Berlin/Petersburg Landfill

Final Closure Plan

Prepared for:

EAC Systems, Inc.
Albany, New York

July 1991

Prepared by:

SMITH & MAHONEY, P.C.
ENGINEERS • PLANNERS • SCIENTISTS • SURVEYORS
79 NORTH PEARL STREET, ALBANY, NEW YORK 12207
(518) 463-4107
95 ROUTE 6A, P.O. BOX 1591, SANDWICH, MASSACHUSETTS 02563
(508) 833-0219

BERLIN/PETERSBURG LANDFILL

FINAL CLOSURE PLAN

TOWNS OF BERLIN AND PETERSBURG
RENSSELAER COUNTY, NEW YORK

Prepared for: EAC Systems, Inc.
79 North Pearl Street
Albany, New York 12207

Prepared by: Smith & Mahoney, P.C.
79 North Pearl Street
Albany, New York 12207

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Table of Contents

List of Figures

List of Tables

List of Appendices

1.0 Introduction

This Closure Plan (the "Plan"), prepared in accordance with 6 NYCRR 360-2.15 is being submitted by the towns of Berlin and Petersburg (the "Towns") to fulfill the requirements for the closure of the facility known as the Berlin/Petersburg Landfill (the "Landfill"). The Landfill is identified by the New York State Department of Environmental Conservation ("DEC") as Solid Waste Facility No. 42S20. The primary elements addressed by this Plan include:

- Closure Investigation Report, including:
  - Hydrogeologic Investigation
  - Explosive Gas Investigation
  - Surface Leachate Investigation
  - Vector Investigation
- Final Cover System
- Implementation Schedule
- Post-closure Monitoring

A site investigation was performed in accordance with 6 NYCRR Part 360-2.15 and followed the guidelines established in the Closure Investigation Plan (the "CIP") approved by DEC in April, 1991 (Appendix H). This investigation was conducted prior to the preparation of the Plan in order to determine and evaluate the extent of any potential impacts from the Landfill. The primary focus of the investigation was to assess the potential release or

migration of contaminants from within the site boundaries.

To facilitate expeditious processing and approval by DEC of the documents and associated plans required prior to the initiation of landfill closure operations, the Closure Investigation Report (the "CIR"), pursuant to 6 NYCRR Part 360-2.15(a)(5), is wholly contained within this Plan. Sections 3.0 through 6.0 of this Plan, associated with the first four items listed above, constitute the CIR. The intent of this format, as discussed with DEC is to minimize duplication of efforts on the part of the Towns and DEC.

2.0 Site Description

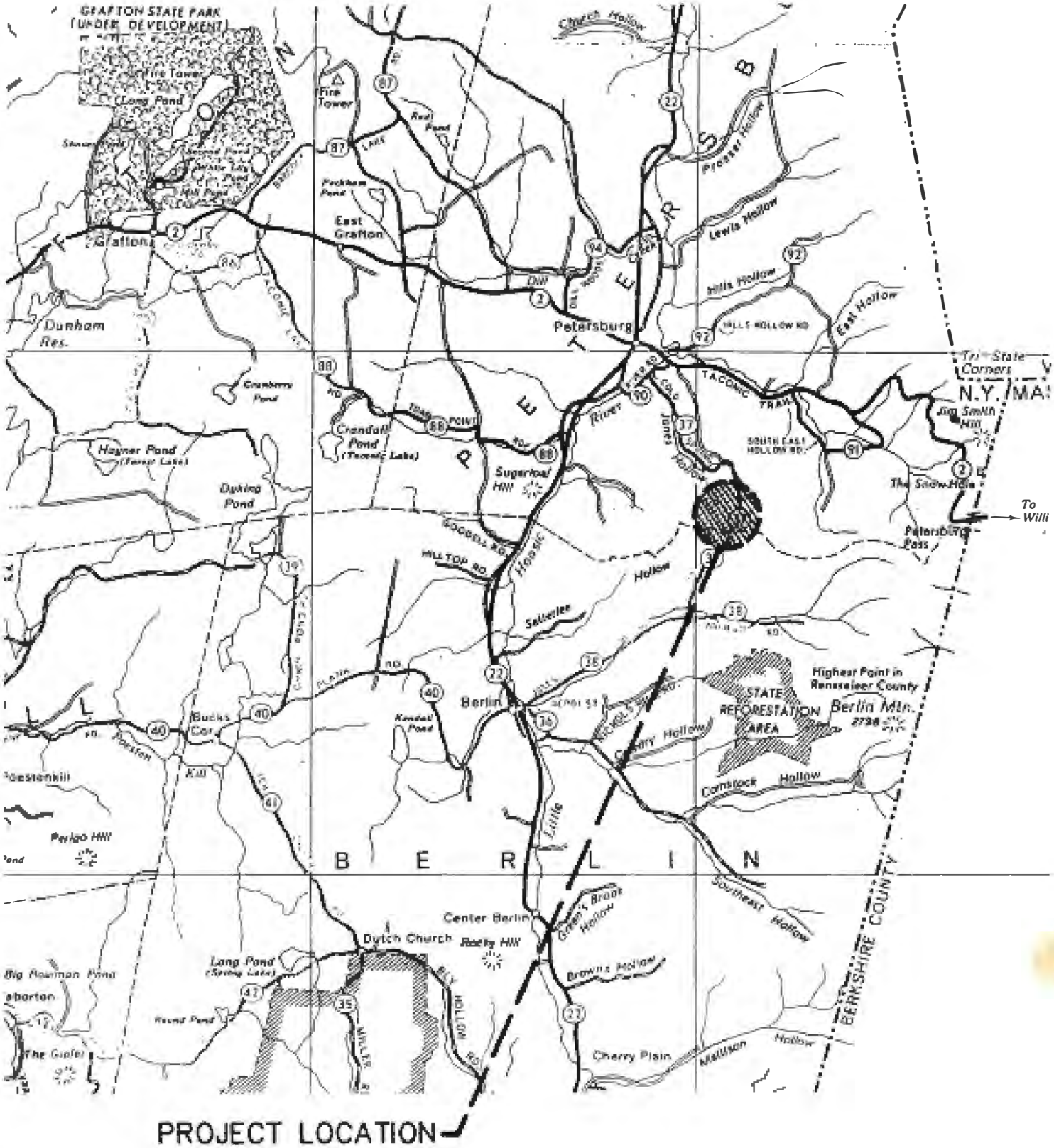
2.1 Site Location

The Landfill is located west of and adjacent to County Route 37 on the border between the towns of Berlin and Petersburg in east-central Rensselaer County, New York (Figure 2-1 - Site Location Map). The Landfill has a footprint area of approximately 7 acres situated in the southern portion of the 23 ± acre property. The surrounding area can generally be described as heavily wooded rural land, with only one residence in close proximity to the site.

2.2 Site Activities

After maintaining adjacent facilities for many years, the Towns commenced joint landfilling operations at the site in early 1982. Landfill operations at the site are currently administered by EAC Systems, Inc. (EAC) of Albany, New York, in accordance with an agreement with the Towns. All operations are overseen and inspected by a representative of the Towns.

Basic operational procedures followed by the EAC staff include the recording of refuse weight at the scalehouse before vehicles enter the facility, waste placement, and general site



BERLIN / PETERSBURG LANDFILL

SITE LOCATION MAP

FIGURE 2-1

SCALE: 1" = 1-1/2 MILES

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maintenance. Papers and debris that have been blown off of the Landfill's working face are collected and disposed of at the daily working face.

All solid waste is inspected by the Towns' representative before deposition at the daily working face. Depending upon the nature of the material, it is disposed of in either the landfill working face or the appropriate adjoining stock pile (see Figure 2-2 -Site Plan). Separate stock piles are available for placement of white goods, metals, used tires, and junk cars. Refuse delivered by local residents is placed in convenience dumpsters for temporary storage prior to landfilling. Waste is placed, spread, compacted, and covered with a minimum of six inches of clean fill at the end of each working day.

2.3 Site Topography and Drainage

The topography of the site typifies regional topographic trends and resulted from tectonic events, glacial advancement and retreat, surficial erosionary processes, and organic growth and decay. Topography at the site generally slopes to the west, with site elevations ranging from 1200 to 1350 feet above mean sea level. The site is located in the uplands immediately west of a north-south tending watershed divide located along the New York - Massachusetts border, and

N

APPROXIMATE
SURFACE WATER SAMPLE
LOCATION (TYP)

LIMIT OF
SOLID WASTE

TP-4
TP-1
TP-3
TP-2

ACTIVE LANDFILL AREA

LIMIT OF SOLID
WASTE

CONVENIENCE
DUMPSTERS

GARAGE

GRAVEL DRIVE

RAMP

GRAVEL DRIVE

COLD SPRING ROAD
COUNTY RTE 12

LEGEND:

- MONITORING WELL LOCATIONS
- PROPERTY BOUNDARY
- LIMIT OF SOLID WASTE
- SURFACE WATER SAMPLE LOCATION
- TEST PIT LOCATION

FIGURE 2-2
BERLIN / PETERSBURG LANDFILL
SKETCH MAP
SCALE: 1" = 100'

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MAP DATED MARCH 27, 1991

drainage in the area is generally in a westward direction.

The landfill is situated at the head of a small valley or ravine that drains surface water by an unnamed tributary to Jones Hollow Brook. This small stream flows along the south and west sides of the landfill. During landfill development, a portion of the stream was redirected from its original path by placement of refuse.

3.0 Hydrogeologic Investigation

3.1 Site Investigation Methods

The descriptions of site investigation methods that follow have been adapted from the Closure Investigation Plan (the "CIP") and are basically brief summaries of those described in the CIP. The CIP has been incorporated into this Plan as Appendix H for reference.

3.1.1 Literature Search

A comprehensive search of existing information regarding site hydrogeology was conducted. Readily available maps and documents from State and Federal Agencies, private and State Universities, professional organizations, and consultants were reviewed.

Kestner Engineers of Troy, New York conducted the initial monitoring of the site; later monitoring was overseen by Clark Engineering. Clark Engineering's report entitled "Berlin Petersburg Project" summarizes the geology/hydrogeology of the Landfill and the region, and includes boring logs and permeability testing data.

A bibliography is presented at the end of this report and

contains references to maps and documents from which information was extracted for incorporation into this report.

3.1.2 Surficial Geologic Mapping

As required by 6 NYCRR Part 360-2.11(a)(3) the site was mapped to determine the areal extent of surficial geologic deposits. The primary source of information used in this phase of the site investigation was the Rensselaer County Soil Survey, published in 1988 by the Soil Conservation Service. Data from the test boring and test pit investigations, discussed later in this report, were also incorporated in this mapping program.

Interpretations of this data are presented in Section 3.2.2, including soil type designations, contacts, nonconformities and any other data deemed important to understanding the site's hydrogeologic character.

3.1.3 Water Well Survey

A survey of public and private water supplies within one mile downgradient and one-quarter mile upgradient of the Landfill was conducted in accordance with 6 NYCRR Part 360-2.11 (a)(5) by Clark Engineering in the spring of

1990 (Appendix G). The survey form requested information from the owner such as location, depth, approximate age, stratigraphic units screened, well construction, yield, static water level measurements, water quality, and any additional information which is pertinent to understanding the impact the site may have upon the area's water supply. Information was also gathered from the New York State Department of Health and the Rensselaer County Department of Health. A summary of the Water Well Survey is presented in Section 3.3.3.

3.1.4 Subsurface Investigation

3.1.4.1 Site Reconnaissance

In order to assess site conditions, a preliminary field reconnaissance of the site was undertaken. The property boundaries and site's ravine areas were observed. This work was undertaken to discern the site's topography, drainage characteristics, and other relevant features. These characteristics were evaluated to determine the effects upon the site's hydrogeologic character. In addition, the work assisted in the analysis of the site's surficial geology.

3.1.4.2 Test Pits and Monitoring Wells

A test pit program was undertaken on April 10, 1991 for the purposes of defining limits of fill in the vicinity of the metal pile and furthering the geologic investigation. Five test pits were excavated with a Caterpillar 225 excavator with a depth capability of 22 feet. Data from these excavations was primarily used in delineating the boundary of refuse in areas where this limit was not evident, in order to assist in the design of a cover system to minimize precipitous infiltration into the in-place waste.

A total of eight test borings and monitoring wells were installed at the site during four separate events from 1983 to 1991. The locations of these test borings and monitoring wells are depicted on both the Existing Conditions Plan sheet (Sheet No.2) and Site Plan (Figure 2-2). Monitoring wells MW-5 and MW-6 were installed in locations suggested by DEC to supplement data gathered from existing wells. The number and spacing of monitoring wells is sufficient for determination of the site's groundwater flow direction, velocity, and quality.

3.1.4.3 Test Pit Excavation

Test pit excavation was supervised by a Smith & Mahoney geologist. Logs detailing the test pit elevation, surface features, test pit depth, relevant soil horizons or features, approximate moisture content of soils, Unified Soil Classification System (USCS) designation, stratigraphy, soil structures, bedrock lithology, and other pertinent data were made (Appendix D). Completed test pits were immediately backfilled with excavated soils and recompacted. Five test pits, labelled TP-1 to TP-5, and ranging in depth from 2.3 feet to 3.8 feet, were conducted at the site.

3.1.4.4 Test Boring Installation

A total of eight test borings have been conducted at the site in association with three different investigations. As discussed in detail in Section 3.2 of the CIP, six test borings were conducted by consulting and contracting firms prior to the installation of wells MW-5 and MW-6 under the direction of Smith & Mahoney, P.C. The boring logs and monitoring well construction diagrams

associated with these earlier studies are included in Appendix C and Appendix E, respectively.

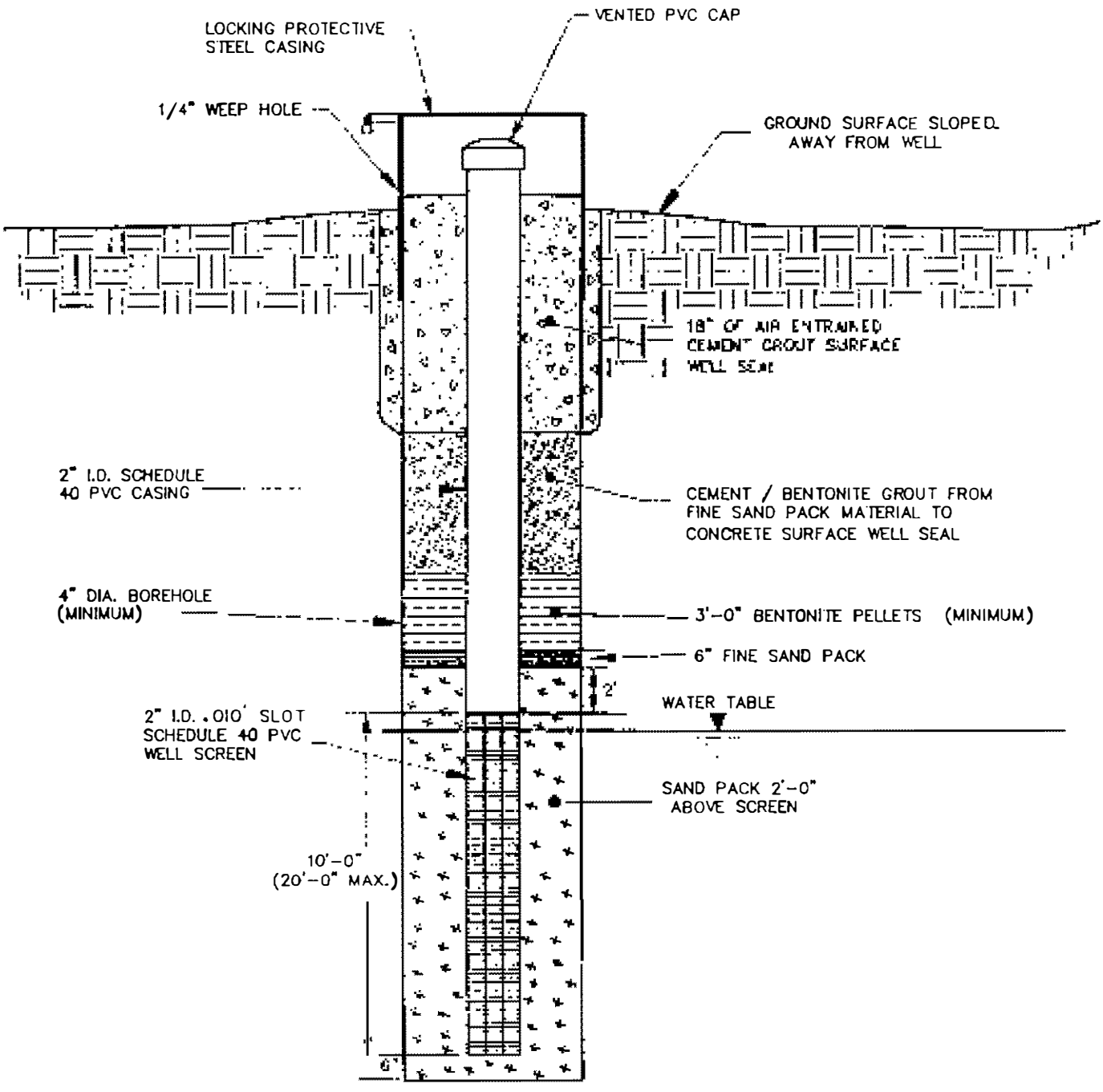
In September 1990 and May 1991, test boring/monitoring wells MW-5 and MW-6 respectively, were conducted and installed by Smith & Mahoney, P.C. These operations were overseen by a staff geologist. A Joy HD-22 rotary drilling rig was employed to perform the soil and rock test borings. Detailed logs containing soil classifications (USCS); soil characteristics such as color, moisture content, and density; stratigraphic horizons; sample recoveries; water table levels; and bedrock depth were recorded for each test boring. Soil samples were retrieved with a split-spoon sampler and bedrock coring was completed with an NX-sized double-tubed coring barrel.

3.1.4.5 Monitoring Well Installation

The drilling and sampling apparatus used to install monitoring wells MW-5 and MW-6 was decontaminated utilizing a high pressure steam cleaning wash to minimize the possibility of cross contamination between test borings. Details concerning decontamination procedures used during the installation of the first six wells were not included with the information provided to Smith & Mahoney, P.C. Upon completion of each test boring, the hole was flushed with potable water to remove suspended particles that could potentially impede flow through the filter pack and well screen.

The monitoring wells were constructed of two-inch diameter Schedule 40 Polyvinyl Chloride (PVC) casing with a 0.010 inch slotted Schedule 40 PVC screen. All screen and riser pipe sections were connected with flush-mounted threaded couplings that were sealed with teflon tape. A typical Groundwater Monitoring Well Construction Diagram is shown in Figure 3-1.

A sand pack consisting of No.1 Whitehead sand (a clean, inert, siliceous material) that was size-



(NO SCALE)

SMITH & MAHONEY, P.C.
CONSULTING ENGINEERS • SURVEYORS
79 NORTH PEARL STREET, ALBANY, NEW YORK 12207

TYPICAL GROUNDWATER MONITORING WELL

FIGURE 3-1 | DATE: 6/91

compatible with the screen slot dimensions, was emplaced around the well screen. The sand pack extended no more than two feet above the top of the screen. A bentonite seal (pellets), a minimum of three feet in thickness, was installed above the sand pack.

After installation of the bentonite seal, a bentonite/cement or benseal grout was pumped under pressure into the annulus of each well using a tremie pipe. Drive casing or augers were left in the hole before grouting to prevent caving. The grout was allowed to extend upwards in the borehole to a depth of approximately three feet from the surface. A length of protective steel casing was installed over the monitoring well and grouted with cement.

The protective casing was fitted with a locking cover and lock that can be opened with a master key. The PVC cap for the well was vented with a 1/4 inch diameter vent hole. In order to drain water that may collect in the steel casing, a 1/4 inch weep hole was drilled into the side of the casing.

After installation, the well was developed to remove suspended fines from the groundwater. Well development was accomplished using the WaTerra® inertial pump. Well development was continued until the change in rate of removal of fines by the bailer was negligible.

3.1.4.6 Permeability Testing

Field permeability tests utilizing both a pumping test and a holding test were conducted in monitoring well MW-3 (Clark Engineering, June 1990). The tests utilized two packers placed at specific intervals within the borehole, serving to isolate discrete stratigraphic sections for testing. The packers within the borehole were connected with a perforated hose through which water was pumped into the borehole. Water pressure and cumulative pumped volume were monitored and recorded at varying intervals, typically one minute, for a period of approximately five minutes for use in calculating the permeability of the tested section.

Field permeability data and associated hydraulic conductivity calculations are presented in Appendix

F.

3.1.5 Survey

Each test boring and monitoring well location was surveyed for location and elevation control. Fixed datum points, from which water level measurements are taken, have been established on each monitoring well to ensure consistent and accurate measurements. Locations of test pits and monitoring wells were plotted on the Existing Conditions Plan sheet (Sheet No.2) and the Site Plan (Figure 2-2).

3.1.6 Water Quality Sampling and Analysis

In accordance with 6 NYCRR 360-2.15(a)(1)(iii), each water quality monitoring point identified in the CIP was sampled and analyzed for DEC Baseline parameters to establish current site water quality and to provide a point of reference for comparison with future analytical results.

A brief discussion of the methods employed during sampling is presented below, and a more detailed description can be found in the CIP (Appendix G). The nature and frequency of future sampling events is

discussed in Section 9.3.

3.1.6.1 Groundwater Sampling

Samples were taken in accordance with Smith & Mahoney's Groundwater Sampling Protocol (Appendix A) and were transported with a completed chain of custody form to a DEC approved laboratory. An analysis of the site groundwater quality is presented in Section 3.3.4 and includes a discussion of the results of previous groundwater sampling events, specifically those conducted by Kestner Engineers in June 1985 and July 1987.

3.1.6.2 Surface Water

Three surface water samples (including one leachate sample), with locations identified on the Existing Conditions Plan sheet (Sheet No.2), were collected at the site. The upgradient sample was taken from the stream channel on the western side of the property at a location far enough south (upstream) of the Landfill to yield background concentrations of the tested parameters. The second surface water sample was taken from an area of ponded surface run-off and possible leachate discharge on the

western toe of the Landfill. Immediately off the landfill toe and to the west is the outlet channel of the previously diverted stream. This stream-bed forms a channel for run-off to flow away from the landfill during wet periods. The old stream-bed joins the newly diverted stream-bed approximately 150 feet north of the landfill toe, near the property boundary. The third surface water sample was taken immediately downstream of this intersection. This sample demonstrates the concentrations of contaminants after the two streams combine. This is believed to be indicative of actual downgradient surface water quality.

3.2 Geology

3.2.1 Regional Geology

Surficial deposits at the Landfill are composed of sediments deposited during the Wisconsin glacial stage (10,000 years before present). Glacial lakes developed to the south as ice sheets retreated northward at the end of glaciation. Meltwater fed these lakes and carried sediments.

The bedrock structure at the site is the result of the

Taconic Orogeny. This mountain building event formed the Taconic Mountains just to the east of the site when large pieces of continental material were thrust along faults over other continental materials. The Hudson-Mohawk sheet of the Geologic Map of New York shows faults which generally trend north-south, both to the east and west of the Landfill. Bedrock was folded and deformed by tectonic forces. The Hudson-Mohawk Sheet identifies bedrock composition in the area of the Landfill as ranging from graywacke to the metamorphic form of shale, slates, and phyllites.

3.2.2 Site Surficial Geology

The distribution and composition of soils at the site is generally consistent with the Hudson-Mohawk Sheet of the Surficial Geology Map of New York. It identifies the Landfill area as having thin deposits of undifferentiated glacial deposits. Mapping provided by the Soil Conservation Service shows soil immediately overlying the bedrock to be composed of sands and gravels. This formation was deposited during glacial retreat and exhibits a typical fining upward sequence.

The thickness of the unit generally increases in the western portion of the site and decreases to the east.

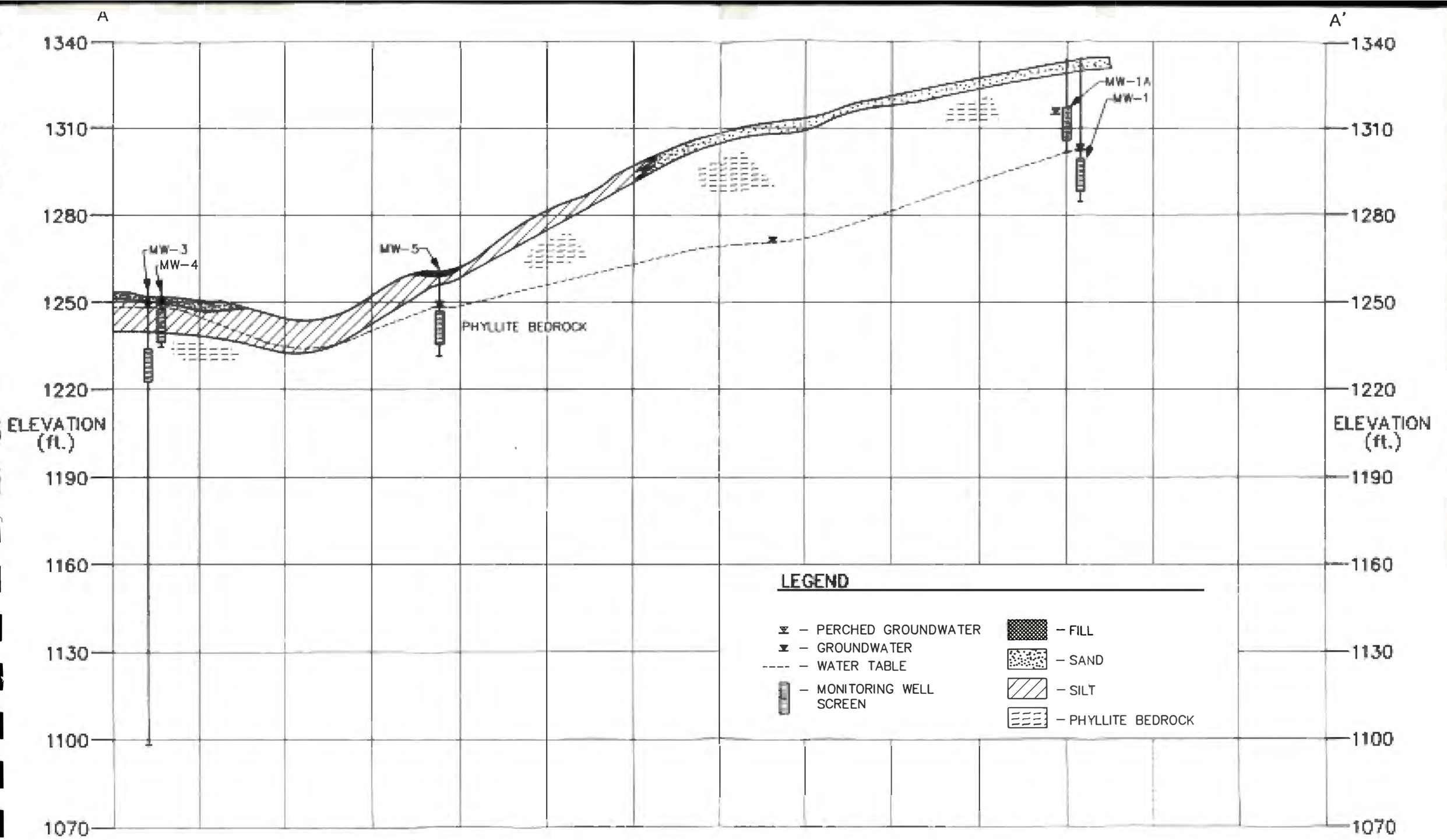
This trend is clearly established by the depth to bedrock at each of the test boring locations. From east to west, the depths to bedrock in borings MW-1 and MW-1s, MW-5, MW-2 and MW-2s, MW-3 and MW-4, and MW-6 are 3.5 feet, 4.8 feet, 10.5 feet, 14 feet, and 38 feet, respectively. Site stratigraphy is depicted in geologic cross-section A-A' Figure 3-2. The location of the cross-section in relation to the overall site area is shown on the Existing Conditions Plan Sheet (Sheet No. 2).

3.3 Hydrogeology

The preceding evaluations of local and regional geology, topography, and drainage patterns were completed primarily to determine the hydrogeologic character of the site. This information forms the basis from which the conclusions in this section of the Plan have been drawn.

3.3.1 Subsurface Conditions

The data collected during the subsurface investigations described in Section 3.1.4, supplemented by information found in the literature search, was used to define hydrogeologic characteristics, stratigraphic relationships, and the manner in which these site-specific conditions interact and affect the local



PREPARED BY:

SMITH & MAHONEY, P.C.
ENGINEERS • PLANNERS • SCIENTISTS • SURVEYORS
79 NORTH PEARL STREET, ALBANY, NEW YORK 12207

GEOLOGICAL CROSS-SECTION A-A'

SCALE: VERTICAL 1"=30'
HORIZONTAL 1"=60'

BERLIN/PETERSBURG
LANDFILL CLOSURE

FIGURE 3-2

hydrologic environment. Sources used in this evaluation are referenced in the bibliography at the end of this document.

3.3.1.1 Bedrock Geology

A low grade metamorphosed graywacke is exposed in the north-western edge of the Landfill. This unit was not encountered in any of the test borings and this fact may be attributable to the highly variable nature of the bedrock resulting from the Taconic Orogeny.

A low grade, highly variable metamorphic slate was encountered in test borings MW-1S, MW-2, MW-2S, MW-3, and MW-4 by Clark Engineering. Smith & Mahoney, P. C. encountered slate in test boring MW-6 and phyllite in test boring MW-5.

3.3.1.2 Soil Stratigraphy

The soil stratigraphy at the site (Figure 3-2) consists of only one significant unit. The unit is a non-cohesive glacial till, composed of fine to coarse sand with cobbles, gravel, and silt, and a trace of clay. This unit directly overlies the

bedrock.

3.3.2 Groundwater Flow

The first occurrence of groundwater at the site is at the contact between the glacial till and the bedrock. The lower portion of this zone consists of a moderately weathered and fractured bedrock. Groundwater flows through these shallow fracture zones and along the till/bedrock interface in a northwesterly direction, generally reflecting the bedrock topography.

The screens in Monitoring Wells MW-2s (destroyed) and MW-4 straddle the till/bedrock interface, serving to intercept the flow and allowing measurement of static water levels and extraction of groundwater samples. Split-spoon samples taken immediately above the bedrock in the other test borings were not saturated, indicating that this zone is not areally continuous, and likely consists of local isolated pockets of perched water.

The primary water-bearing formation at the site is the bedrock, in which monitoring wells MW-1, MW-1s, MW-2 (destroyed), MW-3, MW-5, and MW-6 were screened. A Groundwater Surface Contour map was generated using water level measurements taken in April and May of 1991. This

map depicts the local potentiometric contours and groundwater flow direction, as interpreted from subsurface water level data and the unnamed tributary stream on the southern toe of the landfill (Sheet No. 3).

Groundwater in the bedrock is conducted through a network of interconnecting joints and fracture zones. Bedrock permeability is directly related to the size, number, and distribution of these fractures. Flow rates derived from packer tests conducted by Clark Engineering in well MW-3 display a general trend of decreasing permeability with depth.

