pesticides and PCBs and TCL metals in accordance with NYSDEC Analytical Service Protocols (ASP), December 1991. Analysis of the trip blank was limited to VOCs.

Section 4.2 provides a discussion of analytical results related to the collected groundwater samples.

2.7 Data Validation

ChemWorld Environmental Inc. completed data validation of E3I's analytical data package. The validation was conducted on all data related to the three soil samples, four groundwater samples, drill water sample and associated

QA/QC samples collected as part of this investigation in accordance with USEPA Region II Organic Data Validation Checklists/Guidelines, January 1992, and NYSDEC ASP, December 1991. ChemWorld Environmental Inc. provided CDM with a summary report dated May 1995 and is presented as Appendix B of this report. Significant validation findings are discussed in Section 4.2.

2.8 Hazard Ranking System (HRS) Scoring

Under subcontract with CDM, YEC, Inc. performed a Hazard Ranking System (HRS) score of the Blauvelt Laundry site in accordance with the Code of Federal Regulations (40 CFR) Parts 300 to 399, Appendix A, using United States Environmental Protection Agency (USEPA) PRescore Version 3.0 software. Site specific chemical analytical results, geological and hydrological information as well data gathered from various agencies and references was evaluated and entered into the software program. Four potential migration pathways were evaluated (groundwater, surface water, soil exposure and air migration) and each pathway was assigned a score. The total site score resulted from the evaluation of the four pathways. A summary of the HRS score is provided in Section 5.0, YEC's complete HRS scoring report is provided under Appendix C.

(b1/sec2)

Section 3

Physical Characteristics of the Study Area

3.1 Topography

The site is relatively flat and slopes gently to the south. Based on Figure 1-1, the site is approximately 180 feet above mean sea level (MSL). The site can be described as being located on the southern end of a north-south trending hill. To the west, the land dips towards the Hackensack River Valley located over one mile from the site. To the south, the land decreases slightly and then increases towards another north-south trending hill. To the north, topography increases towards the crest of the hill on which the site is located. To the west, the land surface decreases rather steeply towards the Sparkill Creek Valley located approximately two-thirds of a mile from the site. Based on site topography, site and surrounding landsurface drainage is likely divided towards the west and east, though predominantly to the east.

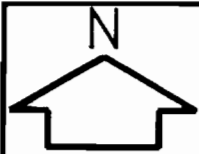
3.2 Regional Geology

According to available reports, the Blauvelt Laundry site area is underlain by Triassic aged silt stones, sandstones and conglomerates of the Newark Basin formation. The bedrock is overlain by Pleistocene aged glacial tills composed of sands, silts, clays and gravels of highly variable porosities and permeabilities. The thickness of the glacial tills are highly variable.

According to the United States Geological Survey (USGS) Potential Yields of Wells in Unconsolidated Aquifers in Upstate New York, Water-Resources Investigation Report 87-4274, 1988, there are no known major unconsolidated aquifers underlying the site. The two river valleys mentioned in Section 3.1 are identified as both containing sand and gravel aquifers. Based on the USGS report, the sand aquifers have the potential for well yields in excess of 100 gallons per minute adjacent to streams through pumping induced infiltration of stream water.

3.3 Site Hydrogeology

Based on soil and rock core samples recovered during the installation of the three investigation monitoring wells, the Blauvelt Laundry site is underlain by a unit of red clay and silt with gravel between 25 and 29 feet thick, typical of glacial till sediments. This material would generally be considered to have a relatively low permeability. At MW-1, a green silty sand and gravel was recovered at a sample depth of 22 to 27 feet, indicating a more permeable zone within the glacial till. Underlying the unconsolidated deposits is a red fine to medium grained sandstone typical of the Triassic aged Newark formation discussed in Section 3.2. Core samples of the bedrock indicated that it is relatively massive lacking any significant bedding planes and only minor



E 9800
N 10300

- ① THE SCOOP
- ② BLUE HILL CLEANERS
- ③ BLAUVELT STATION 1

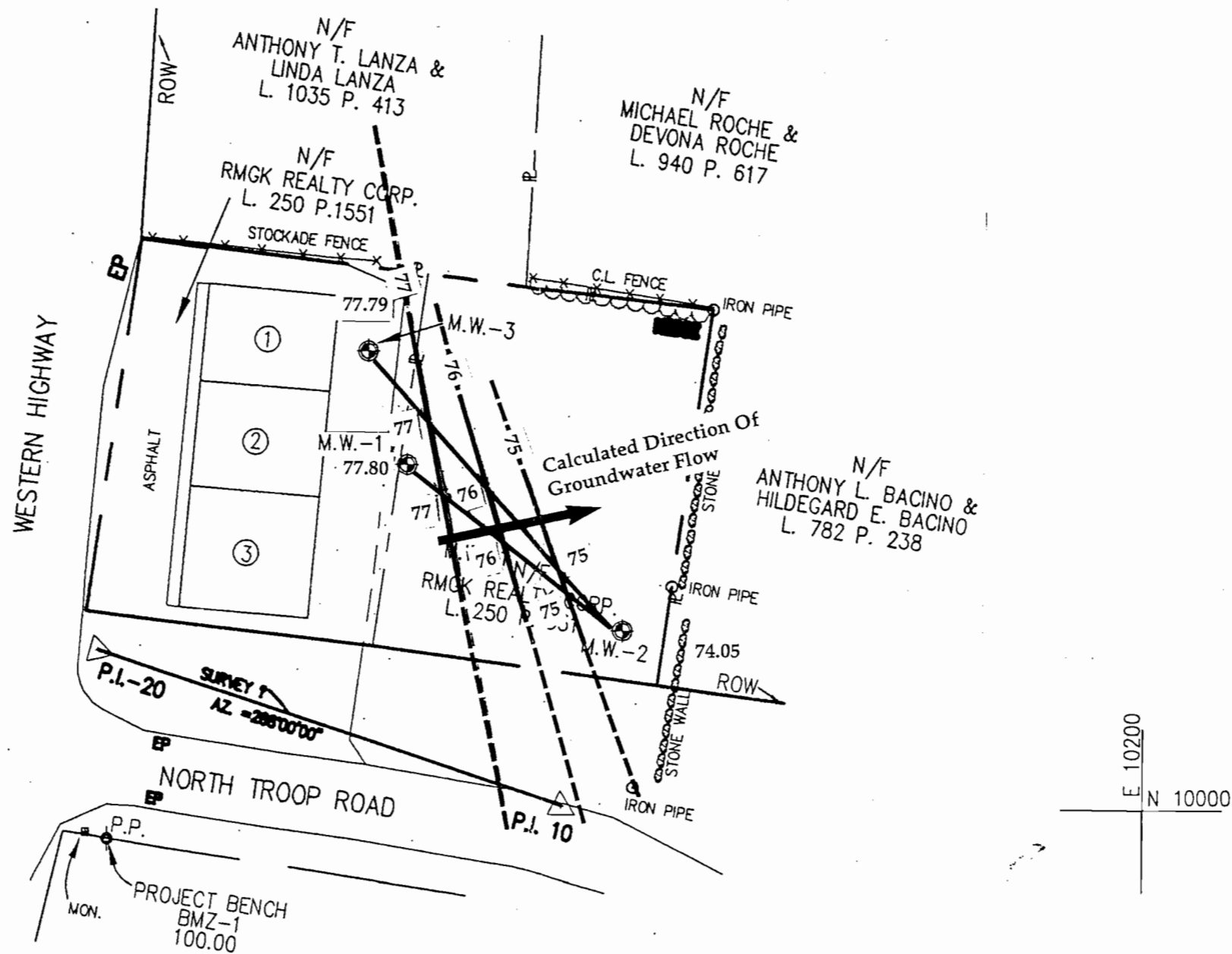
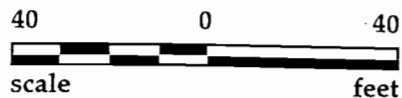
Well Data (All Measurements In Feet)			
Well Number	Relative Elevation TOC	Depth To Water 01/12/95	Relative Water Table Elevations
MW-1	99.52	21.72	77.80
MW-2	95.99	21.94	74.05
MW-3	100.17	22.38	77.79

LEGEND:

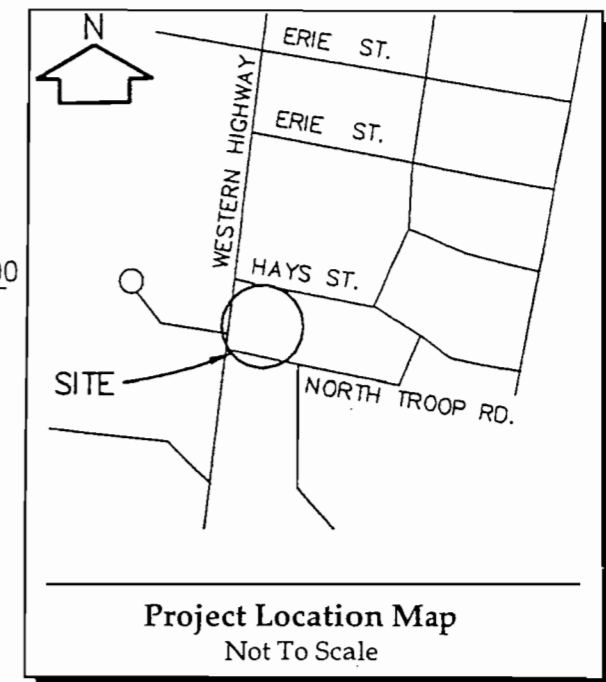
- - - 77 - - - - Water Table Elevation Based On Assumed Bench Elevation of 100 Feet
- △ - Survey Control Point
- - Monument
- - Iron Pipe
- ◇ - BVSG
- - Bench Mark
- ⊙ MW-1 (77.80) - Monitoring Well With Water Table Elevation In Feet Based On Assumed Bench Elevation Of 100 Feet

SURVEY NOTES:

1. All locations on this map are based on an assumed coordinate system with magnetic orientation.
2. All elevations shown on this map are referenced to the project bench with an assumed elevation of 100.00'.
3. All locations shown were inferred from surface evidence only. No subsurface utilities were located.
4. All property line and right-of-way were determined from Orange County tax maps.



E 10200
N 10000



SOURCE: OM P. Popli, P.E., L.S., P.C.

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Blauvelt Laundry, Blauvelt, New York
NYSDEC Site ID #344037
Water Table Elevation Map

fractures. Additionally, an extensive weathered zone was not observed. All monitoring wells were screened within the bedrock.

During well development, monitoring wells MW-1 and MW-2 yielded a maximum pumping rate of 0.25 gallons per minute (GPM). Pumping of MW-2 at this rate resulted in the well running dry requiring pumping to be stopped in order to allow the well to recharge. Based on well development measurements, specific capacity of monitoring wells MW-1 and MW-2 is relatively low at 0.01 gallons per foot of drawdown. Development of MW-3 resulted in a significantly higher sustained pumping rate of 1.5 GPM with an estimated specific capacity of 0.06 gallons per foot of drawdown. The greater specific capacity of MW-3 can be attributed to the fact that rock cores obtained from this monitoring well contained more fractures than rock cores from MW-1 and MW-2. This suggests that secondary porosity (i.e., rock fractures, fault zones, etc.) is the predominant route for groundwater flow within site and surrounding bedrock.

Depth to water measurements indicates the local water table to be between 22 and 23 feet below grade at the site. Using depth to water level measurements and well casing survey elevations, relative water table elevations were obtained at each well location. Based on the observed water table elevations, groundwater with the site flows in a east to east-northeast direction, as shown in Figure 3-1.

Given the likelihood that groundwater flow is predominantly through rock fractures and not rock pores, groundwater flow velocities could be highly variable throughout the site and surrounding area. Additionally, groundwater flow may deviate on a local scale from the east to east-northeast flow direction given the movement of groundwater is through fracture zones that are not necessarily oriented in a west to east direction.

(b/sec3)

Section 4 Nature and Extent of Contamination

4.1 Soil Gas Survey Results

Results of the soil gas survey summarized in Table 4-1 identified the presence of tetrachloroethene (PCE) in soil gas probes located adjacent to the site building eastern wall, behind Blue Hill Cleaners and the Scoop. The highest observed concentrations identified in soil gas probes BVSG-13, 14, 17 and 18 were all located behind Blue Hill Cleaners. Soil gas probes BVSG 1 through 11 exhibited no detectible levels of PCE. PID measurements, which detects total volatile organic compounds (VOCs) were generally at background levels within most probes with the exceptions of BVSG-2 and 13 at 130 and 100 parts per million (ppm) respectively.

OVA measurements, which detects total combustible gases in addition to VOCs, identified readings greater than 1,000 ppm at gas probes BVSG-7, 8, 9, 20, 21 and 22. The origin of these measurements was not known, however, with the knowledge that a gas main exists within the site, the local gas utility was notified due to the possibility of a gas main leak. Orange and Rockland County Utilities field personnel informed CDM that they did not identify any gas main leakage, though the area has a history of "swamp gas".

4.2 Soil and Groundwater Quality

Table 4-2 provides a summary of soil analysis and Table 4-3 provides a summary of groundwater and drill water sample analysis identified by the completed chemical analysis. The analytical summary tables include all compounds detected in a given sample set. Positive detections that are below the Contract Required Quantitation Limit (CRQL), designated as an estimated concentration "J" as well as detections above the CRQL have been highlighted for all detected organic values. Also included in the summary tables are compounds that were not detected, but due to variances in quality control limits, the analytical quantitation limits are reported as estimated quantities and are qualified as "UJ". Footnotes for other data qualifiers are provided in the tables. Finally all groundwater sample results are compared to NYSDEC Class GA groundwater standards/guidance values currently in place for each detected compound or non-detected compound qualified as "UJ".