The tests revealed that the formation surrounding the borehole between 36 feet and 150 feet is relatively impermeable; from 13 feet to 36 feet the formation becomes more permeable, but is still relatively tight, with an average hydraulic conductivity (K) of 2.6×10^{-3} ft/sec. The following equation was used in determining hydraulic conductivity.

$$K = \frac{2\,Q}{(C_s r)\,(T_u + H - A)}$$

Where:

Q = Steady flow into well, ft^3/sec

$C_s r$ = Conductivity coefficient for semi-spherical flow in saturated material through partially penetrating cylindrical test wells

r = Radius of test hole, ft

T_r = Distance from water surface in well to water table, ft

H = Effective head, ft

A = Length of test section, ft

This equation was used for the three test intervals between 16 feet and 36 feet to arrive at an average permeability for that stratigraphic section. Flow volumes for tests conducted between 36 and 150 feet were negligible and did not warrant further analysis. Permeability testing data is presented in Appendix F.

3.3.3 Water Well Survey Results

Clark Engineering conducted a water well survey (February 1990) in which 72 well survey letters were mailed to area residences. The survey response was good; 36 (50%) of the letters were returned. The majority of respondents claimed both the quality and supply of their well water was good. When comments were included in the responses, they typically cited hard water and sulfurous odors.

3.3.4 Water Quality Evaluation

The discussion below details the results of the ground and surface water sampling and analytical testing conducted by Smith & Mahoney, P.C. and incorporates data provided by DEC. The DEC analyzed two surface water samples collected at the site on December 5, 1989. Surface water was sampled at the site in May 1991 by Smith & Mahoney, P.C. at the locations identified in Section 3.1.6.2.

Representative groundwater samples were collected from six (6) monitoring wells located in upgradient and downgradient positions of the landfill. One duplicate groundwater sample was taken for sample quality assurance and quality control.

The groundwater sampling event took place during April and May of 1991. Sampling was conducted by Smith & Mahoney personnel in strict accordance with the Smith & Mahoney Groundwater Sampling Protocol (Appendix A), as well as Environmental Protection Agency (EPA), and DEC guidelines.

Prior to collecting the groundwater samples from each

monitoring well, the well casings were inspected for damage. Well depth and water level data was then collected. All groundwater level measurements were measured from previously established datum points.

Dedicated polyethylene tubing and check valves were installed in each well for use with the Waterra® inertial pump. Approximately three (3) or more well casing volumes were removed from each well casing to provide for the collection of water samples representative of the site groundwater. The Waterra® hand pump was utilized to purge and collect the samples from each well.

All samples were tested for DEC full baseline scan parameters as per 6 NYCRR Part 360 - 2.11(c)(6). The samples collected for metals analysis were submitted unfiltered as per 6 NYCRR Part 360 - 2.11 (c)(6). All samples were packed in a cooler with ice and delivered the same day to Adirondack Environmental Services (AES) of Albany New York for testing.

Prior to and after the purging of each well, certain parameters were measured in the field. Field measurements include water pH, specific conductance, Eh and static water level. Field data is presented in Appendix I. Water table elevations are reported as

"Static Water Level" in feet as measured from the top to the PVC riser. Static water level data is presented in Table 3-1.

Table 3-1

Static Water Levels

Date: April 9, 1991

Monitoring Well	Top of Casing Elev.	Depth to Water (ft.)	Water Surface Elev.
MW-1	1331.54	26.22	1305.32
MW-2	1333.46	18.97	1314.49
MW-3	1254.43	13.45	1240.98
MW-4	1254.84	12.91	1241.93
MW-5	1263.55	15.45	1248.10
*MW-6	1283.43	5.1	1278.33

* Water depth measured May 31, 1991

The results of the laboratory analysis are presented in Appendix J and summarized in Table 3-2. Parameters in Appendix J are reported in milligrams per liter (mg/l) or micrograms per liter (ug/l), unless otherwise noted. These values represent parts per million (ppm) or parts per billion (ppb) respectively. When the "less than" (<) sign is indicated in the analytical report, the level of that parameter was below the detection limit of the testing procedure. Parameter test results were compared

Table 3-2(a)

Berlin/Petersburg Landfill – Final Closure Plan

Water Quality Analysis
Sampled: April 1991

	Parameter	Unit of Measure	MW-1	MW-1A	MW-5	MCL	MCL Reference
1	pH	SU	7.3	6.4 *	6.4 *	6.5–8.5	1,2
2	Eh	MV	188	230	40		
3	Turbidity	NTU	140 *	205 *	260 *	5	1
4	Color	CPU	20 *	5	5	15	1
5	Specific Conductance	umhos/cm	260	91	373		
6	Total Dissolved Solids	mg/l	158	10	246	500	1,3
7	Chemical Oxygen Demand	mg/l	35	41	317		
8	Biochemical Oxygen Demand	mg/l	2	3	225		
9	Total Organic Carbon	mg/l	6.9	14	78		
10	Sulfate-S	mg/l	27	<2	22	250	1,2,3,4,5
11	Alkalinity, as CACO3	mg/l	96	32	136		
12	Chloride	mg/l	2.0	2.5	19	250	1,2,3,4,5
13	Hardness, Total as CACO3	mg/l	83	33	140		
14	Total Kjeldahl Nitrogen-N	mg/l	<0.5	0.7	1.3		
15	Ammonia-N	mg/l	<0.1	<0.1	0.7	2.0	3
16	Nitrate-N	mg/l	0.15	0.15	0.05	10.0	1,2,3,4,5
17	Phenols (CD), Total	mg/l	0.005 *	<0.002 #	0.007 *	0.001	1,2,4,5
18	Cyanide, Total	mg/l	<0.01	<0.01	<0.01	0.1	3
19	Aluminum	mg/l	0.73	2.24	1.19		
20	Antimony	mg/l	<0.06 #	<0.06 #	<0.06 #	0.003	5
21	Arsenic	mg/l	<0.005	<0.005	0.010	0.025	2,5
22	Barium	mg/l	0.04	0.09	0.20	1.0	1,2,3,4,5
23	Beryllium	mg/l	<0.005 #	<0.005 #	<0.005 #	0.003	5
24	Boron	mg/l	<0.05	<0.05	0.06	1	3
25	Cadmium	mg/l	<0.001	0.004	<0.001	0.01	1,2,3,4,5
26	Calcium	mg/l	26.4	9.87	44.8		
27	Chromium	mg/l	<0.005	0.007	<0.005	0.05	1,4,5
28	Hexavalent Chromium	mg/l	<0.02	<0.02	<0.02	0.05	2,3,5
29	Copper	mg/l	<0.05	<0.05	<0.05	0.2	3
30	Iron	mg/l	0.90 *	2.68 *	3.53 *	0.3	1,2,4,5
31	Lead	mg/l	0.01	0.09 *	0.02	0.025	2,5
32	Magnesium	mg/l	4.26	1.17	6.76	35	5
33	Manganese	mg/l	0.40 *	0.33 *	25.7 *	0.3	1,2,4,5
34	Mercury	mg/l	<0.0004	<0.0004	<0.0004	0.002	1,2,4,5
35	Nickel	mg/l	<0.05	<0.05	<0.05		
36	Potassium	mg/l	1.46	1.09	3.48		
37	Selenium	mg/l	<0.005	<0.005	<0.005	0.01	1,3,4
38	Silver	mg/l	<0.02	<0.02	<0.02	0.05	1,2,3,4,5
39	Sodium	mg/l	22.3 *	8.97	11.2	20	3
40	Thallium	mg/l	<0.01	<0.01	<0.01	0.004	5
41	Zinc	mg/l	<0.01	0.09	0.04	0.3	3
42	Chloromethane	ug/l	<1	<1	<1	5	4

Table 3-2(a) cont'd.

	Parameter	Unit of Measure	MW-1	MW-1A	MW-5	MCL	MCL Reference
43	Bromomethane	ug/l	<1	<1	<1	5	4
44	Dichlorodifluoromethane	ug/l	<1	<1	17 *	5	4
45	Vinyl Chloride	ug/l	<1	<1	<1	2	4
46	Chloroethane	ug/l	<1	<1	<1	5	4
47	Methylene Chloride	ug/l	<1	<1	14 *	5	4
48	Trichloroflouromethane	ug/l	<1	<1	2	5	4
49	1,1 Dichloroethene	ug/l	<1	<1	<1	5	4
50	1,1 Dichloroethane	ug/l	<1	<1	3	5	4
51	t - 1,2 Dichloroethane	ug/l	<1	<1	<1	50	4
52	Chloroform	ug/l	<1	<1	<1	50	4
53	1,2 Dichloroethane	ug/l	<1	<1	<1	5	4
54	1,1,1 Trichloroethane	ug/l	<1	<1	4	5	4
55	Carbon Tetrachloride	ug/l	<1	<1	<1	5	4
56	Bromodichloromethane	ug/l	<1	<1	<1	50	4
57	1,2 Dichloropropane	ug/l	<1	<1	<1	5	4
58	t - 1,3 Dichloropropene	ug/l	<1	<1	<1	5	4
59	Trichloroethylene	ug/l	<1	<1	<1	3	5
60	Dibromochloromethane	ug/l	<1	<1	<1	50	4
61	1,1,2 Trichloroethane	ug/l	<1	<1	<1	5	4
62	CIS - 1,3 Dichloropropene	ug/l	<1	<1	<1	5	4
63	2 - Chloroethylvinylether	ug/l	<1	<1	<1	50	4
64	Bromoform	ug/l	<1	<1	<1	50	4
65	1,1,2,2 - Tetrachloroethane	ug/l	<1	<1	<1	5	4
66	Tetrachloroethylene	ug/l	<1	<1	<1	50	4
67	Benzene	ug/l	<1	<1	<1	ND	5,2
68	Toluene	ug/l	<1	<1	2	5	4
69	Ethylbenzene	ug/l	<1	<1	<1	5	4
70	Chlorobenzene	ug/l	<1	<1	<1	5	4
71	P - Dichlorobenzene	ug/l	<1	<1	<1	5	4
72	M - Dichlorobenzene	ug/l	<1	<1	<1	5	4
73	O - Dichlorobenzene	ug/l	<1	<1	<1	4.7	5

Notes:

* shaded figures marked by an '*' denote those readings that exceed the MCL.

< denotes those readings that are below the method detection limit.

# denotes those readings that are below the method detection limit but may exceed the MCL.

ND signifies the MCL not detectable.

All results in mg/l (ppm) and ug/l (ppb) unless otherwise noted.

The MCL for the sum of Iron and Manganese is >0.5 mg/l

References:

1- Title 40, Part 141.11 and 143.3, CFR, National Primary and Secondary Maximum Contaminent Levels

2- Title 6, Part 703.5, NYCRR, Classes and Quality Standards For Ground Waters.

3- Title 10, Part 170.4, NYCRR, Standards of Raw Water Quality (Sources of Water Supply).

4- Title 10, Part 5-1.52, NYCRR, State Sanitary Code, Table 1.

5- NYSDEC, NYS Ambient Water Quality Standards and Guidance Values.

Table 3-2(b)

Berlin/Petersburg Landfill – Final Closure Plan

Water Quality Analysis

Sampled: April 1991

	Parameter	Unit of Measure	MW-3	MW-4	DUP-4	MCL	MCL Reference
1	pH	SU	6.7	6.7	6.6	6.5-8.5	1,2
2	Eh	MV	214	243	190		
3	Turbidity	NTU	330 *	400 *	590 *	5	1
4	Color	CPU	15	10	10	15	1
5	Specific Conductance	umhos/cm	1030	652	765		
6	Total Dissolved Solids	mg/l	563 *	413	405	500	1,3
7	Chemical Oxygen Demand	mg/l	66	22	26		
8	Biochemical Oxygen Demand	mg/l	22	6	12		
9	Total Organic Carbon	mg/l	10.7	10.4	12		
10	Sulfate-S	mg/l	<2	2.5	2	250	1,2,3,4,5
11	Alkalinity, as CACO3	mg/l	500	325	343		
12	Chloride	mg/l	84	52	53	250	1,2,3,4,5
13	Hardness, Total as CACO3	mg/l	417	220	221		
14	Total Kjeldahl Nitrogen-N	mg/l	3.2	2.9	2.9		
15	Ammonia-N	mg/l	2.2 *	2.1 *	2.1 *	2.0	3
16	Nitrate-N	mg/l	0.04	0.03	0.05	10.0	1,2,3,4,5
17	Phenols (CD), Total	mg/l	0.008 *	0.015 *	0.012 *	0.001	1,2,4,5
18	Cyanide, Total	mg/l	<0.01	<0.01	<0.01	0.1	3
19	Aluminum	mg/l	2.28	1.00	1.02		
20	Antimony	mg/l	<0.06 #	<0.06 #	<0.06 #	0.003	5
21	Arsenic	mg/l	0.061 *	0.010	0.013	0.025	2,5
22	Barium	mg/l	0.30	0.16	0.16	1.0	1,2,3,4,5
23	Beryllium	mg/l	<0.005 #	<0.005 #	<0.005 #	0.003	5
24	Boron	mg/l	0.14	0.12	0.15	1	3
25	Cadmium	mg/l	0.001	<0.001	<0.001	0.01	1,2,3,4,5
26	Calcium	mg/l	130	63.3	63.4		
27	Chromium	mg/l	0.008	<0.005	<0.005	0.05	1,4,5
28	Hexavalent Chromium	mg/l	<0.02	<0.02	<0.02	0.05	2,3,5
29	Copper	mg/l	<0.05	0.29 *	0.27 *	0.2	3
30	Iron	mg/l	17.8 *	4.90 *	4.78 *	0.3	1,2,4,5
31	Lead	mg/l	0.02	0.02	0.02	0.025	2,5
32	Magnesium	mg/l	22.4	15.0	15.2	35	5
33	Manganese	mg/l	32.9 *	49.2 *	49.4 *	0.3	1,2,4,5
34	Mercury	mg/l	<0.0004	<0.0004	<0.0004	0.002	1,2,4,5
35	Nickel	mg/l	<0.05	<0.05	<0.05		
36	Potassium	mg/l	12.2	7.90	6.71		
37	Selenium	mg/l	<0.005	<0.005	<0.005	0.01	1,3,4
38	Silver	mg/l	<0.02	<0.02	<0.02	0.05	1,2,3,4,5
39	Sodium	mg/l	53.0 *	36.6 *	37.4 *	20	3
40	Thallium	mg/l	<0.01	<0.01	<0.01	0.004	5
41	Zinc	mg/l	0.05	0.07	0.13	0.3	3
42	Chloromethane	ug/l	<1	<1	<1	5	4

Table 3-2(b) cont'd.

	Parameter	Unit of Measure	MW-3	MW-4	DUP-4	MCL	MCL Reference
43	Bromomethane	ug/l	<1	<1	<1	5	4
44	Dichlorodifluoromethane	ug/l	<1	<1	<1	5	4
45	Vinyl Chloride	ug/l	<1	<1	<1	2	4
46	Chloroethane	ug/l	<1	<1	<1	5	4
47	Methylene Chloride	ug/l	<1	<1	<1	5	4
48	Trichloroflouromethane	ug/l	<1	<1	<1	5	4
49	1,1 Dichloroethene	ug/l	<1	<1	<1	5	4
50	1,1 Dichloroethane	ug/l	1	<1	<1	5	4
51	t - 1,2 Dichloroethane	ug/l	<1	<1	<1	50	4
52	Chloroform	ug/l	<1	<1	<1	50	4
53	1,2 Dichloroethane	ug/l	<1	<1	<1	5	4
54	1,1,1 Trichloroethane	ug/l	<1	<1	<1	5	4
55	Carbon Tetrachloride	ug/l	<1	<1	<1	5	4
56	Bromodichloromethane	ug/l	<1	<1	<1	50	4
57	1,2 Dichloropropane	ug/l	<1	<1	<1	5	4
58	t - 1,3 Dichloropropene	ug/l	<1	<1	<1	5	4
59	Trichloroethylene	ug/l	<1	<1	<1	3	5
60	Dibromochloromethane	ug/l	<1	<1	<1	50	4
61	1,1,2 Trichloroethane	ug/l	<1	<1	<1	5	4
62	CIS - 1,3 Dichloropropene	ug/l	<1	<1	<1	5	4
63	2 - Chloroethylvinylether	ug/l	<1	<1	<1	50	4
64	Bromoform	ug/l	<1	<1	<1	50	4
65	1,1,2,2 - Tetrachloroethane	ug/l	<1	<1	<1	5	4
66	Tetrachloroethylene	ug/l	<1	<1	<1	50	4
67	Benzene	ug/l	1 *	<1	<1	ND	5,2
68	Toluene	ug/l	5	<1	<1	5	4
69	Ethylbenzene	ug/l	<1	<1	<1	5	4
70	Chlorobenzene	ug/l	<1	<1	<1	5	4
71	P - Dichlorobenzene	ug/l	<1	<1	<1	5	4
72	M - Dichlorobenzene	ug/l	<1	<1	<1	5	4
73	O - Dichlorobenzene	ug/l	<1	<1	<1	4.7	5

Notes:

* shaded figures marked by an '*' denote those readings that exceed the MCL.

< denotes those readings that are below the method detection limit.

# denotes those readings that are below the method detection limit but may exceed the MCL.

ND signifies the MCL not detectable.

All results in mg/l (ppm) and ug/l (ppb) unless otherwise noted.

The MCL for the sum of Iron and Manganese is >0.5 mg/l

References:

1- Title 40, Part 141.11 and 143.3, CFR, National Primary and Secondary Maximum Contaminent Levels

2- Title 6, Part 703.5, NYCRR, Classes and Quality Standards For Ground Waters.

3- Title 10, Part 170.4, NYCRR, Standards of Raw Water Quality (Sources of Water Supply).

4- Title 10, Part 5-1.52, NYCRR, State Sanitary Code, Table 1.

5- NYSDEC, NYS Ambient Water Quality Standards and Guidance Values.

Table 3-2(c)

Berlin/Petersburg Landfill - Final Closure Plan

Water Quality Analysis
Sampled: May 1991

	Parameter	Unit of Measure	A	B	C	MW-6	MCL	MCL Reference
1	pH	SU	7.6	6.5	7.6	7.5	6.5-8.5	1,2
2	Eh	MV	-16	274	244	228		
3	Turbidity	NTU	20 *	>1000 *	1.1	>1000 *	5	1
4	Color	CPU	40 *	>70 *	45 *	15 *	15	1
5	Specific Conductance	umhos/cm	349	357	145	240		
6	Total Dissolved Solids	mg/l	130	5730 *	69	140	500	1,3
7	Chemical Oxygen Demand	mg/l	226	6180	15	15		
8	Biochemical Oxygen Deman	mg/l	381	4110	<2	<2		
9	Total Organic Carbon	mg/l	1910	46	4.9	2		
10	Sulfate-S	mg/l	35	65	14	18	250	1,2,3,4,5
11	Alkalinity, as CACO3	mg/l	55	2470	34	90		
12	Chloride	mg/l	35	462 *	22	24	250	1,2,3,4,5
13	Hardness, Total as CACO3	mg/l	123	2520	56	140		
14	Total Kjeldahl Nitrogen-N	mg/l	2.6	125	<0.5	<0.5		
15	Ammonia-N	mg/l	1.4	118 *	<0.1	0.4	2.0	3
16	Nitrate-N	mg/l	0.45	0.03	0.2	0.27	10.0	1,2,3,4,5
17	Phenols (CD), Total	mg/l	0.38 *	0.006 *	0.005 *	0.002 *	0.001	1,2,4,5
18	Cyanide, Total	mg/l	<0.01	<0.01	<0.01	<0.01	0.1	3
19	Aluminum	mg/l	<0.2	2.63	<0.2	2.1		
20	Antimony	mg/l	<0.06 #	<0.06 #	<0.06 #	<0.06 #	0.003	5
21	Arsenic	mg/l	<0.005	0.009	<0.005	0.011	0.025	2,5
22	Barium	mg/l	0.08	0.75	<0.01	0.07	1.0	1,2,3,4,5
23	Beryllium	mg/l	<0.005 #	<0.005 #	0.01 *	<0.005 #	0.003	5
24	Boron	mg/l	0.1	3.11 *	<0.05	<0.05	1	3
25	Cadmium	mg/l	<0.001	<0.001	<0.001	0.002	0.01	1,2,3,4,5
26	Calcium	mg/l	39.5	828	19.7	45.9		
27	Chromium	mg/l	<0.005	0.056 *	<0.005	<0.005	0.05	1,4,5
28	Hexavalent Chromium	mg/l	<0.02	<0.02	<0.02	<0.02	0.05	2,3,5
29	Copper	mg/l	<0.05	<0.05	<0.05	<0.05	0.2	3
30	Iron	mg/l	1.3 *	99.1 *	0.25	3.5 *	0.3	1,2,4,5
31	Lead	mg/l	<0.01	0.04 *	0.04 *	0.02	0.025	2,5
32	Magnesium	mg/l	5.9	111 *	1.63	6.2	35	5
33	Manganese	mg/l	6.23 *	94.1 *	0.37 *	0.6 *	0.3	1,2,4,5
34	Mercury	mg/l	<0.0004	<0.0004	<0.0004	<0.0004	0.002	1,2,4,5
35	Nickel	mg/l	<0.05	0.1	<0.05	<0.05		
36	Potassium	mg/l	4.84	177	2.49	0.97		
37	Selenium	mg/l	<0.005	0.04 *	<0.005	<0.001	0.01	1,3,4
38	Silver	mg/l	<0.02	<0.02	<0.02	<0.02	0.05	1,2,3,4,5
39	Sodium	mg/l	20.9 *	382 *	9.43	5.9	20	3
40	Thallium	mg/l	<0.01 #	<0.01 #	<0.01 #	<0.01 #	0.004	5
41	Zinc	mg/l	<0.01	1.5 *	0.05	0.02	0.3	3
42	Chloromethane	ug/l	<1	<1	<1	<1	5	4

Table 3-2(c) cont'd.

	Parameter	Unit of Measure	A	B	C	MW-6	MCL	MCL Reference
43	Bromomethane	ug/l	<1	<1	<1	<1	5	4
44	Dichlorodifluoromethane	ug/l	<1	<1	<1	<1	5	4
45	Vinyl Chloride	ug/l	<1	<1	<1	<1	2	4
46	Chloroethane	ug/l	<1	21 *	<1	<1	5	4
47	Methylene Chloride	ug/l	<1	205 *	<1	<1	5	4
48	Trichloroflouromethane	ug/l	<1	31 *	<1	<1	5	4
49	1,1 Dichloroethene	ug/l	<1	<1	<1	<1	5	4
50	1,1 Dichloroethane	ug/l	<1	<1	<1	<1	5	4
51	t - 1,2 Dichloroethane	ug/l	<1	<1	<1	<1	50	4
52	Chloroform	ug/l	<1	<1	<1	<1	50	4
53	1,2 Dichloroethane	ug/l	<1	<1	<1	<1	5	4
54	1,1,1 Trichloroethane	ug/l	<1	73 *	<1	<1	5	4
55	Carbon Tetrachloride	ug/l	<1	<1	<1	<1	5	4
56	Bromodichloromethane	ug/l	<1	<1	<1	<1	50	4
57	1,2 Dichloropropane	ug/l	<1	<1	<1	<1	5	4
58	t - 1,3 Dichloropropene	ug/l	<1	<1	<1	<1	5	4
59	Trichloroethylene	ug/l	<1	2	<1	<1	3	5
60	Dibromochloromethane	ug/l	<1	<1	<1	<1	50	4
61	1,1,2 Trichloroethane	ug/l	<1	<1	<1	<1	5	4
62	CIS - 1,3 Dichloropropene	ug/l	<1	<1	<1	<1	5	4
63	2 - Chloroethylvinylether	ug/l	<1	<1	<1	<1	50	4
64	Bromoform	ug/l	<1	<1	<1	<1	50	4
65	1,1,2,2 - Tetrachloroethane	ug/l	<1	<1	<1	<1	5	4
66	Tetrachloroethylene	ug/l	<1	30	<1	<1	50	4
67	Benzene	ug/l	<1 #	4 *	<1 #	<1 #	0	5,2
68	Toluene	ug/l	<1	62 *	<1	<1	5	4
69	Ethylbenzene	ug/l	<1	16 *	<1	<1	5	4
70	Chlorobenzene	ug/l	<1	<1	<1	<1	5	4
71	P - Dichlorobenzene	ug/l	<1	1	<1	<1	5	4
72	M - Dichlorobenzene	ug/l	<1	<1	<1	<1	5	4
73	O - Dichlorobenzene	ug/l	<1	<1	<1	<1	4.7	5

Notes:

A: downgradient stream sample; B: leachate sample; C: upgradient stream sample

* shaded figures marked by an '*' denote those readings that exceed the MCL.

< denotes those readings that are below the method detection limit.

# denotes those readings that are below the method detection limit but may exceed the MCL.

ND signifies the MCL not detectable.

All results in mg/l (ppm) and ug/l (ppb) unless otherwise noted.

The MCL for the sum of Iron and Maganese is >0.5 mg/l

References:

1- Title 40, Part 141.11 and 143.3, CFR, National Primary and Secondary Maximum Contaminent Levels

2- Title 6, Part 703.5, NYCRR, Classes and Quality Standards For Ground Waters.

3- Title 10, Part 170.4, NYCRR, Standards of Raw Water Quality (Sources of Water Supply).

4- Title 10, Part 5-1.52, NYCRR, State Sanitary Code, Table 1.

5- NYSDEC, NYS Ambient Water Quality Standards and Guidance Values.

to their maximum contaminant levels (MCL) which are referenced by regulatory agency in Table 3-2.

In general, the parameters that exceed their MCL's are those associated with a typical leachate signature, such as iron, manganese, and sodium. The turbidity of each sample also exceeded the MCL. It should be noted that while the concentration of iron and manganese in the downgradient monitoring wells are greater than those in the upgradient wells, the upgradient concentrations also exceed the relevant MCL's. Similarly, the concentration of sodium in upgradient well MW-1 exceeds the MCL, and the concentrations in the downgradient wells, except for MW-5, are even greater. The high concentration of these metals in upgradient wells appear to indicate that at least some portion of the elevated concentrations for these parameters may be attributed to natural geochemical composition. Furthermore, the elevated metals concentration in all of the monitoring wells may also be due to the high turbidity of the samples.

Upgradient monitoring well MW-1 had detectable levels exceeding the MCL's of color and phenols. The cluster complement MW-1s had levels above the MCL's of pH and lead. No volatile organic compounds (VOC's) were detected.

Parameters exceeding the MCL's in monitoring well MW-5, a downgradient well, included pH and a trace concentration of the VOC dichlorodifluoromethane.

Laboratory analytical results for downgradient monitoring well MW-6, indicate levels exceeding the MCL's for color and phenols.

Monitoring well MW-3 had concentrations exceeding the MCL's of Total Dissolved Solids, ammonia-N, phenols, and arsenic. The VOC benzene was detected at a level above the MCL, albeit at the minute concentration of one part per billion. Cluster complement MW-4 appeared somewhat cleaner, with only the concentrations of ammonia-N, phenols, and copper exceeding their respective MCL's. A duplicate sample, designated DUP-4, was obtained from monitoring well MW-4. This duplicate sample was analyzed at the laboratory as sample MW-4A, and exhibited results similar to MW-4. Specific parameters whose concentrations differed significantly from those reported for MW-4 were Eh, turbidity, biochemical oxygen demand, nitrate-N, and zinc. The duplicate sample was analyzed to ensure quality assurance/quality control (QA/QC) of the sampling and analysis program. The variance in results from original to duplicate samples is minimal and probably reflects the inherent error and precision

capabilities of laboratory equipment and procedures. However, the results generally appear to be consistent and accurate.

Results of the analytical testing of the surface water samples (sampling locations are depicted on Figure 2-2) exhibited increased concentrations of most parameters at the downgradient location (sample "A") as compared to the upgradient location (sample "C"). Parameters exceeding the MCL for both surface water samples included color, phenols, and manganese. In addition, sample C displayed levels exceeding the MCL's of beryllium and lead, while concentrations of turbidity, iron, and sodium exceeded their MCL's in sample A. VOC's were not detected in either surface water sample. These results are also consistent with those provided by DEC (Appendix J) from a sampling event conducted in December 1989.

4.0 Gas Investigation

In accordance with 6 NYCRR Part 360-2.15(a)(2), an explosive gas investigation was conducted at and around the site. The results of this study show that off-site methane migration is very limited. Gas concentrations will continue to be monitored, as discussed in Section 9.2, after the final cover system is installed to determine the effectiveness of the gas venting system. A more detailed description of the gas migration analysis is presented in Section 4.5.

4.1 Gas Generation

The decomposition of refuse in sanitary landfills generally results in the production of such gases as methane, carbon dioxide, carbon monoxide, hydrogen sulfide, and others that are less common. These gases will be generated for many years and can potentially pose health concerns if present in high enough concentrations. Most notably, methane gas, when mixed with air in relatively low concentration is prone to explode. It is important to effectively vent these gases to the atmosphere to avoid build-up of excessive concentrations within and around the landfill.

4.2 Objectives

The objective of the gas investigation, as stated above, was to identify the presence and concentration of explosive gases at or near the landfill and to determine the extent of actual or potential gas migration off-site. This included a calculation of the theoretical 5% methane contour line around the landfill perimeter. This line predicts the distance at which the furthest flammable concentration of methane might occur as measured from the center of the landfill. Interviews with local fire protection officials and the landfill operator were conducted to identify past instances of explosions, or spontaneous fires at the landfill site. No instances of such phenomena were reported.

Measures for monitoring potential gas migration, along with corrective actions to protect the health and safety of the public, will be addressed if future gas investigations demonstrate that explosive concentrations of methane either exist or could potentially migrate in or around on-site structures or residences outside of the landfill boundaries. The scope and frequency of post-closure gas monitoring is discussed in detail in Section 9.2.

4.3 Gas Concentration Measurement

The equipment and methodology used in conducting the gas investigation are briefly discussed below. A more detailed description of the same can be found in the Gas Sampling Protocol (Appendix B).

4.3.1 Equipment

Two types of methane monitoring equipment were utilized for the gas investigation; both are manufactured by Scott-Alert Instruments and Control Systems. The instruments were the Model S-108 explosimeter and the Model D-15 gastester.

The Model S-108 is a microprocessor controlled, self-contained, portable instrument designed to simultaneously detect the following:

- Presence of combustible gases or vapors in air, providing a digital indication of the concentration
- Presence or lack of oxygen in air, providing a digital indication of the concentration
- Presence of hydrogen sulfide in air, providing a

digital indication of the concentration

The combustible gas or vapor concentration is displayed in percent (0-100%) of the Lower Flammable Limit (LFL) of methane, which is 5% in air. The oxygen concentration is displayed in percent (0.0 to 25.0%) of the atmosphere, while the hydrogen sulfide concentration is displayed in parts per million (0-199 ppm) in air.

The Model D-15 gastester is a two-scale instrument designed to provide fast, simplified detection and measurement of a combustible gas or vapor in air. One scale employs catalytic filaments to indicate combustible gas concentrations in air from zero to the LFL. The second scale, operating on the thermal conductivity principle, indicates combustible gas or vapor concentration in air directly from 0-100% gas.

4.3.2 Calibration

All gas monitoring equipment was calibrated in accordance with the manufacturer's specifications prior to use in the field.

4.3.3 Procedures

On April 29, 1991 Smith & Mahoney, P.C. conducted the field portion of the explosive gas survey. A plunge bar capable of extending four feet into the subsurface was employed to advance probe holes for gas sampling. Upon completion of the hole with the plunge bar, the end of the detector's aspirator hose was inserted approximately half the depth of the hole and gas was withdrawn. Aspiration pulled gas from the hole to the meter where the concentration was measured and recorded. Gas readings from these holes were taken on a calm day and the barometric pressure was recorded.

The meter, aspirator, and hose were purged between readings to prevent residual gases from influencing subsequent readings.

Gas concentrations in monitoring wells were measured by unlocking and removing the cap on the protective casing, removing the cap on the 2" PVC riser, inserting the aspirator hose 2-3 feet into the riser, then aspirating the gas into the gas meter.

All gas concentration data was recorded in log books and subsequently transcribed to the methane concentration map

(Figure 4-1) to delineate subsurface concentration trends and to assist in the analysis of potential gas migration.

4.4 Gas Sampling Locations and Frequency

The gas sampling field survey was conducted in conformance with the CIP and included sampling of the landfill and landfill perimeter, on-site structures, and those additional structures within the theoretical 5% methane contour (as predicted by the methane migration model). The gas sampling locations are presented on Figure 4-1.

The landfill area and perimeter were investigated as described in Section 4.3.3 above while the on-site and appropriate surrounding structures were monitored in a different manner. The survey progressed methodically through the interior of these buildings with emphasis on gas concentrations in areas where utility service lines penetrate the wall or floor. Measurements were also taken in areas of the buildings where limited air circulation was expected, specifically, in confined spaces.

4.5 Gas Migration Analysis

The results of the gas investigation were examined and interpreted to determine the possible extent and magnitude of

N

LIMIT OF SOLID WASTE

CAR PILE

TIRE PILE

ACTIVE LANDFILL AREA

MW-1

MW-2

MW-2S(DESTROYED)

MW-3

MW-6

ACTUAL 5% METHANE CONCENTRATION CONTOUR

LIMIT OF SOLID WASTE

GARAGE

TRAILER

SCALE HOUSE

CEMETERY

CONVENIENCE CENTER

PUMP

GRAVEL DRIVE

GRAVEL DRIVE

OLD SPRING ROAD

COUNTY RTE 23

THEORETICAL 5% METHANE CONCENTRATION CONTOUR

LEGEND:

- ⊗ – MONITORING WELL LOCATIONS
- ——— – PROPERTY BOUNDARY
- — - — – LIMIT OF SOLID WASTE
- X – EXPLOSIVE GAS SAMPLING LOCATION (PLUNGE BAR)
- 0.0% – ABSOLUTE METHANE CONCENTRATION IN AIR
- ——— – THEORETICAL 5% METHANE CONCENTRATION CONTOUR
- – – – – ACTUAL 5% METHANE CONCENTRATION CONTOUR

FIGURE 4-1

BERLIN / PETERSBURG LANDFILL

METHANE CONCENTRATION MAP

SCALE 1" = 400'

SMITH & MAHONEY, P.C.
CONSULTING ENGINEERS • SURVEYORS • LAND PLANNERS
79 NORTH PEARL STREET, ALBANY, NEW YORK 12207

current and potential methane migration. The gas investigation has been used specifically for estimating the 25% LFL (1.25% in air) and the 100% LFL (5% in air) contour lines on or around the landfill site and for comparison with the contours as predicted by the theoretical migration model (Moore, et al 1979).

As shown in Figure 4-1, the Moore, et al methane migration model predicts that the maximum theoretical distance from the landfill center to which methane concentrations exceeding the LFL could be expected to migrate is approximately 570 feet. It should be emphasized that although the theoretical LFL contour extends beyond the property boundary in places, the field investigation yielded no instances of methane concentrations exceeding the LFL at locations sampled near the property boundary. As such, an estimate of the true LFL contour based upon field observations, has been drawn. This line lies wholly within the theoretical LFL contour line.

5.0 Surface Leachate Investigation

As required by 6 NYCRR Part 360-2.15(a)(3), a surface leachate investigation was conducted. This investigation was performed to identify locations of leachate discharge from the landfill and/or into surface waters and to characterize the chemical composition of such leachate.

The description that follows outlines the procedures that were employed during this investigation and potential mitigation measures for leachate control.

5.1 Leachate Outbreaks

Locations where leachate was observed to be emanating from the waste or surrounding ground surface were recorded during the routine site inspections performed during the landfill development phase as well as during the closure investigation. During inspections, instances of leachate seeping into surface water were noted as well.

5.2 Leachate Composition

On May 24, 1991 Smith & Mahoney, P.C. collected a leachate sample from the western toe of the landfill as specified in the CIP. This sample was submitted with a completed chain-of

custody form to Adirondack Environmental Services, Inc. of Albany, New York for DEC Baseline laboratory analysis.

Results of the analytical testing exhibit typically high concentrations of color, total dissolved solids, metals,and several volatile organic compounds, as well as an elevated specific conductivity. Table 3-2(c) displays a summary of elevated parameters found in the leachate sample. MCL's for groundwater have been included in the table for comparative purposes only and do not necessarily indicate exceedence of statutory limits. The complete laboratory report for this sample, designated "B", is included in Appendix K.

5.3 Leachate Generation

On May 15, 1991, a site inspection was performed by DEC officials. Two leachate outbreaks, originating from two distinct hydrogeologic sources, were noted along the lower West side of the landfill during the inspection. The upper outbreak appears to originate from precipitation into the landfill surface. The lower outbreak appears to originate from water flowing under the landfill through a more permeable stream channel bed. This stream enters the site at the south east corner of the landfill.

Inspections conducted at the landfill by Smith & Mahoney, P.C. have shown that leachate generation rates are dependent on the quantity of precipitation. It has been observed during past site inspections that the combined leachate flow from both outbreaks during dry periods is zero (0) gallons per minute (GPM), while flow during wet periods has been observed at between one (1) and two (2) gpm. These flow rates translate to an estimated daily quantity of 0 gallons at a minimum, to approximately 2900 gallons at a maximum.

6.0 Vector Investigation

In accordance with 6 NYCRR Part 360-2.15(a)(4), types and quantities of vectors including but not limited to rodents, vermin, birds, and insects were inspected for as part of the vector investigation conducted during the routine site inspections performed concurrently with landfill development. The only vectors identified at the site were crows, flies, and various other indigenous species of birds and insects. The generally low number of vectors, and conspicuous absence of rodents, is very likely due to the prompt and complete application of daily cover material.

7.0 Final Cover System

The final cover system soils and/or geosynthetic fabrics will be placed over the landfill surface as areas are brought to final sub-grade as shown on Sheet No. 4 of the Engineering Plans. The final cover system serves several purposes and represents the primary design element outlined in the final closure report and plans.

Quality control testing for the final cover system layers will include laboratory analysis of the physical characteristics of the material as well as visual observation during construction. The scope of testing procedures and protocols for this material and all other components of the final cover system will be presented in the Quality Assurance/Quality Control (QA/QC) Plan.

In order of construction, the layers of the final cover system are described as follows.

7.1 Gas Venting System

An integrated gas venting system, composed of a permeable soil layer and a network of gas venting pipes, will be installed in compliance with 6 NYCRR Part 360-2.15(c).

Directly above the surface of the compacted refuse, a 12-inch thick layer of sandy soil will be placed over a

geosynthetic filter fabric. This layer will serve to collect and transmit the flow of landfill gas to the passive venting system. In addition, the sandy soil will also form a suitable subbase for construction of the overlying low permeability barrier soil cover layer. Material of this type is readily available in the area near the landfill site. The upper six inches of material will be fine-graded in preparation for the low permeability barrier soil cover.

Technical requirements for this layer, as specified in 6 NYCRR Part 360-2.13 (p), include a 12-inch minimum thickness of clean, uniformly graded soil with the following characteristics:

- minimum hydraulic conductivity of 1.0×10^{-3} cm/sec
- maximum 5% passing #200 sieve
- filter layers bounding upper and lower surfaces

A piping network will also be incorporated into this layer during closure construction to establish the passive gas venting system. This network will provide a preferential path for gas migration to the atmosphere and consist of six-inch diameter Schedule 80 PVC riser pipes connected to four-inch diameter perforated polyethylene lateral pipes. These laterals will be wrapped in a

properly sized filter fabric and installed completely within the gas venting layer. Two 10 foot long laterals will be connected to each riser pipe, extending in opposite directions and parallel to the plane of the final cover system. The lower portion of the riser pipe will be perforated and extend at least three feet into the refuse, while the exposed section will be fitted with a gooseneck and extend at least three feet above the final cover system elevation. A total of nine gas venting risers will be installed. Details of the gas venting system are shown on Sheet No. 8 of the Engineering Plans.

7.2 Low Permeability Barrier Soil Cover

Restriction of infiltration into the underlying solid waste will be accomplished by the construction of a low permeability barrier soil cover placed immediately above the gas venting layer. The low permeability barrier soil cover will provide the primary impediment to leachate generation resulting from the infiltration of precipitation during the post-closure period. For this design, and in accordance with 6 NYCRR Part 360-2.15 (b), an 18-inch minimum thickness of soil with a maximum hydraulic conductivity of 1.0×10^{-7} cm/sec has been specified.

Natural clay soils capable of achieving this permeability requirement are known to be available in sufficient quantities near the Landfill. Quality control testing will also be needed to confirm the achievement of a maximum hydraulic conductivity of 1.0×10^{-7} cm/sec. Specific testing procedures and protocols for the low permeability barrier soil cover are included in the QA/QC Plan.

7.3 Barrier Protection Layer

In order to protect the low permeability barrier soil cover, a barrier protection layer will be installed. This layer is designed to protect the low permeability barrier soil cover and to convey precipitation which infiltrates the topsoil surface of the final cover system away from the impermeable layer. This base flow will be discharged to the perimeter drainage channels as shown on the Final Grading Plan (Sheet No. 5). This helps reduce the hydraulic head on the cap and therefore the potential for infiltration through the cap. Placement of this material also serves to protect the low permeability barrier soil cover from root and other physical penetration, frost action, erosion, and desiccation cracking.

The barrier protection layer will be composed of a

minimum of 24 inches of soil material meeting the following particle size distribution requirements: less than 40% by weight passing the #200 sieve, and no particle larger than 3 inches in any dimension. Locally available soil will be utilized. Construction of the barrier protection layer will follow completion and acceptance of QA/QC testing for the low permeability barrier layer and will be completed as soon as possible thereafter. This is necessary to provide protection to the low permeability barrier layer, reducing the chances for desiccation or cracking during warm dry weather, or erosion during wet weather. QA/QC testing will involve material background and interval-based conformance testing before and during construction, and confirmatory testing of in-place materials, to provide for the sound construction of the final cover system in accordance with the applicable sections of 6 NYCRR part 360-2.8.

7.4 Topsoil Layer

The uppermost layer of the final cover system will serve to promote vegetative growth over the landfill surface essential in preventing erosion of the final cover system. A minimum thickness of six inches of soil has been included in the design as required by Part 360-

2.13(S) to support the root zone of the shallow-rooted species to be established. Typical topsoil material available in the area ranges from sandy loam to silty loam. Acceptable material of this type will exhibit the following physical characteristics:

- no particle greater than 3 inches in any dimension;
- organic content between 2-6%;
- pH value ranging from 6.5 to 7.5.

7.5 Vegetative Cover

Seeding and mulching of a vegetative cover will be required for all finished areas after the placement of the topsoil layer. The purpose of this vegetation cover is to provide erosion control against both wind and water erosions of the final cover. It is expected that this cover crop will perform an intermediate erosion control function and that natural species from the surrounding areas will eventually migrate onto the landfill site. Important criteria in the choice of cover vegetation are as follows:

- o Low Maintenance
- o Hardiness and rapid establishment
- o Disease resistance
- o Drought resistance

- o Shallow rooted character

The seed mixture meeting these needs is set forth as follows:

1. 40% Penn fine rye grass
2. 40% Creeping red fescue
3. 20% Rubins Canadian bluegrass

8.0 Supplemental Closure Design Features

8.1 Integrated Leachate Collection System Design

A leachate collection system was recommended by DEC to consist of at least one collector trench for the lower leachate outbreak described in Section 5.3.

Smith & Mahoney, P.C. proposes a two part collection system (Sheet No. 9) to be installed in a three phased contingency measure sequence if significant leachate flow continues from the landfill toe of slope one year after final closure.

8.2 Toe Drain

In the event significant leachate flow continues one year after final closure, a toe drain (Phase I) will be installed inside the limit of fill along the low section of the western side of the landfill. The toe drain would be 150 feet long and constructed approximately three (3) feet in depth into the MSW. A 4" slotted pipe will serve to collect leachate flowing into the toe drain trench, which would be lined with filter fabric and backfilled with crushed stone.

Leachate collected by the toe drain would first be piped to two manholes located outside the limit of MSW where it would

be stored. Leachate would be removed from these manholes and transported to an approved Waste Water Treatment Plant.

8.3 Interceptor Trench

In the event that leachate outbreaks continue from the toe of slope after the toe drain is installed, Phase II of the collection system will be implemented. Phase II consists of an interceptor trench located at the lowest portion of the western landfill slope. The interceptor trench system will be approximately forty (40) feet in total length and constructed above bedrock. Leachate would be collected in a 4" slotted pipe in a trench lined with filter fabric and backfilled with crushed stone.

Leachate collected by the interceptor trench would be piped to a manhole where it would accumulate before being pumped to the large storage manhole installed during Phase I. Removal of leachate from these manholes would be accomplished with a vacuum truck. All leachate collected would be transported to an approved Waste Water Treatment Plant. Phase III would be implemented if flow rates were too high for the 4,500 gallon storage capacity provided by the two large manholes installed during Phase I. In this case, a force main would be installed to transfer leachate from the collection system to a storage tank located near the northeastern entrance of the landfill.

If Phase III of the collection system is implemented, the Phase I storage manholes will be connected to the Phase II manhole to enable all leachate to be collected by gravity before being pumped to the storage tank. Leachate collection system plans and details are shown on Sheet No. 8 and Sheet No. 9. The primary elements of the leachate collection system are described as follows.

8.4 Valve System

A valve system would allow the two branches (interceptor trench and toe drain) of the leachate collection system to be operated independently from each other. In the event that leachate flow must be turned off to facilitate system repairs or leachate flow modulation, the valves can be used to turn the flow off completely or to throttle the flow to better manage leachate quantities.

8.5 Storage Tank

A storage tank would be installed during Phase III at the northeastern entrance of the site to provide a reservoir for leachate to be stored until it can be loaded into a tanker truck and removed from the landfill site. The capacity of the tank would be at least 3500 gallons to provide a full truck load when leachate is removed from the tank. The tank would

be filled with leachate through a 1¼ inch diameter pipe originating at the interceptor trench manhole. Leachate will be removed from the tank through a four inch diameter riser. A four inch diameter pipe will be used as a tank vent to allow air to enter and exit during filling and emptying of the tank.

An automated pump control system utilizing leachate level indicators in the manhole and storage tank will prevent leachate overflows in both locations.

8.6 Leachate Level Monitoring

A manual system will be employed to monitor the level of leachate in the storage structure (i.e. Phase I and Phase II manholes or Phase III tank). Monitoring will be performed by inserting a measuring rod into the structure until it reaches the bottom. After striking the bottom, the rod will be removed and the leachate level read from the markings on the rod. A wet/dry interface will appear on the stick which shows the level of the leachate.

8.7 Leachate Removal

Leachate would be removed from the storage structure on a demand basis determined by the leachate levels in the structure. The frequency of leachate removal will vary

according to season and precipitation events. A licensed waste water hauler would be contracted to remove the leachate from the landfill site and dispose of it at an approved Waste Water Treatment Plant.

Tanker trucks, with typical capacities between 3000 and 3500 gallons, would enter the landfill site and proceed to the storage structure. The suction hose on the truck will be lowered into the manhole or connected to the tank riser which would have a "quick disconnect" fitting on it. After connecting the hose, leachate would be pumped from the storage structure to the truck until the tank is empty or the truck is full. After pumping is completed the truck would be driven to the Waste Water Treatment Plant.

9.0 Implememtation Schedule

The Closure Plan will be implemented as detailed below, upon approval by DEC. It should be noted that the dates presented represent the latest date by which each particular task will be completed; when possible, tasks will be completed earlier.

Task	Completion Date
Cease Acceptance of Refuse	June 30, 1991
Submittal to DEC of Approvable Closure Investigation Report	November 15, 1991
Submittal to DEC of Approvable Closure Plan	February 15, 1992
Commence Closure	April 15, 1992
Complete Closure	November 15, 1992

10.0 Post Closure Monitoring and Maintenance

Following closure of the Landfill, and in accordance with 6 NYCRR Part 360-2.15(i), a post-closure monitoring and maintenance program will be implemented. This program will be conducted as described in the sections outlined below.

10.1 Final Cover System

A tour and inspection of the landfill site will be conducted on a quarterly basis. The inspections will serve to identify differential settlement which may have caused depressions and/or wind or water erosion conditions which may threaten to disrupt the integrity of the final cover system. Such conditions will be brought to the attention of the Towns and will be replaced, reseeded, and brought back to the original intended condition.

In the event of a leachate outbreak from the landfill during the final stages of landfill development or post closure period, the following measures will be implemented to repair the outbreak and minimize the potential for contravention of surface and ground water quality. Implementation of these measures will commence upon DEC approval of this plan.

Existing and future leachate outbreak areas are to be repaired

by removing the affected cover soil layers and subsequently replacing them with the appropriate thickness of gas venting material, barrier material, protective material, and topsoil (12 inches, 18 inches, 24 inches, and 6 inches, respectively), in accordance with this Final Closure Plan. Leachate outbreaks occurring before final closure will be repaired in a manner consistent with the existing degree of applied cover. If the Landfill is still in operation, material removed from repair areas will be used as daily cover material in the active area.

10.2 Gas Venting System

The effectiveness of the gas venting system will be monitored by conducting a methane gas survey on a quarterly basis during the post-closure period. The nine proposed gas vents, six groundwater monitoring wells, and on-site structures will be monitored as described in the CIP and Gas Sampling Protocol. In addition, the gas venting structures and surrounding area will be inspected for damage or settlement.

The program above will be maintained until such time as methane production has attenuated significantly enough to warrant a reevaluation of the monitoring frequency. At that point in time, DEC would be contacted to assist in the recommendation of a revised monitoring program.

10.3 Water Quality Monitoring

Continued monitoring of water quality at the site will be conducted in accordance with 6 NYCRR 360-2.15(i)(4). The monitoring program will consist of annual baseline and quarterly routine laboratory analysis of groundwater, surface water, and, when applicable, leachate. Samples will be collected from the monitoring points identified in Section 3.1.6 and as described in the Groundwater Sampling Protocol (Appendix A). Summary reports of the water quality testing will be submitted to DEC annually for a period of five years at which point the monitoring program will be reevaluated.

10.4 Leachate Collection System

As a minimum, quarterly inspections of the leachate collection system will be synchronized with the various inspection and monitoring sorties outlined above to provide for a simple and efficient overall post-closure maintenance and monitoring program. These inspections will facilitate early detection of system damage or leakage due to phenomena such as settlement and freeze-thaw effects.

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APPENDIX A

GROUNDWATER SAMPLING PROTOCOL

Groundwater Sampling Protocol

1.0 Introduction

The following protocol for groundwater sampling provides methods for groundwater elevation determination sampling and analysis. In all cases, an effort will be made to eliminate cross contamination or an introduction of contamination into the well.

All wells will be purged so that water representative of conditions in the "aquifer" is in the well before sampling begins. The groundwater sample will be withdrawn with a precleaned, dedicated PVC bailer.

The groundwater monitoring well records and necessary background data on each well will be reviewed prior to sampling. These records will be maintained and will be readily available at the time of sampling.

2.0 Groundwater Elevation Determination

Prior to each sampling routine, groundwater elevations shall be measured and recorded as described below as a requisite step in the monitoring program.

2.1 Static Water Levels

2.1.1 Each well must be marked with an easily identifiable permanent reference point (surveyed to an accuracy of 0.01 feet) that will be used when obtaining groundwater level measurements.

2.1.2 The groundwater level and total depth of the well are measured to the nearest 0.01 feet using a chalked steel tape marked in graduations of 0.01 feet or an electric water level indicator. The entire length of the measuring device is cleaned prior to initial use with a phosphate-free liquid detergent (i.e. liquinox or alconox) and distilled water solution, rinsed thoroughly with distilled water, and finally wiped dry with a clean paper towel.

2.1.3 Groundwater levels will be compared to past levels as a check.

2.1.4 After determining the groundwater level, the volume of the water within the well will be calculated and recorded.

2.1.5 Prior to subsequent use, parts of the water

level measuring device placed within the well will be cleaned according to the procedure described in Section 8.2.2.3 for pH/Eh and Sc meters.

3.0 Sampling and Analysis

3.1 Pre-Sampling Preparation

3.1.1 Health and Safety: The Health and Safety Protocols and good common sense shall be followed by all personnel engaged in sampling.

3.1.2 Authorized Personnel: All individuals involved in the sampling will have read this Sampling Plan, be technically qualified, and follow the Plan whenever groundwater samples are obtained.

3.1.3 Staging: Prior to any sampling event, the following steps will be taken by personnel responsible for sampling:

- Review the sampling procedures.
- Assemble and inspect field equipment necessary for sample collection, verify that equipment is clean and in proper working order.
- Calibrate equipment to manufacturer's specifications.
- Examine shuttles, bottles and preservatives; contact laboratory immediately if any problems are found.
- Confirm sample delivery time and method of sample shipment with the laboratory.
- Establish a sampling team of at least two people.
- Establish a well purging and sampling schedule for the activities of the day.

3.2 Well Purging

3.2.1 Examination of the Well

- Identify the well and record the well number on the Well Record.
- Verify that the well is not damaged.

Immediately notify site manager if well damage is suspected.

- Field personnel put on new disposable gloves.
- Carefully remove well cover to avoid entry of foreign material into the well.
- If needed, the exterior and interior of the exposed riser pipe should be wiped with clean filter paper (or equivalent) wetted with distilled water.

3.2.2 Purging the Well

- Three to five casing volumes of standing water will be removed from the well prior to sampling. That volume can be calculated with the following formula:
- $V = r^2(h)(0.49)$

Where: V = standing water volume in gallons to be purged

r = inside radius of well in inches

h = linear feet of standing water in the casing (total depth - groundwater level) (0.49 is a correction factor which includes conversion from inches to feet and cubic feet to gallons assumes three well volumes will be purged; or purge until water temperature,conductivity and pH stabilize.

If a well purges to dryness and is slow to recharge, only one well volume of water needs to be purged.

- While purging the well, the rope and bailer will not touch the ground. A plastic sheet may be placed around the well to prevent this.
- Each dedicated bailer will be attached to clean nylon rope. After sampling, the nylon rope will be disposed of properly.
- During well purging, the dedicated bailer

will be carefully lowered just below the surface of the water, retrieved and emptied, etc. The same dedicated bailer will be used to obtain the sample.

- Temperature, specific conductance, pH and Eh will be measured during purging. At a minimum, the first bail of water will be measured and measurements will be taken after each well volume is bailed. When sampling is concluded, another measurement will be taken.

- All purging and sampling equipment must be stored and transported in a manner which minimizes the possibility of accidental contamination.

3.2.3 Record Keeping

- The sampling team will record the following information regarding the well purging procedure:

  - Day/Date/Time
  - Weather conditions
  - Air temperature
  - Condition of the well (rusty, bent casing, etc.)
  - Person(s) doing the purging
  - Groundwater level prior to purging
  - Depth to the bottom of the well
  - Volume of groundwater to be purged
  - Chemical properties of evacuated water:
    - Water temperature
    - Conductivity
    - pH
    - Eh
  - Physical properties of evacuated water:
    - Color
    - Odor
    - Turbidity (visual)
    - Presence of non-aqueous liquids
  - Volume of purge water
  - Procedures for collection, measurement, and disposal of purge water

3.3 Sampling

3.3.1 Examination of the Sampling Point

- Identify the sampling point (well) and record the identification number on the sampling record.

3.3.2 Field Measurements

- Prior to and after purging each volume and at the beginning and end of the sample collection, field measurements of pH, Eh, temperature, and specific conductance (SC) are to be obtained.

- The pH/Eh and SC meters will be calibrated between wells.

- The devices must be calibrated to manufacturer's specifications prior to obtaining a measurement.

- Decontamination of the pH/Eh and SC meters will occur after each use using a mild phosphate-free detergent solution and a distilled waste rinse.

3.3.3 Sample Collection

- Immediately prior to sampling, the water level in the well shall be determined and recorded.

- Sample collection shall be performed carefully to minimize unnecessary agitation of the sample. (Bailers shall be lowered slowly into the well; sample transfer will be performed gently so that volatiles are not "stripped" from the sample.)

- Sample collection shall follow the sequence set as follows:

  - Volatiles
  - Organics
  - Metaloids
  - Inorganics

- VOC samples must be collected within three hours after completing the evacuation of the well.

- If the recharge rate of the well is insufficient to obtain a complete

set of samples within 24 hours after purging the well, as many of the required samples as possible will be obtained with the water which is available in the well.

- The physical appearance of the groundwater observed during sampling is to be recorded.

3.3.4 Sample Containers

- All sample containers must be provided by the laboratory.
- Extra glass bottles will be obtained from the laboratory to allow for accidental breakage that may occur.
- Necessary preservatives will be placed in the sample bottles by the laboratory.
- The sample bottles will be handled carefully so that preservatives are not inadvertently spilled.

3.3.5 Holding Times and Laboratory Protocols

- All samples shall be shipped the same day they are obtained to the analytical laboratory.
- The samples must be stored at 4°C and analyzed within applicable holding times.

3.3.6 Sample Preservation and Shipment

- Immediately following collection of the samples, they are to be placed in a cooler with "freezer-pacs" in order to maintain sample integrity. Any preservatives required will be added during sampling as directed by the analytical laboratory. It is desirable to have preservatives placed in the bottles by the laboratory prior to the sampling event. This will save time in the field and increase overall QA/QC for the event. All volatile sample bottles are to be filled to capacity with no headspace for

volatilization. If necessary to meet a maximum recommended holding time, the samples are to be shipped by overnight courier to the laboratory.

- The shipping container used will be designed to prevent breakage, spills and contamination of the samples. Tight packing material is to be provided around each sample container and any void around the freezer-pacs. The container is to be securely sealed, clearly labeled, and accompanied by a chain of custody record. Separate shipping containers should be used for "clean" and heavily contaminated samples. During winter months, care should be taken to prevent the samples from freezing. Never place sample bottles directly on freezer-pacs.

3.4 Quality Assurance and Control

3.4.1 Procedures for Maintaining Sample Control and Chain of Custody

- To provide for proper identification in the field and proper tracking in the laboratory, all samples must be labeled in a clear and consistent fashion.

- Sample labels will be waterproof and have a pre-assigned, unique number that is indelible.

- Field personnel must maintain a field notebook. This notebook must be water resistant with sequentially numbered pages. Field activities shall be sequentially recorded in the notebook.

- The notebook, along with the chain of custody form, must contain sufficient information to allow reconstruction of the sample collection and handling procedure at a later time.

- Each sample shall have a corresponding notebook entry which

includes:

- Sample I.D. number
- Well location and number
- Date and time
- Analysis for which sample was collected
- Additional comments as necessary
- Samplers' names

o Each sample must have a corresponding entry on a chain of custody manifest.

o The manifest entry for sampling at any one well is to be completed before sampling is initiated by the same sampling team at any other well.

o In cases where samples leave the immediate control of the sampling team (i.e. shipment via common carrier), the shipping container must be sealed.

3.4.2 Blank samples

o A trip blank must be prepared by the laboratory for each sampling event that includes laboratory analysis for volatile organic compounds. If sampling of the monitoring network takes more than one day, a different trip blank shall be prepared for each day's sample set.

o A field blank must be prepared for each sampling event that includes laboratory analysis for volatile organic compounds. The field blank is created by transferring distilled water to the specified sampling container for analysis. The field blank should be transported with the other sample bottles and similarly handled.

3.4.3 Post Sampling Procedures

3.4.3.1 Clean Up and Security

o The site is to be cleaned up and the well locked and secured before

proceeding to the next well.

- All bailers are to be returned to dedicated plastic sheaths for cleaning prior to reuse. Three (3) 40-gallon plastic containers are filled with tap water. Phosphate-free detergent (e.g. liquinox) is added to the first container. Sponges dedicated to each container are used to scrub each bailer. One gallon of distilled water is used as a final rinse before sealing individual bailers in new marked plastic sheaths. One bailer will be cleaned at a time so that they will not be mixed up.

APPENDIX B

GAS SAMPLING PROTOCOL

I. INTRODUCTION

In landfill site investigation and remediation, a program must be established for monitoring, sampling, and evaluating gas hazards for the duration of site operations and for a period of time post-closure. The following Standard Protocol for Gas Monitoring have been established to conform with Environmental Protection Agency (EPA) and New York State Department of Environmental Conservation (NYSDEC) rules and regulations. The standard methods for monitoring preparation, monitoring, and record keeping of gas levels are detailed within to provide a method which yields representative readings of gas levels.

To implement a gas monitoring program, a site specific strategy should be developed in coordination with the lead regulatory agency. Once the appropriate site specific program has been outlined and agreed upon, the following protocol will serve as a guideline to follow during a gas monitoring event. The goals and strategy of the gas monitoring program, as well as a copy of this document, should be established and referenced for each monitoring event. These procedures will aid in providing reliable and comparable analytical test results.

Throughout this document, points at which gas readings are to be taken will be referred to as monitoring points. This term encompasses any void in the surface or subsurface of the area being tested including, but not limited to, gas extraction, monitoring, and venting wells, groundwater monitoring wells, and plunge bar holes. The actual points at which gas readings are taken are determined by the site specific conditions.

II. MONITORING

A. Pre-Monitoring Preparation

1. Health and Safety: Any associated Health and Safety Protocol and common sense will be followed by all personnel engaging in gas monitoring.

2. All individuals involved in gas monitoring will read this protocol, be technically qualified, and follow the proper guidelines whenever gas readings are obtained. All individuals involved in the gas monitoring will be aware of the hazards involved.

3. Prior to any gas monitoring event, the following steps will be taken by personnel responsible for gas monitoring:

   a. Review the gas monitoring procedures.

   b. Assemble and inspect field equipment necessary for gas readings and verify that the equipment is clean and in proper working order.

   c. Calibrate equipment to manufacturer's specifications.

   d. Obtain a site map identifying gas monitoring points and establish a schedule for the day's gas monitoring activities.

   e. Gas readings will be taken on calm days and the barometric pressure will be recorded. Monitoring will be postponed if the proposed day is one of rapidly increasing barometric pressure. A barometer reading will be obtained immediately prior to the monitoring event and a decision made whether to monitor gas or postpone monitoring.

B. Gas Monitoring Procedure

1. Examination of the Monitoring Point

   a. Identify the monitoring point and record its number in the Monitoring Record. Plungebar holes and other non-permanent gas monitoring points will be plotted on a field map with readings.

   b. In the case of a well, verify that it is not damaged. Notify the Site Manager immediately if any well damage is suspected.

2. Gas Monitoring

a. Field personnel must put on new, protective, disposable gloves.

b. If the monitoring point is a well, carefully unlock and remove casing lid and PVC cap to avoid entry of foreign material into the well.

c. Place the gas detection instrument's probe into the point.

d. Protect the gas monitoring equipment from water damage. If water is suspected in the point, check the probe for wetness before continuing to insert the probe. If the probe is damp, re-insert the probe to a safe, dry level.

e. Draw a sample through the monitoring instrument and record any detectable gas concentrations that have stabilized.

f. Air will be drawn through the instrument between monitoring points until all detectable gas from the previous monitoring point is purged.

3. Record Keeping

a. To provide for proper identification in the field and for future reference all monitoring results must be recorded in a clear and consistent fashion.

b. Field personnel must maintain a field notebook. This notebook must be water resistant with sequentially numbered pages. Field activities will be sequentially recorded in the field notebook.

c. The notebook must contain sufficient information to allow reconstruction of the monitoring event at a later time.

d. Each monitoring point will have a corresponding notebook entry which includes:

Monitoring point location and number
Date and Time
Type of gas tester used
Gas levels
Samplers' names
Additional comments as necessary

e. The manifest entry for monitoring at any one point is to be completed before monitoring is initiated by the monitoring team at any other point.

f. The sampling team will record the aforementioned data and the following information regarding the gas monitoring procedure:

Day/Date/Time
Weather conditions:
- Barometric Pressure
- Air temperature
- Cloud cover

Condition of the monitoring point
Physical properties of gas escaping from well:
- Color
- Odor
- Heat
- Vapor

Order of wells monitored

4. Post-Monitoring Procedure

a. The site will be cleaned up and all wells will be locked to maintain security.

b. Equipment should be checked for any malfunctions after monitoring is completed.