Analysis of collected samples included:

- Volatile Organic Compounds
- Semi Volatile Organic Compounds
- Pesticides and PCBs
- TCL Metals

TABLE 4-1
SOIL GAS SURVEY RESULTS
BLAUVELT LAUDROMAT
PRELIMINARY SITE ASSESSMENT

Sample #	Probe Depth (ft)	OVM (ppm)	OVA (ppm)	GC PCE (ppm)	GC TCA (ppm)
BVSG-1	4	3.5	BG	ND	ND
BVSG-2	4	130	BG	ND	ND
BVSG-3	4	2	2	ND	ND
BVSG-4	4	2	2	ND	ND
BVSG-5	4	2	BG	ND	ND
BVSG-6	4	6	1	ND	ND
BVSG-7	4	BG	>1000	ND	ND
BVSG-8	4	1	>1000	ND	ND
BVSG-9	4	BG	>1000	ND	ND
BVSG-10	4	BG	BG	ND	ND
BVSG-11	4	BG	BG	ND	ND
BVSG-12	4	BG	BG	3	ND
BVSG-13	4	100	600	54	ND
BVSG-14	4	55	20	117	ND
BVSG-15	4	2	BG	4	ND
BVSG-16	4	BG	1.5	4	ND
BVSG-17	4	BG	2	133	ND
BVSG-18	4	6	3	28	ND
BVSG-19	4	BG	BG	5	ND
BVSG-20	4	BG	>1000	1	ND
BVSG-21	4	BG	>1000	1	1
BVSG-22	4	BG	>1000	0.8	ND

- Notes:
1. BG = Background
 2. When Duplicate Sample was analyzed, higher value was recorded.
 3. ND = Not Detected

**TABLE 4-2
SOIL ANALYTICAL SUMMARY
BLAUVELT LAUNDROMAT
PRELIMINARY SITE ASSESSMENT**

Volatiles (All values reported in ug/kg)

Parameters	MW-1,15-17ft	Q	MW-2,15-17ft	Q	MW-3,15-17ft	Q
Chloromethane	11	UJ	11	UJ	11	UJ
Vinyl Chloride	11	UJ	11	UJ	11	UJ
4-Methyl-2-pentanone	11	UJ	11	UJ	11	UJ

SemiVolatiles (All values reported in ug/kg)

Parameters	MW-1,15-17ft	Q	MW-2,15-17ft	Q	MW-3,15-17ft	Q
Phenanthrene	360	R	44	J	360	R
Fluoranthene	360	R	41	J	360	R
Pyrene	360	R	28	J	360	R
Butylbenzylphthalate	360	R	39	J	230	J
bis(2-ethylhexyl)phthalate	41	J	120	J	250	J

Pesticides/PCBs (All values reported in ug/kg)

Parameters	MW-1,15-17ft	Q	MW-2,15-17ft	Q	MW-3,15-17ft	Q
Dieldrin	3.6	R	0.39	JN	3.6	R
4,4'-DDE	0.38	J	3.8	R	3.6	R
Endrin	3.6	R	0.72	J	3.6	R

Inorganics (All values reported in mg/kg)

Parameters	MW-,15-17ft	Q	MW-2,15-17ft	Q	MW-3,15-17ft	Q
Aluminum	6480		8240		6360	
Arsenic	6.1		3.3		3.7	
Barium	70.4		72.3		80.1	
Beryllium	0.62	B	0.74	B	0.63	B
Calcium	1910		1990		1570	
Chromium	15.2		19.4		14.4	
Cobalt	5.9	B	8.6	B	6.3	B
Copper	4.6	B	4.7	B	5.5	
Iron	17100		20500		17400	
Lead	4.1	J	5.5	J	52.2	J
Magnesium	3310		3950		2810	
Manganese	663		788		833	
Mercury	0.12	J	0.12	U	0.11	U
Nickel	11.7		13.7		10.9	
Potassium	1730		2190		1590	
Selenium	0.24	UJ	0.25	UJ	0.25	UJ
Vanadium	20.4		25.7		19.6	
Zinc	27.4		32.2		25.7	

NOTES:

Organic Data Qualifiers: J = The associated numerical value is an estimated quantity.
 U = The was analyzed for but not detected at or above the Contract Required Quantitation Limit (CRQL), or the compound is not detected due to qualification through the method or field blank.
 UJ = The compound was analyzed for, but not detected. The sample quantitation limit is an estimated quantity due to variance in quality control limits.
 JN = Tentatively identified with approximated concentrations.
 R = The reported value is unusable and rejected due to variance from quality control limits.

Inorganic Data Qualifiers J = The reported value is estimated due to variance from quality control limits.
 U = Analyte was not detected at or below the the Contract Required Detection Limit (CRDL), or the compound is not detected due to qualification through the method or field blank.
 UJ = The element was analyzed for, but not detected. The sample quantitation limit is an estimate due to variance in quality control limits.
 B = Indicates analyte result is between Instrument Detection Limit (IDL) and CRDL.

Analysis of samples was completed by Energy & Environmental Engineering Inc. (E3I) in accordance with NYSDEC ASP protocols, December 1991. ChemWorld Environmental Inc. completed data validation of E3I's data package.

4.2.1 Soil Quality

PID field screening of recovered soil samples did not identify any VOC detections. Laboratory analysis of selected soil samples did not detect any VOCs above contract required detection limits (CRDLs). ChemWorld Environmental Inc. determined that all positive identifications of semi-volatile compounds should be considered estimated "J" and all non-detected compounds considered rejected "R" due to extraction of samples being conducted 20 days beyond the acceptable holding times. Bis (2-ethylhexyl) phthalate was detected in all three soil samples at estimated concentrations and butylbenzylphthalate detected in MW-3, 15-17 ft at an estimated concentration. In addition, MW-2, 15-17 ft. contained three base neutral compounds at estimated concentrations typically associated with petroleum contamination including phenanthrene (44 ug/kg), fluorethene (41 ug/kg) and pyrene (28 ug/kg). As with semivolatile analysis, detected pesticide and PCB parameters are considered estimated and non-detected parameters considered rejected due to E3I exceeding the acceptable holding time by 20 days. Detection of pesticides was limited to 4, 4'-DDE at 0.38 ug/kg in MW-1, 15-17 ft., Endrin in MW-2, 15-17 ft. at 0.72 ug/kg and Dieldrin in MW-2, 15-17 ft. at 0.39 ug/kg. No PCBs were detected above CRQLs. Metals analysis of the three soil samples did not identify any heavy metals above typical natural concentrations.

4.2.2 Groundwater Quality

Analysis of groundwater samples identified a number of VOCs at low to trace concentrations. As mentioned in Section 2.3, no true upgradient monitoring well could be installed due to limited access and, therefore, all monitoring wells are considered downgradient. The sample collected from downgradient monitoring well MW-1 exhibited 1,2 dichloroethene at 2 ug/l, trichloroethene at 0.6 ug/l and tetrachloroethene (PCE) at 29 ug/l which exceeds the NYSDEC Class GA standard of 5 ug/l for PCE. PCE was also detected in downgradient monitoring wells MW-2 at 9 ug/l and MW-3 at 10 ug/l. Note that the blind duplicate sample for MW-1 exhibited the same VOCs as MW-1 at virtually the same concentrations, showing excellent agreement. PCE and, to a lesser extent, 1,2 dichloroethene and trichloroethene are principal components of dry cleaning solvents.

No semivolatile organic compounds were detected above CRQLs within the collected groundwater samples. No pesticides/PCBs were detected in any of the collected groundwater samples with the exception of gamma-BHC (Lindane) at an estimated concentration of 0.015 ug/l, detected in the blind duplicate sample for MW-1, labeled as MW-4. Metals analysis of groundwater

TABLE 4-3
GROUNDWATER ANALYTICAL SUMMARY
BLAUVELT LAUNDROMAT
PRELIMINARY SITE ASSESSMENT
 (All values reported in ug/l)

Volatiles

Parameters	GA Standard	Q	MW-1	Q	MW-2	Q	MW-3	Q	MW-4 (MW-1 Dup.)	Q	Drill Water	Q	Trip Blank	Q
Methylene Chloride		5 S	10 U		10 U		10 U		10 U		1 BJ		1 J	
Total 1,2-Dichloroethylene		5 S	2 J		10 U		10 U		2 J		10 U		10 U	
Trichloroethene		5 S	0.6 J		10 U		10 U		0.7 J		0.7 J		10 U	
Tetrachloroethene		5 S	29		9 J		10 J		28		2 J		10 U	
Chloromethane		5 S	10 U		10 U		10 U		10 U		10 UJ		10 U	
Chloroform		7 S	10 U		10 U		10 U		10 U		32		10 U	
2-Butanone	NONE		10 U		10 U		10 U		10 U		10 UJ		10 U	
Bromodichloromethane		50 G	10 U		10 U		10 U		10 U		12		10 U	
Dibromochloromethane		50 G	10 U		10 U		10 U		10 U		5 J		10 U	
Bromoform		50 G	10 U		10 U		10 U		10 U		1 J		10 U	
4-Methyl-2-pentanone	NONE		10 U		10 U		10 U		10 U		10 UJ		10 U	
2-Hexanone		50 G	10 U		10 U		10 U		10 U		10 UJ		10 U	

SemiVolatiles

Parameters	GA Standard	Q	MW-1	Q	MW-2	Q	MW-3	Q	MW-4 (MW-1 Dup.)	Q	Drill Water	Q
bis (2-chloroethyl) ether		1 G	10 U		10 U		10 U		10 UJ		10 UJ	
bis(2-Chloroisopropyl)ether		5 S	10 UJ		10 UJ		10 UJ		10 UJ		10 UJ	
4-Chloroaniline		5 S	10 UJ		10 UJ		10 UJ		10 U		10 U	
2-methylnaphthalene	NONE		10 U		10 U		10 U		10 UJ		10 U	
3-Nitroaniline		5 S	25 UJ		25 UJ		25 UJ		25 UJ		25 U	
4-Nitrophenol	NONE		25 UJ		25 UJ		25 UJ		25 UJ		25 UJ	
4-Nitroaniline		5 S	25 UJ		25 UJ		25 UJ		25 U		25 UJ	
N-Nitrosodiphenylamine		50 G	10 UJ		10 UJ		10 UJ		10 U		10 U	
3,3'-Dichlorobenzidine		5 S	10 UJ		10 UJ		10 UJ		10 UJ		10 U	
2-Methylphenol	NONE		10 U		10 U		10 U		10 U		10 UJ	
4-Methylphenol	NONE		10 U		10 U		10 U		10 U		10 UJ	
Carbazole	NONE		10 U		10 U		10 U		10 U		10 UJ	
Di-n-butylphthalate		50 S	3 BJ		3 BJ		3 BJ		3 BJ		37 B	

Pesticides/PCBs

Parameters	GA Standard	Q	MW-1	Q	MW-2	Q	MW-3	Q	MW-4 (MW-1 Dup.)	Q	Drill Water	Q
alpha-BHC	ND		0.05 UJ		0.05 UJ		0.05 UJ		0.05 UJ		0.05 UJ	
beta-BHC	ND		0.05 UJ		0.05 UJ		0.05 UJ		0.05 UJ		0.05 U	
delta-BHC	ND		0.05 U		0.05 U		0.05 U		0.05 UJ		0.05 U	
gamma-BHC(Lindane)	ND		0.05 UJ		0.05 UJ		0.05 UJ		0.015 J		0.05 UJ	
Heptachlor	ND		0.05 U		0.05 U		0.05 U		0.05 UJ		0.05 U	
Aldrin	NONE		0.05 U		0.05 U		0.05 U		0.05 UJ		0.05 U	
Heptachlor Epoxide	ND		0.05 U		0.05 U		0.05 U		0.05 UJ		0.05 U	
Endosulfan I	NONE		0.05 U		0.05 U		0.05 U		0.05 UJ		0.05 U	
Dieldrin	ND		0.1 U		0.1 U		0.1 U		0.1 UJ		0.1 U	
4,4'-DDE	ND		0.1 U		0.1 U		0.1 U		0.1 UJ		0.1 U	
Endrin	ND		0.1 UJ		0.1 UJ		0.1 UJ		0.1 UJ		0.1 U	
Endosulfan II	NONE		0.1 U		0.1 U		0.1 U		0.1 UJ		0.1 U	
4,4'-DDD	ND		0.1 UJ		0.1 UJ		0.1 UJ		0.1 UJ		0.1 U	
Endosulfan Sulfate	NONE		0.1 U		0.1 U		0.1 U		0.1 UJ		0.1 U	
4,4'-DDT	ND		0.1 UJ		0.1 UJ		0.1 UJ		0.1 UJ		0.1 UJ	
Methoxychlor		35 S	0.5 UJ		0.5 UJ		0.5 UJ		0.5 UJ		0.5 UJ	
Endrin Ketone	NONE		0.1 UJ		0.1 UJ		0.1 UJ		0.1 UJ		0.1 U	
Endrin Aldehyde			0.1 U		0.1 U		0.1 U		0.1 UJ		0.1 U	
alpha-chlordane		5 S	0.5 U		0.5 U		0.5 U		0.5 UJ		0.05 U	
gamma-chlordane		0.1 S	0.5 U		0.5 U		0.5 U		0.5 UJ		0.05 U	
Toxaphene		0.1 S	5 U		5 U		5 U		5 UJ		5 U	
Aroclor-1016	NONE		1 U		1 U		1 U		1 UJ		1 U	
Aroclor-1221		0.1 S	2 U		2 U		2 U		2 UJ		2 U	

TABLE 4-3 (cont.)
GROUNDWATER DETECTED CONTAMINANTS
BLAUVELT LAUNDROMAT
PRELIMINARY SITE ASSESSMENT
 (All values reported in ug/l)

Inorganics

Parameters	GA Standard *	Q	MW-1	Q	MW-2	Q	MW-3	Q	MW-4 (MW-1 Dup.)	Q	Drill Water	Q
Aluminum	100	S	1160		230		705		2050		103	U
Antimony	3	G	6.4	UJ	6.4	UJ	6.4	UJ	6.4	UJ	58	U
Arsenic	25	S	1.8	UJ	1.8	UJ	1.8	UJ	2.2	J	1.7	U
Barium	1000	S	237		219		186	B	237		151	B
Cadmium	10	S	1.5	B	1.3	U	1.3	U	7.7		5	U
Calcium	NONE		126000	J	87900	J	99300	J	137000	J	42600	
Chromium	50	S	7	B	1.6	U	1.6	U	5.1	B	6.7	U
Copper	200	S	5.6	B	3	U	4.2	B	4.1	B	7.8	U
Iron	300	S	1970	J	567	J	1290	J	2350	J	364	
Lead	25	S	6.2	J	3.5	J	2.4	U	5.5	J	1.1	U
Magnesium	35000	G	15100	J	9870	J	12800	J	5100	J	13200	
Manganese	300	S	0.5	U	11.7	B	43.9	J	46.5	J	5	U
Mercury	2	S	2.5		0.5		0.55		0.54		0.2	U
Nickel	NONE		7.2	B	5.8	U	5.8	U	5.8	U	9.4	U
Potassium	NONE		2240	B	1140	B	1710	B	2450	B	1380	B
Selenium	10	S	2.9	J	2.3	J	3.5	J	2.2	J	1.2	U
Sodium	20000	S	16600		15600		17800		18100		32300	
Vanadium	NONE		3	B	2.5	U	3.4	B	5.6	B	13.7	U
Zinc	300	S	3.8	U	18.4	J	12.2	J	55.2	J	11.4	B

Field Measurements

Parameters	MW-1	Q	MW-2	Q	MW-3	Q	MW-4 (MW-1 Dup.)	Q
pH (standard unit)	6.6		6.96		6.44		6.6	
Conductivity (microsiemens)	875		641		2520		875	
Turbidity (NTU)	8		70		30		8	
DO (mg/l)	10.45		10.5		NA		10.45	
Temperature (C)	13.9		13.4		12.4		13.9	
Salinity (%)	0.03		0.02		0.03		0.03	

NOTES:

* GA Standard = Groundwater Discharge Standards, 6NYCRR Parts 700-705

S = Standard

G = Guidance Value

NONE = No Standard or Guidance Value

ND = GA Standard is below detection limit

Organic Data Qualifiers:

J = The associated numerical value is an estimated quantity.

U = The was analyzed for but not detected at or above the Contract Required Quantitation Limit (CRQL), or the compound is not detected due to qualification through the method or field blank.

UJ = The compound was analyzed for, but not detected. The sample quantitation limit is an estimated quantity due to variance in quality control limits.

JN = Tentatively identified with approximated concentrations.

R = The reported value is unusable and rejected due to variance from quality control limits.

B = The compound was also detected in the laboratory blank

Inorganic Data Qualifiers:

J = The reported value is estimated due to variance from quality control limits.

U = Analyte was not detected at or below the the Contract Required Detection Limit (CRDL), or the compound is not detected due to qualification through the method or field blank.

UJ = The element was analyzed for, but not detected. The sample quantitation limit is an estimate due to variance in quality control limits.

B = Indicates analyte result is between Instrument Detection Limit (IDL) and CRDL.

R = Reported value is unusable and rejected due to variance from quality control limits.

NA = Not Analyzed

samples did not reveal any heavy metals at significant concentrations, with the exception of mercury detected at 2.5 ug/l in MW-1.

This is marginally over the GA Standard of 2 ug/l for mercury. ChemWorld Environmental Inc. qualified the thallium results for groundwater samples as "R" unusable due to spiked sample recovery being less than 30% for this metal species.

One drill water sample was collected from SJB's water tank for laboratory analysis to determine if the use of the water during drilling processes may have contained contaminants that were detected in the soil and groundwater samples. The source of the water was from the site potable water supply. Analysis revealed a number of trihalomethane compounds in the water sample, including chloroform (32 ug/l), bromodichloromethane (12 ug/l), dibromochloromethane (5 ug/l) and bromoform (1 ug/l). Trihalomethane compounds are found in public supply systems as the result of chlorination of the water for disinfection purposes. New York State Department of Health (NYSDOH) maximum contaminant levels for drinking water for total trihalomethanes is 100 ug/l. Additionally, trace concentrations of trichloroethene (0.7 ug/l) and PCE (2 ug/l) were detected. NYSDOH drinking water maximum contaminant levels for each of these compounds is 5 ug/l.

(b/sec4)

- Air Migration Pathway = 0.91

The soil exposure pathway scored 0.00. The total site score was 16.07.

A total site score of 28.5 or greater qualifies the site for listing on the United States Environmental Protection Agency's (USEPA) National Priorities List (NPL). Sites listed on the NPL could be eligible for remedial action since they pose a risk to human health and/or the environment. A site score of 16.07 indicates the site does not pose a significant threat to human health and/or the environment.

(b1/sec5)

*Added by the NYS Department of Environmental Conservation
Errata information.*

The HRS is not a risk assessment tool but provides a measure of relative potential risk, by assessing threats to groundwater, surface water, soil, and air pathways. It is designed to evaluate and prioritize sites for inclusion on the Nation Priority List (NPL). Sites with a score of less than 28.5 would not be considered for listing on the NPL, but may still present a threat to human health and/or the environment.

Section 6 Conclusions

Recovered soil samples and rock core samples indicate the site is underlain by a unit of Pleistocene aged glacial till between 25 and 29 feet thick. This glacial till is chiefly composed of relatively low permeable red silty clay and gravel. Underlying this till is a Triassic aged sandstone containing minimal, if any, bedding planes and only minor fractures.

Due to the relatively massive nature of this sandstone, groundwater flow is principally through the fracture zones within the formation. Depth to groundwater at the site ranges between 22 and 23 feet below grade. Groundwater flows in a east to east northeast direction through the site. Due to groundwater flowing principally through fracture zones, groundwater flow velocities are assumed to be highly variable and localized flow directions may be different from the estimated direction.

The completed soil gas survey identified the presence of tetrachloroethene within soil gas probes located adjacent to the site building with highest concentrations observed around Blue Hill Cleaners. Relatively high concentrations of combustible gases were also identified in a number of gas probes. The local gas utility was notified of this finding. After conducting their own investigation, the utility company informed CDM that the source of the elevated gas measurements was not associated with a gas line leak. The exact cause of the elevated gas measurements has not been determined.

Laboratory analysis of soil samples did not identify any contaminants at significant concentrations. Analysis of groundwater samples identified a number of volatile organic compounds at low to trace concentrations. The highest observed volatile organic compound detected was tetrachloroethene detected in downgradient monitoring well MW-1 at 29 ug/l, exceeding the NYSDEC groundwater standard of 5 ug/l. Tetrachloroethene was detected in the two other groundwater monitoring wells, MW-2 and MW-3 at 9 and 10 ug/l respectively. Tetrachloroethene is the principal component of dry cleaning solvent. Analysis of the drill water sample identified a number of trihalomethane compounds as well as trichloroethene and tetrachloroethene at low to trace concentrations.

CDM concludes that soil gas survey results and groundwater quality data indicates a release of tetrachloroethene has likely occurred onsite. Given the Spring Valley well field is located approximately 1,500 feet east of the Blauvelt Laundry site and groundwater is estimated to flow in an easterly direction, the historical contamination of this well field by tetrachloroethene could be attributed to the Blauvelt Laundry site. However, if information provided by the current site owner is correct regarding the time frame in which Blauvelt Laundry and Dry Cleaning Center was located at the site, then this business

could not be the initial source of the contamination identified in the Spring Valley supply well since it was first observed in 1973.

A Hazard Ranking System (HRS) score was calculated as part of this PSA to determine if available information indicates the Blauvelt Laundry Site is a potential threat to human health and the environment. The calculated HRS score of 16.07 indicates the site does not pose a significant threat to human health and/or the environment.

(b)(sec6)

Appendix A

Boring Logs And Well Construction Logs

Log of Boring

Project Grant Hardware Location Blauvelt Job. No. _____
 Date Drilled 12/13/84 + 12/15/84 Drilling Co. SJB
 Total Depth 49.5' Method Used Hollow Stem Auger (4 1/4") + 2" Rock Core
 Inspector Frank Robinson Organic Vapor Instruments Used Oum 580 B Water Table Depth 22.36'

Depth (feet)	Samp. No.	Blows per 6" lbs.	Sample Interval	Adv./Recov.	Org. Vap. - PPM	Sample Description	Strata Change	Remarks (Time of Day)
		7-4		24"		Fill		
	1	4-3	0-2	12"	BG			
5		3-4		24"		Brown to Brick red silty clay w/ gravel (CL)		
	2	4-4	5-7	9"	BG			
10		11-16		24"		Brick red sandy-silty-clay w/ much gravel (CL)		
	3	15-20	10-12	18"	BG			
15		12-11		24"		same as above but harder (3" SS for lab sample)		
	4	12-13	15-17	24"	BG			
20		5-100/3"		24"		same as above to green silty sand w/ gravel (CL)		
	5		20-22	8"	BG			
25				24"		same as above but harder 28.8' Auger Refusal		
	6	100/5"	25-27	2"	BG			
30			28.8-	5'		red fine to med sandstone w/ white banding		
	7		33.8	4'10"				
	8		33.8-	0.7'				
			34.5	0.3'		same as above		

NY-1

CDM

environmental engineers, scientists,
planners & management consultants

BORING NUMBER: MW-2

Page 1 of 2

Log of Boring

Project Grant Hardware Location Blauvelt Job. No. _____
 Date Drilled 12/14/94 + 12/15/94 Drilling Co. STB
 Total Depth 49' Method Used Hollow Stem Auger - 2" Rock Core
 Inspector Frank Robinson Organic Vapor Instruments Used QUM 5808 Water Table Depth 22.79

Depth (feet)	Samp. No.	Blows per 6" lbs.	Sample Interval	Adv./Recov.	Org. Vap. - PPM	Sample Description	Strata Change	Remarks (Time of Day)
	1	2-3 4-6	0-2	24" 10"	BG	6" Red sandy silty clay w/ gravel (CL) to 4" bluestone and asphalt		
5	2	7-8 11-13	5-7	24" 16"	BG	Brick red sandy silty clay w/ gravel (CL)		
10	3	15-14 21-20	10-12	24" 14"	BG	Dark red ^{clayey} silty sand w/ gravel (CL)		
15	4	7-8 15-17	15-17	24" 2x'	BG	same as above (harder)		
20	5	100/4"	20-22	24" 4"	BG	same as above (harder)		
25	6		24.4'- 29.4'	5' 4'7"		auger refusal @ 25' red fine to med sandstone w/ white banding		
30	7		29.4'- 34.0	4'6" 4'6"		same		

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planners & management consultants

BORING NUMBER: MW-3

Page 1 of 2

Log of Boring

Project Grant Hardware Location Blauvelt Job. No. _____
 Date Drilled 12/14/84 + 12/15/84 Drilling Co. SJB
 Total Depth 49-5 Method Used Hollow Stem Auger (4 1/4") - 2" Rock Core
 Inspector Frank Robinson Organic Vapor Instruments Used Omni 580 B Water Table Depth 22.79

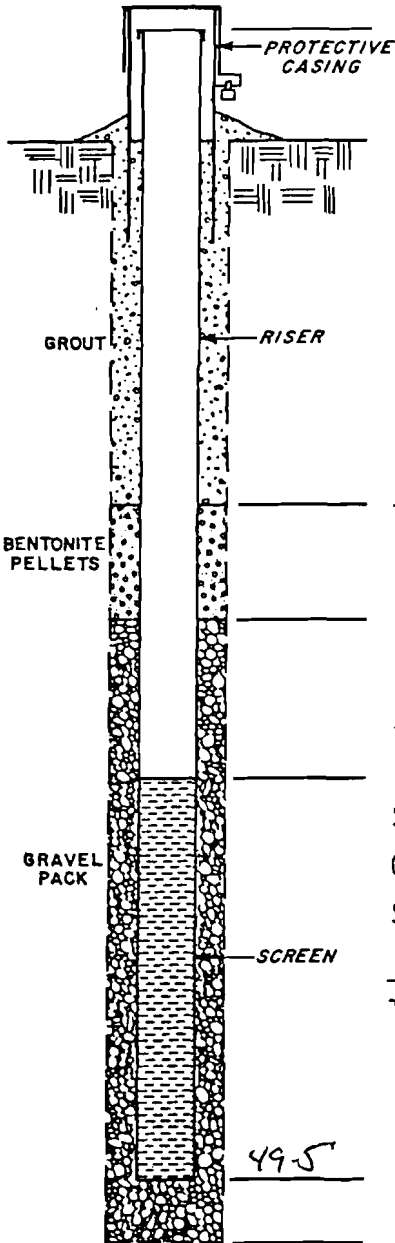
Depth (feet)	Samp. No.	Blows per 6" lbs.	Sample Interval	Adv./Recov.	Org. Vap. - PPM	Sample Description	Strata Change	Remarks (Time of Day)
	1	6-6 4-4	0-2	24" 18"	BG	Fill to 3" brown sandy silty clay w/gravel (CL)		
5	2	2-2 3-4	5-7	24" 19"	BG	Same as above moist and very plastic		
10	3	5-12 13-19	10-12	24" 20"	BG	Brick red sandy silty clay w/gravel (CL)		
15	4	8-65 100/5"	15-17	24" 18"	BG	Same as above		
20	5		19.6- 20.4 24.6	5' 4'8"		Arger Refused @ 19.5' fine to med sandstone white banded		
25			24.6- 29.4	5' 4'8"		Same to: at ~ 26.4' brick red very fine sandstone		
36								

CDM

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planners & management consultants

WELL CONSTRUCTION SUMMARY

Project: CDM/Grant Client: Blauvelt Well No: MW-1



DRILLING SUMMARY

Drilling Co: SJB Drillers: Jim Lamm
 Drill Rig Make/Model: Cme 75
 Borehole Diameters: 4 1/4" Drilling Fluid: Potable water
 Bits/Depths: 2" Rock coring: 28.8 - 49.5' (open hole - no screen)
 Total Depth: 49.5' Depth to Water: 22.36'
 Supervisory Geologist: Frank Robinson

WELL DESIGN

Casing Material: PVC sched 80 Diameter: 3" Length: 33.8'
 Screen Material: none Diameter: _____ Length: _____
 Slot Size: _____ Setting: _____
 Filter Material: none Setting: _____
 Seals Material: none Setting: _____
 Grout: Cement Setting: 1' - 33.8'
 Surface Casing Material: flush Setting: _____

TIME LOG

	Started	Completed
Drilling:	<u>12/13/94 0840</u>	<u>12/15/94 1400</u>
Installation:	_____	_____
Development:	<u>12/27/94 1200</u>	<u>12/27/94 1330</u>

WELL DEVELOPMENT

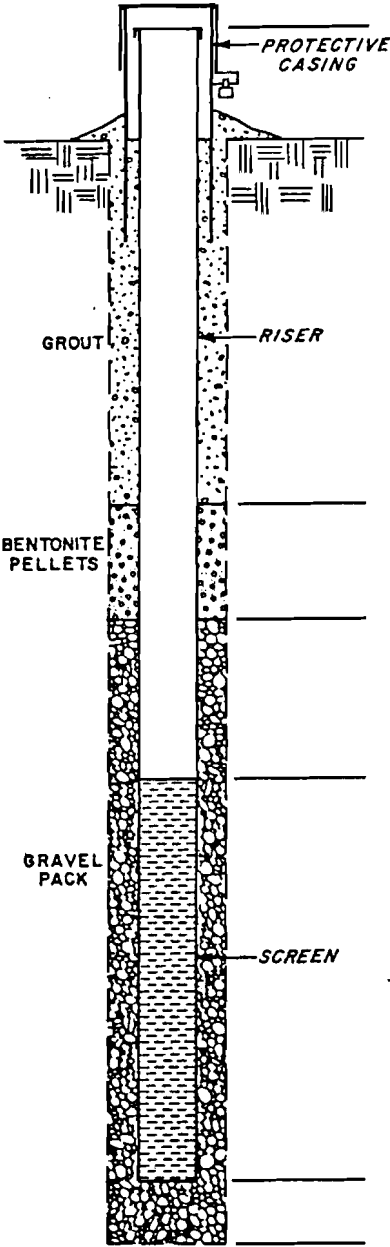
Method: Submersible Pump
 Static Depth to Water: 22.36'
 Pumping Depth to Water: 47'
 Pumping Rate: 0.25 Specific Capacity: _____
 Volume Pumped: 22.5 gals