III. HEALTH & SAFETY

A. Precautionary Measures

1. Never Enter a Confined Area Where Gas is Expected: Gases are combustible in certain ratios of gas to air in confined spaces. Methane, for example, will combust in concentrations between 5 and 15% of the total air when exposed to a source of ignition. There is also the threat of asphyxiation in an unventilated area. It is important to take readings where there is adequate ventilation to avoid such danger.

2. Maintain a Safe Distance from the Monitoring Point: Never lean directly over the point, and do not take a position where contaminants are freely breathed in.

3. Establish a Sampling Team: Personnel on site to monitor gas must work in teams of two or more, employing the "buddy" system.

4. Emergency Numbers: Prior to a monitoring event, a list of emergency telephone numbers, including the local fire, police, ambulance, and hospitals should be included in the field notebook. Directions to medical facilities should also be included.

5. Site Hazards: Before entering the gas monitoring area, make visual observations to assess any dangers (i.e. land features, wind direction, sources of ignition, etc.).

6. Site Approach: Monitoring teams should approach points and perform monitoring on a site from an upwind direction whenever possible.

7. Familiarity with Instrumentation: It is imperative that personnel using monitoring instruments be thoroughly familiar with their use, limitations, and operating characteristics to ensure that accurate measurements are taken. Many decisions concerning the safety of everyone involved in a particular project are based upon the results of gas monitoring.

APPENDIX C

TEST BORING LOGS

DATE
STARTED 6/1/90
FINISHED 6/1/90
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS INC

SUBSURFACE LOG

HOLE NO. MW-1a
SURF. ELEV. N/A
G. W. DEPTH 16.7'

PROJECT Landfill Closure Study

LOCATION Berlin - Petersburg, N.Y.

DEPTH	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0-6	6-12	12-18	N	BLOW ON CASING C	SOIL OR ROCK CLASSIFICATION	NOTES
0		1	2	3		6		Light brownish gray fine to coarse SAND, some Gravel-slate fragments, Some Silt, trace clay. (Moist Loose to Compact)	Note #1: Groundwater noted @ 18.2' on 6/1/90 after bailing dry & @ 16.7' on 6/4/90.
			3	7					
			14	31		65			
			34	100/.5					
5								Greenish gray SLATE	Note #2: 2" PVC monitoring well installed at 25.0'. See well diagram for details
10								4" casing was advanced to 20'. Then 4" roller bit was advanced past the casing to 28.0'	
15									
20									
25									
								End of Boring @ 28.0'	
30									
35									
40									

N = No. blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow.

C = No. blows to drive _____ casing _____ " with _____ lb. weight falling _____ "per blow.

CLASSIFICATION Visual by Geologist

METHOD OF INVESTIGATION 4¼" I.D. Hollow Stem Augers

DATE
STARTED 6/4/90
FINISHED 6/5/90
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS INC.

SUBSURFACE LOG

HOLE NO. MW-1a
SURF. ELEV. N/A
G. W. DEPTH N/A

PROJECT Landfill Closure Study

LOCATION Berlin - Petersburg, N.Y.

DEPTH IN	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER 0" / 6" / 12" / 18"	N	BLOW ON CASING C	SOIL OR ROCK CLASSIFICATION	NOTES
0		1	2 / 2 / 1 / 4	3		Gray Fill: fine to coarse SAND, Some Gravel, little silt, trace clay slight organic odor. (Moist-Loose)	Note #1: 2" PVC monitoring well installed @ 15.4'. See well diagram for details.
5		2	21 / 23 / 30 / 38	53		Light brownish gray fine to coarse SAND, Some Gravel, Some Silt, trace clay, occasional cobble to boulder sized rock fragments. (Moist-Firm to Compact)	
		3	100/.4			Greenish gray SLATE	
10						4" casing was advanced to 14'. Then 4" roller bit was advanced past the casing to 31.0'	
15							
20							
25							
30						End of Boring @ 31.0'	
35							
40							

N = No. blows to drive 2" spoon 12" with 140 lb. pin wt. falling 30" per blow. CLASSIFICATION Visual by Geologist

C = No. blows to drive ____" casing ____" with ____ lb. weight falling ____" per blow.

METHOD OF INVESTIGATION 4¼" I.D. Hollow Stem Auger

DATE
STARTED 5/15/90
FINISHED 5/15/90
SHEET 1 OF 4

EMPIRE SOILS INVESTIGATIONS INC. SUBSURFACE LOG

HOLE NO. MW-3
SURF. ELEV.
G.W. DEPTH 11.8'

PROJECT Landfill Closure Study
LOCATION Berlin-Petersburg, N.Y.

Depth	Sample	Sample No.	Blows on Sampler 0-6 / 6-12 / 12-18	N	Blow on Casing C	SOIL OR ROCK CLASSIFICATION	NOTES
0		1	1 3	6		Brown SILT, Some fine to coarse Sand, little gravel, little clay.	Note #1: 2" PVC monitoring well installed @ 30.0'. See well diagram for details.
			3 3			(Moist - Soft to Medium)	
		2	12 12	27		Light brownish gray fine to coarse SAND, Some Silt, little gravel, little clay.	
			15 23				
		3	15 26	61			
			37 32				
10		4	20 33	72		(Moist - Firm to Very Compact)	
			39 53				
						Light greenish gray SLATE with calcite and quartz stringers: medium hard, slightly weathered, bedding is contorted. Vuggy, iron stained fractures noted @ 17.0', 17.3', 17.7', 20.9', 21.7', 23.8'-24.1', 24.8' and 28.5'. Segment from 17.8' 20.7' is relatively sound.	Run #1 NX Core 16.7'-21.7' Rec: 96% RQD:45%
20							Run #2 NQ Core 21.7'-24.8' Rec: 97% RQD: 25%
							Run #3 NQ Core 24.8'-29.2' Rec: 95% RQD: 68%
30						-grades Greenish gray SLATE: medium hard, sound, fissile along foliation which dips 35° to 50°, parallel to compositional layers.	Run #4 NQ Core 29.2'-34.0' Rec: 100% RQD: 71%
							Run #5 NQ Core 34.0'-40.7' Rec: 100% RQD: 76%
40							

N = No. blows to drive 2 spoon 12 " with 140 lb. pin wt. fallg 30 "per blow CLASSIFICATION Visual by Geologist

C = No. blows to drive ____ casing ____ " with ____ lb. weight falling ____ "per blow

4¼" I.D. Hollow Stem Augers, NX Rotary Core

DATE
STARTED 5/15/90
FINISHED 5/25/90
SHEET 2 OF 4

EMPIRE SOILS INVESTIGATIONS INC. SUBSURFACE LOG

HOLE NO. MW-1
SURF. ELEV.
G. W. DEPTH 11.7'

PROJECT Landfill Closure Study
LOCATION Berlin-Petersburg, N.Y.

Depth	Samples	Sample No	Blows on Sampler 0/6 6/12 12/18 N	Blow on Casing
40				
50				
60				
70				
80				

SOIL OR ROCK CLASSIFICATION

Greenish gray SLATE, medium hard, sound, fissile along foliation which dips approx. 45°, occasional quartz seams and slight staining on foliation.

-similar

NOTES

Run#6 NQ Core
40.7'-43.7'
Rec: 100% RQD: 80%

Run #7 NQ Core
43.7'-49.0'
Rec: 100%
RQD: 62%

Run #8 NQ Core
49.0'-54.1'
Rec: 100%
RQD: 70%

Run #9 NQ Core
54.1'-59.2'
Rec: 100%
RQD: 65%

Run #10 NQ Core
59.2'-65.0'
Rec: 100%
RQD: 78%

Run #11 NQ Core
65.0'-69.0'
Rec: 100%
RQD: 87%

Run #12 NQ Core
69.0'-74.0'
Rec: 100%
RQD: 95%

Run #13 NQ Core
74.0'-78.8'
Rec: 100%
RQD: 77%

N = No. blows to drive ____ spoon ____" with ____ lb. pin wt. falling ____"per blow.
C = No. blows to drive ____ casing ____" with ____ lb. weight falling ____"per blow.
METHOD OF INVESTIGATION NY Rotary Core Barrel

CLASSIFICATION Visual by Geologist

DATE
STARTED 5/15/90
FINISHED 5/15/90
SHEET 3 OF 4

EMPIRE SOILS INVESTIGATIONS INC. SUBSURFACE LOG

HOLE NO. MW-3
SURF. ELEV.
G. W. DEPTH 11.7'

PROJECT Landfill Closure Study
LOCATION Berlin-Petersburg, N.Y.

DEPTH	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER (0/6 6/12 12/18 N)	BLOW ON CASING C.	SOIL OR ROCK CLASSIFICATION	NOTES
80					Greenish gray SLATE: medium hard, sound, fissile along foliation which dips approx. 40°.	Run #14 NQ Core 78.8'-84.0' Rec: 100% RQD: 86%
						Run # 15 NQ Core 84.0'-89.0' Rec: 100% RQD: 82%
90					-iron staining noted on foliation	Run #16 NQ Core 89.0'-94.0' Rec: 100% RQD: 26%
						Run #17 NQ Core 94.0'-99.0' Rec: 100% RQD: 80%
100						Run #18 NQ Core 99.0'-104.3' Rec: 100% RQD: 89%
						Run #19 NQ Core 104.3'-109.0' Rec: 100% RQD: 79%
110						Run #20: NQ Core 109.0'-114.0' Rec: 100% RQD: 83%
						Run #21: NQ Core 114.0'-124.0' Rec: 100% RQD: 71%
					-similar	
120						

N = No. blows to drive _____" spoon _____" with _____lb. pin wt. falling _____"per blow
C = No. blows to drive _____" casing _____" with _____lb. weight falling _____"per blow.

CLASSIFICATION Visual by Geologist

W. D. Cama, Jr., P.E.

DATE
STARTED 5/15/90
FINISHED 5/25/90
SHEET 4 OF 4

EMPIRE SOILS INVESTIGATIONS INC SUBSURFACE LOG

HOLE NO. MW-3
SURF. ELEV.
G. W. DEPTH 11.7'

PROJECT Landfill Closure Study
LOCATION Berlin-Petersburg, NY

DEPTH	SAMPLE TYPE	SAMPLE NO	BLOWS ON SAMPLER (0 / 6 / 12 / 18) N	BLOW ON CASING C	SOIL OR ROCK CLASSIFICATION	NOTES
120						Run 21 NQ Core (continued)
						Run #22 NQ Core 124.0'-134.0' Rec: 100% RQD: 77%
130					-grades Gray SLATE: medium hard, sound, fissile along foliation/ compositional layering.	
						Run #23 NQ Core 134.0'-144.0' Rec: 100% RQD: 79%
140						
						Run #24 NQ Core 144.0'-154.0' Rec: 100% RQD: 54%
150					-Similar	
					End of Boring @ 154.0'	
160						

N = No. blows to drive _____" spoon _____" with _____lb. pin wt. falling _____"per blow.
C = No. blows to drive _____" casing _____" with _____lb. weight falling _____"per blow

CLASSIFICATION Visual by Geologist

METHOD OF INVESTIGATION NX Rotary Core Barrel

SMITH & MAHONEY, P.C.
CONSULTING ENGINEERS • SURVEYORS
79 NORTH PEARL STREET, ALBANY, NEW YORK 12207

TEST BORING LOG

BORING No. MW-5

PROJECT PETERSBURG-BERLIN LANDFILL

CLIENT EAC

PROJECT NO. 4110900

DRILLING CONTRACTOR SOIL & MATERIAL TESTING, INC.

SHEET 1 of 2

GROUNDWATER		DEPTH OF:				CASING	SAMPLER	CORE
DATE	TIME	WATER	CASING	BORING	TYPE		SS	NX
9/21	08:35	0'		9.5'	DIAMETER			
9/21	11:00	17.2'		18.0'	HAMMER WEIGHT	300lbs	140lbs	
9/21	13:30	17.6'		29.8'	HAMMER FALL	30"	30"	
					DRILL RIG MODEL		JOY HD-22	

ELEVATION

DATUM GROUND SURFACE

DATE STARTED 9/20/90

DATE FINISHED 9/22/90

DRILLER R.STONE/M. SOFIA

INSPECTOR STEELE

DEPTH FT.	SAMPLE NUMBER	BLOWS PER 6"	REC.	SOIL CLASSIFICATION	DESCRIPTION	REMARKS
	S-1	2 3 4 8	0.7'	FILL	FILL: SOIL & MSW	MATERIAL FROM CONSTRUCTION ACCESS ROAD-FROM INSPECTION OF AREA FILL AT LEAST 3'.
				TOP-SOIL	4.8' ROCK	
5	B-1			PHYL-LITE	5.5'-9.5' PHYLLITE WITH THIN VEINS OF QTZ, FRACTURES ON BEDDING PLANES IRON STAINING ON FRACTURES.	10' WASH PAN MATERIAL SAME.
10						11.5' WASH PAN MATERIAL. SAME.
15				SHALE		14.0' WASH PAN MATERIAL DARKER. 15' WASH PAN MATERIAL SMALLER PIECES.
20				PHYL-LITE		17' WASH PAN MATERIAL SAME. 22' WASH PAN MATERIAL LIGHTER LARGER PIECES.

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY
0 – 4	VERY LOOSE	0 – 2	VERY SOFT
4 – 10	LOOSE	2 – 4	SOFT
10 – 30	MEDIUM COMPACT	4 – 8	MEDIUM STIFF
30 – 50	COMPACT	8 – 15	STIFF
50+	VERY COMPACT	15 – 30	VERY STIFF

SMITH & MAHONEY, P.C. CONSULTING ENGINEERS • SURVEYORS 79 NORTH PEARL STREET, ALBANY, NEW YORK 12207	TEST BORING LOG	BORING NO. MW-5
PROJECT PETERSBURG/BERLIN LANDFILL		PROJECT NO. 4110900
CLIENT EAC		SHEET 2 OF 2

DEPTH FT.	SAMPLE NUMBER	BLOWS PER 6"	REC.	SOIL CLASSIFICATION	DESCRIPTION	REMARKS
25				PHYLL-ITE		27' TRACE SHALE OIL IN WASH PAN. 29' WASH PAN MATERIAL SOFTER, TRACE OIL, COLOR BROWNER. 29.5' QTZ FRAGMENTS IN WASH PAN, MATERIAL HARDER.
30				SHALE / PHYLL-ITE	30' END OF BORING	

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CONSULTING ENGINEERS • SURVEYORS
75 NORTH PEARL STREET, ALBANY, NEW YORK 12207

TEST BORING LOG

BORING No. MW-6

PROJECT BERLIN / PETERSBURG LANDFILL

CLIENT EAC SYSTEMS, INC.

PROJECT NO. 4110900

DRILLING CONTRACTOR SOIL & MATERIAL TESTING, INC.

SHEET 1 of 3

GROUNDWATER DATE	GROUNDWATER TIME	DEPTH OF: WATER	DEPTH OF: CASING	DEPTH OF: BORING		CASING	SAMPLER	CORE
					TYPE		SPLIT BARREL	NX
					DIAMETER		2"	2"
					HAMMER WEIGHT		140 lbs	
					HAMMER FALL		30"	
					DRILL RIG MODEL			

ELEVATION

DATUM

DATE STARTED 5/10/91

DATE FINISHED 5/14/91

DRILLER D. RAPPOLD

INSPECTOR D. LEE

DEPTH FT.	SAMPLE NUMBER	BLOWS PER 6"	REC.	SOIL CLASSIFICATION	DESCRIPTION	REMARKS
2	S-1	1 1 2 15	.47		(0-.47') BROWN GRAVEL AND COARSE TO FINE SAND, SOME SILT, TRACE CLAY, VERY LOOSE, MOIST.	
4	S-2	37 22 18 18	.50		(0-.50') TILL:GRAY, GRAVEL AND SILT, SOME COARSE TO FINE SAND, COMPACT, MOIST.	
6	S-3	19 15 19 34	NR		NO RECOVERY	
8	S-4	25 28 26 10	1.2'		(0-.30') TILL: BROWN-GRAY SILTY SAND, SOME COARSE GRAVEL, TRACE FINE SAND. (.30-1.20')TILL:GRAY CLAY AND GRAVEL, SOME FINE SAND, MEDIUM COMPACT, MOIST.	
10	S-5	11 19 26	1.8'			
12	S-6	100/.5"	.42'		(0-1.80') SAME,AS S-4 (.30-1.20') (0-.42') TILL: GRAY, GRAVEL AND SILTY SAND, VERY COMPACT, MOIST.	
14	S-7	70 15 60 30	1.0'		(0-1.0')TILL:LIGHT GRAY, GRAVEL AND SILTY CLAY, SOME FINE SAND, COMPACT MOIST.	NOTE: SHATTERED QUARTZ @.36'-.42'
16	S-8	24 43 51 43	1.6'		(0-1.6') SAME.	NOTE: GRAVEL "CIGAR" SHAPED
18	S-9	22 43 55 45	1.8'		(0-1.8') SAME.	NOTE·ROUNDED GRAVEL 1"-2" DIAMETER @ 35'
20	S-10	18 40 41 50	1.9'		(0-1.92') TILL:LIGHT GRAY GRAVEL AND AND COARSE TO FINE SAND, SOME SILT, COMPACT, MOIST.	NOTE:SHATTERED STONE 1.10'-1.30'.
22	S-11	24 35 40 57	1.9'		(0-1.91') SAME.	NOTE:SHATTERED STONE 1.10'-1.25'.
24	S-12	26 46 54 75	2.0'		(0-2.0') SAME - LITTLE DARKER COLORED GRAY.	

SAMPLE DENSITY		SAMPLE CONSISTENCY	
0 – 4	VERY LOOSE	0 – 2	VERY SOFT
4 – 10	LOOSE	2 – 4	SOFT
10 – 30	MEDIUM COMPACT	4 – 8	MEDIUM STIFF
30 – 50	COMPACT	8 – 15	STIFF
50+	VERY COMPACT	15 – 30	VERY STIFF

SMITH & MAHONEY, P.C. CONSULTING ENGINEERS • SURVEYORS 79 NORTH PEARL STREET, ALBANY, NEW YORK 12207	TEST BORING LOG	BORING NO. MW-6
PROJECT BERLIN/PETERSBURG LANDFILL		PROJECT NO. 4110900
CLIENT EAC SYSTEMS, INC.		SHEET 2 OF 3

DEPTH FT.	SAMPLE NUMBER	BLOWS PER 6"	REC.	SOIL CLASSIFICATION	DESCRIPTION	REMARKS
24						
	S-13	24 77 100/.1	.36'		(0-.36') TILL: WHITISH-GRAY GRAVEL AND FINE SAND TRACE SILTY CLAY, COMPACT MOIST.	
26	S-14	40 47 63 70	1.87'		(0-1.87') SAME.	NOTE: SHATTERED STONE @ 1.72-1.84'.
28	S-15	35 46 63 85	1.95'		(0-1.95') TILL: GRAY SILTY CLAY, SOME GRAVEL VERY COMPACT, MOIST.	NOTE: SAMPLE NOTICEBLY MOISTER THAN OTHER SAMPLE
30	S-16	46 65 100/6"	1.81'		(0-1.81') TILL: GRAY GRAVEL SOME SILTY SAND TRACE CLAY, VERY COMPACT, MOIST.	NOTE: NOT AS MOIST AS S-15
32	S-17	40 77 100/6"	1.5'		(0-1.5') SAME: (GRADES, LIGHTER COLOR GRAY)	
34	S-18	37 52 100/6"	1.65'		(0-1.6') SAME.	TIP OF SPOON WET
36	S-19	100/1"	.10'		(0-.10) SAME.	
38						TRI-CONE ROLLER BIT ADVANCED HOLE TO 40.0'.
					NX ROTARY DIAMOND ROCK CORE STARTED @ 40'. HIGHLY WEATHERED GRAY SLATE. QUARTZ IN BARREL, 42.7-43.5'.	RUN #1 40-43.5' REC= 2.3/3.5 RQD=1.14(33%)
					LIGHT GRAY SLATE.	RUN #2 43.5-48' REC=4.0/4.5 RQD=2.6'(58%)
						RUN #3 48-51' REC=3.6/3.0'

SMITH & MAHONEY, P.C.
CONSULTING ENGINEERS • SURVEYORS
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TEST BORING LOG

BORING NO. MW-6

PROJECT BERLIN/PETERSBURG LANDFILL

PROJECT NO. 4110900

CLIENT EAC SYSTEMS, INC.

SHEET 3 OF 3

DEPTH FT.	SAMPLE NUMBER	BLOWS PER 6"	REC.	SOIL CLASSIFICATION	DESCRIPTION	REMARKS
50					LIGHT GRAY SLATE, SLIGHTLY FOLIATED.	RUN #3 RQD= 3.13' (98%)
52						RUN #4 51-56.0'. REC 4.9/5.0 RQD=4.6 (92%)
54						
55						
					CORING TERMINATED AT 56.0'.	

APPENDIX D

TEST PIT LOGS

SMITH & MAHONEY, P.C.
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TEST PIT LOG

TEST PIT NO. TP-1

PROJECT BERLIN/PETERSBURG LANDFILL	PROJECT NO. 4110900
CLIENT EAC SYSTEMS, INC.	DATE 4/10/91
CONTRACTOR A-RITE	INSPECTOR J. COBB
EQUIPMENT CATERPILLAR 225 TRACK HOE	ELEVATION

DEPTH FT.	SAMPLE NUMBER	SOIL CLASSIFICATION	DESCRIPTION	REMARKS
		SILT	0-1.3':SILT, SOME FINE MEDIUM SAND, TRACE FINE ANGULAR, GRAVEL, BROWN, MOIST.	
1.3				
		TIL	1.3-3.0':ANGULAR TILL: SHALE/PHYLLITE FRAGMENTS IN FINE MEDIUM SANDY SILT, TRACE CLAY MATRIX, GRAY-GREEN, SLIGHTLY MOIST.	
5			BOTTOM OF PIT 3.0 ft.	
10				
15				
20				

GROUNDWATER

DATE	TIME	DEPTH

NOT ENCOUNTERED ☒

DIMENSIONS

$\frac{12}{L} \times \frac{3}{W} \times \frac{3}{D} = \frac{108}{ft.^3}$

BOULDERS: $\frac{\quad}{NO.}$: $\frac{\quad}{ft.^3}$

DEPTH

JAR SAMPLES

BAG SAMPLES

GROUNDWATER

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TEST PIT LOG

TEST PIT NO. TP-2

PROJECT BERLIN/PETERSBURG LANDFILL	PROJECT NO. 4110900
CLIENT EAC SYSTEMS, INC.	DATE 4/10/91
CONTRACTOR A-RITE	INSPECTOR J. COBB
EQUIPMENT CATERPILLAR 225 TRACK HOE	ELEVATION

DEPTH FT.	SAMPLE NUMBER	SOIL CLASSIFICATION	DESCRIPTION	REMARKS
		FILL	0.0-2.1': MSW IN SILTY GRAVEL, SOME MEDIUM SAND, GRAY, SLIGHTLY MOIST.	
		2.1 TILL	@ 2.1': TILL: FINE SANDY ANGULAR GRAVEL, SOME SILT, GRAY, DRY: PHYLLITE FRAGMENTS.	
		3.1	@ 3.5': PHYLLITE LEDGE IN EASTERN EDGE OF PIT 2.	
5			BOTTOM OF PIT - 3.5 ft.	
10				
15				
20				

GROUNDWATER

DATE	TIME	DEPTH

NOT ENCOUNTERED ☒

DIMENSIONS

$\frac{10}{L} \times \frac{3}{W} \times \frac{5.5}{D} = \frac{165}{ft^3}$

BOULDERS: ____ NO. ; ____ ft^3

DEPTH

JAR SAMPLES

BAG SAMPLES

GROUNDWATER

SMITH & MAHONEY, P.C.
CONSULTING ENGINEERS • SURVEYORS
79 NORTH PEARL STREET, ALBANY, NEW YORK 12207

TEST PIT LOG

TEST PIT NO. TP-3

PROJECT BERLIN/PETERSBURG LANDFILL	PROJECT NO. 4110900
CLIENT EAC SYSTEMS, INC.	DATE 4/10/91
CONTRACTOR A-RITE	INSPECTOR J. COBB
EQUIPMENT CATERPILLAR 225 TRACK HOE	ELEVATION

DEPTH FT.	SAMPLE NUMBER	SOIL CLASSIFICATION	DESCRIPTION	REMARKS
		SILT	0.0-1.8': SILT, SOME FINE SAND, TRACE FINE GRAVEL, BROWN, SLIGHTLY MOIST.	
		1.8'	@ 1,8': PHYLLITE, SLIGHTLY WEATHERED, DRY.	
			BOTTOM OF PIT - 2.3 ft.	
5				
10				
15				
20				

GROUNDWATER

DATE	TIME	DEPTH

NOT ENCOUNTERED ☒

DIMENSIONS

$\frac{8}{L} \times \frac{3}{W} \times \frac{2.3}{D} = \frac{55.2}{ft.^3}$

BOULDERS: ____ NO. : ____ $ft.^3$

DEPTH ____

JAR SAMPLES ____

BAG SAMPLES ____

GROUNDWATER ____

SMITH & MAHONEY, P.C.
CONSULTING ENGINEERS • SURVEYORS
79 NORTH PEARL STREET, ALBANY, NEW YORK 12207

TEST PIT LOG

TEST PIT NO. TP-4

PROJECT BERLIN/PETERSBURG	PROJECT NO. 4110900
CLIENT EAC SYSTEMS. INC.	DATE 4/10/91
CONTRACTOR A-RITE	INSPECTOR J. COBB
EQUIPMENT CATERPILLAR 225 TRACK HOE	ELEVATION

SAMPLE NUMBER	SOIL CLASSIFICATION	DESCRIPTION	REMARKS
	FILL	FINE MEDIUM SANDY SILT, SOME FINE MEDIUM ANGULAR GRAVEL, ROOTS, SOME SMALL STUMPS, ONE PIECE CONCRETE, BROWN SLIGHTLY MOIST. (FILL)	
	2.0'	@ 2.0' SAME- NO STUMPS OR CONCRETE.	
		BOTTOM OF PIT -3.5'	

5
10
15
20

GROUNDWATER

DATE	TIME	DEPTH

NOT ENCOUNTERED ☒

DIMENSIONS

$\frac{10}{L} \times \frac{3}{W} \times \frac{3.5}{D} = \frac{105}{ft.^3}$

BOULDERS: ____ NO. ; ____ $ft.^3$

DEPTH ____

LAB SAMPLES ____

BAG SAMPLES ____

GROUNDWATER ____

SMITH & MAHONEY, P.C.
CONSULTING ENGINEERS • SURVEYORS
79 NORTH PEARL STREET, ALBANY, NEW YORK 12207

TEST PIT LOG

TEST PIT NO. TP-5

PROJECT	BERLIN/PETERSBURG LANDFILL
CLIENT	EAC SYSTEMS, INC.
CONTRACTOR	[illegible]
EQUIPMENT	CATERPILLAR 225 TRACK HOE
PROJECT NO.	4110900
DATE	4/10/91
INSPECTOR	J. COBB
ELEVATION	

SAMPLE NUMBER	SOIL CLASSIFICATION	DESCRIPTION	REMARKS
	TILL	0.0-0.5': TILL: FINE MEDIUM SAND, GRAVELLY (PHYLLITIC) CLAY, SOME SILT, GREEN-GRAY, MOIST (SAME AS DAILY COVER).	
		0.5-2.0': FINE MEDIUM SAND, SOME SILT & FINE ANGULAR GRAVEL, STAINED ORANGE, DRY.	
	TILL	2.0': TILL: FINE SANDY FINE MEDIUM ANGULAR GRAVEL AND PHYLLITE FRAGMENTS, TRACE SILT, GRAY, SLIGHTLY MOIST.	
		BOTTOM OF PIT - 3.8 ft.	

DEPTH FT
5
10
15
20

GROUNDWATER

DATE	TIME	DEPTH

NOT ENCOUNTERED ☒

DIMENSIONS

$\frac{8}{L} \times \frac{3}{W} \times \frac{3.8}{D} = \frac{91.2}{ft.^3}$

BOULDERS: NO. ; $ft.^3$

DEPTH

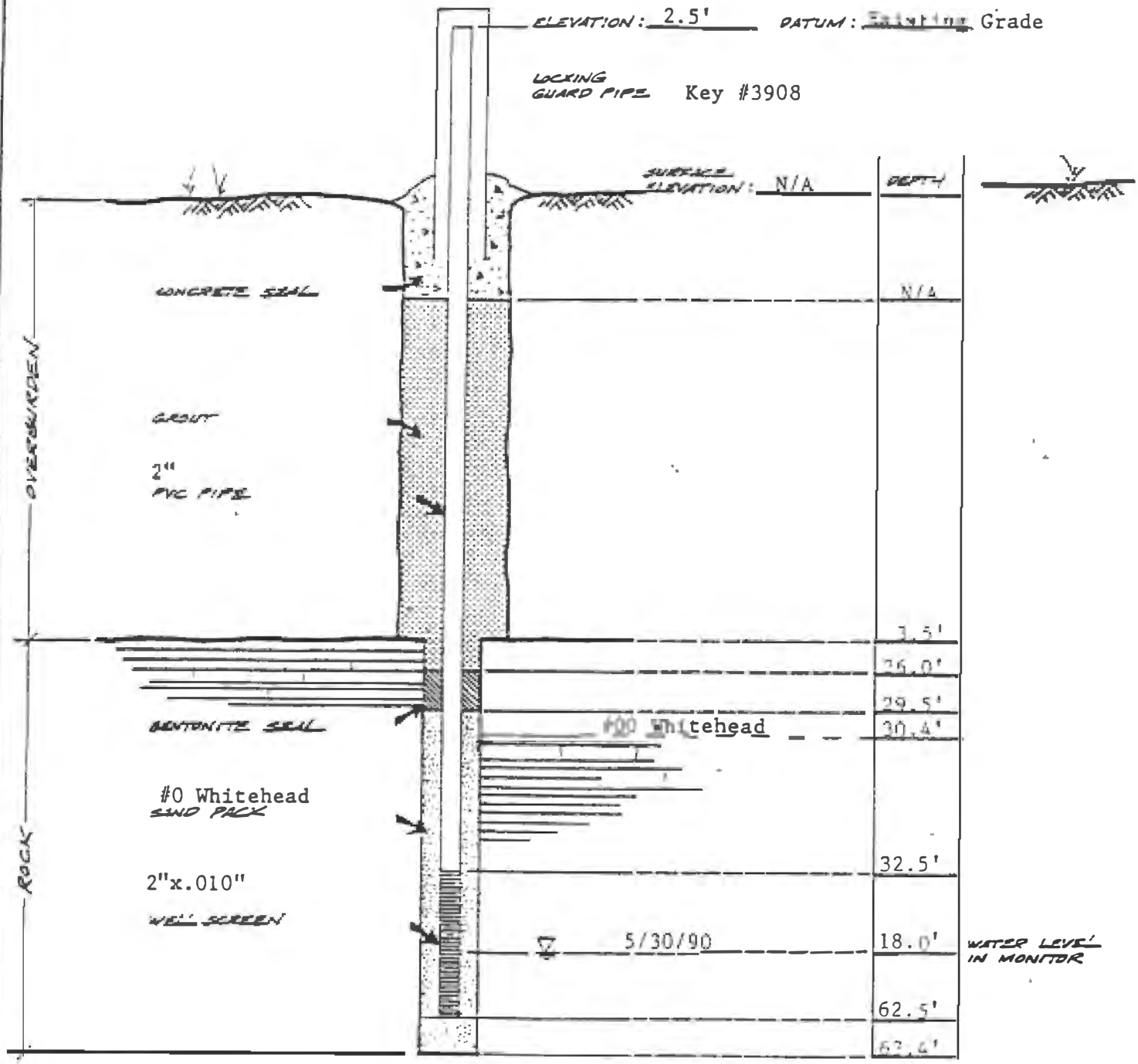
JAR SAMPLES

BAG SAMPLES

GROUNDWATER

APPENDIX E

GROUNDWATER MONITORING WELL CONSTRUCTION LOGS



WELL No.