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WELL CONSTRUCTION SUMMARY

Project: CDM/Grant Client: Blauvelt Well No: MW-2



DRILLING SUMMARY

Drilling Co: SJB Drillers: Jim Lamm
 Drill Rig Make/Model: Cme 75
 Borehole Diameters: 4 1/4" Drilling Fluid: Potable water
 Bits/Depths: 2" Rock Coring : 25' - 49'
 Total Depth: 49' Depth to Water: 22.79
 Supervisory Geologist: Frank Robinson

WELL DESIGN

Casing Material: PVC Sched 80 Diameter: 3" Length: 30'
 Screen Material: none Diameter: _____ Length: _____
 Slot Size: _____ Setting: _____
 Filter Material: none Setting: _____
 Seals Material: none Setting: _____
 Grout: Cement Setting: 1' - 30'
 Surface Casing Material: flush Setting: _____

TIME LOG

	Started	Completed
Drilling:	<u>12/14/94 0720</u>	<u>12/15/94 1730</u>
Installation:	_____	_____
Development:	<u>12/27/94 0910</u>	<u>12/27/94 1130</u>

WELL DEVELOPMENT

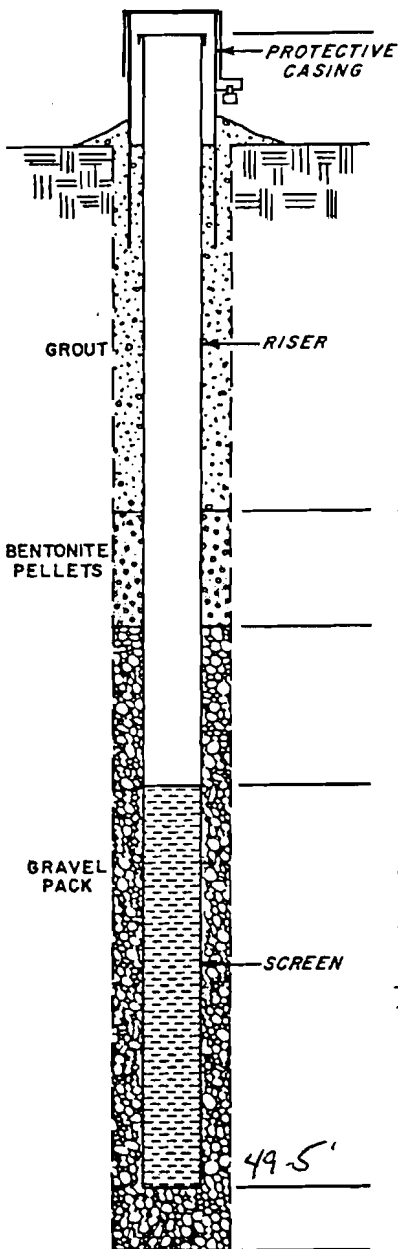
Method: Submersible Pump
 Static Depth to Water: 22.79
 Pumping Depth to Water: 47'
 Pumping Rate: 0.25 Specific Capacity: _____
 Volume Pumped: 35 gallons

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WELL CONSTRUCTION SUMMARY

Project: CDM/Grant Client: Blauvelt Well No: MW-3



DRILLING SUMMARY

Drilling Co: SJB Drillers: Jim Lamm
 Drill Rig Make/Model: Cme 75
 Borehole Diameters: 4 1/4" Drilling Fluid: Potable water
 Bits/Depths: 2" Rock casing: 19.5 - 49.5' (open Hole - no screen)
 Total Depth: 49.5' Depth to Water: 22.79'
 Supervisory Geologist: Frank Robinson

WELL DESIGN

Casing Material: PVC sched 80 Diameter: 3" Length: 24.5'
 Screen Material: none Diameter: _____ Length: _____
 Slot Size: _____ Setting: _____
 Filter Material: none Setting: _____
 Seals Material: none Setting: _____
 Grout: Cement Setting: 1' - 24.5'
 Surface Casing Material: Flush Setting: _____

TIME LOG

	Started	Completed
Drilling:	<u>12/14/84 1400</u>	<u>12/15/84 1000</u>
Installation:	_____	_____
Development:	<u>12/16/84 0910</u>	<u>12/16/84 1040</u>

WELL DEVELOPMENT

Method: Submersible Pump
 Static Depth to Water: 22.79'
 Pumping Depth to Water: 47'
 Pumping Rate: 1.5 GPM Specific Capacity: _____
 Volume Pumped: 135 gallons

Appendix B

ChemWorld Environmental Data Validation Report

May 4, 1995

Mr. David Keil
Camp Dresser & McKee
100 Crossways Park West
4th Floor, Suite #415
Woodbury, New York 11797

RE: Data Validation Report
Organic and Inorganic Analyses
Blauvelt Project

Dear Mr. Keil:

ChemWorld Environmental, Inc. is pleased to provide Camp Dresser & McKee with the enclosed Data Validation Report for Organic and Inorganic Analyses for the Blauvelt Project (Sample Delivery Group Nos. BVTMW1 and SSMW1). An original and one copy of the report are provided at this time.

If required, the analytical data packages will be returned to you upon approval of the report. Please contact me if you require additional information or clarification regarding the enclosed.

Sincerely,



Andrea P. Schuessler, CHMM

Enclosures

c: CD-9502-01 file



DATA VALIDATION REPORT

ORGANIC AND INORGANIC ANALYSES

Blauvelt Laundromat Project

Sample Delivery Group Nos. BVTMW1 and SSMW1

Sampling Dates of December 13, 1994 - January 12, 1995

PREPARED FOR:

**Camp Dresser & McKee
100 Crossways Park West
Suite 415
Woodbury, New York 11797**

May 1995

PREPARED BY:

**ChemWorld Environmental, Inc.
14 Orchard Way North
Rockville, Maryland 20854
(301)294-6144**

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Blauvelt Laundromat Project
Data Validation Report: Organic and Inorganic Analyses

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Blauvelt Laundromat Project
Data Validation Report: Organic and Inorganic Analyses

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DATA VALIDATION SUMMARY: ORGANIC and INORGANIC ANALYSES

Blauvelt Laundromat Project
Sample Delivery Group Nos. BVTMW1 and SSMW1
Sampling Dates of December 13, 1994 - January 12, 1995

INTRODUCTION

This Data Validation Summary report for organic and inorganic analyses was generated for 3 soil/solid samples, 6 water samples, and the associated quality control samples for Sample Delivery Group (SDG) Nos. BVTMW1 and SSMW1. Sampling activities were conducted in support of the field investigation for the Blauvelt Laundromat Project. The analytical laboratory work was performed by Energy & Environmental Engineering, Inc.

Analytical testing consisted of Contract Laboratory Program (CLP) analyses, including Volatile Organic analyses by Gas Chromatography/Mass Spectroscopy (GC/MS); Base/Neutral and Acid Extractable Organics by GC/MS; and Pesticides and Polychlorinated Biphenyls (PCBs) by GC. Inorganics were analyzed by Atomic Absorption (AA) and Inductively Coupled Plasma (ICP), with Mercury by Cold Vapor. The analytical work was performed utilizing New York State Department of Environmental Conservation (NYSDEC) Analytical Service Protocols (ASP), December 1991.

This report provides a summary of data acceptability and deviations in accordance with the United States Environmental Protection Agency (USEPA) Region II Organic and Inorganic Data Validation Checklists/ Guidelines (January 1992); and, the CLP portion of the NYSDEC ASP (December 1991), where applicable and relevant. The validation report pertains to the following samples:

SDG No. BVTMW1

BVTMW1
BVTMW2
BVTMW3
BVTMW4 (Duplicate of BVTMW1)
TB (Trip Blank 1/12/95)

SDG No. SSMW1

SSMW1
SSMW2
SSMW3
BVTDW (Drill Water)

The analytical data summary tables attached as Appendices A through D include all parameters that were analyzed for the samples noted. The tables include concentrations of the compounds that were detected in the samples. A blank space is included in the table for those compounds analyzed but not detected in the samples.

1.0 VOLATILE ORGANICS BY GC/MS

The following items/criteria were reviewed:

- * Holding Times
- * System Monitoring Compound (Surrogate) Recovery
- * Matrix Spikes (MS) and Matrix Spike Duplicates (MSD)
- * Initial and Continuing Calibration
- * Blanks (Method and Field)
- * GC/MS Instrument Performance Check
- * Tentatively Identified Compounds (TICs)
- * Internal Standards
- * Field Duplicates
- * Target Compound List (TCL) Compound Identification
- * Compound Quantitation and Reported Detection Limits
- * System Performance

All items above were generated within acceptable Quality Control (QC) specifications, with deviations detailed as follows. All data is considered to be valid and usable with the appropriate qualifiers, as noted on the data summary tables in Appendix A and within the following text.

1.1 Holding Times

All holding times were met within the acceptable time frame of 7 days from Verified Time of Sample Receipt (VTSR) at the laboratory for the water and soil samples.

1.2 System Monitoring (Surrogate) Compound Recovery

All system monitoring compound recovery (%R) was found to be generated within acceptable limits for the three surrogate compounds.

1.3 Matrix Spike/Matrix Spike Duplicates (MS/MSD)

1.3.1 SDG No. BVTMW1

One MS/MSD sample set for the waters and one Matrix Spike Blank (MSB) were analyzed for the SDG. Acceptable accuracy (percent recovery) and precision (relative percent difference) were generated.

1.3.2 SDG No. SSMW1

One MS/MSD sample set for the soils and one MSB were analyzed for the SDG. Acceptable accuracy and precision were generated.

1.4 Calibration

All initial and continuing calibration was performed within acceptable limits for average Relative Response Factors (\overline{RRF}), Percent Relative Standard Deviation (% RSD), Relative Response Factors (RRF), and percent Difference (% D), with the following exceptions.

1.4.1 Initial Calibration, SDG No. BVTMW1

Date

1/12/95	Acetone	31.4% RSD	(Limit 30%)
	2-Hexanone	32.6%	

Sample VBLKW19A was qualified as 'J', estimated, for acetone. The remaining data did not require qualification.

1.4.2 Initial Calibration, SDG No. SSMW1

Date

10/15/94	Methylene Chloride	38.5% RSD	(Limit 30%)
	Acetone	52.4%	
11/07/94	Chloroethane	33.8%	
	Acetone	52.1%	

The associated samples were qualified as 'J', estimated, for the positive results, for the compounds above.

1.4.3 Continuing Calibration, SDG No. SSMW1

Date, Time

12/20/94, 10:06	Chloromethane	65.1% D	(Limit 25%)
	Vinyl Chloride	31.2%	
	Acetone	31.9%	
	4-methyl-2-pentanone	35.6%	
12/20/94, 16:21	Chloromethane	34.8%	
	2-Butanone	46.2%	
	4-methyl-2-pentanone	49.1%	
	2-Hexanone	56.1%	

The samples associated with the continuing calibrations above were qualified as 'J', estimated, for the positive results, and 'UJ', estimated, for the non-detectable results, for the compounds noted.

1.5 Blanks

1.5.1 Field Blanks

1.5.1.1 SDG No. BVTMW1

One trip blank was analyzed for the SDG. Methylene chloride was detected at 1 ug/L for the trip blank. Samples BVTMW1 and BVTMW4 were qualified as 'U', not detected, at the Contract Required Quantitation Limit (CRQL), due to the fact that the compound was reported in these samples at less than 10 times the trip blank value and the results were reported at less than the CRQL.

1.5.2 Method Blanks

1.5.2.1 SDG No. BVTMW1

One water method blank was analyzed for the SDG. Volatile Organics were detected in the method blank, as follows.

Sample ID

VBLKW19A	Acetone	14 ug/L
	2-Butanone	12 ug/L

Limits of ten times the methylene chloride and 2-Butanone method blank results above were used for review and qualification of the associated water samples. Sample results for the compounds above were reported at less than the CRQL and less than the respective blank limit and were qualified as 'U', not detected, at the CRQL.

1.5.2.2 SDG No. SSMW1

One soil method blank and one water method blank were analyzed for the SDG. Volatile Organics were detected, as follows:

Sample ID

VBLKS20A	Methylene Chloride	2 ug/Kg, estimated
	Acetone	28 ug/Kg
	2-Butanone	8 ug/Kg, estimated
VBLKW20A	Methylene Chloride	2 ug/L, estimated
	Acetone	9 ug/L, estimated

Limits of ten times the method blank values above were used for review and qualification of the associated samples. Sample results that were reported at less than the respective method blank limit were qualified as 'U', not detected. Sample results that were reported at less than the respective method blank limit and less than the CRQL were qualified as 'U', not detected at the CRQL.

1.6 GC/MS Instrument Performance Check

Instrument performance was generated within acceptable limits and frequency for Bromofluorobenzene (BFB).

1.7 Tentatively Identified Compounds (TICs)

TICs were generated in accordance with protocol. Copies of the Form I's are included in Appendix E.

1.8 Internal Standards

All internal standards were generated within acceptable specifications for area counts and retention time variation.

1.9 Field Duplicates

1.9.1 SDG No. VBTMW1

Samples BVTMW1 and BVTMW4 were collected as the field duplicate samples and analyzed for Volatile Organics. Acceptable precision was generated for the duplicate pair.

1.10 TCL Identification

GC/MS qualitative analyses are considered to be acceptable for the data set. Retention times and mass spectra were generated within appropriate quality control specifications.

1.11 Compound Quantitation and Reported Detection Limits

GC/MS quantitative analyses are considered to be acceptable. Sample dilutions, internal standards and response factors were found to be within acceptable limits.

1.12 System Performance

Acceptable system performance was maintained throughout the analyses of the water and soil samples. This was exhibited through good resolution and consistent chromatographic performance.

2.0 SEMI-VOLATILE ORGANICS BY GC/MS (Base/Neutral and Acid Extractable Organics)

The following items/criteria were reviewed:

- * Holding Times
- * Surrogate Recovery
- * MS/MSD
- * Initial and Continuing Calibration
- * Blanks (Method and Field)
- * GC/MS Instrument Performance Check
- * TICs
- * Internal Standards
- * Field Duplicates
- * TCL Compound Identification
- * Compound Quantitation and Reported Detection Limits
- * System Performance

All items above were generated within acceptable QC specifications, with deviations detailed as follows. Various TIC results were qualified as 'R', unusable, due to their presence at less than five times the corresponding method blank value. The soil samples from SDG No. SSMW1 were qualified as 'J', estimated, for the positive results, and 'R', unusable, for the non-detectable results, due to extraction 20 days beyond the acceptable holding time. The remaining data is considered to be valid and usable with the appropriate qualifiers, as noted on the data summary tables in Appendix B and within the following text.

2.1 Holding Times

All holding times were met for extraction and analysis of the water and soil samples, with the following exceptions. The NYSDEC holding time is 5 days from VTSR at the laboratory for extraction, and 40 days from extraction to analysis.

2.1.1 SDG No. SSMW1

<u>Sample ID</u>	<u>No. of Days Exceeding the Holding Time</u>
SSMW1	20 (Extraction)
SSMW2	20 (Extraction)
SSMW3	20 (Extraction)
SSMW1MS	20 (Extraction)
SSMW1MSD	20 (Extraction)

The samples above were qualified as 'J', estimated, for the positive results, and 'R', unusable, for the non-detectable results, due to the holding time violations above.

2.2 Surrogate Recovery

All surrogate recovery was found to be generated within acceptable limits for the eight surrogate compounds.

2.3 MS/MSD

2.3.1 SDG No. BVTMW1

One MS/MSD sample set for waters and one MSB were analyzed for the SDG. Acceptable accuracy and precision were generated.

2.3.2 SDG No. SSMW1

One MS/MSD sample set for the soils and one MSB were analyzed for the SDG. Acceptable accuracy and precision were generated.

2.4 Calibration

All initial and continuing calibrations were performed within acceptable limits for \overline{RRF} , % RSD, RRF, and % D, with the exception of the following.

2.4.1 Continuing Calibration, SDG No. BVTMW1

<u>Date, Time</u>			
2/08/95, 12:01	bis(2-Chloroisopropyl)ether	35.0% D	(Limit 25%)
	4-Chloroaniline	36.2%	
	3-Nitroaniline	54.7%	
	4-Nitrophenol	38.1%	
	4-Nitroaniline	33.0%	
	n-Nitrosodiphenylamine	51.6%	
	3,3'-Dichlorobenzidine	46.6%	

2/09/95, 13:31	bis(2-Chloroethyl)ether	31.1%
	bis(2-Chloroisopropyl)ether	57.3%
	2-Methylnaphthalene	26.6%
	4-Nitrophenol	28.0%
	4-Nitroaniline	40.5%
	3,3'-Dichlorobenzidine	30.7%

The samples associated with the continuing calibrations above were qualified as 'J', estimated, for the positive results, and 'UJ', estimated, for the non-detectable results, for the compounds noted.

2.4.2 Continuing Calibration, SDG No. SSMW1

Date, Time

1/13/95, 18:08	bis(2-Chloroethyl)ether	31.6% D	(Limit 25%)
	2-Methylphenol	37.0%	
	bis(2-Chloroisopropyl)ether	88.7%	
	4-Methylphenol	39.9%	
	4-Nitrophenol	40.3%	
	4-Nitroaniline	46.2%	
	Carbazole	86.1%	

The samples associated with the continuing calibration above were qualified as 'J', estimated, for the positive results, and 'UJ', estimated, for the non-detectable results, for the compounds noted above.

2.5 Blanks

2.5.1 Field Blanks

Field blanks were not collected for Semi-Volatile Organic analyses.

2.5.2 Method Blanks

2.5.2.1 SDG No. BVTMW1

One water method blank was analyzed for the SDG. Semi-Volatile Organics were detected as follows.

Sample ID

SBLKW151	Di-n-butylphthalate	2 ug/L, estimated
	bis(2-ethylhexyl)phthalate	3 ug/L, estimated

A limit of five times the di-n-butylphthalate method blank value above and ten times the bis(2-ethylhexyl)phthalate value were used for review and qualification of the associated samples. All water sample results for the compounds above were found to be less than the CRQL and less than the respective method blank limit were qualified as 'U', not detected, at the CRQL.

2.5.2.2 SDG No. SSMW1

One soil method blank and one water method blank were analyzed for the SDG. Semi-Volatiles were detected as follows.

<u>Sample ID</u>		
SBLKW192	Di-n-butylphthalate	4 ug/L, estimated
SBLKS092	Di-n-butylphthalate	1300 ug/Kg

A limit of five times each di-n-butylphthalate value above was used for review and qualification of the associated samples. Sample results found to be less than the respective limit were qualified as 'U', not detected. Sample results that exceed the method blank limit do not require qualification.

2.6 GC/MS Instrument Performance Check

Instrument performance was generated within acceptable limits and frequency for Decafluorotriphenylphosphine (DFTPP).

2.7 TICs

TICs were generated in accordance with protocol. The Form I's, including the appropriate qualifiers, are included in Appendix E. TICs were detected as follows:

2.7.1 SDG No. BVTMW1

<u>Sample ID</u>		
SBLKW151	2-methyl-1-propanoic acid	2 ug/L, estimated
	dioctyl Hexanedioic acid	5 ug/L, estimated

All TIC sample results for the compounds above that were reported at less than five times the method blank value were qualified as 'R', unusable.

2.7.2 SDG No. SSMW1

<u>Sample ID</u>		
SBLKW192	1,2-Propanediol	3 ug/L, estimated
	2-methyl-1-propanoic acid	4 ug/L, estimated
SBLKS092	1,2-Propanediol	120 ug/Kg, estimated
	4-hydroxy-4-methyl-2-pentanone	5800 ug/Kg, estimated
	2-methyl-1-propanoic acid	120 ug/Kg, estimated

All TIC sample results for the compounds above that were reported at less than five times the method blank values were qualified as 'R', unusable.

2.8 Internal Standards

All internal standards were generated within acceptable specifications for area counts and retention time variation.

2.9 Field Duplicates

2.9.1 SDG No. BVTMW1

Samples BVMW1 and BVTMW4 were collected as the field duplicate samples and analyzed for Semi-Volatile Organics. Positive results were not detected, therefore, acceptable precision was generated.

2.10 TCL Compound Identification

GC/MS qualitative analyses are considered to be acceptable for the data set. Retention times and mass spectra were generated within appropriate quality control specifications.

2.11 Compound Quantitation and Reported Detection Limits

GC/MS quantitative analyses are considered to be acceptable for the data set. Sample dilutions, internal standards and response factors were found to be within acceptable limits.

2.12 System Performance

Acceptable system performance was maintained throughout the analyses of the soil and water samples. This was exhibited through good resolution and consistent chromatographic performance.

3.0 PESTICIDES AND PCBs BY GC

The following items/criteria were reviewed:

- * Holding Times
- * Surrogate Recovery
- * MS/MSD
- * Blanks (Method and Field)
- * Instrument (GC) Performance
- * Calibration
- * Field Duplicates
- * Compound Identification
- * Compound Quantitation and Reported Detection Limits

All items above were generated within acceptable QC specifications, with deviations detailed as follows. The soil samples from SDG No. SSMW1 were qualified as 'J', estimated, for the positive results, and 'R', unusable, for the non-detectable results, due to extraction 20 days beyond the acceptable holding time. The remaining data is considered to be valid and usable with the appropriate qualifiers, as noted on the data summary tables in Appendix C and within the following text.

3.1 Holding Times

All holding times were met within acceptable time frames for extraction and analysis of the soil and water samples, with the following exceptions. The NYSDEC holding time is 5 days from VTSR at the laboratory for extraction and 40 days from extraction to analysis.

3.1.1 SDG No. SSMW1

<u>Sample ID</u>	<u>No. of Days Exceeding the Holding Time</u>
SSMW1	20 (Extraction)
SSMW2	20 (Extraction)
SSMW3	20 (Extraction)
SSMW1 MS	20 (Extraction)
SSMW1 MSD	20 (Extraction)

The samples above were qualified as 'J', estimated, for the positive results, and 'R', unusable, for the non-detectable results, due to the holding time violations above.

3.2 Surrogate Recovery

Surrogate recovery was generated within acceptable limits for both surrogate compounds, with the following exceptions.

3.2.1 SDG No. BVTMW1

<u>Sample ID</u>			
PBLK0115	TCX1	40% R	(Advisory Limit 60-150)
	TCX2	41%	
W0115MSB	TCX1	56%	
	TCX2	48%	
BVTMW1	TCX1	44%	
BVTMW2	TCX1	54%	
BVTMW3	TCX1	43%	
BVTMW4	TCX1	44%	
	TCX2	58%	
	DCB2	58%	
BVTMW4 MS	TCX1	40%	
BVTMW4 MSD	TCX1	42%	

Samples BVTMW4 was qualified as 'J', estimated, for the positive result, and 'UJ', estimated, for the non-detectable results, due to low surrogate recovery. The remaining samples above did not require qualification, due to the fact that only one of the two surrogates were out of specification.

3.2.2 SDG No. SSMW1

Sample ID

BVTDW	TCX2	59% R (Advisory Limit 60-150)
PBLK0109	TCX1	34%
	TCX2	31%
	DCB1	55%
	DCB2	44%
SSMW1	TCX1	41%
	TCX2	34%
	DCB2	51%
SSMW1 MS	TCX1	41%
	TCX2	36%
	DCB2	50%
SSMW1 MSD	TCX1	41%
	TCX2	33%
	DCB2	50%
SSMW2	TCX1	41%
	TCX2	35%
	DCB2	51%
SSMW3	TCX1	47%
	TCX2	38%
	DCB2	50%
S0109 MSB	TCX1	35%
	TCX2	36%
	DCB2	58%

Samples PBLK0109 and S0109MSB were qualified as 'J', estimated, for the positive results, and 'UJ', estimated, for the non-detectable results, due to low surrogate recovery. Sample BVTDW did not require qualification, due to the fact that only one of the two surrogates were out of specification. The remaining samples were qualified through *Section 3.1, Holding Times*. Additional qualification is not required.

3.3 MS/MSD

3.3.1 SDG No. BVTMW1

One MS/MSD sample set for the waters and one MSB were analyzed for the SDG. Acceptable accuracy and precision were generated.

3.3.2 SDG No. SSMW1

One MS/MSD sample set for the soils and one MSB were analyzed for the SDG. Acceptable accuracy and precision were generated. However, recovery for gamma-BHC was generated slightly low in both the MS and MSD.

3.4 Blanks

3.4.1 Field Blanks

Field blanks were not collected for Pesticide/PCB analyses.

3.4.2 Method Blanks

3.4.2.1 SDG No. BVTMW1

One water method blank was analyzed for the SDG. Pesticides and PCBs were not detected.

3.4.2.2 SDG No. SSMW1

One soil method blank and one water method blank were analyzed for the SDG. Pesticides and PCBs were not detected.

3.5 Instrument (GC) Performance

Adequate chromatographic resolution and instrument sensitivity were achieved through the generation of data within acceptable limits for the Resolution Check Mixture and Performance Evaluation Mixtures, with the following exceptions. The review included resolution between adjacent peaks, retention time windows, Relative Percent Difference (RPD), and percent breakdown for DDT/Endrin.

3.5.1 SDG No. BVTMW1

Combined DDT/Endrin Breakdown:

<u>Date, Time</u>		
1/28/95, 18:55	44.31%	(Limit 30%)
2/18/95, 17:00	41.35%	
2/19/95, 18:58	50.48%	
2/25/95, 15:56	42.25%	
2/26/95, 20:25	43.64%	
1/24/95, 09:11	34.02%	
1/27/95, 22:33	36.66%	
1/28/95, 19:37	57.91%	

2/18/95, 17:41	44.49%
2/19/95, 19:39	58.74%
2/25/95, 15:15	42.37%
2/26/95, 21:06	48.77%

DDT Breakdown:

Date, Time

1/28/95, 18:55	31.75%	(Limit 20%)
2/19/95, 18:58	22.14%	
1/28/95, 19:37	36.95%	
2/18/95, 17:41	24.85%	
2/19/95, 19:39	24.33%	

Endrin Breakdown:

Date, Time

2/18/95, 17:00	21.22%	(Limit 20%)
2/19/95, 18:58	28.35%	
2/25/95, 15:56	33.26%	
2/26/95, 20:25	33.34%	
1/24/95, 09:11	27.96%	
1/27/95, 22:33	27.44%	
2/19/95, 19:39	34.31%	
2/25/95, 15:15	32.63%	
2/26/95, 21:06	35.99%	

The positive results for endrin and 4,4'-DDT were qualified as 'J', estimated. The associated positive sample results for 4,4'-DDD, 4,4'-DDE, endrin aldehyde, and endrin ketone were qualified as 'JN', presumptively present at an approximated quantity.

Performance Evaluation Mixtures:

<u>Date, Time</u>			
1/25/95, 15:14	4,4'-DDT	27.0% RPD	(Limit 25%)
1/28/95, 18:55	4,4'-DDT	42.0%	
	Methoxychlor	29.6%	
2/14/95, 07:50	alpha-BHC	30.0%	
	beta-BHC	30.0%	
	gamma-BHC	30.0%	
	Endrin	28.0%	
2/19/95, 18:58	Methoxychlor	35.2%	
2/25/95, 15:56	4,4'-DDT	35.0%	
	Methoxychlor	72.0%	
2/26/95, 20:25	alpha-BHC	30.0%	
	beta-BHC	30.0%	
	gamma-BHC	30.0%	
	Endrin	34.0%	
	Methoxychlor	27.2%	
1/24/95, 09:11	4,4'-DDT	33.0%	
1/25/95, 15:59	Endrin	28.0%	
	4,4'-DDT	76.0%	
	Methoxychlor	33.6%	
1/27/95, 22:33	4,4'-DDT	41.0%	
1/28/95, 19:37	4,4'-DDT	38.0%	
	Methoxychlor	39.2%	
2/14/95, 08:31	4,4'-DDT	31.0%	
2/18/95, 17:41	alpha-BHC	30.0%	
	gamma-BHC	30.0%	
	Methoxychlor	27.6%	
2/19/95, 19:39	alpha-BHC	40.0%	
	gamma-BHC	30.0%	

The associated samples were qualified as 'J', estimated, for the positive results, and 'UJ', estimated, for the non-detectable results, for the compounds noted above.