MW-1

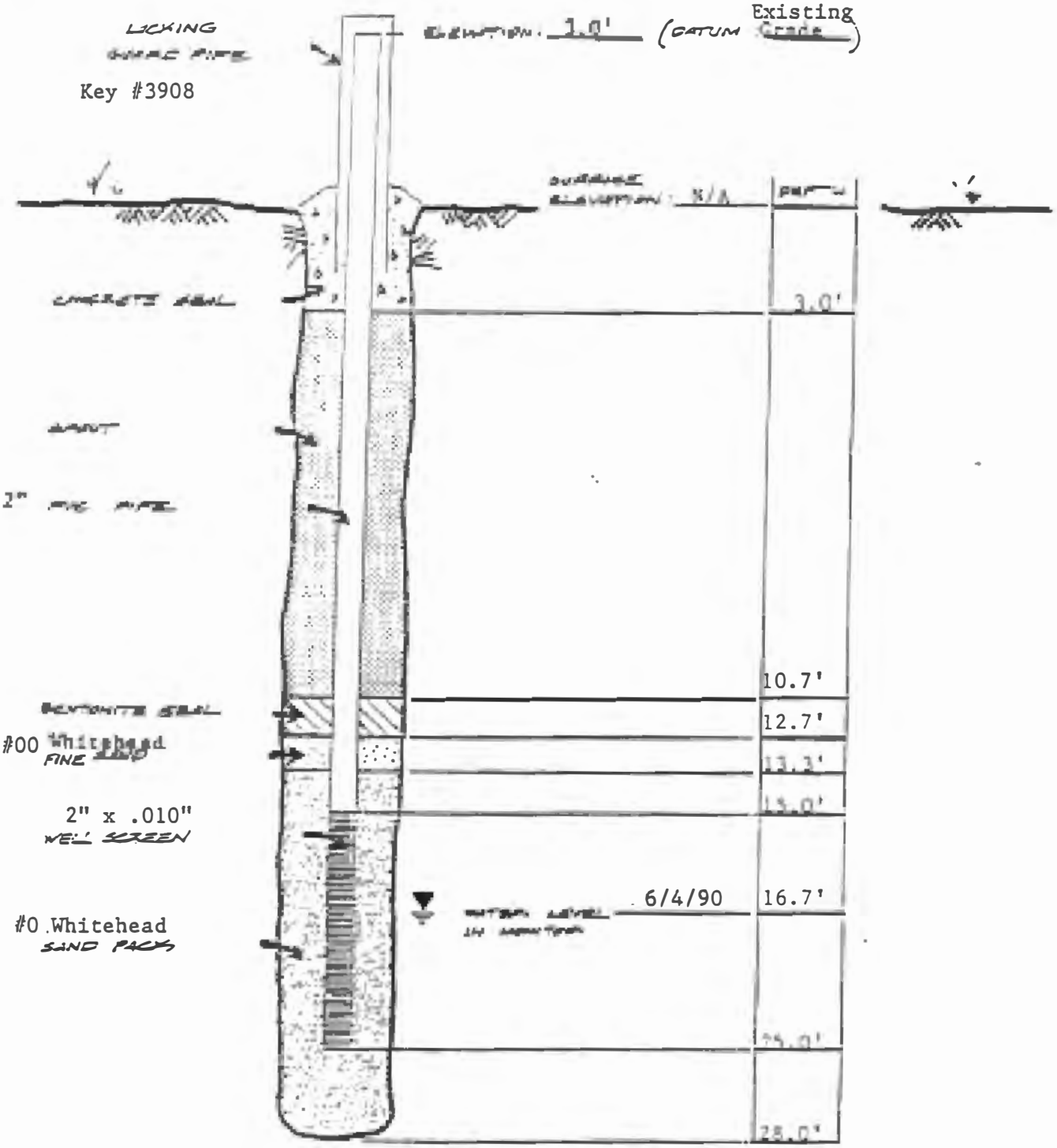
EMPIRE SOILS INVESTIGATIONS INC

SUBSURFACE INVESTIGATION PLAN

MONITORING WELL DETAILS

LANDFILL CLOSURE STUDY
BERLIN - PETERSBURG, N.Y.

DR. BY	JDS	SCALE	N.T.S.	PROJ. NO.	AD-90-07
CK'D BY.		DATE	6/13/90	DRWG NO.	



WELL No.

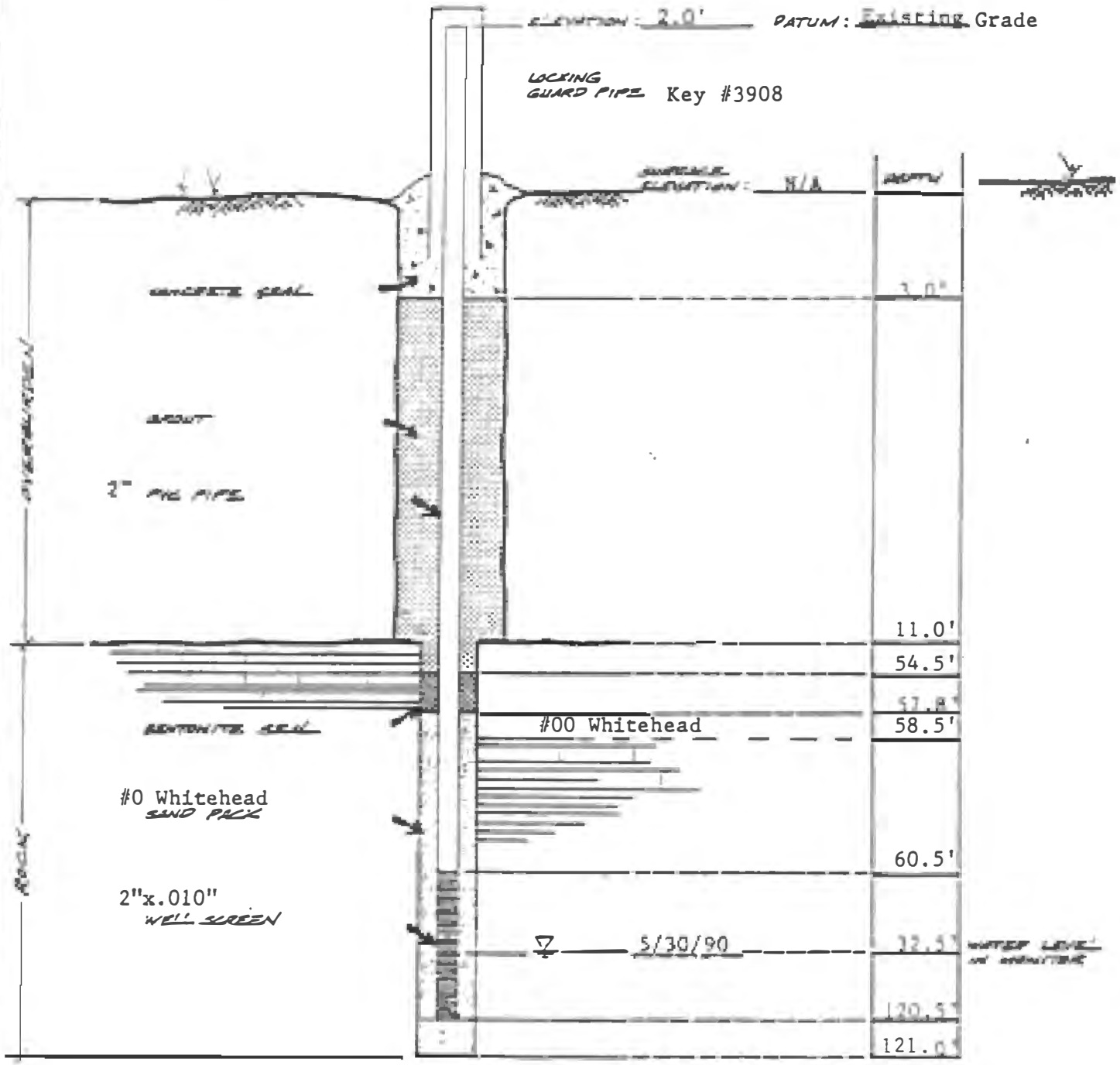
MW-1s

EMPIRE

MONITORING WELL DETAILS

LANDFILL CLOSURE STUDY
BERLIN - PETERSBURG, N.Y.

DR BY JDS	SCALE: N.T.S.	PROJ NO. AD-90-07
	DATE 6/22/90	DRWG NO



WELL No.

MW-2

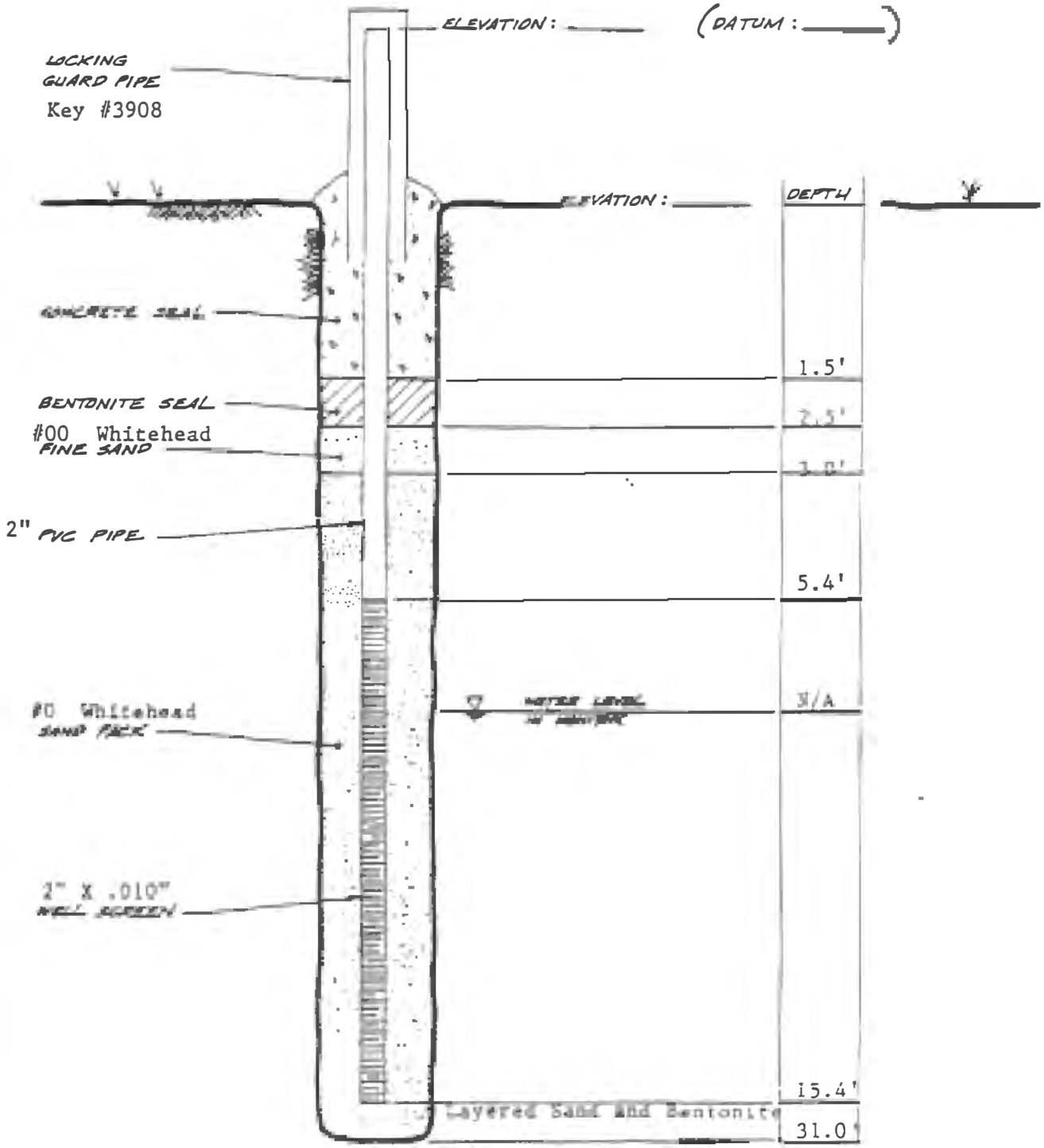
EMPIRE

SUBSURFACE INVESTIGATION PLAN

MONITORING WELL DETAILS

LANDFILL CLOSURE STUDY
BERLIN - PETERSBURG, N.Y.

DR. BY	JDS	SCALE	N.T.S.	PROJ NO	AD-90-(
CK'D BY		DATE	6/22/90	DRWG NO.	



WELL No.

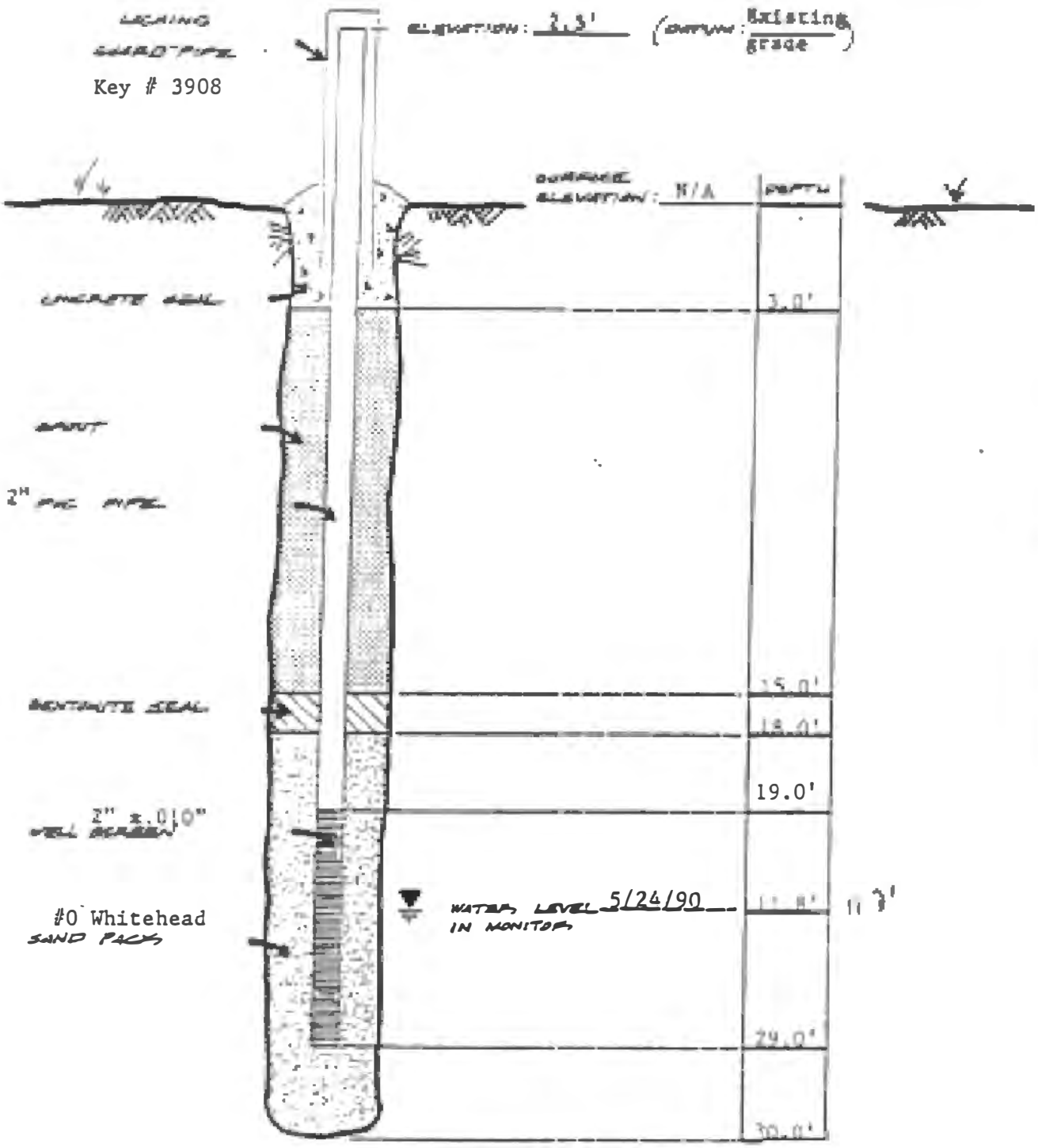
MW-2 s

EMPIRE

MONITORING WELL DETAILS

LANDFILL CLOSURE STUDY
BERLIN - PETERSBURG, N.Y.

DR BY	JDS	SCALE	N.T.S.	PROJ NO	AD-90-07
CK'D BY		DATE	6/22/90	DRWG NO	



*Grouted cored interval 154' to 30.0'.

EMPIRE

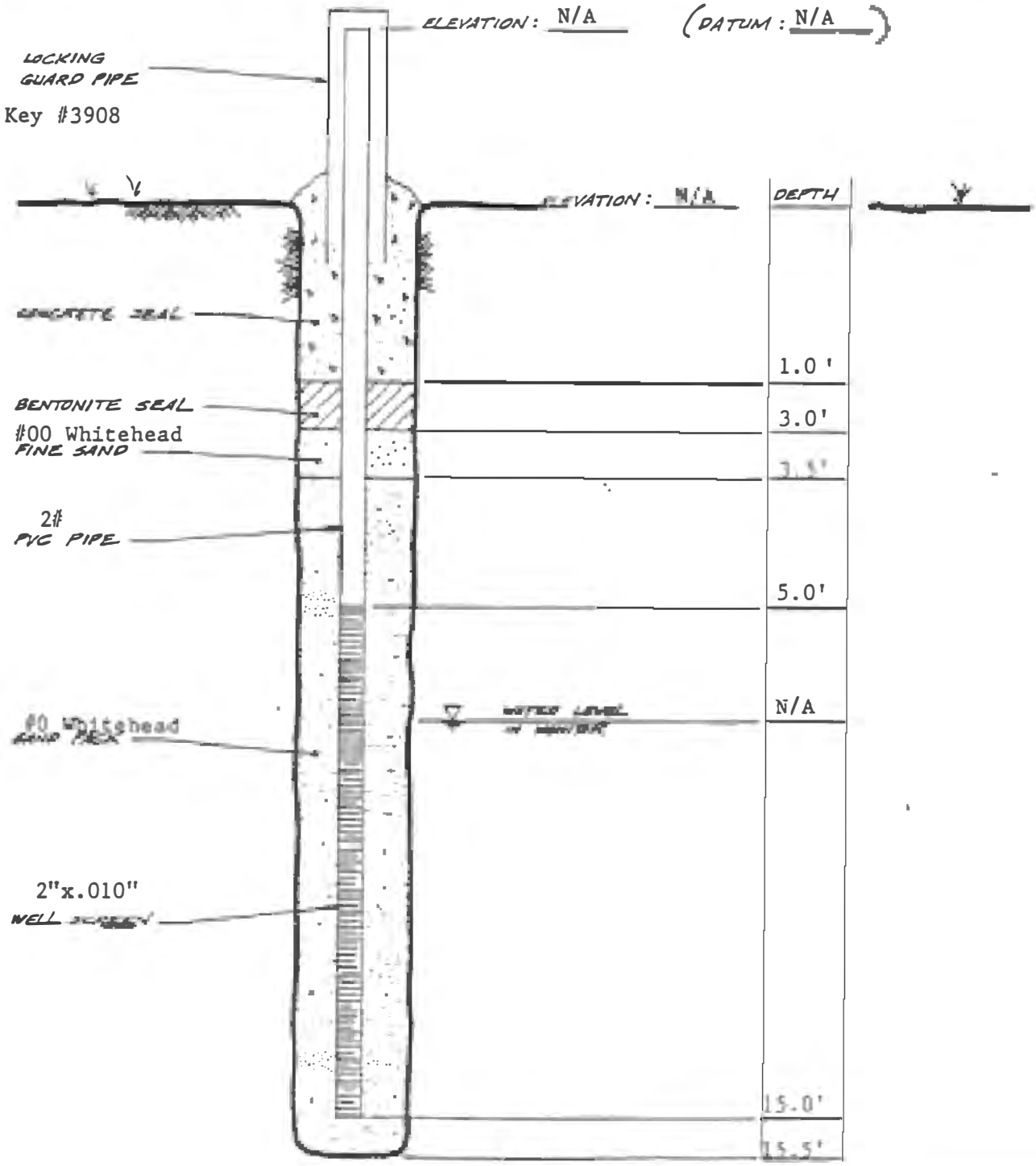
WELL No.

MW-3

MONITORING WELL DETAILS

LANDFILL CLOSURE STUDY
BERLIN PETERSBURG, N.Y.

DR BY JDS	SCALE: N.T.S.	PROJ. NO. AD-90-07	
CK'D BY	DATE: 6/22/90	DRWG NO.	



WELL No.

MW-4

EMPIRE

MONITORING WELL DETAILS

LANDFILL CLOSURE STUDY
BERLIN - PETERSBURG, N.Y.

DR BY	JDS	SCALE	N.T.S.	PROJ NO	AD-90-07
CK D BY		DATE	6/22/90	DRWG NO	

SMITH & MAHONEY, P.C.
CONSULTING ENGINEERS & SURVEYORS
79 NORTH PEARL STREET, ALBANY, NEW YORK 12207

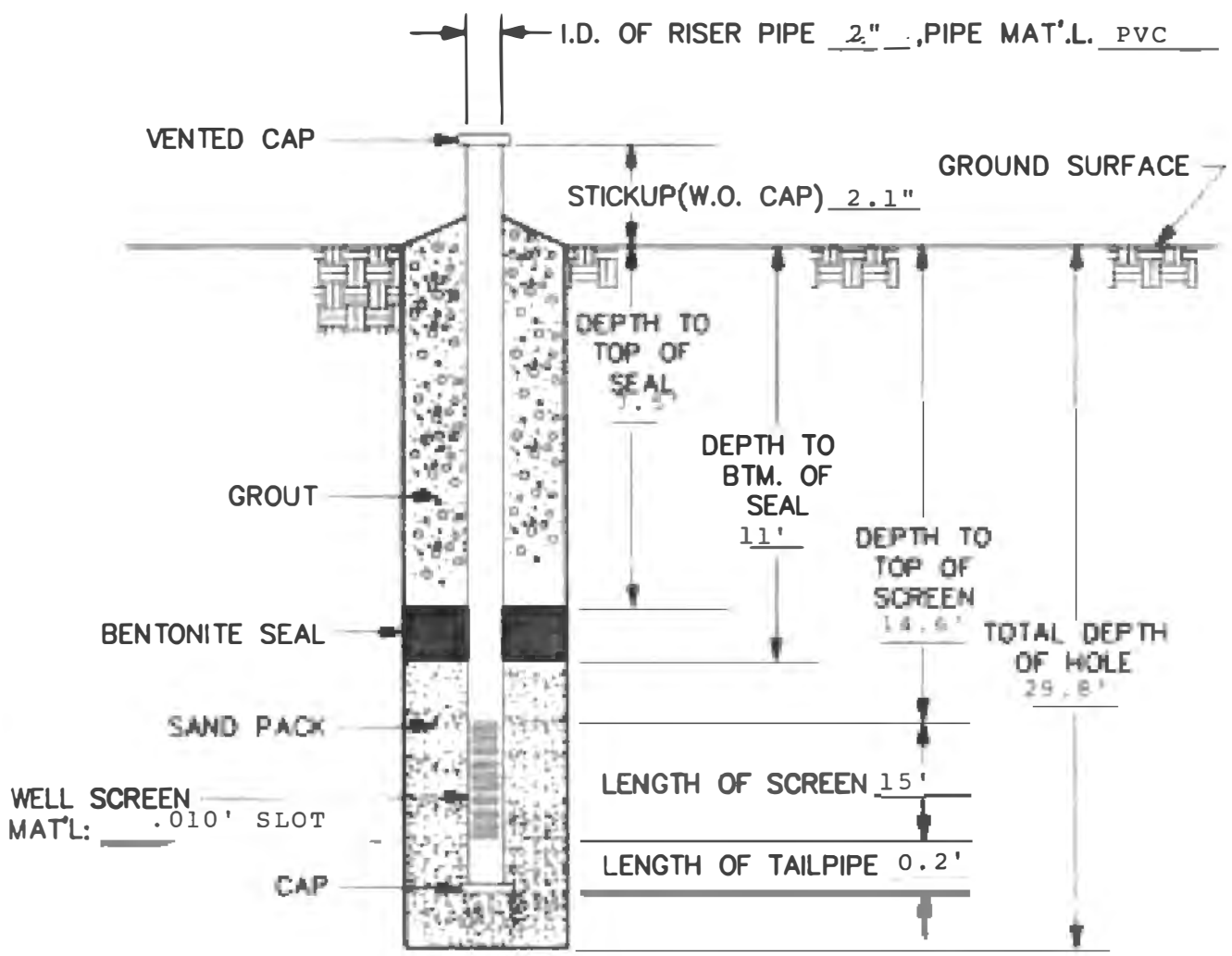
MONITORING WELL CONSTRUCTION RECORD

PROJECT PETERSBURG/BERLIN LANDFILL	DRILLING METHOD
CLIENT EAC	BIT OR AUGER SIZE
DRILLING CONTRACTOR SOIL & MATERIAL TESTING	GROUND ELEV.
DATE INSTALLED 9/22/90	DATUM GROUND ELEVATION
FORMATION SCREENED	TOP OF RISER ELEV.
SCREEN SLOT SIZE	TOP OF STEEL CASING ELEV.
TYPE OF SAND PACK WHITEHEAD #1	
DATE DEVELOPED 9/21/90 HOW? BAILED	

GROUNDWATER	DEPTH	ELEVATION	DATE	TIME
BELOW GROUND				
BELOW T/O/RISER				

REMARKS:

MW-5



FIELD GEOLOGIST: A.C. STEELE

SMITH & MAHONEY, P.C.
CONSULTING ENGINEERS • SURVEYORS
79 NORTH PEARL STREET, ALBANY, NEW YORK 12207

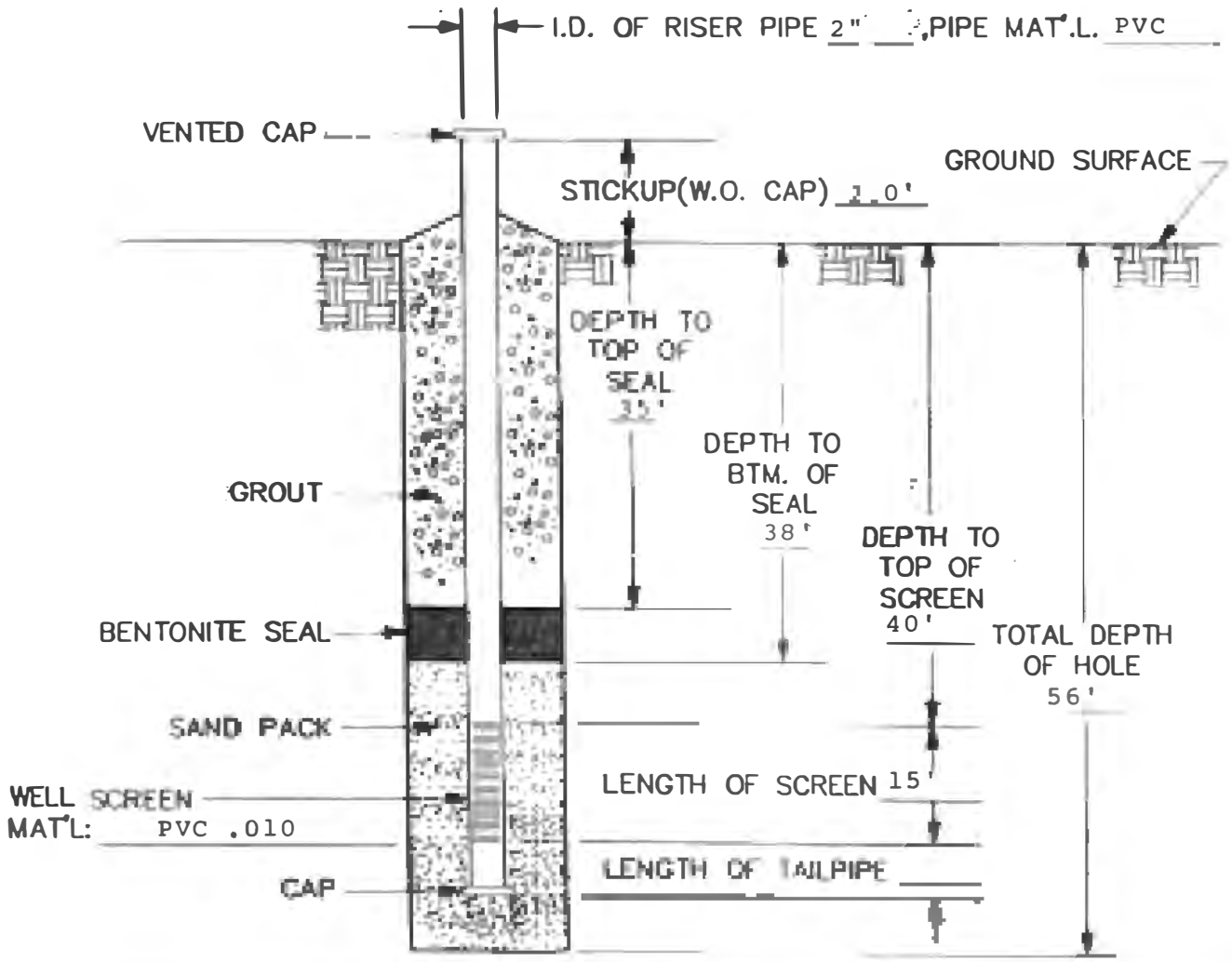
MONITORING WELL CONSTRUCTION RECORD

PROJECT BERLIN/PETERBURG LANDFILL	DRILLING METHOD WATER ROTARY
CLIENT EAC SYSTEMS, INC.	BIT OR AUGER SIZE 4" I.D.
DRILLING CONTRACTOR SOIL & MATERIAL TESTING	GROUND ELEV.
DATE INSTALLED 5/14/91	DATUM
FORMATION SCREENED SLATE	TOP OF RISER ELEV.
SCREEN SLOT SIZE .010	TOP OF STEEL CASING ELEV.
TYPE OF SAND PACK	
DATE DEVELOPED HOW?	