3.5.2 SDG No. SSMW1

Combined DDT/Endrin Breakdown:

<u>Date, Time</u>		
12/29/94, 23:38	34.83%	(Limit 30%)
12/19/94, 18:20	32.17%	
12/20/94, 04:22	34.29%	
12/30/94, 01:41	36.73%	
1/24/95, 09:11	34.02%	
1/26/95, 19:56	34.01%	

Endrin Breakdown:

<u>Date, Time</u>		
2/09/95, 08:01	24.88%	(Limit 20%)
2/12/95, 02:58	20.70%	
12/19/94, 18:20	23.21%	
12/20/94, 04:22	25.01%	
12/30/94, 01:41	23.80%	
1/24/95, 09:11	27.96%	
1/26/95, 19:56	24.75%	

The positive results for endrin and 4,4'-DDT were qualified as 'J', estimated. Additional qualification is not required.

Performance Evaluation Mixtures:

<u>Date, Time</u>			
1/26/95, 19:15	4,4'-DDT	26.0% RPD	(Limit 25%)
1/24/95, 09:11	4,4'-DDT	33.0%	
1/26/95, 19:56	4,4'-DDT	59%	

The associated samples were qualified as 'UJ', estimated, for the non-detectable results for 4,4'-DDT. Positive results were not detected for the samples affected.

3.6 Calibration

All initial and continuing calibration was performed within acceptable limits for the individual standard mixtures, with the following exceptions. Review items included resolution, retention time windows, calibration factors (CF), percent RSD for linearity, RPD and %R.

3.6.1 SDG No. BVTMW1

Linearity:

<u>Date</u>			
1/24/95	alpha-BHC	21.5% RSD	(Limit 20%)
	4,4'-DDT	39.2%	
2/13/95	4,4'-DDT	30.1%	

The associated samples were qualified as 'J', estimated, for the positive results, and 'UJ', estimated, for the non-detectable results, for alpha-BHC and 4,4'-DDT.

Individual Standard Mixtures:

<u>Date, Time</u>		
2/19/95, 05:58	4,4'-DDD Methoxychlor	40.0% RPD (Limit 25%) 29.5%
2/26/95, 06:17	4,4'-DDT Methoxychlor	35.0% 82.0%
2/26/95, 06:58	Endrin Ketone	35.0%
1/26/95, 03:09	4,4'-DDT	30.0%
1/28/95, 06:03	4,4'-DDT	52.5%
2/19/95, 04:37	4,4'-DDT Methoxychlor	35.0% 28.5%
2/26/95, 04:55	Endrin	22.5%

The associated samples were qualified as 'J', estimated, for the positive results, and 'UJ', estimated, for the non-detectable results, for the compounds noted above.

3.6.2 SDG No. SSMW1

Linearity:

<u>Date</u>			
12/19/94	alpha-BHC	26.3% RSD	(Limit 20%)

1/24/95	alpha-BHC	21.5%
	4,4'-DDT	39.2%
2/08/95	beta-BHC	22.1%
	Heptachlor Epoxide	21.2%
	Endosulfan II	21.1%
	Endosulfan Sulfate	22.2%
	Endrin Aldehyde	24.7%

The associated samples were qualified as 'J', estimated, for the positive results, and 'UJ', estimated, for the non-detectable results, for the compounds noted above.

Individual Standard Mixtures:

Date, Time

1/27/95, 05:35	4,4'-DDT	50% RPD	(Limit 25%)
2/11/95, 14:42	Endrin	30%	

The associated samples were qualified as 'J', estimated, for the positive results, and 'UJ', estimated, for the non-detectable results, for 4,4'-DDT and endrin.

Florisil Check:

The following recoveries were found to be low and out of specification for the Florisil check.

alpha-BHC	74% R	(Limit 80-120)
gamma-BHC	71%	
4,4'-DDT	68%	
Methoxychlor	63%	

Samples BVTDW and PBLK1221 were qualified as 'UJ', estimated, for the non-detectable results, for the compounds noted above. Positive results were not detected.

3.7 Field Duplicates

3.7.1 SDG No. BVTMW1

Samples BVTMW1 and BVTMW4 were collected as the field duplicate samples and analyzed for Pesticides and PCBs. Acceptable precision was generated. However, gamma-BHC was detected in BVTMW4 at 0.015 ug/L, but not in BVTMW1.

3.8 Compound Identification

GC qualitative analyses are considered to be acceptable. In accordance with protocol, the lower of the two values from the GC columns is reported. However, the following percent differences (%D) between the two GC columns exceeded the 25% limit.

3.8.1 SDG No. BVTMW1

<u>Sample ID</u>	<u>Compound</u>	<u>% D</u>
W0115MSB	Aldrin	29.2
	Endrin Ketone	100.0
	Endrin Aldehyde	70.7
BVTMW3MS	gamma-BHC	33.3
	Aldrin	242.9
	4,4'-DDE	66.7
	Endrin Ketone	42.2
	Endrin Aldehyde	1200
BVTMW3MSD	Aldrin	224.3
	4,4'-DDD	31.9
	4,4'-DDT	31.6
	Endrin Ketone	81.8
	Endrin Aldehyde	500.0

The samples above were qualified as 'J', estimated, for the compound noted where the %D was reported at up to 50%. The samples were qualified as 'JN', tentatively identified with approximated concentrations, where the percent difference exceeds 50%.

3.8.2 SDG No. SSMW1

<u>Sample ID</u>	<u>Compound</u>	<u>% D</u>
SSMW2	Dieldrin	107.7
S0109MSB	Aldrin	309.1
SSMW1MS	Aldrin	223.1
	4,4'-DDT	33.3
SSMW1MSD	Aldrin	544.1%

The samples above were qualified as 'J', estimated, for the compound noted where the %D was reported at up to 50%. The samples were qualified as 'JN', tentatively identified with approximated concentrations, where the percent difference exceeds 50%.

3.9 Compound Quantitation and Reported Detection Limits

GC quantitative analyses are considered to be acceptable for the soil and water samples. Supporting data was generated within the appropriate quality control specifications.

4.0 INORGANIC ANALYSES BY AA AND ICP (Mercury by Cold Vapor)

The following items/criteria were reviewed:

- * Holding Times
- * Initial and Continuing Calibration
- * CRDL Standards for AA and ICP
- * Blanks (Initial, Continuing Calibration, and Preparation)
- * Field Blanks
- * ICP Interference Check Sample
- * Matrix Spike Sample Recovery
- * Laboratory Duplicates
- * Field Duplicates
- * Laboratory Control Sample (LCS)
- * ICP Serial Dilution
- * Furnace (AA) Quality Control
- * Sample Result Verification

All items above were generated within acceptable QC specifications, with deviations detailed as follows. Thallium non-detectable results for SDG No. BVTMW1 were qualified as 'R', unusable, due to spike recovery of less than 30%. The remaining data is considered to be valid and usable with the appropriate qualifiers, as noted on the data summary tables in Appendix D and within the following text.

4.1 Holding Times

All holding times were met within the acceptable time frame from VTSR at the laboratory for metals (180 days) and mercury (26 days).

4.2 Calibration

All initial and continuing calibration was performed within acceptable limits for percent recovery.

4.3 Contract Required Detection Limit (CRDL) Standards for AA and ICP

Percent recovery was found to be within the 80-120% limit, with the following exceptions.

4.3.1 SDG No. BVTMW1

AA

Arsenic	71.5% / 78.7%
Selenium	129.8%

ICP

Lead	135.0% / 179.3%
Zinc	125.4% / 222.8%

Sample results within the affected range were qualified as 'J', estimated, for the Inorganics above.

4.3.2 SDG No. SSMW1

AA

Lead 39.3% / 72.7%

ICP

Cadmium 68.0% / 69.0%

Chromium 125.5% / 127.5%

Sample results did not fall within the affected range, therefore, qualification was not required in relation to the standards above.

4.4 Blanks

4.4.1 Laboratory (Method) Blanks

All initial calibration, continuing calibration, and preparation blanks were generated in accordance with acceptable limits.

4.4.2 Field Blanks

Field blanks were not collected for Inorganic analyses.

4.5 ICP Interference Check

The recoveries for the ICP Interference Check samples were found to be within the acceptable 80-120% limit.

4.6 Spiked Sample Recovery

All percent recoveries for the matrix spike samples were found to be within the 75-125% limit, with the following exceptions.

4.6.1 SDG No. BVTMW1

BVTMW3 (ug/L)

Antimony 65.3%

Arsenic 73.7%

Iron 57.1%

Thallium 18.0%

The water samples were qualified as 'J', estimated, for the positive results, and 'UJ', estimated, for the non-detectable results, for antimony, arsenic, and iron. The thallium non-detectable results were qualified as 'R', unusable, due to spike recovery of less than 30%. Positive results were not detected for thallium.

4.6.2 SDG No. SSMW1

SSMW1 (mg/Kg)

Antimony	28.2%
Mercury	227.1%
Selenium	31.6%

The associated soil samples were qualified as 'UJ', estimated, for the non-detectable results for antimony and selenium. Positive results were not detected for these Inorganics. Sample SSMW1 was qualified as 'J', estimated, for mercury, due to the high spike recovery noted above.

4.7 Laboratory Duplicates

Precision (relative percent difference) for the samples was found to be acceptable, with the following exceptions.

4.7.1 SDG No. BVTMW1

BVTMW3 (ug/L)

Lead	200% RPD
------	----------

The positive results for lead for the water samples were qualified as 'J', estimated.

4.7.2 SDG No. SSMW1

SSMW1 (mg/Kg)

Lead	161% RPD
Mercury	143.5%

The positive results for lead and mercury for the soil samples were qualified as 'J', estimated.

4.8 Field Duplicates

4.8.1 SDG No. BVTMW1

Samples BVTMW1 and BVTMW4 were collected as the field duplicate samples and analyzed for Inorganics. Many of the Inorganics generated acceptable precision for the field duplicate. However, elevated relative percent difference was generated for aluminum, chromium, copper, and vanadium. Poor precision was generated for cadmium, magnesium, and mercury. Table 1 includes calculated precision for the duplicate pair.

4.9 Laboratory Control Sample (LCS)

The aqueous and solid laboratory control samples were generated within acceptable limits.

4.10 ICP Serial Dilution

ICP Serial Dilution was found to be within the acceptable 10% limit for percent difference (%D), with the following exception.

4.10.1 SDG No. BVTMW1

BVTMW3 (ug/L)

Calcium	21.7% D
Magnesium	22.5%
Manganese	39.9%

The sample results for the Inorganics above were qualified as 'J', estimated, where the corresponding results exceeded 50 times the Instrument Detection Limit (IDL).

4.11 Furnace (AA) Quality Control

Quality control for furnace atomic absorption was found to be acceptable.

4.12 Sample Result Verification

Quantitative analyses are considered to be acceptable for the data set. Analyte quantitation was generated in accordance with protocols.

TABLE 1
FIELD DUPLICATE SAMPLE ANALYSIS
PRECISION FOR INORGANICS
Blauvelt Laundromat Project
Results in ug/L (ppb)

Parameter	BVTMW1	BVTMW4	RPD*
Aluminum	1160	2050	55%
Antimony	ND	ND	++
Arsenic	ND	2.2	++
Barium	237	237	0%
Beryllium	ND	ND	++
Cadmium	1.5	7.7	135%
Calcium	126000	137000	8%
Chromium	7	5.1	31%
Cobalt	ND	ND	++
Copper	5.6	4.1	31%
Iron	1970	2350	18%
Lead	6.2	5.5	12%
Magnesium	15100	5100	99%
Manganese	ND	46.5	++
Mercury	2.5	0.54	129%
Nickel	7.2	ND	++
Potassium	2240	2450	9%
Selenium	2.9	2.2	27%
Silver	ND	ND	++
Sodium	16600	18100	9%
Thallium	ND	ND	++
Vanaadium	3	5.6	60%
Zinc	ND	55.2	++

* Relative Percent Difference (Calculated Precision)

ND Not Detected

+ + Unable to be calculated due to non-detected results

Appendix C

YEC Inc. HRS Scoring Report
(Under Separate Cover)

Appendix D

References

Appendix D References

Bugliosi, E.F. & Trudell, R.A., Potential Yields of Wells in Unconsolidated Aquifers in Upstate New York - Lower Hudson Sheet, USGS Water Investigation Report 87-4274, 1988

Driscoll, F.G., 1986 Groundwater and Wells, Second Edition, Johnson Filtration Systems Inc., St. Paul Minnesota

- Mr. Eugene McCarthy, Property Owner, Provided information on site history on May 31, 1995, Phone (212) 923-9746
- Mr. Sam Hong, Owner of Blue Hill Cleaners, Provided information on current site drycleaning business activities, Phone (914) 365-0761

Van Diver, B.B., Roadside Geology of New York, June, 1988. Mountain Press Publishing Co., Missoula Montana

(b/append)

Appendix E

Regulatory Agency Files

NEW YORK STATE DEPARTMENT OF HEALTH
DIVISION OF SANITARY ENGINEERING

INSPECTION OF GROUND WATER SUPPLY

3900

Owner of Water Supply & P.O. Address Program Code

Spring Valley Water Company Well #15 Blauvelt

Tenant (if not owner) City, Town, Village County Zip Name and Title of Person in Charge

Orangetown Rockland Mark Rothenberg Operator

Latitude Longitude Uses of Water Gallons used per day Station Source No.

4 1° 03' 38" North 7 3° 57' 17" West Public Supply 330,000

1. WATER SOURCE Geological Character of Surrounding Area

Well

Depth of well 395 ft.
 Dug Diameter of well 18-12 ft./in. Type of cover Conc
 Depth of casing 60 ft. Type of curb Conc
 Drilled Top of well above ground 6 in. Type of casing Double
 Height above flood level NA ft. Well seal type Grout
 Driven Well yield/ft. draw down NA GPM Type of pump Peerless
 Pump Capacity 300 GPM

Spring

Type of curb _____

Slope	Yes	No	Remarks
<input type="checkbox"/> Level	<input type="checkbox"/>	<input type="checkbox"/>	Tight cover & sides
<input type="checkbox"/> Moderate	<input type="checkbox"/>	<input type="checkbox"/>	Curb seals out surface water
<input type="checkbox"/> Steep	<input type="checkbox"/>	<input type="checkbox"/>	Surface water diversion ditches
	<input type="checkbox"/>	<input type="checkbox"/>	Fenced

2. STORAGE Type Capacity Tight Cover

None Gal. yes no

3. TREATMENT

Softening

Chlorination

Corrosion Control

yes no
 Daily Report
 Spare Chlorinator
 Spare Parts
 Test Kit

Other (describe)

Type of Equipment Wet Hypo
 Chlorinator capacity _____ GPD
 Volume of water treated 330,000 GPD
 Amount of chlorine used/day _____
 Strength of chlorine solution pumped 1 %
 Free available residual chlorine after 15 min. _____ mg/l
 Stock chlorine solution available 5 gal

4. DISTRIBUTION SYSTEM

NA Length _____ ft.
 Main Sizes _____ in.
 Pressure range _____ psi
 Type of pipe _____

Describe A. interconnection with potable water systems (name)
 B. cross-connections with unacceptable water supplies
 C. potential introduction of hazardous substances (vats, equipment, etc.)

5. PART 72 STANDARDS

Acceptable yes no Exceptions:
 bacteriological quality
 physical quality
 NA chemical quality

6. RECOMMENDATIONS

None

Date Inspected
4/18/73

Inspected by

Robert J. Mansfield

NEW YORK STATE DEPARTMENT OF HEALTH
DIVISION OF SANITARY ENGINEERING

INSPECTION OF GROUND WATER SUPPLY

3900

Owner of Water Supply & P.O. Address SUWCO WELL # 15 BLAUWELT				Program Code	
Tenant (if not owner)		City, Town, Village	County	Zip	Name and Title of Person in Charge
		ORANGETOWN RICKLAND			MARK ROTHENBERG OPERATOR
Latitude	Longitude	Uses of Water		Gallons used per day	Station Source No.
41° 03' 38" North	73° 57' 12" West	PUBLIC SUPPLY		330000	

1. WATER SOURCE Geological Character of Surrounding Area

<input checked="" type="checkbox"/> Well	Depth of well	345 ft.	Type of cover	CONC
<input type="checkbox"/> Dug	Diameter of well	18-12 in.	Type of curb	CONC
<input type="checkbox"/> Drilled	Depth of casing	60 ft.	Type of casing	DOUBLE
<input type="checkbox"/> Driven	Top of well above ground	6 in.	Well seal type	GROUT
	Height above flood level	NA ft.	Type of pump	PEERLESS
	Well yield/ft. draw down	NA GPM		
	Pump Capacity	300 GPM		
<input type="checkbox"/> Spring	Type of curb			

Slope	Yes	No	Remarks
<input type="checkbox"/> Level	<input type="checkbox"/>	<input type="checkbox"/>	Tight cover & sides
<input type="checkbox"/> Moderate	<input type="checkbox"/>	<input type="checkbox"/>	Curb seals out surface water
<input type="checkbox"/> Steep	<input type="checkbox"/>	<input type="checkbox"/>	Surface water diversion ditches
	<input type="checkbox"/>	<input type="checkbox"/>	Fenced

2. STORAGE	Type	Capacity	Tight Cover
	NONE		<input type="checkbox"/> yes <input type="checkbox"/> no

3. TREATMENT	<input checked="" type="checkbox"/> Chlorination	Type of Equipment	WET. HYPO
<input type="checkbox"/> Softening	yes no	Chlorinator capacity	H GPD
<input type="checkbox"/> Corrosion Control	<input type="checkbox"/> Daily Report	Volume of water treated	330000 GPD
<input type="checkbox"/> Other (describe)	<input checked="" type="checkbox"/> Spare Chlorinator	Amount of chlorine used/day	
	<input checked="" type="checkbox"/> Spare Parts	Strength of chlorine solution pumped	1 %
	<input checked="" type="checkbox"/> Test Kit	Free available residual chlorine after 15 min.	5 mg/l
		Stock chlorine solution available	5 gal

4. DISTRIBUTION SYSTEM	Describe	A. interconnection with potable water systems (name)
NA	Length _____ ft.	B. cross-connections with unacceptable water supplies
	Main Sizes _____ in.	C. potential introduction of hazardous substances (vats, equipment, etc.)
	Pressure range _____ psi	
	Type of pipe _____	

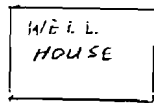
5. PART 72 STANDARDS	Acceptable	Exceptions:
	yes no	
	<input checked="" type="checkbox"/> <input type="checkbox"/> bacteriological quality	
	<input checked="" type="checkbox"/> <input type="checkbox"/> physical quality	
	NA <input type="checkbox"/> <input type="checkbox"/> chemical quality	

6. RECOMMENDATIONS
NONE

Date Inspected
A-18-73

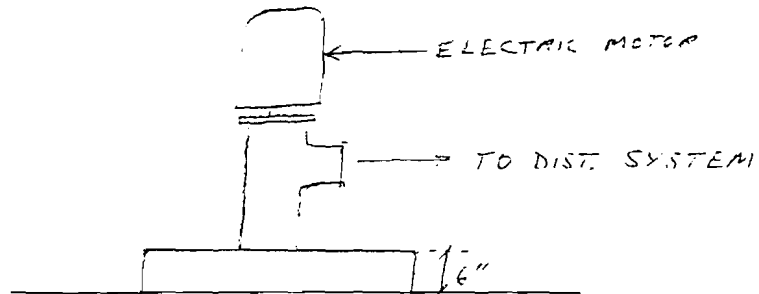
Inspected by
Robert J Mansfield

Sketch plot plan giving property boundaries, well or spring location, potential sources of pollution within 200 ft. and indicate distance of each from water supply (including privies, cesspools, septic tanks, tile fields, barnyards, fertilized areas, storm sewers, sanitary sewers, drains, etc.) storage tanks, water lines, drainage and water courses



SWW Co OWNS ALL LAND
WITHIN 200 FT OF WELL

Sketch well head or spring construction



Sketch flow diagram of water system, including treatment

NEW YORK STATE DEPARTMENT OF HEALTH
DIVISION OF SANITARY ENGINEERING

INSPECTION OF GROUND WATER SUPPLY

3900

Owner of Water Supply & P.O. Address Program Code

SUW CO WELL # 15 BLAUWELT

Tenant (if not owner) Name and Title of Person in Charge

OKANGETOWN RICKLAND MARK ROTHENBERG OPERATOR

Latitude Longitude Uses of Water Gallons used per day Station Source No.

41° 03' 38" North 73° 57' 17" West PUBLIC SUPPLY 330 000

1. WATER SOURCE Geological Character of Surrounding Area

Well

Depth of well 345 ft.
Diameter of well 18-12 in. Type of cover CONC
Depth of casing 60 ft. Type of curb CONC
Top of well above ground 6 in. Type of casing DOUBLE
Height above flood level NA ft. Well seal type GROUT
Well yield/ft. draw down NA GPM Type of pump PEERLESS
Pump Capacity 300 GPM

Spring

Type of curb _____
Slope Yes No Remarks
 Level Tight cover & sides
 Moderate Curb seals out surface water
 Steep Surface water diversion ditches
 Fenced

2. STORAGE Type Capacity Tight Cover

NONE Gal. yes no

3. TREATMENT

Softening Chlorination
 Corrosion Control yes no
 Other (describe) Daily Report
 Spare Chlorinator
 Spare Parts
 Test Kit
Type of Equipment WET. HYPO
Chlorinator capacity H GPD
Volume of water treated 330 000 GPD
Amount of chlorine used/day _____
Strength of chlorine solution pumped 1 %
Free available residual chlorine after 15 min. _____ mg/l
Stock chlorine solution available 5 gal

4. DISTRIBUTION SYSTEM Describe A. interconnection with potable water systems (name)
B. cross-connections with unacceptable water supplies
C. potential introduction of hazardous substances (vats, equipment, etc.)

NA Length _____ ft.
Main Sizes _____ in.
Pressure range _____ psi
Type of pipe _____

5. PART 72 STANDARDS Exceptions:

Acceptable yes no
 bacteriological quality
 physical quality
NA chemical quality

6. RECOMMENDATIONS

NONE

Date Inspected Inspected by

A-18-73 Robert J Mansfield

LABORATORIES USED -- 1 = YES, 2 = NO

5	<input checked="" type="checkbox"/> Treatment Plant Laboratory	<input checked="" type="checkbox"/> Chemical	<input checked="" type="checkbox"/> Physical	<input checked="" type="checkbox"/> Bacteriological	<input checked="" type="checkbox"/> Microscopic	9
10	<input checked="" type="checkbox"/> Commercial Laboratories	<input type="checkbox"/> Chemical	<input type="checkbox"/> Physical	<input type="checkbox"/> Bacteriological	<input type="checkbox"/> Microscopic	14
15	<input checked="" type="checkbox"/> Local Government Laboratory	<input checked="" type="checkbox"/> Chemical	<input checked="" type="checkbox"/> Physical	<input checked="" type="checkbox"/> Bacteriological	<input checked="" type="checkbox"/> Microscopic	19
20	<input checked="" type="checkbox"/> State Laboratory	<input checked="" type="checkbox"/> Chemical	<input checked="" type="checkbox"/> Physical	<input checked="" type="checkbox"/> Bacteriological	<input checked="" type="checkbox"/> Microscopic	24

BACTERIOLOGICAL EXAMINATIONS

UNTREATED		Required	Examined	DISTRIBUTION		Required	Examined (Avg)
25	Number of samples per year	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Number of samples per month		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

DISTRIBUTION BACTERIOLOGICAL EXAMINATIONS

TUBE METHOD FOR COLIFORM ORGANISMS: -- 1 = YES, 2 = NO, 3 = UNKNOWN, 4 = NOT APPLICABLE

37	<input checked="" type="checkbox"/> Did the arithmetic average of the most probable number (MPN) per 100 ml of all samples collected in any month exceed 1.1 per 100 ml of sample?	MONTH AND YEAR	NUMBER OF DISTRIBUTION SAMPLES
Did a most probable number (MPN) per 100 ml of 8.8 or greater occur in:		MO.	YR.
38	<input checked="" type="checkbox"/> More than one sample when less than 20 were examined in the month or more than 5% of the samples when 20 or more were examined in the month?		
39	<input checked="" type="checkbox"/> Two consecutive samples?		
MEMBRANE FILTER METHOD FOR COLIFORM ORGANISMS: -- 1 = YES, 2 = NO, 3 = UNKNOWN, 4 = NOT APPLICABLE			
40	<input checked="" type="checkbox"/> Did the arithmetic average of the membrane filter count per 100 ml of sample examined in any month exceed 1 per 100 ml of sample?		
Did coliform colonies per sample exceed 3 per 50 ml, 4 per 100 ml, 7 per 200 ml or 13 per 500 ml in:			
41	<input checked="" type="checkbox"/> More than one sample when less than 20 were examined in the month or more than 5% of the samples when 20 or more were examined in the month?		
42	<input checked="" type="checkbox"/> Two consecutive samples?		
43	<input checked="" type="checkbox"/> The bacteriological quality of the drinking water conforms to the standards of the State of New York Administrative Rules and Regulations, Part 72, DRINKING WATER STANDARDS.		

PHYSICAL ANALYSIS

SOURCE		1 = Yes 2 = No		DISTRIBUTION		
44	Are the untreated waters of the source(s) sampled at the minimum frequency?	Ground 1/yr	Surface 1/wk	Previous physical sample taken	Date this physical sample taken	
		<input checked="" type="checkbox"/>	<input type="checkbox"/>	MO. DAY YR.	MO. DAY YR.	MO. DAY YR.

DISTRIBUTION PHYSICAL ANALYSIS

57	Turbidity (5 s.u.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Color (15 s.u.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Odor (3 s.u.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
64	<input checked="" type="checkbox"/> The physical characteristics of the drinking water conform with the standards of the State of New York Administrative Rules and Regulations, Part 72, DRINKING WATER STANDARDS.								

CHEMICAL ANALYSIS

SOURCE		1 = Yes 2 = No		DISTRIBUTION		
65	Are the untreated waters of the source(s) sampled at the minimum frequency?	Ground 1/yr	Surface 2/yr	Previous chemical sample taken	Date this chemical sample taken	
		<input type="checkbox"/>	<input type="checkbox"/>	MO. DAY YR.	MO. DAY YR.	MO. DAY YR.

DISTRIBUTION CHEMICAL ANALYSIS (mg/l) (A blank indicates no report)

05	ABS (.5)		Arsenic (.05)		Chromium (hexavalent) (.05)	
14	Barium (1.0)		Cadmium (.01)		Iron (.3)	
24	Chloride (250)	34.6	CCE (.2)		Manganese (.3)	
34	Copper (1.0)		Cyanide (.2)		Nitrate (as N) (10.)	3.43
44	Fluoride (1.5)		Lead (.05)		pH	7.4
51	Sulfates (250)		Phenols (.001)		Alkalinity (as Ca CO ₃)	187
61	Zinc (5.0)		Selenium (.01)		Hardness (as Ca CO ₃)	267
70	TDS (500)		Silver (.05)		(Numbers in () are maximum limits in mg/l)	

77 The chemical characteristics of the drinking water conform to the standards of the State of New York Administrative Rules and Regulations, Part 72, DRINKING WATER STANDARDS.