GROUNDWATER	DEPTH	ELEVATION	DATE	TIME
BELOW GROUND				
BELOW T/O/RISER				

REMARKS:

MW-6



FIELD GEOLOGIST: D. LEE

APPENDIX F

PERMEABILITY TESTING RECORDS

EMPIRE SOILS INVESTIGATIONS, INC.	SUBSURFACE EXPLORATION
GROTON, NEW YORK	PRESSURE TESTING IN ROCK

Project: Landfill Closure Study File No.: AD-90-07 Hole No.: MW-3

Location: Berlin-Petersburg, NY Sheet No.: 1 of 4 Date: 5/25/90

Ground Elev.: _____ GWL: 11.8' Type & Capacity Pump: Moyno Model 4EOESI

No. of Meter: 89754774 Meter Reads In: Gallons Driller: Mike Lenigan

Inspector: J. Sutphin Calculations Checked By: _____ Date: _____

PART I – HOLDING TEST:

Test No.	Section of hole tested				Meter read. start test	Time for ea. 10 psi pressure drop at gage pressure intervals from						Meter read. end test
	Depth		Elevation			60–50 psi	50–40 psi	40–30 psi	30–20 psi	20–10 psi	10–0 psi	
	From	To	From	To								
1	150	140			4702.8							4702.8
2	146	136			4707.6							4707.6
3	136	126			4708.8							4708.8
4	126	116			4709.7							4711.5

PART II – PUMPING TEST:

Test No.	Section of hole tested				Press. gage height ft.	Press. gage read. psi	Total pressure psi	Time min.	Meter Read.		Total Flow GPM	Total Flow GPM per ft.
	Depth		Elevation						Start of test	End of test		
	From	To	From	To								
1	150	140			3	40		0	4702.8			
								2		4702.8	0	
								5		4702.8		0
						40						
2	146	136			3	40		0	4707.6			
								2		4707.6	0	
								5		4707.6	0	
						40						0
3	136	126			3	40		0	4708.8			
								2		4708.8	0	
								5		4708.8	0	
						40						0
4	126	116			3	40		0	4709.7			
								1	4710.0		0.3	
								2	4710.5		0.5	
						40		5	4711.5		.22	.02

Remarks: 8.7' top of inlet hose, test #1
4.7' top of inlet hose, test #2

EMPIRE SOILS INVESTIGATIONS, INC. GROTON, NEW YORK	SUBSURFACE EXPLORATION PRESSURE TESTING IN ROCK

Project: Landfill Closure Study File No.: AD-90-07 Hole No.: MW-3

Location: Berlin - Petersburg, NY Sheet No.: 1 of 4 Date: 5/25/90

Ground Elev.: _____ GWL: 11.8' Type & Capacity Pump: Mayno Model 4EOESI

No. of Meter: 89754774 Meter Reads In: Gallons Driller: Mike Lenigan

Inspector: J. Sutphin Calculations Checked By: _____ Date: _____

PART I – HOLDING TEST:

Test No.	Section of hole tested: Depth From	Depth To	Elevation From	Elevation To	Meter read. start test	Time for ea. 10 psi pressure drop at gage pressure intervals from: 60–50 psi	50–40 psi	40–30 psi	30–20 psi	20–10 psi	10–0 psi	Meter read. end test
5	116	106			4712.5							4714.0
6	106	96			4714.0							4715.6
7	96	86			4715.6							4719.4
8	86	76			4719.4							4719.5

PART II – PUMPING TEST:

Test No.	Section of hole tested: Depth From	Depth To	Elevation From	Elevation To	Press. gage height ft.	Press. gage read. psi	Total pressure psi	Time min.	Meter Read. Start of test	Meter Read. End of test	Total Flow	Total Flow GPM per ft.
5	116	106			3	40		0	4712.5			
								1		4712.8	.3	
								2		4713.1	.3	
						40		5		4714.0	.3	.03
6	106	96			3	40		0	4714.0			
								1		4714.6	.6	
								2		4714.9	.3	
						40		5		4715.6	.22	.02
7	96	86			3	40		0	4715.6			
								1		4716.6	1.0	
								2		4716.6	1.0	
								5		4719.4	.6	.06
8	86	76			3	40		0	4719.4			
								1		4719.4	0	
								2		4719.4	0	
						40		5		4719.5	.03	.003

Remarks: Top of inlet hose 4.7'

EMPIRE SOILS INVESTIGATIONS, INC. GROTON, NEW YORK	SUBSURFACE EXPLORATION PRESSURE TESTING IN ROCK

Project: Landfill Closure Study File No.: AD-90-07 Hole No.: MW-3

Location: Berlin - Petersburg, N.Y. Sheet No.: 3 of 4 Date: 5/25/90

Ground Elev.: _____ GWL: 11.8' Type & Capacity Pump: Movno Model 4EOESI

No. of Meter: 89754774 Meter Reads In: Gallons Driller: Mike Lenigan

Inspector: J. Surphin Calculations Checked By: _____ Date: _____

PART I – HOLDING TEST:

Test No.	Section of hole tested				Meter read. start test	Time for ea. 10 psi pressure drop at gage pressure intervals from						Meter read. end test
	Depth		Elevation			60–50 psi	50–40 psi	40–30 psi	30–20 psi	20–10 psi	10–0 psi	
	From	To	From	To								
9	76	66			4719.4							4719.6
10	66	56			4719.6							4720.0
11	56	46			4720.4							4720.4
12	46	36			4720.6							4721.1

PART II – PUMPING TEST:

Test No.	Section of hole tested				Press. gage height ft.	Press. gage read. psi	Total pressure psi	Time min.	Meter Read.		Total Flow GPM	Total Flow GPM per ft.
	Depth		Elevation						Start of test	End of test		
	From	To	From	To								
9	76	66			3	40		0	4719.4			
								1		4719.6	.1	
1						40		2		4719.6	0	0
								5		4719.6	0	
10	66	56			3	40		0	4719.6			
								1		4720.0	.4	
						40		2		4720.0	0	0
								5		4720.0	0	
11	56	46			3	40		0	4720.4			
								1		4720.4	0	
						40		2		4720.4	0	0
								5		4720.4	0	
12	46	36			3	40		0		4720.6		
								1		4721.0	.4	
						40		2		4721.0	0	.003
								5		4721.1	.03	

Remarks: Top of inlet hose 4.7'

EMPIRE SOILS INVESTIGATIONS, INC. GROTON, NEW YORK	SUBSURFACE EXPLORATION PRESSURE TESTING IN ROCK

Project: Landfill Closure Study File No.: AD-90-07 Hole No.: MW-3

Location: Berlin - Petersburg, N.Y. Sheet No.: 4 of 4 Date: 5/25/90

Ground Elev.: _____ GWL: 11.8' Type & Capacity Pump: Mayno Model 4EOFSI

No. of Meter: 89754774 Meter Reads In: Gallons Driller: Mike Lenigan

Inspector: J. Sutphin Calculations Checked By: _____ Date: _____

PART I – HOLDING TEST:

Test No.	Section of hole tested				Meter read. start test	Time for ea. 10 psi pressure drop at gage pressure intervals from						Meter read. end test
	Depth		Elevation			60–50 psi	50–40 psi	40–30 psi	30–20 psi	20–10 psi	10–0 psi	
	From	To	From	To								
13	36	26			4720.8							4748.7
14	41	31			4750.1							4758.9
15	30	20			4759.2							4792.8
16	23	13										

PART II – PUMPING TEST:

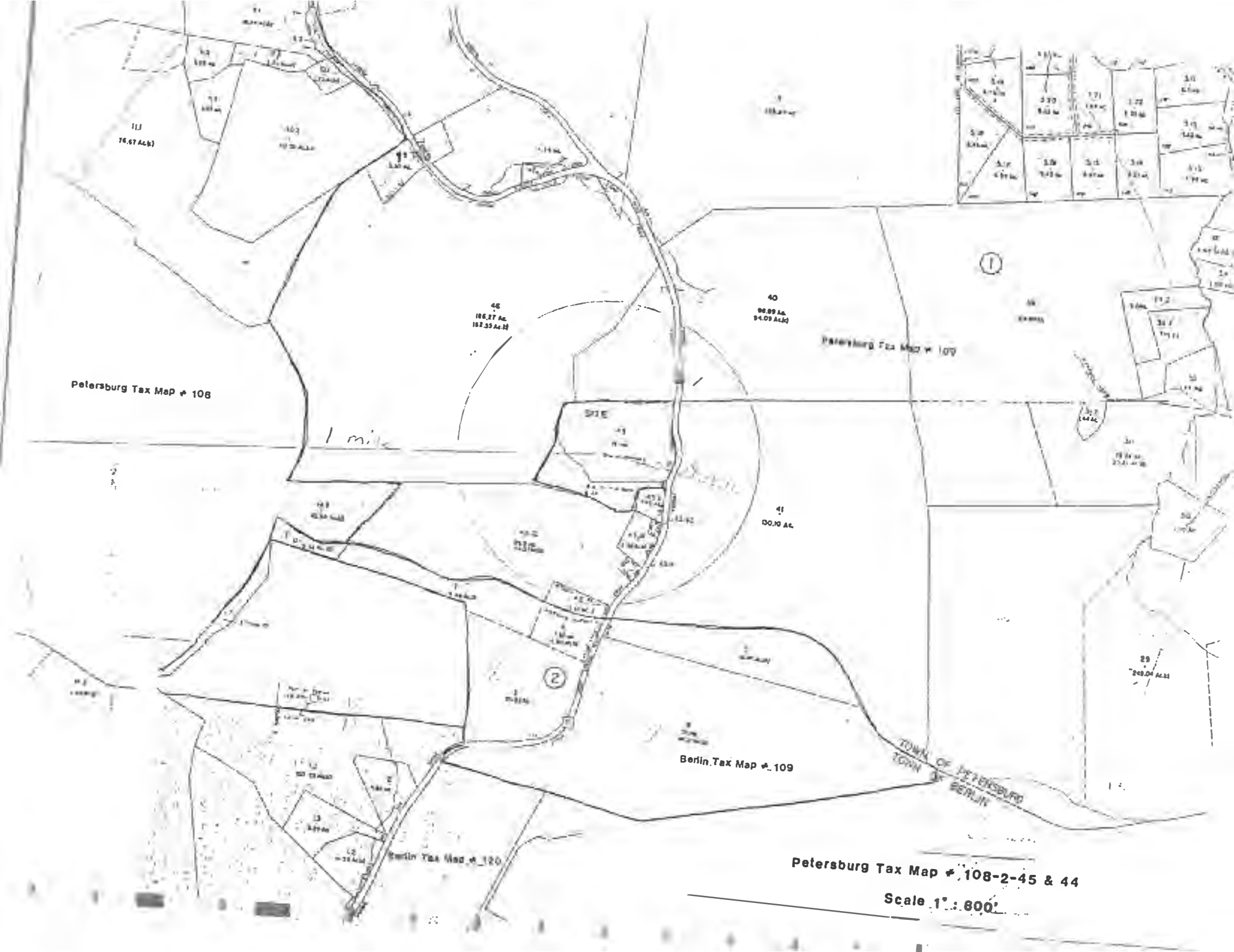
Test No.	Section of hole tested				Press. gage height ft.	Press. gage read. psi	Total pressure psi	Time min.	Meter Read.		Total Flow GPM	Total Flow GPM per ft.
	Depth		Elevation						Start of test	End of test		
	From	To	From	To								
13	36	26			3	40		0	4720.8			
								1		4726.4	5.6	
								2		4731.7	5.3	
						40		5		4748.7	5.7	.57
14	41	31			3	40		0	4750.1			
								1		4752.1	2.0	
								2		4753.6	1.5	
						40		5		4758.9	1.8	.18
15	30	20			3	40		0	4759.2			
								1		4767.5	8.3	
								2		4773.8	6.3	
						40		5		4792.8	6.3	.63
16	23	13			3	10/25		0	4792.1			
								1		4798.5	6.4	
						25		2		4819.8	21.3	
								3		4839.5	19.7	
								4		4858.7	19.2	

Remarks: Top of inlet hose 4.7'

Avg=20.1, 2.01

APPENDIX G

RESPONSES TO WATER WELL SURVEY


Petersburg Tax Map # 108
Petersburg Tax Map # 109
SITE
1 mile
Berlin Tax Map # 109
Berlin Tax Map # 120
TOWN OF PETERSBURG
TOWN OF BERLIN
Petersburg Tax Map # 108-2-45 & 44
Scale 1" = 600'

RECEIVED MAR 1 0 1990

Mr. & Mrs. Richard Shoemaker
Tax Map # 109-1-4

CLARK ENGINEERING

WELL SURVEY FORM

1. Well Driller: Name GORDON GOULD
   Address CHATHAM CENTER
   VALATIE, NY 12184

2. Type of well: (Circle one)
   Dug (Drilled) Driven Bored Spring

4. Depth: 200 feet

5. Casing: Diameter 6" in., Depth: 61 feet

6. Static Level (Water level) _____ ft.
   Depth of pump _____ ft. not yet installed

7: Yield: 20+ gallon per minute (gpm)

Do you have adequate supply for your household? assume yes
Have you ever run out of water? Please explain no - future
as new residents

8. How is the quality of your water new well - good

9. Have you experienced any taste, color, odor or other quality problems with your well? Please explain new well - no
old well clear + mod but bacteria count

10. Attach copy of well log from well driller, if available.

11. A sketch on the back of the form showing where your well in relationship to your house would be helpful.

THANK YOU

Above is new well, not hooked to pump yet.
Old well is dug, supposed to be 30 ft deep. Quantity is adequate, but water has coliform bacteria count.

Mr. and Mrs. Gerald Burdick
Tax Map # 109-1-3

CLARK ENGINEERING

WELL SURVEY FORM

1. Well Driller: Name Gerald Burdick
   Address RD 1 #1 Petersburg
   New York 12138

2. Type of well: [Circle one]
   Dug Drilled (Driven) Bored Spring

4. Depth: _____ feet

5. Casing: Diameter 6 in., Depth: _____ feet

6. Static Level (Water level) _____ ft.
   Depth of pump 50 ft.

7: Yield: unknown gallon per minute (gpm)

Do you have adequate supply for your household? Yes
Have you ever run out of water? Please explain yes
we used to run out of water at one time

8. How is the quality of your water iron, sulfur, tastes like sewage

9. Have you experienced any taste, color, odor or other qualtiy problems with your well? Please explain acid laundry clothes turn brown
Tastes strong like sewage water

10. Attach copy of well log from well driller, if available

11. A sketch on the back of the form showing where your well in relationship to your house would be helpful.

THANK YOU

RECEIVED MAR 1 5 1995

Note - I would be interested in the results of your study! particularly as to the status of my water supply. Thank you! Molly

Molly Kittleson
Tax Map # 108-2-6.1

CLARK ENGINEERING

WELL SURVEY FORM

1. Well Driller: Name ___?___
   Address ________________
   ____
2. Type of well: [Circle one]
   Dug (Drilled) Driven Bored Spring
4. Depth: ___?___ feet
5. Casing: Diameter ________ in., Depth: ________ feet
6. Static Level (Water level) ________ ft. ?
   Depth of pump ________ ft.
7: Yield: ___?___ gallon per minute (gpm)

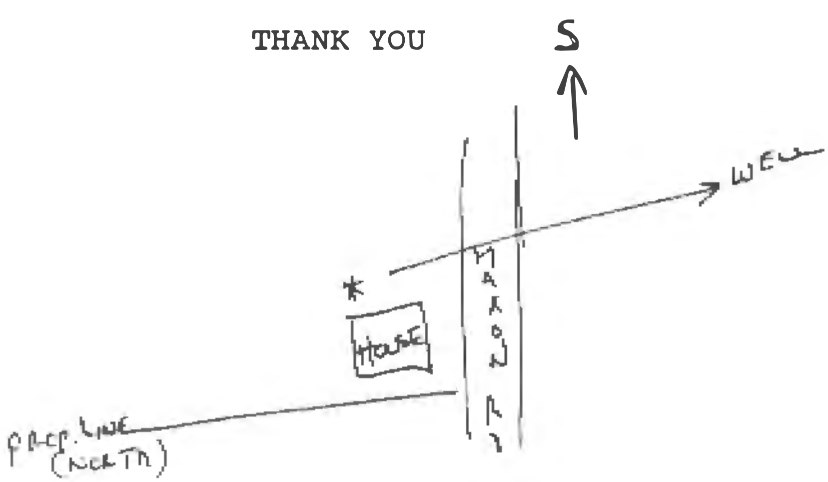
   Do you have adequate supply for your household? *YES*
   Have you ever run out of water? Please explain *NO*

   ____

   ____
8. How is the quality of your water *SEEMS FINE*
9. Have you experienced any taste, color, odor or other quality problems with your well? (*NO*) Please explain ____

   ____
10. Attach copy of well log from well driller, if available *- N/A*
11. A sketch on the back of the form showing where your well in relationship to your house would be helpful.

THANK YOU



Mr. and Mrs. William Nugent, Jr.
Tax Map # 108-2-7

CLARK ENGINEERING

WELL SURVEY FORM

1. Well Driller: Name ~~a NE~~
   Address

2. Type of well: [Circle one]
   Dug Drilled Driven Bored Spring

4. Depth: ~~304~~ feet & 10"X20'

5. ~~Casing: Diameter~~ ___ in., Depth: ___ feet

6. Static Level (Water level) ___ ft.
   Depth of pump ___ ft.

7: Yield: ___ gallon per minute (gpm)

gravity fed to house

Do you have adequate supply for your household? yes
Have you ever run out of water? Please explain no

8. How is the quality of your water excellent

9. Have you experienced any taste, color, odor or other qualtiy problems with your well? Please explain no

10. Attach copy of well log from well driller, if available

11. A sketch on the back of the form showing where your well in relationship to your house would be helpful.

THANK YOU

JEL
(518) 279-9557

all over

Ms. Ruth Chapell
Tax Map # 108-2-9.1

CLARK ENGINEERING

WELL SURVEY FORM

1. Well Driller: Name Hanson Well Drilling
   Address Nassau NY 12123
   277-4127

2. Type of well: [Circle one]
   Dug Drilled Driven Bored Spring

4. Depth: _____ feet.

5. Casing: Diameter_____ in., Depth: _____feet

6. Static Level (Water level)_____ ft.
   Depth of pump _____ ft.

7: Yield: _____ gallon per minute (gpm)

Do you have adequate supply for your household? Yes
Have you ever run out of water? No Please explain_____

8. How is the quality of your water Great

9. Have you experienced any taste, color, odor or other qualtiy problems with your well? No Please explain_____

10. Attach copy of well log from well driller, if available

11. A sketch on the back of the form showing where your well in relationship to your house would be helpful.

THANK YOU

I have only lived here 2 yrs. I got the name of the Driller off the well cap. Maybe you can get the well log from them. I don't know when it was drilled or who lived here at the time

Ruth Chapell

RECEIVED FEB 09 1990

Mr. & Mrs. Gerald Burdick
Tax Map # 108-2-10.1

CLARK ENGINEERING

WELL SURVEY FORM

1. Well Driller: Name Gerald Burdick
   Address Rt 1
   Parksburg

2. Type of well: [Circle one]
   Dug Drilled Driven Bored Spring

4. Depth: 10 feet

5. Casing: Diameter _____ in., Depth: _____ feet

6. Static Level (Water level) _____ ft.
   Depth of pump _____ ft.

7: Yield: _____ gallon per minute (gpm)

   Do you have adequate supply for your household? No
   Have you ever run out of water? Please explain Yes in summer

8. How is the quality of your water good

9. Have you experienced any taste, color, odor or other qualtiy problems with your well? Please explain NO

10. Attach copy of well log from well driller, if available

11. A sketch on the back of the form showing where your well in relationship to your house would be helpful.

THANK YOU

RECEIVED FEB 13 1990

Mr. and Mrs. Martin midon
Tax Map # 108-2-10.2

CLARK ENGINEERING

WELL SURVEY FORM

1. Well Driller: Name _____
   Address _____
   _____

2. Type of well: [Circle one]
   Dug Drilled Driven Bored Spring

4. Depth: _____ feet

5. Casing: Diameter _____ in., Depth: _____ feet

6. Static Level (Water level) _____ ft.
   Depth of pump _____ ft.

7: Yield: _____ gallon per minute (gpm)

   Do you have adequate supply for your household? _____
   Have you ever run out of water? Please explain _____

   _____

   _____

8. How is the quality of your water _____

9. Have you experienced any taste, color, odor or other qualtiy problems with your well? Please explain _____

   _____

10. Attach copy of well log from well driller, if available

11. A sketch on the back of the form showing where your well in relationship to your house would be helpful.

TH NK YOU

No water system constructed as of 2/90. for Amidon

Also - Weinland info answered w/

RECEIVED FEB 0 2 1990

Rising Star Farm Ltd.
c/o Michael Buzerak
Tax Map # 108-2-11.1, 108-2-11.3 & 108-2-11.4

CLARK ENGINEERING

WELL SURVEY FORM

1. Well Driller: Name OWNER BUILT
   Address SAME

2. Type of well: [Circle one]
   Dug Drilled Driven Bored (Spring)

4. Depth: 12 feet

5. Casing: Diameter 36" in., Depth: 12' feet

6. Static Level (Water level) N.A ft. VARIES 5'-9'
   Depth of pump N.A ft. GRAVITY PRESSURIZED

7: Yield: 5-30 gallon per minute (gpm)

Do you have adequate supply for your household? YES
Have you ever run out of water? Please explain YES
DROUGHT AUG. 1987. OUR MAIN SPRING (ELEV. APX. 1100') ACCIDENTLY LOST IT'S PRIME TO THE STORAGE TANK AS WATER TABLE DROPPED WE SWITCHED TO BACK UP SPRING AT LOWER ELEVATION (APX. 1050' ELEV.)

8. How is the quality of your water EXCELLENT

9. Have you experienced any taste, color, odor or other qualtiy problems with your well? Please explain NO

10. Attach copy of well log from well driller, if available

11. A sketch on the back of the form showing where your well in relationship to your house would be helpful.

THANK YOU

RECORD OF TELEPHONE CONTACT

CONTACT: David Hovland JOB NAME: _____

PHONE NO: 512-831-8573 JOB NO.: _____

CONTACT ADDRESS: _____ CALL BY: _____

_____ DATE: _____

CLIENT: _____

COMMENTS:

Called 2/21/90 - 11:20 - No answer

2/21/90 - 7:56 pm -

Tax Map # 108-2-14.2 - Parcel

Does not have a

well.

CLARK ENGINEERING Box 1295 • West Street • New Lebanon, NY 12125 (518) 794-8613

RECEIVED FEB 08 1990

Mr. and Mrs. Donald Calman
Tax Map # 108-2-14.3

CLARK ENGINEERING

WELL SURVEY FORM

1. Well Driller: Name ?
   Address _____

2. Type of well: [Circle one]
   Dug (Drilled) Driven Bored Spring

3. Depth: ? feet

5. Casing: Diameter ? in., Depth: _____ feet

6. Static Level (Water level) ? ft.
   Depth of pump _____ ft.

7. Yield: ? gallon per minute (gpm)

   Do you have adequate supply for your household? Yes
   Have you ever run out of water? Please explain No

8. How is the quality of your water Good

9. Have you experienced any taste, color, odor or other qualtiy problems with your well? Please explain _____

10. Attach copy of well log from well driller, if available

11. A sketch on the back of the form showing where your well in relationship to your house would be helpful.

THANK YOU

Mr. William Moon
Tax Map # 109-1-1

CLARK ENGINEERING

WELL SURVEY FORM

1. Well Driller: Name Koenetzki
   Address Berlin

2. Type of well: [Circle one]
   Dug Drilled (Driven) Bored Spring

4. Depth: 93 feet

5. Casing: Diameter 8 in., Depth: 93 feet

6. Static Level (Water level) _____ ft.
   Depth of pump 50-75 ft.

7: Yield: 10 gallon per minute (gpm)

   Do you have adequate supply for your household? Yes
   Have you ever run out of water? Please explain No

8. How is the quality of your water Good

9. Have you experienced any taste, color, odor or other qualtiy problems with your well? Please explain No

10. Attach copy of well log from well driller, if available

11. A sketch on the back of the form showing where your well in relationship to your house would be helpful.

THANK YOU

Mr. and Mrs. James Brundige
Tax Map # 109-1-2

CLARK ENGINEERING

WELL SURVEY FORM

1. Well Driller: Name _____
   Address _____

2. Type of well: [Circle one]
   Dug Drilled (Driven) Bored Spring

4. Depth. 155 feet

5. Casing: Diameter 6 in., Depth: 30 feet

6. Static Level (Water level) _____ ft.
   Depth of pump 140 ft.

7: Yield: 10 gallon per minute (gpm)

   Do you have adequate supply for your household? yes
   Have you ever run out of water? Please explain no

8. How is the quality of your water _____

9. Have you experienced any taste, color, odor or other qualtiy problems with your well? Please explain no

10. Attach copy of well log from well driller, if available

11. A sketch on the back of the form showing where your well in relationship to your house would be helpful.

THANK YOU

Ms. Dolores Winter
Tax Map # 109-1-40, 109-1-41 and 109-2-5

CLARK ENGINEERING

WELL SURVEY FORM

1. Well Driller: Name Kenneth Kornetsky
Address Berlin, N.Y.

2. Type of well: [Circle one]
Dug (Drilled) Driven Bored Spring

4. Depth: 43 feet

5. Casing: Diameter _____ in., Depth: _____ feet

6. Static Level (Water level) _____ ft.
Depth of pump _____ ft.

7: Yield: _____ gallon per minute (gpm)

Do you have adequate supply for your household? Yes
Have you ever run out of water? Please explain No

8. How is the quality of your water To best of my knowledge excellent

9. Have you experienced any taste, color, odor or other qualtiy problems with your well? Please explain Yes. About 20 years ago the septic tank was leaking into the well. I installed a completely new septic system

10. Attach copy cf well log from well driller, if available

11. A sketch on the back of the form showing where your well in relationship to your house would be helpful.

THANK YOU

I do not have the information for questions 5, 6, 7 & 10. The well was drilled before I purchased the house.

Dolores Winter

Richard DeShane
Lloyd Burdick, Jr. (formerly owned by David DeShane)

Tax Map # 109.1-43.32 + 109-1-43.31

^F1^
Tax Map # ^F3^

CLARK ENGINEERING

WELL SURVEY FORM

1. Well Driller: Name Hand Dug by Richard + David DeShane
   Address

2. Type of well: [Circle one]
   (Dug) Drilled Driven Bored (Spring)

4. Depth: 8' feet

5. Casing: Diameter 3 ft. ~~in.~~, Depth: 8 feet

6. Static Level (Water level) 6' ft.
   Depth of pump ft.

7: Yield: gallon per minute (gpm)

Do you have adequate supply for your household? Yes
Have you ever run out of water? Please explain No

Spring feeds 2 households

8. How is the quality of your water Good - Clear / Cold spring water

9. Have you experienced any taste, color, odor or other qualtiy problems with your well? Please explain No

10. Attach copy of well log from well driller, if available

11. A sketch on the back of the form showing where your well in relationship to your house would be helpful.

THANK YOU

Spring located between the 2 properties
It is fed by water coming off the mountain + across (under) the road

RECEIVED FEB 27 1990

Mr. & Mrs. Lloyd Burdick
Tax Map # 109-1-43.11, 109-1-43.12 & 109-2-2

CLARK ENGINEERING

WELL SURVEY FORM

1. Well Driller: Name_____
   Address_____

2. Type of well: [Circle one]
   Dug Drilled Driven Bored (Spring)

4. Depth: 4 feet

5. Casing: Diameter_____ in., Depth: _____feet

6. Static Level (Water level)_____ ft.
   Depth of pump _____ ft.

7: Yield: _____ gallon per minute (gpm)

   Do you have adequate supply for your household? Yes
   Have you ever run out of water? Please explain No

8. How is the quality of your water Good

9. Have you experienced any taste, color, odor or other qualtiy problems with your well? Please explain No

10. Attach copy of well log from well driller, if available

11. A sketch on the back of the form showing where your well in relationship to your house would be helpful.

THANK YOU

RECEIVED FEB 07 1996

Mr. and Mrs. Richard Oakes
Tax Map # 109-1-43.2

CLARK ENGINEERING

WELL SURVEY FORM

1. Well Driller: Name _____
   Address _____

2. Type of well: [Circle one]
   (Dug) Drilled Driven Bored Spring

4. Depth: 8 Feet feet

5. Casing: Diameter None in., Depth: 8 Feet feet

6. Static Level (Water level) _____ ft.
   Depth of pump _____ ft.

7: Yield: Don't Know gallon per minute (gpm)

   Do you have adequate supply for your household? Yes
   Have you ever run out of water? Please explain No

8. How is the quality of your water _____

9. Have you experienced any taste, color, odor or other qualtiy problems with your well? Please explain _____

10. Attach copy of well log from well driller, if available

11. A sketch on the back of the form showing where your well in relationship to your house would be helpful.

THANK YOU

At Work From: 7. To. 3.4:
Telephone NO. 658-3320

Mr. and Mrs. David Hovland
Tax Map # ~~019~~ 101-1-46

CLARK ENGINEERING

WELL SURVEY FORM

1. Well Driller: Name Ken Kornetzky
   Address — Troy —

2. Type of well: [Circle one]
   Dug (Drilled) Driven Bored Spring

4. Depth: 183 feet

5. Casing: Diameter _____ in., Depth: _____ feet

6. Static Level (Water level) _____ ft.
   Depth of pump _____ ft.

7: Yield: _____ gallon per minute (gpm)

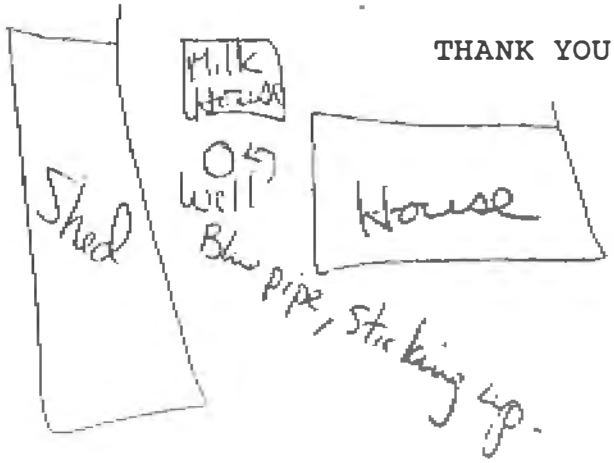
Do you have adequate supply for your household? yes
Have you ever run out of water? Please explain n/a
Adequate for 4
household Need Storage

8. How is the quality of your water Good, very cold

9. Have you experienced any taste, color, odor or other qualtiy problems with your well? Please explain No

10. Attach copy of well log from well driller, if available

11. A sketch on the back of the form showing where your well in relationship to your house would be helpful.



THANK YOU

We are currently renting our farm to Dr. Theo Cherry.