Sodium	12	Nitrite (as N)	00.3	Ammonia Free (as N)	003
Magnesium		Oxygen Consumed	17	Ammonia alb. (as N)	

Individual Well Summary

3/29/79

Spring Valley Well # 15, Blauvelt

Date	Sample Identification	TCEA	TCE	PCE	CHCl ₃	Cl ₂ BPM	Cl ₂ E ₂ M	THM
4/2/78	SV Well # 15, Blauvelt			66				
8/3/78	"			56				
1/2/79	"			66				
4/10/79	"			70				
7/1/79	"			71				
8/12/79	"			71				
9/25/79	"			66				
11/5/79	"			56				
12/12/79	"			70				
1/14/79	"			65				
4/1/79	"			68				
1/2/78	"			49				
3/2/79	SV Well # 15, Blauvelt			14				
4/1/79	"			11				
5/1/79	"			11				
5/22/79	"			9				
7/26/79	"			23				
8/1/79	"			31				
8/7/79	"			19				
8/21/79	CC			19				
10/4/79	"			19				
1/1/79	"			15				

Individual Well Summaries

6/29/79

Spring Valley Well #15, Blauvelt

Date	Sample Identification	TCEA	TCE	PCE	CHCl ₃	C ₂ Br ₄	C ₁ B ₂ M	THM ₂
6/29/79	S.V. Well #15, Blauvelt			17				
7/5/79	"			17				
7/27/79	"			28				
7/28/79	"	2		23				
7/26/79	"			22				
8/2/79	"			19				
8/9/79	"	2	1	27				
8/16/79	"			35				
8/23/79	"		2	34				
8/30/79	"			13				
9/2/79	"		2	38				
9/13/79	"			41				
9/27/79	"			38				
10/9/79	"		3	40				
10/12/79	"		3	40				
10/18/79	"		3	37				
10/27/79	"		3	37				
11/1/79	"		3	40				
11/9/79	"		5	43				
11/15/79	"		5	62				
11/29/79	"		5	77				
12/4/79	"		5	68				
12/8/79	"		5	59				
12/18/79	"		5	57				
12/31/79	"		3	20				

TH: 10/1/81 162ppb

VOLATILE ORGANIC ANALYSIS - SUMMARIES

Spring Valley Well #15, Blauvelt

SV

DATE	SAMPLE IDENTIFICATION	1,1,1TCG	ICE	PCE	CCl4	CHCl3	CHCl2Br	CHClBr2	CHBr3	TTHM:
1/22/81	SU Well #15		26	77						
2/13/81	"		3	74						
4/24/81	"		2	19						
7/30/81	"			28	#					
8/6	"			34						
8/13	"									
8/20	"			38						
8/27	"		3	43						
9/3	"			58						
9/10	"			42						
9/17	"			125						
9/24	"			117						
10/1	"			162						
10/5	"	1		158						
				13						
1982										
5/5/82	S.V. Well #15			15						(Started 5/3/82 to waste)
5/7	"			17						
5-10	SV WELL #15			9						
5-13	SV WELL #15			12						
5-17	SV WELL #15			12						
5-21	SV WELL #15			11						
5-25	SV WELL #15			12						
6-1	SV WELL #15			13						
6-7	S.V. Well #15			13						
6-14	SV. Well #15			13						
6-21	"			19						



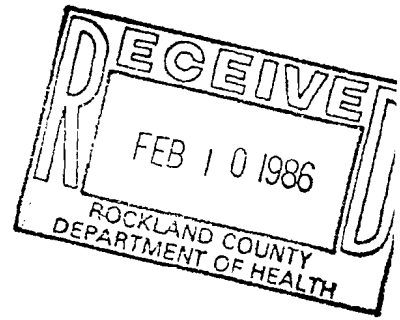
Hackensack Water Company

2001 State Street
Spring Valley, New York 10977
(914) 337-9300

February 6, 1986

for Blauvelt Well

fiber



Mr. Thomas Raymond
York Wastewater Consultant
200 Monroe Turnpike
Monroe, CT 06468

Dear Mr. Raymond:

With respect to our telephone conversation on February 3, 1986, the Spring Valley Water Company has obtained, at company expense, analytical results from the two wells at the Glenshaw Glass Company and catch basins located on Glenshaw Street. We are very much concerned over any contamination that may impact the public supply wells of the Spring Valley Water Company and the surface supply of the Hackensack Water Company.

Approximately 1,200 feet to the northwest of the Glenshaw Glass property is Blauvelt Well 15 of the Spring Valley Water Company. The well has been shut down as a result of the presence of volatile organic chemicals detected at unacceptable levels.

The Company has compiled the following information in regard to this problem:

1. Well No. 1 and Well No. 2 of Glenshaw Glass Company were sampled on September 11, 1978 and analyzed for volatile organic chemicals. The results of that analysis indicated the presence of trichloroethylene at 101.6 parts per billion (ppb) in Well No. 1, and 173.4 ppb in Well No. 2. Perchloroethylene concentrations were detected at 1.6 ppb in both wells.
2. The New York State Department of Environmental Conservation has listed the Glenshaw Glass Company as a user of substances of concern in their Industrial Chemical Survey. The survey indicates that a State Pollution Discharge Elimination System permit exists, and the receiving waters are the Sparkill Creek Tributary. Downstream of the Sparkill Creek is a potable water supply diversion for the Hackensack Water Company. The survey also indicates possible emissions to the atmosphere.

when? 78

7:30 Orangeburg Town Hall 3/19th Wed. Meeting

Mr. Thomas Raymond

-2-

February 6, 1986

3. On January 9, 1981 samples were collected from the catch basins located on Glenshaw Street. Water sampled from the catch basin at the northwest corner of Route 303 and Glenshaw Street contained the following compounds:

chloroform	2 ppb
1,1,1 trichloroethane	69 ppb
bromodichloromethane	1 ppb
trichloroethylene	18 ppb
dibromochloromethane	3 ppb
bromoform	3 ppb
perchloroethylene	7 ppb

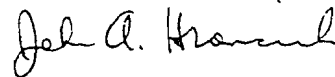
Water sampled from the catch basin located approximately 30 feet west of Route 303 on Glenshaw Street contained the following compounds:

chloroform	2 ppb
1,1,1 trichloroethane	869 ppb
bromodichloromethane	1 ppb
trichloroethylene	7 ppb
dibromochloromethane	2 ppb
bromoform	3 ppb
perchloroethylene	6 ppb

← 1981?

We request that any additional information obtained from your investigation be provided to us for review. If you have any questions please call me at (201) 767-9300, Extension 3017.

Very truly yours,

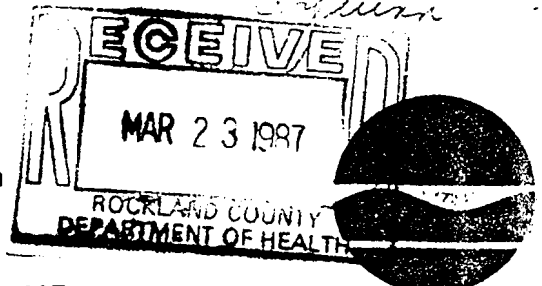


John A. Hroncich
Sanitary Engineer

JAH:ek

cc: Rockland County Health Department ✓

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233-



MAR 10 1987

Henry G. Williams
Commissioner

Spring Valley Water Company
360 W. Nyack Rd.
W. Nyack, NY 10994

Dear Sir or Madam:

As mandated by Section 27-1305 of the Environmental Conservation Law (ECL), the Department of Environmental Conservation must maintain a registry of all disposal sites suspected or known to contain hazardous wastes. The ECL also mandates that this Department notify the owner of all or any part of each site or area included in the registry of inactive hazardous waste disposal sites as to changes in site classification.

Our records indicate that you are the owner or part owner of the site listed below. Therefore, this letter constitutes notification of change in classification of such site in the registry of inactive hazardous waste disposal sites in New York State.

DEC Site #: 344019
Site Name: Blauvelt Wells
Site Address: N. Troop Rd.
Orangetown, NY

Classification Change from 3 to 2.

The reason for the change is as follows:

Contamination caused well closure.

Enclosed is a copy of the New York State Department of Environmental Conservation, Division of Solid and Hazardous Waste, inactive hazardous waste disposal site report form as it appears in the registry and Annual Report, and explanation of the site classifications. The law allows the owner and/or operator of a site listed in the registry to petition the Commissioner of the Department of Environmental Conservation for deletion of such site, modification of site classification, or modification of any information regarding such site, by submitting a written statement setting forth the grounds of the petition. Such petition may be addressed to:

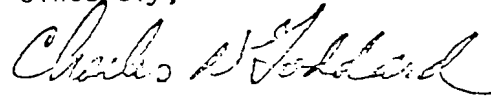
Mr. Henry G. Williams
Commissioner
Department of Environmental Conservation
50 Wolf Road
Albany, New York 12233-4010

RECEIVED
ENVIRONMENTAL DEPT.

MAR 23 1987
Copies to
R. Thiele, J. Hron

For additional information, please contact Mr. Robert Olazagasti, Supervisor
Site Control Section, Bureau of Hazardous Site Control at (518) 457-0747.

Sincerely,



Charles N. Goddard, P.E.
Chief, Bureau of Hazardous Site Control
Division of Solid and Hazardous Waste

Enclosures

THE FOLLOWING ARE THE PRIORITY CODES ASSIGNED TO ALL
INACTIVE HAZARDOUS WASTE SITES IN NEW YORK STATE

- 1 - Causing or presenting an imminent danger of causing irreversible or irreparable damage to the public health or environment - immediate action required
- 2 - Significant threat to the public health or environment - action required
- 2a - Temporary classification assigned to sites that have inadequate and/or insufficient data for inclusion in any of the other classifications
- 3 - Does not present a significant threat to the public health or environment - action may be deferred
- 4 - Site properly closed - requires continued management
- 5 - Site properly closed, no evidence of present or potential adverse impact - no further action required

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SOLID AND HAZARDOUS WASTE
INACTIVE HAZARDOUS WASTE DISPOSAL REPORT

CLASSIFICATION CODE: 2

REGION: 3

SITE CODE: 344019

EPA ID: NYD980780720

NAME OF SITE : Blauvelt Wells

STREET ADDRESS: N. Troop Road

TOWN/CITY:

Orangetown

COUNTY:

Rockland

ZIP:

10994

SITE TYPE: Open Dump-X Structure- Lagoon- Landfill- Treatment Pond-
ESTIMATED SIZE: 1 Acres

SITE OWNER/OPERATOR INFORMATION:

CURRENT OWNER NAME....: Spring Valley

CURRENT OWNER ADDRESS.: 360 W. Nyack Rd., W. Nyack, NY 10994

OWNER(S) DURING USE...: Spring Valley Water Co.

OPERATOR DURING USE...: Spring Valley Water Company

OPERATOR ADDRESS.....:

PERIOD ASSOCIATED WITH HAZARDOUS WASTE: From To Unknown

SITE DESCRIPTION:

Well field which provided approximately 240,000 gpd to the Spring Valley system was found in 1978 to be contaminated with perchloroethylene (PCE conc. 40 ppb). Possible source was Blauvelt Laundromat & Dry Cleaning Center. Field was used intermittently until late 1981 when the well was taken out of service. Tests are ongoing for the re-opening of the well. Wells contaminated by unknown source. Phase I investigation has been conducted at this site. Phase II investigation completed.

HAZARDOUS WASTE DISPOSED: Confirmed-X
TYPE

Suspected-
QUANTITY (units)

perchloroethylene

unknown

ANALYTICAL DATA AVAILABLE:

Air- Surface Water- Groundwater-X Soil- Sediment- None-

CONTRAVENTION OF STANDARDS:

Groundwater-X Drinking Water- Surface Water- Air-

LEGAL ACTION:

TYPE...: None State- Federal-
 STATUS: Negotiation in Progress- Order Signed-

REMEDIAL ACTION:

Proposed- Under design- In Progress- Completed-
 NATURE OF ACTION:

GEOTECHNICAL INFORMATION:

SOIL TYPE:
 GROUNDWATER DEPTH:

ASSESSMENT OF ENVIRONMENTAL PROBLEMS:

Contamination of groundwater.

ASSESSMENT OF HEALTH PROBLEMS:

	Contaminants Available	Migration Potential	Potentially Exposed Population	Need for Investigation
Medium				
Air	Likely	Unlikely	Yes	Medium
Surface Soil	Unlikely	Unlikely	No	Low
Groundwater	Identified	Highly Likely	Yes	High
Surface Water	Unlikely	Unlikely	Yes	Low

Health Department Site Inspection Date 01/86

MUNICIPAL WASTE ID:

FILE

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233



bcc: E. Barcomb
R. Piaggione, DEE
A. Carlson, DOH
L. Condra, DRA
R. Dana, DEE
A. McCarthy
R. Pergadia, R/3
A. Klauss, R/3
S. Ervolina
J. Swartwout
R. Marino
W. Bayer
L. Beagle
E. Zuk

AUG 27 1992

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

RMG Realty Corp.
P.O. Box 10
Inwood Station
New York, New York 10034

LB/srh

Dear Sir:

As mandated by Section 27-1305.4.a. of the Environmental Conservation Law (ECL), copy enclosed, the New York State Department of Environmental Conservation (NYSDEC) must investigate all inactive disposal sites suspected or known to contain hazardous wastes. We have received information which leads us to suspect that hazardous waste has been disposed of at the following location:

DEC Site No.: 34403⁷
Site Name: Blauvelt Laundromat & Dry Cleaning Center
Site Address: 68 South Western Highway, Blauvelt, Rockland County
Tax Map No.: 45-93-849-11

Therefore, this letter constitutes notification of the NYSDEC's intention to investigate the validity of this suspicion. Should this study confirm that hazardous waste disposal has occurred, this site will be entered into the Registry of Inactive Hazardous Waste Disposal Sites in New York State.

A summary of the information we presently have on the site is included. If you should have information that may be relevant to our investigation, please forward it within fifteen days of receipt of this letter, to Mr. John Swartwout, Chief of the Eastern Investigation Section in the Bureau of Hazardous Site Control, Room 220, 50 Wolf Road, Albany, New York 12233-7010.

Sincerely,

Robert L. Marino
Chief
Site Control Section
Bureau of Hazardous Site Control
Division of Hazardous Waste Remediation

Enclosure

DE

LAW OFFICES OF
BRING & SAVAD

25 SMITH STREET
(AT ROUTES 59 & 304)

NANUET, NEW YORK 10954

(914) 624-1200

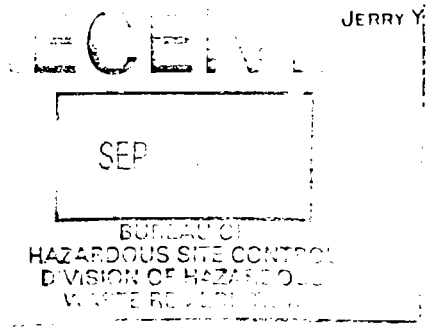
FAX (914) 624-2293

FAX (914) 624-2294

PAUL SAVAD, P.C.
ROBERT D. BRING

FRANCES I. MEZZATESTA
NORMA S. LENNA
LEGAL ASSISTANTS

COUNSEL
FREDERICK H. MANDEL
STEPHEN N. WEISS
PATRICIA C. MANDEL
JACK MEVORACH
JERRY Y. SCHONFELD



September 10, 1992

Mr. John Swartwout,
Chief of the Eastern Investigation
Section in the Bureau of Hazardous Site
Control,
Room 220
50 Wolf Road
Albany, New York 12233-7010

RE: RMG Realty Corp.
(Your letter dated August 27, 1992

Dear Mr. Swartwout:

Please be advised that we are counsel to "R.M.G.K. Realty Corp.", the owner of the premises, which includes 68 South Western Highway, Blauvelt, Rockland County, New York.

We are in receipt of the letter dated August 27, 1992 from Robert L. Marino, and wish to respond thereto.

To our knowledge, there presently are no hazardous waste upon the site, and our client vehemently denies the existence thereof. If, however, you wish to conduct a site investigation, please contact our office and the appropriate appointment may be scheduled.

If any further information is needed, please contact this office.

Very truly yours,

Robert D. Bring
Robert D. Bring, Esq.

RDB:lf