RECORD OF TELEPHONE CONTACT

CONTACT: Elwin Jones

PHONE NO: 658-2215

CONTACT ADDRESS: Tax Map # 109-1-49.1

JOB NAME: _____

JOB NO.: _____

CALL BY: _____

DATE: _____

CLIENT: _____

COMMENTS: Spring
5' or 6- gravity fed

Plenty of NEO ~~dry~~ two never run dry.

good -
No problems

"Beautiful, good, Water"

CLARK ENGINEERING
Box 1295 • West Street • New Lebanon, NY 12125 (518) 794-8613

Pickleville Partners
Tax Map # 108-2-17.1, 109-2-1.1 and 109-2-1.2

CLARK ENGINEERING

WELL SURVEY FORM

1. Well Driller: Name_____
   Address_____
   _____

2. Type of well: [Circle one]
   Dug Drilled Driven Bored Spring

4. Depth: _____ feet

5. Casing: Diameter_____ in., Depth: _____feet

6. Static Level (Water level)_____ ft.
   Depth of pump _____ ft.

7: Yield: _____ gallon per minute (gpm)

   Do you have adequate supply for your household?_____
   Have you ever run out of water? Please explain_____

   _____

   _____

8. How is the quality of your water_____

9. Have you experienced any taste, color, odor or other quality problems with your well? Please explain_____

   _____

10. Attach copy of well log from well driller, if available

11. A sketch on the back of the form showing where your well in relationship to your house would be helpful.

THANK YOU

No Well

CLARK ENGINEERING Rte. 20 • PO Box 730 • New Lebanon, NY 12125-0730 (518) 794-8613

RECEIVED FEB 0 5 1990

Mr. and Mrs. Willy Siller
Tax Map # 109-2-3

CLARK ENGINEERING

WELL SURVEY FORM

1. Well Driller: Name KENNETH F. KORNETZKI
Address South Branch Road BERLIN N.H.

2. Type of well: [Circle one]
Dug (Drilled) Driven Bored Spring

4. Depth: 143 feet

5. Casing: Diameter 6 in., Depth: 27 feet

6. Static Level (Water level) 25 ft.
Depth of pump _____ ft.

7: Yield: 4 gallon per minute (gpm)

Do you have adequate supply for your household? yes
Have you ever run out of water? Please explain no

8. How is the quality of your water Good

9. Have you experienced any taste, color, odor or other qualtiy problems with your well? Please explain _____

10. Attach copy of well log from well driller, if available

11. A sketch on the back of the form showing where your well in relationship to your house would be helpful.

THANK YOU

RECEIVED FEB 26 1990

Mr. Daniel Parker
Tax Map # 109-2-6

CLARK ENGINEERING

WELL SURVEY FORM

1. Well Driller: Name Kenneth F. Kornetzki, Dr.
Address 108 Main St.
Troy, NY

2. Type of well: [Circle one]
Dug ~~Drilled~~ (Driven) Bored Spring

4. Depth: 15' feet

5. Casing: Diameter 2.5 in., Depth: 15 feet

6. Static Level (Water level) 20 ft.
Depth of pump ft.

7: Yield: 150 gallon per ~~minute~~ hr. (gpm) AT BOTTOM

Do you have adequate supply for your household? yes
Have you ever run out of water? Please explain

8. How is the quality of your water Good

9. Have you experienced any taste, color, odor or other qualtiy problems with your well? Please explain none

10. Attach copy of well log from well driller, if available NA

11. A sketch on the back of the form showing where your well in relationship to your house would be helpful.

See reverse side.

RECEIVED MAR 0 9 1990

Mr. William Knuetter, Sr.
Tax Map # 120-1-2

CLARK ENGINEERING

WELL SURVEY FORM

1. Well Driller: Name Hanson Well Drilling Co.
   Address Nassau New York

2. Type of well: [Circle one]
   Dug **Drilled** Driven Bored Spring

4. Depth: 295 feet

5. Casing: Diameter 6 in., Depth: 40 feet

6. Static Level (Water level) 20 Ft. from Top
   Depth of pump 200 ft.

7: Yield: 4-5 gallon per minute (gpm)

   Do you have adequate supply for your household? YES
   Have you ever run out of water? Please explain No.

   Well runs over Top of Casing
   Sometimes

8. How is the quality of your water Good

9. Have you experienced any taste, color, odor or other quality problems with your well? Please explain No.

10. Attach copy of well log from well driller, if available

11. A sketch on the back of the form showing where your well in relationship to your house would be helpful.

THANK YOU

RENSSELAER COUNTY
DEPARTMENT of HEALTH

KENNETH VAN PRAAG
PUBLIC HEALTH DIRECTOR

DR SCOTT C. BELLO, M.D.
MEDICAL CONSULTANT

June 6, 1989

Mr. Robert L. Spencer, Environmental Planner
Clark Engineering
Box 1295 - West Street
New Lebanon, New York 12125

Dear Bob,

Per your Freedom of Information Request of June 2, 1989, received June 5, 1989, please contact Derrick Fowler in Hoosick Falls, 686-7310 to make an appointment to go over Town of Petersburg well-logs and George Ulitsky here in Troy at 270-2695 to make an appointment to review well-log information for the Town of Berlin.

Following your file review, copies of any of the materials which you determine you need for your hydrogeolical study of the Town's landfill are herewith authorized and will be made available to you at the rate of 25¢/page.

Should you need any additional information, please feel free to call.

686-7319

Sincerely,

Kenneth Van Praag
Public Health Director

KVP/amg

cc: Mr. Loyal Maxon, Supervisor, Berlin
Mr. Earl Stevens, Supervisor, Petersburg
Mr. Derrick Fowler, Sr. P.H.T., Hoosick Falls
Mr. George Ulitsky, P.H.T., Troy Office

W. Bisch

Rural Water Supply

Well at Jones Hollow Rd. (Name of place) In Berlin (City, village or town) County of Renss. 121 8

Owner Robert Winn P.O. Address RD#1 Petersburg, NY

Depth of well 250' (ft.) Diameter 6" (in.) Yield 100 (gpm.) Was well disinfected? yes (yes or no)

Amt. of casing above ground 42' (in.) Below ground 40' (ft.) Well seal shoe (packer, cement grout)

Draw a well diagram in the space provided below and show the depth of casing, the well seal, kind and thickness of formations penetrated, water bearing formations, diameter of drill holes with dotted lines and casing(s) with solid lines.

WELL DIAGRAM Diameter, inches	Depth in ft.	FORMATIONS PENETRATED Kind, thickness and if water bearing
	Grade	
0' to 37' Grey hardpan	25	
37' to 250' Black shale	50	
	100	
	150	
	200	
	250	

REMARKS

Type of well Drilled

Drilling method Rotary

Was well dynamited? NO

PUMPING TESTS

Details	#1	#2	#3
Static water level, in ft. below grade	20'		
Pumping rate in g.p.m.	100 GPM		
Pumping level in ft. below grade			
Duration of test, in hrs.	4 hrs.		

Water at end of test: Clear X Cloudy Turbid

Recommended depth of pump of well, feet below grade

Wells in sand & gravel:

Sand Eff. size mm
Unif. Coef.
Length of screen ft.
Diam. of screen in.
Type of screen
Screen openings x

Comments:

RECEIVED
Borehole
DEC 1 1983
RENSSELAER COUNTY
DEPARTMENT OF HEALTH
SCHODACK BRANCH

HANSON WELL DRILLING & PUMP CO., INC.
STEWART POINT ROAD
NASSAU, N. Y. 12123
518 ~~799-4918~~ 477-4127

Drilling started 10-17-83 Completed 10-18-83

Well Driller Thomas F. Hanson Jr.
Signature

WELL DRILLER'S LOG AND REPORT

Tax Map # 120-1-7.141 SEP 16 1 4: 22 date received 005037 lab. no.

RENSSELAER COUNTY HEALTH DEPARTMENT
County Office Building
1600 Seventh Avenue
Troy, New York 12180
Phone: (518) 270-5308

BENDER HYGIENIC LABORATORY
9 Samaritan Drive
Albany, New York 12208

EXAMINATION OF WATER

field data

City: BERLIN

Road address: GREEN HOLLOW RD.

Owner/other: STEVE RICCARDI

Mail address: P.O. BOX 157
BERLIN, N.Y. 12022

FILE

home	X
commercl	
lak/strm	
pool	
beach	
temp res	
food sv	

Sample point: KITCHEN SINK TAP

Well:	Type	depth	diam.
	DUG	10'	3'

Chlorination: ☐ yes ☒ no free combined pH

Illness: ☐ yes ☒ no type

REMARKS:

☐ DISINFECTION required, see back of this form.

M. Kovacs
collected by

9/17/80
date collected

laboratory results

BACTERIOLOGICAL EXAMINATION:

☒ Bacteria per ml agar 35°C-48 hrs. 130

☒ Total coliform M.F. colonies per 100 ml. 41

☐ Total coliform M.P.N. per 100 ml.

☐ Fecal coliform M.F. colonies per 100 ml.

Analyst 9.22 date

CHEMICAL EXAMINATION:

☒ Chlorides mg/l 6.5

☒ Nitrates, as N mg/1 <0.5

☐ Other

CHR
Analyst 9/19/80 date

THE ABOVE RESULTS INDICATE

☒ water was
~~☐ water was not (see remarks)~~

OF A SATISFACTORY SANITARY QUALITY FOR

☒ drinking (potable)
~~☐ swimming~~

WHEN THE SAMPLE WAS COLLECTED.

☐ RESULTS INCONCLUSIVE, RESAMPLE.

A. F. Moatti
signed

P.H.S.
title

SANITARY SURVEY

☐ Not applicable.
☐ Not conducted;
☐ Conducted relative to sample and
  ☐ appears to be in substantial conformity.
  ☐ information insufficient.
  ☐ this facility does not meet current standards.

COMMENTS:

If you have any questions on the above report please contact,

Michael Kovacs — P.H.I. II — (518) 686-7317

Tax Map # 120-1-14

Berlin 658-2565

A. M. JOHNSON

HEATING, PLUMBING CONTRACTOR

BERLIN, NEW YORK 12022 5/13/71

Mr. & Mrs. Louis Fifield
Berlin, N.Y.

Labor on deep well pump.

9½ hrs. @ 4.50 —— 42.75

1" – ¾ nipples —— .70

1¼" S. Steel pipe clamps 3.20

Total — $46.65

well data
196' – deep
500 G.P.H.
28' Head

*Paulina Fifield Over

150' drop pipe
30' Tail pipe
37' From casing to pump

Total of 404' – 1¼ flexible plastic tubing.

Map # 120-1-4.142

Rural Water Supply

Well at Jones Hollow Rd. Berlin (Name of place) in (City, village or town) County of Rensselaer

Owner Phillip Riccardi, Jr. P.O. Address Berlin, NY 12022

Depth of well 242 ft. Diameter 6 in. Yield 3 gpm. Was well disinfected? yes (yes or no)

Amt. of casing above ground 18 in. Below ground 40 ft. Well seal grouted shoe (grout, cement grout)

Draw a well diagram in the space provided below and show the depth of casing, the well seal, kind and thickness of formations penetrated, water bearing formations, diameter of drill holes with dotted lines and casing(s) with solid lines.

WELL DIAGRAM Diameter, inches	Depth in ft. Grade	FORMATIONS PENETRATED Kind, thickness and if water bearing
	25	0' to 10' gravel, clay
	40'	0' to 40' 8 3/4" oversize borehole
	50	
	75	
	100	10' to 160' grey shale
	150	
	160'	
	165'	160' to 165' red shale
	200	
	242'	165' to 242' grey shale
	250	

REMARKS

Type of well water

Drilling method rotary

Was well dynamited? no

PUMPING TESTS

Details	#1	#2	#3
Static water level, in ft. below grade	20 Feet		
Pumping rate in g.p.m.			
Pumping level in ft. below grade			
Duration of test, in hrs.	4 HOURS		

Water at end of test: Clear.....Cloudy.....X Turbid.....

Recommended depth of pump in well, feet below grade .....

Wells in sand & gravel:

Sand Eff. size ..... mm
Unif. Coef. .....
Length of screen .....ft.
Diam. of screen .....in.
Type of screen .....
Screen openings .....x.....

Comments:

HANSON WELL DRILLING & PUMP CO., INC.
STEWART POINT ROAD
NASSAU, N. Y. 12123
518—~~366-2810~~ 477-4127

Drilling started 8/1/84 Completed 8/1/84

Well Driller's Signature Thomas F. Hanson, Vice President

WELL DRILLER'S LOG AND REPORT

DAVID C. KESSLER TRI STATE WATER SERVICE

WELL DRILLING

ROUTE 2 • HOOSICK FALLS, NEW YORK 12090 • PHONE 518-686-5407

MESSAGE	REPLY
TO Phillip Ciccarelli Broad Hollow Rd Berlin N.Y.	DATE Legend
DATE 9/22/83	0-12 ft clay Topsoil 12-24 ft soft shale 24-40 ft Grey shale 40-65 ft Purple " 65-100 ft Grey " 100-120 ft Red " 120-200 Grey " 200-260 Purple " 260-310 Grey Water 310-345 Purple "
340 ft 6" Drilled Well @ 30.00 30 ft 6" Casing, Slot @ 320 @ 3380 9/23/83 30.00	Need 0 ft flow approx 5-6 gpm
BY	SIGNED

INSTRUCTIONS TO DRILLER:

INSTRUCTIONS TO RECEIVER:

Tax Map • 120-1-4.142

APPENDIX H

CLOSURE INVESTIGATION PLAN
(Text Only)

CLOSURE INVESTIGATION PLAN

BERLIN/PETERSBURG LANDFILL

RENSSELAER COUNTY,

NEW YORK

Prepared for:
EAC Systems, Inc.
79 North Pearl Street
Albany, New York 12207

March 1991

Prepared by:
Smith & Mahoney, P.C.
Engineers - Planners - Scientists - Surveyors
79 North Pearl Street
Albany, New York 12207

Berlin/Petersburg Landfill
Closure Investigation Plan

List of Appendices

1.0 Introduction

This Closure Investigation Plan ("CIP"), prepared in accordance with 6 NYCRR 360-2.15 is being submitted by the towns of Berlin and Petersburg (the "Towns") with respect to the closure of the facility known as the Berlin/Petersburg Landfill (the "Landfill"). The Landfill is identified by the Department of Environmental Conservation ("DEC") Solid Waste Facility No. 42S20. Among items addressed by this CIP are the following:

- Hydrogeologic Investigation and Monitoring
- Gas Investigation and Monitoring
- Surface Leachate Investigation
- Vector Investigation
- Interim Leachate Control
- Implementation Schedule

A site investigation will be performed in accordance with 6 NYCRR Part 360-2.15 prior to the preparation of the landfill closure plan in order to determine and evaluate the extent of any potential impacts resulting from the existence of the landfill. The primary focus of the investigation will be to assess the potential for release or migration of contaminants from within the site boundaries.

2.0 Background

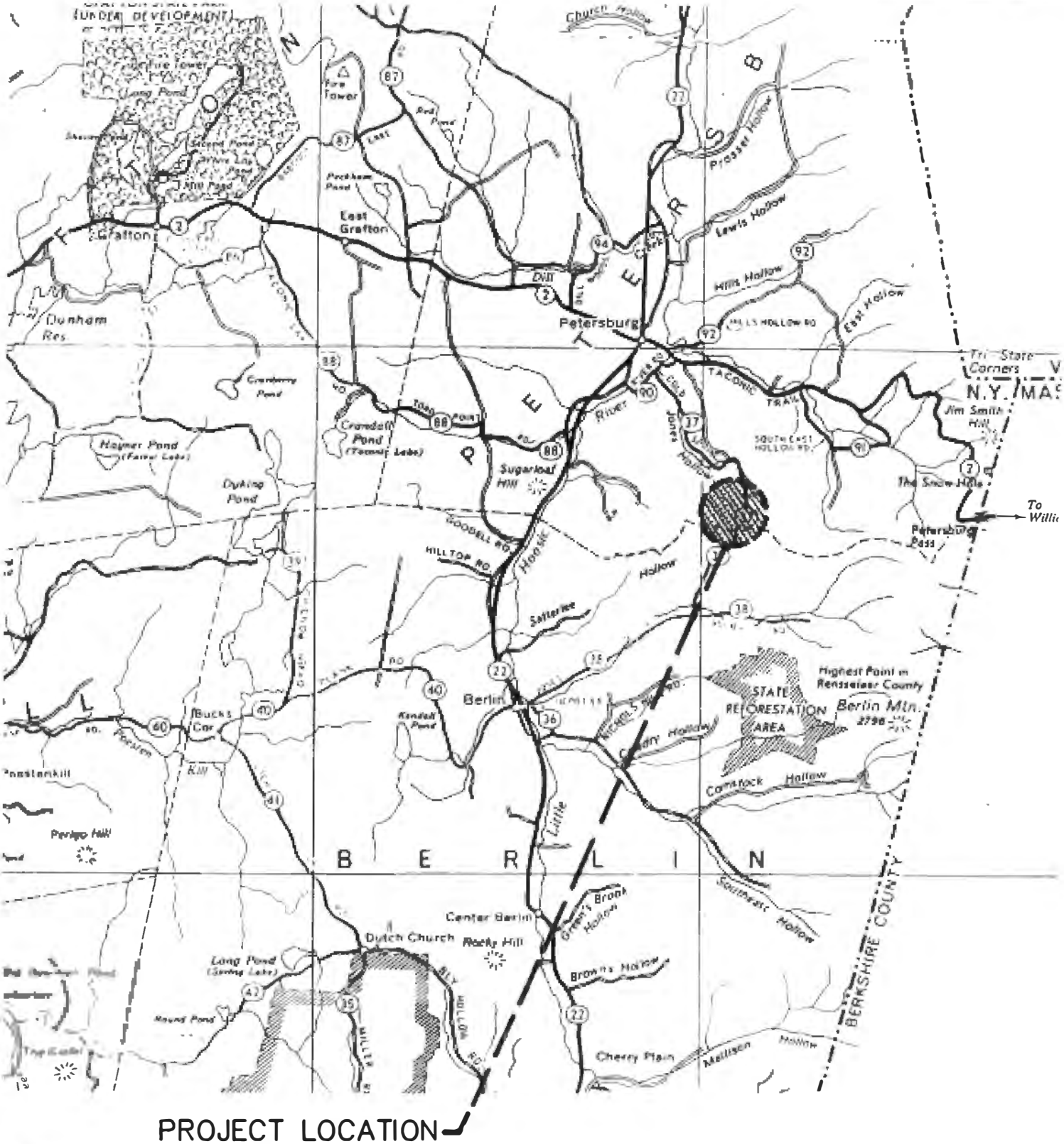
2.1 Site Location

The Landfill is located west of and adjacent to County Route 37 on the border between the two towns in east-central Rensselaer County, New York (see Figure 1 - Site Location Map). The landfill has a footprint area of approximately 6 acres situated in the southern portion of the 23 ± acre property. The surrounding area can generally be described as rural with only one residence existing to the southeast in close proximity to the site.

2.2 Site Activities

The Landfill began operation in October 1984 and basically consisted of infilling a ravine located on the site. Landfill working operations at the site are currently administered by EAC Systems, Inc. (EAC) of Albany, New York through a contract with the Towns. All operations are overseen and inspected by a representative of the Towns.

Basic procedures followed by the EAC staff include the recording of refuse weight at the scalehouse before vehicles enter the facility. All material is inspected by the towns' representative before deposition at the daily working face.



BERLIN / PETERSBURG LANDFILL

SITE LOCATION MAP

FIGURE No.1

SCALE: 1" = 1-1/2 MILES

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Depending upon the nature of the material, it is disposed of in either the landfill working face or the appropriate adjoining stock pile. Separate stock piles are available for placement of whitegoods and metals for recycling, used tires, and junk cars. Refuse delivered by local residents is placed in convenience dumpsters for temporary storage prior to landfilling. Waste is placed, spread, compacted and covered with a minimum of six inches of clean fill by the end of each working day.

A small stream flows along the south and west sides of the landfill. During landfill development, a portion of the stream was redirected to a location further from the fill area (the new stream-bed). Waste was placed over the old portion of the channel (the old stream-bed) on the west side of the landfill.

3.0 Hydrogeologic Investigation

3.1 Site Geology

The description of the site geology that follows was derived from available literature and mapping as well as interpretation of previously conducted site-specific work and studies. Specifically, geologic investigations were undertaken by Kestner Engineers and Clark Engineering in 1987 and 1990, respectively. In order to minimize duplication of previous work efforts, information from prior studies has been excerpted for use in this document and certain logs have been used in interpreting geologic and hydrogeologic characteristics. When applicable, information from such studies that is used in this report is noted.

3.1.1 Topography and Drainage

The topography of the site resulted from tectonic events, glacial advancement and retreat, surficial erosionary processes, and organic growth and decay. The landfill is situated at the head of a small valley or ravine that drains surface water by an unnamed tributary to Jones Hollow Brook. The groundwater in the site area is likely discharged in a similar direction.

3.1.2 Bedrock Geology

Information from the surficial geologic mapping and the prior subsurface investigations was used to delineate and define the unconsolidated deposits and bedrock deposits found underlying the Landfill.

Bedrock was encountered in test borings MW-1S, MW-2, MW-2S, MW-3, and MW-4. Core and split spoon samples indicate that the bedrock is consistent, greenish gray slate. This bedrock was cored using a NX Rotary Core Barrel to a depth of 154.0 feet in MW-3. The bedrock within this hole was encountered at 14.0 feet. The bedrock grades from being a light-greenish gray slate with calcite and quartz veins, medium hard, slightly weathered, with contorted bedding at 31.5 feet; to a greenish gray slate, medium hard, sound, fissile along foliations which dip 35° to 50° from the plane of the compositional layers. At approximately 130 feet the bedrock grades to a gray slate, medium hard, sound, fissile along foliation/compositional layering. The slate is a low grade metamorphic slate (Clark Engineering, June 1990).

A thrust fault (overthrust plate on the west) occurs to the west of the site. A high angle reverse fault of

Aradian age passes northwest near the site. The tectonic map (Isachen and McKindree, 1977b) indicated no information on the nature and orientation of jointing in the Berlin quadrangle (Clark Engineering, June 1990).

3.1.3 Soils Description and Stratigraphy

Immediately overlying the bedrock is a light-brownish gray fine to coarse sand with cobbles, some gravel and silt, and trace clay. This unit, when in contact with the bedrock, marks the first occurrence of groundwater at the site. This highly graded unit was deposited during the glacial retreat. The glacier, as it receded, melted leaving a highly graded glacial till, or more precisely glacial outwash. The outwash deposited and stratified this unit into highly graded layers. The unit is found immediately above the greenish gray slate, throughout the landfill site. The unit thickens in the western portion of the site and decreases in thickness in the eastern edge of the landfill. This is best exemplified at MW-1 and MW-1S where 3.5 feet of the unit is encountered; MW-2 and MW-2S where 10.5 feet of the unit exists; and in MW-3 where the maximum thickness of this unit, 14 feet, is located.

Mapping by the Soil Conservation Service indicates that

soils at the site consist of Alden Silt Loam, Nassau-Manlius Complex and Nassau Rock Outcrop complex (Rensselaer County Soil Survey Map). The Nassau Rock Outcrops (NRC) complex consists of Nassau soils and numerous outcrops of bedrock on ridges on the glaciated uplands. The Nassau soil is shallow and somewhat excessively drained. Characteristically the complex is 40 percent Nassau soil, 30 percent Rock outcrop, and 30 percent other soils. Areas of this complex are generally elongated, running north and south and are 3 to 400 acres in size. The Nassau-Manlius Complex is generally located on the sides of ridges underlain by shale or slate bedrock. The Manlius soil is moderately deep and well drained. This complex is 45 percent Nassau soil, 25 percent Manlius soil, and 30 percent other soils. The areas of this complex are irregular in shape and range from 10 acres to more than 100 acres in size. The Alden Silt loam (ANA) is found in nearly level soils in concave areas between hills in the uplands. It is deep and very poorly drained. The areas are oval or oblong and are 50 to 200 acres in size. Usually the top layer is very dark gray silt loam approximately 7 inches thick.

3.1.4 Groundwater Bearing Formations

Groundwater is typically encountered along the contact

between the glacial outwash and greenish gray slate bedrock. Specifically, this zone consists of a weathered shale.

Groundwater flow is most likely through shallow fracture zones and the outwash/bedrock contact, and is in a northwesterly direction.

3.2 Hydrogeologic Conditions

3.2.1 Test Borings

Test borings were conducted by consulting and contracting firms prior to the installation of well MW-5 by Smith & Mahoney, P.C. Soil and rock from these borings were classified by a geologist. Upon completion of each test boring, (when necessary the holes were grouted with a bentonite seal to a predetermined depth) a monitoring well was installed. A total of seven test borings were conducted, four of which were sampled using split barrel samplers and NX rotary rock core. The other three wells were cluster pair complements and did not require sampling. The location of these test borings are shown on Figure 2.

MW-1S was sampled continuously from 0 to 3.5 feet where

N

PROPOSED APPROXIMATE SURFACE WATER SAMPLE LOCATION (TYP)

LIMIT OF SOLID WASTE

ACTIVE LANDFILL AREA

MW-2

MW-2S(DESTROYED)

LIMIT OF SOLID WASTE

LEGEND:

- MONITORING WELL LOCATIONS
- PROPERTY BOUNDARY
- LIMIT OF SOLID WASTE
- PROPOSED SURFACE WATER SAMPLE LOCATION

FIGURE II

BERLIN / PETERSBURG LANDFILL

SKETCH MAP

SCALE: 1" = 100'

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79 NORTH PEARL STREET, ALBANY, NEW YORK 1220.

bedrock was encountered. The remainder of the boring was completed by using a 4 inch roller bit in order to install the well to 28 feet (see Appendix C). The cluster pair, MW-1, was installed at a depth of 62.5 feet.

MW-2S was sampled utilizing a split sampler at intervals of 0 to 2 feet and 4 to 6 feet. Refusal was encountered at 9 feet. The remainder of the boring was completed utilizing a 4 inch roller bit to 31 feet in order to install the well. The complement well MW-2 was installed at 120.5 feet. Due to the close proximity of this cluster pair to the fill area, the toe of the landfill has encroached beyond the monitoring wells and they are now destroyed.

MW-3 was continuously sampled between 0 and 6 feet, and from 11.5 to 13.5 feet utilizing a split barrel sampler. The remainder of the test boring was NX cored from 16 to 154 feet. Monitoring well MW-4 completes this cluster and is set at a depth of 15 feet.

On September 20 & 22, 1990 a test boring/monitoring well was conducted and installed by Smith & Mahoney, P.C. This operation was overseen by a staff geologist. A Joy HD-22 rotary drilling rig was employed to perform the soil and

rock test boring. A split barrel sample was taken from 0 to 2 feet and bedrock was encountered at 4.8 feet. The boring was advanced to a depth of 30 feet with a roller bit before setting the well at a depth of 29.8 feet.

3.2.2 Decontamination Procedure

The drilling and sampling apparatus used to install MW-5 was decontaminated utilizing a high pressure steam cleaning wash, to minimize the possibility of cross contamination into the test boring and monitoring well. Decontamination procedures used during the installation of the first six wells was not provided in those reports.

3.2.3 Monitoring Well Installation

A bentonite/cement or benseal grout was pumped under pressure into the annulus of well MW-5 using a tremie pipe. Drive casing or augers were left in the hole before grouting to prevent caving. The grout was allowed to extend upwards in the borehole to a depth of approximately three feet from the surface. A length of protective steel casing was installed over the monitoring well and grouted with cement.

The protective casing was fitted with a locking cover and

lock that can be opened with a master key. The PVC cap for the well was vented with a 1/4 inch diameter vent hole. In order to drain water that may collect in the steel casing, a 1/4 inch weep hole was drilled into the side of the casing.

After installation, the well was developed to remove suspended fines from the groundwater. Well development was accomplished using a hand bailer. Well development was continued until the change in rate of removal of fines by the bailer was negligible.

The monitoring well was constructed of two-inch diameter Schedule 40 polyvinyl chloride (PVC) casing with a 15 foot section of 0.010 inch slotted Schedule 40 PVC screen. All screen and riser pipe sections were connected with flush-mounted threaded couplings that were sealed with teflon tape.

A sand pack consisting of No.1 Whitehead sand (a clean, inert, siliceous material) that was size-compatible with the screen slot dimensions, was emplaced around the well screen. The sand pack extended no more than two feet above the top of the screen. A bentonite seal (pellets), a minimum of three feet thick, was installed above the sand pack.

3.2.4 Permeability Testing

Field permeability tests utilizing both a pumping test and holding test were conducted in monitoring well MW-3 (Clark Engineering, June 1990). The tests utilized two packers placed at specific intervals within the borehole, serving to isolate discrete stratigraphic sections for testing. The packers within the borehole were connected with a perforated hose through which water was pumped into the borehole. The tests revealed that the formation surrounding the borehole between 36 feet and 150 feet is relatively impermeable; from 13 feet to 36 feet the formation becomes more permeable, but is still relatively tight, with an average hydraulic conductivity (K) of 2.6 x 10^{-3} ft/sec. The following equation was used in determining hydraulic conductivity.

$$K = \frac{Q}{(C_s r)^2 (T_u + H - A)}$$

Where:

Q = Steady flow into well, ft^3/sec

$C_s r$ = Conductivity coefficient for semi-spherical flow in saturated material through partially penetrating cylindrical test wells

r = Radius of test hole, ft

T_r = Distance from water surface in well to water table, ft

H = Effective head, ft

A = Length of test section, ft

This equation was used for the three test intervals between 16 feet and 36 feet to arrive at an average permeability for that stratigraphic section. Flow volumes for tests conducted between 36 and 150 feet were negligible and did not warrant further analysis. Permeability testing data is presented in Appendix E.

3.2.5 Water Well Survey

Clark Engineering conducted a water well survey (February 1990) in which 72 well survey letters were mailed to area residences. The survey response was good; 36 (50%) of the letters were returned. The majority of respondents claimed both the quality and supply of their well water was good. When comments were included in the responses, they typically mentioned hard water and sulfurous odors.

3.3 Analytical Testing

In order to assess current and future groundwater and surface water quality, as well as to assess potential environmental impacts, the analytical testing program described below will be initiated. The nature and frequency of future sampling events, if required by DEC, will be discussed in the Landfill Closure Plan.

3.3.1 Groundwater Sampling

In accordance with 6 NYCRR Part 360 2.15(a)(1), a water quality monitoring program will be implemented to establish site water quality. Groundwater samples from the five monitoring wells will undergo DEC Baseline parameter water quality analysis.

Samples will be taken in accordance with Smith & Mahoney's Groundwater Sampling Protocol (Appendix A). All samples will be transported with a completed chain of custody form to a DEC approved laboratory. An analysis of the site groundwater quality will be included in the Site Investigation Report or Landfill Closure Plan. This analysis will include a discussion of the results of previous groundwater sampling events, specifically those conducted by Kestner Engineers in June, 1985 and July, 1987.

3.3.2 Surface Water Sampling

Three surface water samples with locations identified in Figure 2, will be collected from the stream channel to the south and west of the landfill. The upgradient sample will be taken from the channel at a location far enough south (upstream) of the landfill to yield

background concentrations of the tested parameters. The second surface water sample will be taken from the old stream-bed on the west side of the landfill. This stream-bed forms a natural channel for leachate and other run-off to flow away from the landfill during wet periods. The old stream-bed combines with the newly diverted stream-bed on the west side of the landfill near the property boundary. The third sample will be taken immediately downstream of this intersection. This sample will demonstrate the concentrations of contaminants after the two streams combine. This is believed to be indicative of actual downgradient impacts to surface water.

On December 5, 1989 George Elston of DEC collected two surface water samples at the Berlin/Petersburg Landfill site. The results of this sampling event will be included in the surface water quality analysis presented in the Site Investigation Report.

4.0 Gas Investigation

In accordance with 6 NYCRR 360-2.15(a)(2), an explosive gas investigation will be conducted to identify the presence and concentration of explosive gases at or near the landfill and to determine the extent of actual or potential gas migration off site. The results of this study will be presented in the Site Investigation Report or Landfill Closure Plan.

4.1 Gas Generation

The decomposition of refuse in sanitary landfills generally results in the production of such gases as methane, carbon dioxide, carbon monoxide, hydrogen sulfide, and other less common gases. These gases can pose potential health concerns if present in high enough concentrations. The gas investigation plan will delineate the scope of the investigation to monitor these gases and identify appropriate actions if excessive concentrations are detected.

4.2 Objectives

The objective of this plan, as stated above, is to outline the investigation for potential gas generation and migration at the Landfill. This will include a calculation of the theoretical 5% methane contour line around the landfill

perimeter. This line is a prediction of the distance at which the furthest flammable concentration of methane might occur as measured from the center of the landfill. Interviews with local fire protection officials and the landfill operator will be conducted to identify past instances of explosions, fires, or odors emanating from the landfill site.

Measures for monitoring potential gas migration, along with corrective actions to insure the health and safety of the public, will be discussed if it is determined that explosive concentrations of methane either exist or could potentially migrate in or around on-site structures or residences outside of the landfill boundaries.

4.3 Gas Concentration Measurement

The equipment and methodology used in conducting the gas investigation are briefly discussed below. A more detailed description of same can be found in the Gas Sampling Protocol, Appendix B.

4.3.1 Equipment

Two types of methane monitoring equipment will be utilized for the gas investigation; both are manufactured by Scott-Alert Instruments and Control

Systems. The instruments will be the Model S-108 explosimeter and the Model D-15 gastester.

The Model S-108 is a microprocessor controlled, self-contained, portable instrument designed to simultaneously detect the following:

- Presence of combustible gases or vapors in air, providing a digital indication of the concentration
- Presence or lack of oxygen in air, providing a digital indication of the concentration
- Presence of hydrogen sulfide in air, providing a digital indication of the concentration

The combustible gas or vapor concentration is displayed in percent (0-100%) of the Lower Flammable Limit (LFL) of methane, which is 5% in air. The oxygen concentration is displayed in percent (0.0 to 25.0%) of the atmosphere, while the hydrogen sulfide concentration is displayed in parts per million (0-199 ppm) in air.

The Model D-15 gastester is a two-scale instrument designed to provide fast, simplified detection and

measurement of a combustible gas or vapor in air. One scale employs catalytic filaments to indicate combustible gas concentrations in air from zero to the LFL. The second scale, operating on the thermal conductivity principle, indicates combustible gas or vapor concentration directly from 0-100% gas.

4.3.2 Calibration

All gas monitoring equipment will be calibrated in accordance with the manufacturer's specifications prior to use in the field.

4.3.3 Procedures

A plunge bar capable of extending four feet into the subsurface will be employed to advance probe holes at the locations identified in Section 4.4. Upon completion of the hole with the plunge bar, the end of the detector's aspirator hose will be inserted approximately half the depth of the hole before gas is withdrawn. Aspiration will draw gas from the hole to the meter where the concentration will be measured and recorded. Gas readings from these holes will be taken on a calm day and the barometric pressure will be recorded. To the extent practicable, monitoring will not be performed during

periods of rapid fluctuation of barometric pressure but rather during periods of steady state barometric conditions.

The meter, aspirator, and hose will be purged between readings to prevent residual gases from influencing subsequent readings.

Gas concentrations in all monitoring wells will be measured by unlocking and removing the cap on the protective casing, removing the cap on the 2" PVC riser, inserting the aspirator hose 2-3 feet into the riser, then aspirating the gas into the gas meter.

All gas concentration data will be recorded in log books and subsequently transcribed to a methane concentration map to delineate subsurface concentration trends and to assist in the analysis of potential gas migration.

4.4 Gas Sampling Locations and Frequency

The gas sampling field survey will include sampling of the landfill and landfill perimeter, on-site structures, and any additional structures within the theoretical 5% methane contour as predicted by the methane migration model. The proposed sampling locations are presented in Table 1 below.

Table 1

Sampling Location	Testing Interval
Landfill Perimeter	100 feet, lineal
Landfill Area	200 feet, grid points
On-site Structures	All
Additional Structures	As necessary

The landfill area and perimeter will be investigated as described in Section 4.3.3 above while the on-site and appropriate surrounding structures will be monitored in a different manner. Specifically, the survey will progress methodically through the interior of these buildings with emphasis on gas concentrations in areas where utility service lines penetrate the wall or floor. Measurements will also be taken in areas of the buildings where limited air circulation could be expected in confined spaces.

4.5 Gas Migration Analysis

The results of the gas investigation will be examined and interpreted to determine the possible extent and magnitude of current and potential methane migration. The gas investigation will be used specifically for determining the 100% LFL (5% in air) contour line on or around the landfill site. Additionally, an ongoing gas monitoring program describing the type, frequency, and location of monitoring may be recommended. In accordance with 360-2.15(a)(2), this recommendation will be based upon soil, hydrogeologic, and

hydraulic conditions surrounding the disposal area as well as the proximity of structures and property boundaries.

5.0 Surface Leachate Investigation

As stated in 6 NYCRR 360-2.15(a)(3), a surface leachate investigation will be performed. This investigation will identify locations of leachate discharge from the landfill and/or into surface waters, as well as characterize the chemical composition of such leachate.

The description that follows outlines the procedures that will be employed during this investigation and potential mitigation measures for leachate control.

5.1 Leachate Outbreaks

Locations where leachate is observed to be emanating from the waste or surrounding ground surface will be recorded during the routine site inspections performed during the landfill development phase as well as during the closure investigation. During inspections, instances of leachate seeping into surface water will be noted as well.

5.2 Interim Control Plan

In the event of a leachate outbreak from the landfill, the following measures will be implemented to repair the outbreak and minimize the potential for contravention of surface and

ground water quality. Implementation of these measures will commence upon DEC approval.

Existing and future leachate outbreak areas are to be repaired by removing the affected cover soil layers and subsequently replacing them with the appropriate thickness of barrier material, protective material, and topsoil (18 inches, 12 inches, and 6 inches, respectively), in accordance with the approved final closure plan (if in effect). Leachate outbreaks occurring before final closure will be repaired in a manner consistent with the existing degree of applied cover. When applicable, material removed from repair areas will be used as daily cover material in the active landfill area.

6.0 Vector Investigation

Types and quantities of vectors including but not limited to rodents, vermin, birds, and insects will be recorded during the routine site inspections performed during the development of the landfill. Additional services of an exterminator or other such professional may be required to solve vector problems which exceed the abilities of the site inspector and landfill personnel during development and closure of the landfill.

7.0 Implementation Schedule

In accordance with the Order on Consent, the Closure Investigation Plan will be implemented as detailed below, upon approval by DEC. It should be noted that the dates presented represent the latest date by which each particular task will be completed; when possible, tasks will be completed earlier.

Task	Completion Date
Cease Acceptance of Refuse	June 30, 1991
Submittal to DEC of Approvable Closure Investigation Report	November 15, 1991
Submittal to DEC of Approvable Closure Plan	February 15, 1992
Commence Closure	April 15, 1992
Complete Closure	November 15, 1992

APPENDIX I

Water Quality Sampling Field Data Sheets

SMITH & MAHONEY, P.C.

FIELD DATA SHEET

PROJECT: Berlin-Petersburg JOB NO: 4110900

CLIENT: EAC DATE: 4/9/91

TIME	SAMPLE #	WELL #	WELL LOCATION	WELL DEPTH	WATER DEPTH	3 VOL. WATER	EVALUATION METHOD	TEMP B	TEMP A	pH B	pH A	COND. B	COND. A	COMMENTS
START 9:00 FINISH 10:00	G	MW-1A		27.12'	18.97'	3.93 gal Well Dry after 2.75 gal.	WATERRA INITIALLY Removed because 10" SAND CLOGGING TUBING + CHECK VALVE BAILER	14°C		5.6		45(41)		SALINITY - 0. Methane - 0% Turbid, grout cracked Readings after sampling not available due to lack of water
START 10:00 FINISH 11:45	F	MW-1		64.70'	26.22'	20 gallons Well Dry after 17 gal.	Waterra.	12°C	13°C	6.4	6.62	165	190	SALINITY B+A-0. Methane - 0% Grout cracked

SAMPLING

WELL SEQUENCE: MW-4, MW-3, MW-4 Dup, MW-1, MW-5, MW-1A

WEATHER: Overcast raining a m to clear with occasional showers p m.

SAMPLED BY: Steele / Lee

NOTE B/A = Before/After

SMITH & MAHONEY, P.C.

FIELD DATA SHEET

PROJECT: Berlin - Petersberg JOB NO: 411090C

CLIENT: EAC DATE: 4/9/91

TIME	SAMPLE #	WELL #	WELL LOCATION	WELL DEPTH	WATER DEPTH	3 VOL. WATER	EVALUATION METHOD	TEMP B	TEMP A	pH B	pH A	COND. B	COND. A	COMMENTS
11:30	E	MW-3		31 30	13 45	8 92 gal	WaTerra	12°C	12°C	6.10	6.45	800 (x10)	550 (x10)	SALINITY- B+A- 0% Methane- 0% GROUT CRACKED
11:30	D	MW-4		17 51	12.91	2.2 gal	WaTerra	15°C	12°C	6.18	5.79	550 (x1)	550 (x1)	Methane - 0% GROUT CRACKED
12:00	C	MW-4A	DUPLICATE OF MW-4											

SAMPLING

WELL SEQUENCE: MW-4 MW-3, MW-4 DUP, MW-1, MW-5, MW-1A

WEATHER: Overcast rainy a.m. Clear with occasional shower p.m

SAMPLED BY: Steele / Lee

NOTE B/A = Before/After

SMITH & MAHONEY, P.C.

FIELD DATA SHEET

SHEET 3 OF 3

PROJECT: Berlin-Peterberg JOB NO: 4110900

CLIENT: EAC DATE: 4/9/91

TIME	SAMPLE #	WELL #	WELL LOCATION	WELL DEPTH	WATER DEPTH	3 VOL. WATER	EVALUATION METHOD	TEMP B	TEMP A	pH B	pH A	COND. B	COND. A	COMMENTS
14:00	A	MW-5		29.90'	15.45'	7.25gal	Bail	12°C	18°C	5.70	5.75	300	290	Methane-0%

SAMPLING

WELL SEQUENCE: MW-4, MW-3, MW-4D, MW-1, MW-5, MW-A

WEATHER: Overcast rainy a.m. clear with occasional showers p.m.

SAMPLED BY: Steele / Lee

NOTE B/A = Before/After

SMITH & MAHONEY, P.C.

FIELD DATA SHEET

PROJECT: Berlin + [illegible]

JOB NO: 410900

CLIENT: EAC

DATE: 5-28-91

TIME	SAMPLE #	WELL #	WELL LOCATION	WELL DEPTH	WATER DEPTH	3 VOL. WATER	EVALUATION METHOD	TEMP B	TEMP A	pH B	pH A	COND. B	COND. A	COMMENTS
12:40	"C" [illegible] surface water		[illegible]					58	58	6.5	6.9	130	[illegible]	[illegible] pH probe is GOING DRY!

SAMPLING

WELL SEQUENCE: Surface Water Sampling

WEATHER: Clear Sunny 80's

SAMPLED BY: David Lee

NOTE B/A = Before/After

SMITH & MAHONEY, P.C.

FIELD DATA SHEET

PROJECT: Berlin-Petersberg JOB NO: 4110900

CLIENT: EAC DATE: 5/24/91

TIME	SAMPLE #	WELL #	WELL LOCATION	WELL DEPTH	WATER DEPTH	3 VOL. WATER	EVALUATION METHOD	TEMP B	TEMP A	pH B	pH A	COND. B	COND. A	COMMENTS
7:?? AM	MW-6	MW-6		56.35'	3.5'	25.9 gal	Pumped dry in 25min, 1 gal/min, very [illegible]	13.5°C	16.0	7.35	6.25	22? (x1 scale)	23? (x1 scale)	Salinity - B-0.0% A-0.0% Cancelled.
7:30 AM	B	surface water					1 gal/min by eye	27°C	6.00			600 (x100 scale)		Salinity - 0.3%
7:?? AM	A	surface water					10 gal/min By eye	19°C	6.15			300 (x1 scale)		Salinity - 0.1%

SAMPLING

WELL SEQUENCE: [illegible]

WEATHER: [illegible]

SAMPLED BY: [illegible]

NOTE B/A = Before/After

SMITH & MAHONEY, P.C.

FIELD DATA SHEET

PROJECT: Berlin/Petersburg

JOB NO: 410700

CLIENT: EAC

DATE: 5/31/91

TIME	SAMPLE #	WELL #	WELL LOCATION	WELL DEPTH	WATER DEPTH	3 VOL. WATER	EVALUATION METHOD	TEMP B	TEMP A	pH B	pH A	COND. B	COND. A	COMMENTS
12:40		MW-6	SW corner	56.3	5.1 T.O.C.	25 gal	waterra	14C	42	7.4	7.45	1700	1700	

SAMPLING

WELL SEQUENCE:

WEATHER: Overcast 60's 100% Humidity

SAMPLED BY: Eric Dykstra

NOTE B/A = Before/After

APPENDIX J

Water Quality Analysis - Laboratory Report

Adirondack
Environmental Services, Inc.

314 North Pearl Street
Albany, New York 12207
518-434-4546/434-0891 FAX

A full service analytical research laboratory offering solutions to environmental concerns

Smith & Mahoney, P.C.
79 North Pearl Street
Albany, NY 12201

Attention: Amy Steele

Report date: 05/06/91
Number of samples analyzed: 8
AES Project ID: 910409AC
Invoice #: 104831

ELAP ID#: 10709

Adirondack Environmental Services, Inc.
314 North Pearl Street
Albany, New York 12207
518-434-4546/434-0891 FAX

A full service analytical research laboratory offering solutions to environmental concerns

CLIENT: Smith & Mahoney, P.C. Date Sampled: 04/09/91
CLIENT'S SAMPLE ID: MW-5 Date sample received: 04/09/91
AES sample #: 910409AC01 Samples taken by: Steele/Lee Location: 4110900
MATRIX: ground water grab

PARAMETER PERFORMED	METHOD	[illegible]	UNITS	[illegible]	[illegible]
pH	EPA-150.1	6.4	su	PH-D-11	04/09/91
EH	[illegible]	40	mv	EH-B-21	04/25/91
Turbidity	EPA-180.1	260	ntu	COT-B-10	04/10/91
Color	EPA-110.2	5	cpu	COT-B-10	04/10/91
Specific Conductance	EPA-120.1	373	umhos/cm	EH-B-21	04/25/91
Total Dissolved Solids	EPA-160.1	246	mg/l	RES-P-3	04/10/91
Chemical Oxygen Demand	EPA-410.4	317	mg/l	COD-G-23	04/15/91
Biochemical Oxygen Demand 5	EPA-405.1	[illegible]	mg/l	BOD-F	04/10/91
Total Organic Carbon	EPA-415.1	78	mg/l	DB	04/14/91
[illegible]	EPA-375.4	[illegible]	mg/l	SULF-B-28	04/13/91
Alkalinity, as CaCO3	EPA-310.1	136	mg/l	ALK-B-17	04/10/91
Chloride	EPA-325.3	19	mg/l	CHLOR-B-8	04/12/91
Hardness ,Total as CaCO3	EPA-130.2	140	mg/l	ICP-S-31	04/12/91
Total Kjeldahl Nitrogen-N	EPA-351.3	1.3	mg/l	DB	04/14/91
[illegible]	EPA-350.1	0.7	mg/l	NH3-A-31	04/15/91
Nitrate-N	EPA-353.3	0.05	mg/l	NIT-C-28	04/16/91
Phenols ([illegible])	EPA-420.1	0.007	mg/l	PHEN-D-12	04/13/91
Cyanide,Total	EPA-335.2	<0.01	mg/l	CN-C-15	04/12/91
Aluminum	EPA-200.7	1.19	mg/l	ICP-S-31	04/12/91
Antimony	EPA-200.7	<0.06	mg/l	ICP-S-31	04/12/91

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[redacted] P.O.

Date Sampled: 04/03/91
Date sample received: 04/09/91

AES sample #: 910409AC01 Samples taken by: Steele/Lee Location: 4110900
MATRIX: ground water

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF.	TEST DATE
Arsenic	EPA 206.2	0.010	mg/l	MET-AGO-3	04/12/91
Barium	EPA-200.7	0.20	mg/l	ICP-S-31	04/12/91
Beryllium	EPA-200.7	<0.005	mg/l	ICP-S-31	04/12/91
Boron	EPA-200.7	0.06	mg/l	ICP-S-31	04/12/91
Cadmium	EPA-213.2	<0.001	mg/l	MT-AGN-119	04/12/91
Calcium	EPA-200.7	44.8	mg/l	ICP-S-31	04/12/91
Chromium	EPA-218.2	<0.005	mg/l	MT-AGN-117	04/11/91
Chromium, Hexavalent	SM-312B	<0.02	mg/l	HEX-B-15	04/10/91
Copper	EPA-200.7	<0.05	mg/l	ICP-S-31	04/12/91
Iron	EPA-200.7	3.53	mg/l	ICP-S-31	04/12/91
Lead	EPA-239.2	0.02	mg/l	MET-AGO-11	04/16/91
Magnesium	EPA-200.7	6.76	mg/l	ICP-S-31	04/12/91
Manganese	EPA-200.7	25.7	mg/l	ICP-S-31	04/12/91
Mercury	EPA-245.1	<0.0004	mg/l	MET-FV-36	04/10/91
Nickel	EPA-200.7	<0.05	mg/l	ICP-S-31	04/12/91
Potassium	EPA-200.7	3.48	mg/l	ICP-S-31	04/12/91
Selenium	EPA-270.2	<0.005	mg/l	MET-AGO-5	04/15/91
Silver	EPA-200.7	<0.02	mg/l	ICP-S-31	04/12/91
Sodium	EPA-200.7	11.2	mg/l	ICP-S-31	04/12/91
Thallium	EPA-279.2	<0.01	mg/l	MET-AGO-23	04/18/91

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CLIENT: Smith & Mahoney, P.C. Date Sampled: 04/09/91
CLIENT'S SAMPLE ID: MW-5 Date sample received: 04/09/91
AES sample #: 910409AC01 Samples taken by: Steele/Lee Location: 4110900
MATRIX: ground water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Zinc	EPA-200.7	0.04	mg/l	ICP-S-31	04/12/91
Chloromethane	EPA-601	<1	ug/l	MT-M-19	04/13/91
Bromomethane	EPA-601	<1	ug/l	MT-M-19	04/13/91
Dichlorodifluoromethane	EPA-601	17	ug/l	MT-M-19	04/13/91
Vinyl Chloride	EPA-601	<1	ug/l	MT-M-19	04/13/91
Chloroethane	EPA-601	<1	ug/l	MT-M-19	04/13/91
Methylene Chloride	EPA-601	14	ug/l	MT-M-19	04/13/91
Trichloroflouromethane	EPA-601	2	ug/l	MT-M-19	04/13/91
1,1 Dichloroethene	EPA-601	<1	ug/l	MT-M-19	04/13/91
1,1 Dichloroethane	EPA-601	3	ug/l	MT-M-19	04/13/91
t-1,2-Dichloroethene	EPA-601	<1	ug/l	MT-M-19	04/13/91
Chloroform	EPA-601	<1	ug/l	MT-M-19	04/13/91
1,2 Dichloroethane	EPA-601	<1	ug/l	MT-M-19	04/13/91
1,1,1 Trichloroethane	EPA-601	4	ug/l	MT-M-19	04/13/91
Carbon Tetrachloride	EPA-601	<1	ug/l	MT-M-19	04/13/91
Bromodichloromethane	EPA-601	<1	ug/l	MT-M-19	04/13/91
1,2-Dichloropropane	EPA-601	<1	ug/l	MT-M-19	04/13/91
t-1,3-Dichloropropene	EPA-601	<1	ug/l	MT-M-19	04/13/91
Trichloroethylene	EPA-601	<1	ug/l	MT-M-19	04/13/91
Dibromochloromethane	EPA-601	<1	ug/l	MT-M-19	04/13/91

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CLIENT: Smith & Mahoney, [illegible] Date Sampled: 04/09/91
CLIENT'S SAMPLE ID: MW-5 Date sample received: 04/09/91
AES sample #: 910409AC01 [illegible] Steele/Lee Location: 4110900
MATRIX: [illegible]

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
1,1,2-Trichloroethane	EPA-601	<1	ug/l	MT-M-19	04/13/91
cis-1,3-Dichloropropene	EPA-601	<1	ug/l	MT-M-19	04/13/91
2-Chloroethylvinylether	EPA-601	<1	ug/l	MT-M-19	04/13/91
Bromoform	EPA-601	<1	ug/l	MT-M-19	04/13/91
1,1,2,2-Tetrachloroethane	EPA-601	<1	ug/l	MT-M-19	04/13/91
Tetrachloroethylene	EPA-601	<1	ug/l	MT-M-19	04/13/91
Benzene	EPA-602	<1	ug/l	MT-M-19	04/13/91
Toluene	EPA-602	2	ug/l	MT-M-19	04/13/91
Ethylbenzene	EPA-602	<1	ug/l	MT-M-19	04/13/91
Chlorobenzene	EPA-602	<1	ug/l	MT-M-19	04/13/91
p-Dichlorobenzene	EPA-602	<1	ug/l	MT-M-19	04/13/91
m-Dichlorobenzene	EPA-602	<1	ug/l	MT-M-19	04/13/91
o-Dichlorobenzene	EPA-602	<1	ug/l	MT-M-19	04/13/91

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CLIENT: Smith & Mahoney, P.C.
CLIENT'S SAMPLE ID: MW 1A
AES sample #: 910409AC02 Samples taken by: Steele/Lee Location: 4110000
MATRIX: ground water grab

Parameter	METHOD	Result	Units	Analyst	Date Analyzed
[illegible]	EPA-150.1	6.4	[illegible]	PH-D-11	04/09/91
[illegible]	Orion	[illegible]	mv	EH-B-21	04/25/91
[illegible]	EPA-180.1	[illegible]	[illegible]	COT-B-10	04/10/91
Color	EPA-110.2	5	cpu	COT-B-10	04/10/91
Specific Conductance	EPA-120.1	91	umhos/cm	EH-B-21	04/25/91
[illegible]	EPA-160.1	17	mg/l	RES-P-6	04/16/91
Chemical Oxygen Demand	EPA-410.4	41	[illegible]	[illegible]	04/12/91
[illegible]	EPA-405.1	[illegible]	[illegible]	BOD-F	04/11/91
[illegible]	EPA-415.1	[illegible]	[illegible]	DB	04/14/91
[illegible]	EPA-375.4	[illegible]	mg/l	SULF-B-28	04/13/91
Alkalinity, as CaCO3	EPA-310.1	[illegible]	mg/l	ALK-B-18	04/22/91
[illegible]	EPA-325.3	2.5	mg/l	CHLOR-B-8	04/12/91
Hardness ,Total as CaCO3	EPA-130.2	33	[illegible]	ICP-S-31	04/12/91
Total Kjeldahl Nitrogen-N	EPA-351.3	0.7	mg/l	DB	04/14/91
[illegible]	EPA-350.1	<0.1	mg/l	NH3-A-31	04/15/91
[illegible]	EPA-353.3	0.15	[illegible]	NIT-C-28	04/16/91
Phenols (CD),Total	EPA-420.1	<0.002	mg/l	PHEN-B-12	04/13/91
Cyanide,Total	EPA-335.2	<0.01	mg/l	CN-C-17	04/18/91
Aluminum	EPA-200.7	2.24	mg/l	ICP-S-31	04/12/91
Antimony	EPA-200.7	<0.06	mg/l	ICP-S-31	04/12/91

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CLIENT: Smith & Mahoney, P.C.
CLIENT'S SAMPLE ID: MW-1A
AES sample #: 910409AC02 Samples taken by: Steele/Lee Location: 4110900
MATRIX: ground water

Date Sampled: 04/09/91
Date sample received: 04/09/91

PARAMETER PERFORMED	METHOD				
Arsenic	EPA-200.2				
Barium	EPA-200.7	0.09	mg/l	ICP S-31	
Beryllium	EPA-200.7	<0.005	mg/l	ICP-S-31	04/12/91
Boron	EPA-200.7	<0.05	mg/l	ICP-S-31	04/12/91
Cadmium	EPA-213.2	0.004	mg/l	MT-AGN-119	04/12/91
Calcium	EPA-200.7	9.87	mg/l	ICP-S-31	04/12/91
Chromium	EPA-218.2	0.007	mg/l	MT-AGN-117	04/11/91
Chromium, Hexavalent	SM-312B	<0.02	mg/l	HEX-B-15	04/10/91
Copper	EPA-200.7		mg/l	ICP-S-31	04/12/91
Iron	EPA-200.7	2.68	mg/l	ICP-S-31	04/12/91
Lead	EPA-239.2	0.09	mg/l	MET-AGO-11	04/16/91
Magnesium	EPA-200.7	2.17	mg/l	ICP-S-31	04/12/91
Manganese	EPA-200.7	0.31	mg/l	ICP-S-31	04/12/91
	EPA-245.1	<0.0004	mg/l	MET-FV-36	04/10/91
Nickel	EPA-200.7	<0.05	mg/l	ICP-S-31	04/12/91
Potassium	EPA-200.7	1.09	mg/l	ICP-S-31	04/12/91
Selenium	EPA-270.2	<0.005		MET-AGO-5	04/15/91
Silver	EPA-200.7	<0.02	mg/l	ICP-S-31	04/12/91
Sodium	EPA-200.7	8.97	mg/l	ICP-S-31	04/12/91
Thallium	EPA-279.2	<0.01	mg/l	MET-AGO-23	04/18/91

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CLIENT: Smith & Mahoney, P.C. Date [illegible] 04/09/91
CLIENT'S SAMPLE ID: MW-1A Date sample received: 04/09/91
AES sample #: 910409AC02 Samples taken by: Steele/Lee [illegible]
MATRIX: ground water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	[illegible]	[illegible]
[illegible]	[illegible]	0.09	[illegible]	ICP-S-31	04/12/[illegible]
[illegible]	EPA-601	[illegible]	ug/l	MT-M-19	04/13/91
Bromomethane	EPA-601	<1	ug/l	MT-M-19	04/13/91
Dichlorodifluoromethane	EPA-601	<1	ug/l	MT-M-19	04/13/91
Vinyl Chloride	EPA-601	<1	ug/l	MT-M-19	04/13/91
Chloroethane	EPA-601	<1	ug/l	MT-M-19	04/13/91
Methylene Chloride	EPA-601	<1	[illegible]	[illegible]	04/13/91
Trichloroflouromethane	EPA 601	<1	ug/l	MT M-19	04/13/91
1,1 Dichloroethene	EPA-601	[illegible]	ug/l	[illegible]	04/13/91
1,1 Dichloroethane	EPA-601	<1	ug/l	MT-M-19	04/13/91
t-1,2-Dichloroethene	EPA-601	<1	ug/l	MT-M-19	04/13/91
Chloroform	EPA-601	<1	ug/l	MT-M-19	04/13/91
1,2 Dichloroethane	EPA-601	<1	ug/l	MT-M-19	04/13/91
1,1,1 Trichloroethane	EPA 601	<1	ug/l	MT M-19	04/13/91
Carbon Tetrachloride	EPA-601	<1	ug/l	MT-M-19	04/13/91
Bromodichloromethane	EPA-601	<1	ug/l	MT-M-19	04/13/91
1,2-Dichloropropane	EPA-601	<1	ug/l	MT-M-19	04/13/91
t-1,3-Dichloropropene	EPA-601	<1	ug/l	MT-M-19	04/13/91
Trichloroethylene	EPA-601	<1	ug/l	MT-M-19	04/13/91
Dibromochloromethane	[illegible]	<1	ug/l	MT-M-19	04/13/91

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CLIENT: Smith & Mahoney, P.C — Sampled: 04/03/91
CLIENT'S SAMPLE ID: MW-1A — Sample received: 04/09/91
AES Sample #: 910400AC02 — Samples taken by: Steele/Lee — Location: 4110900
MATRIX: ground water — grab

[illegible]	METHOD	RESULT	[illegible]	[illegible]	[illegible]
[illegible]	[illegible] 601	[illegible]	ug/l	MT-M-19	04/13/91
[illegible]	[illegible]	<1	[illegible]	[illegible]	[illegible]/13/91
2-Chloroethylvinylether	EPA-601	<1	ug/l	[illegible]	04/13/91
[illegible]	[illegible]	<1	ug/l	[illegible]	04/13/91
1,1,2,2-Tetrachloroethane	EPA-601	1	ug/l	[illegible]	04/13/91
Tetrachloroethylene	EPA-601	<1	ug/l	MT-M-19	04/13/91
[illegible]	[illegible]	<1	ug/l	[illegible]	04/13/91
Toluene	EPA-602	<1	ug/l	MT-M-19	04/13/91
Ethylbenzene	EPA-602	<1	ug/l	[illegible]	04/13/91
[illegible]	EPA-602	<1	[illegible]	[illegible]	04/13/91
[illegible]	EPA-602	[illegible]	ug/l	MT-M-19	04/13/91
m-Dichlorobenzene	[illegible]	<1	ug/l	MT-M-19	04/13/91
[illegible]	EPA-602	[illegible]	ug/l	MT-M-19	04/13/91

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CLIENT: Smith &
CLIENT'S SAMPLE ID:
Date Sampled: 04/09/91
Date sample received: 04/09/91
Sample taken by:
MATRIX:

		6.6	su	PH-D-11	
		190		EH-B-21	04/25/91
	EPA-180.1	590	ntu	COT-B-10	04/10/91
	EPA-110.2	10		COT-B-10	04/10/91
Specific Conductance	EPA-120.1	765	umhos/cm	EH-B-21	04/25/91
Total Dissolved Solids	EPA-160.1	405		RES-P-3	04/10/91	
		26		COD-G-23	04/12/91
	EPA-405.1	12		BOD-F	04/10/91
	EPA-415.1	12		DB	04/14/91
Sulfate-S		2	mg/l	SULF-B-28	04/13/91
Alkalinity, as CaCO3		243	mg/l	ALK-B-17	04/10/91
Chloride	EPA-325.3	53		CHLOR-B-8	04/12/91
		221	mg/l	ICP-S-31	04/12/91
		2.9		DB	04/14/91
	EPA-350.1	2.1		NIT-B-31	04/15/91
		0.05	mg/l	NIT-C-28	04/16/91
	EPA 420.1	0.012	mg/l	PHEN-D-12	04/13/91
Cyanide,Total	EPA-335.2	<0.01	mg/l	CN-C-17	04/18/91
Aluminum	EPA-200.7	1.02	mg/l	ICP-S-31	04/12/91
Antimony	EPA-200.7	<0.06	mg/l	ICP-S-31	04/12/91

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CLIENT: , P.C. 04/09/91
CLIENT'S 04/09/91

		RESULT			
			mg/l	MET-AGO-3	04/12/91
		0.16		ICP-S-31	04/12/91
	EPA-200.7	<0.005			04/12/91
			mg/l	ICP-S-31	04/12/91
Cadmium	EPA-213.2	<0.001	mg/l	MT-AGN-119	04/12/91
	EPA-200.7	63.4		ICP-S-31	04/12/91
			mg/l	MT-AGN-117	04/11/91
	SM-3120	<0.02	mg/l	HEX-B-15	04/10/91
	EPA-200.7		mg/l	ICP-S-31	04/12/91
Iron	EPA-200.7	4.78	mg/l	ICP-S-31	04/12/91
Lead		0.02	mg/l	MET-AGO-11	04/16/91
	EPA-200.7	15.2	mg/l	ICP-S-31	04/12/91
	EPA-200.7	49.4		ICP-S-31	04/12/91
	EPA-245.1	<0.0004	mg/l	MET-FV-36	04/10/91
		<0.05	mg/l	ICP-S-31	04/12/91
	EPA-200.7	6.71	mg/l	ICP-S-31	
		<0.005	mg/l	MET-AGO-5	04/15/91
	EPA-200.7	<0.02	mg/l	ICP-S-31	04/12/91
Sodium	EPA-200.7	37.4	mg/l	ICP-S-31	04/12/91
Thallium	EPA-279.2	<0.01	mg/l	MET-AGO-23	04/18/91

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CLIENT: [illegible] Date 04/09/91
[illegible] 910409A02 04/09/91

[illegible]	[illegible]	[illegible]	UNITS	[illegible]	[illegible]
Zinc	[illegible]	0.13	[illegible]	[illegible]	04/12/91
[illegible]	EPA-601	[illegible]	ug/l	[illegible]	04/13/91
[illegible]	[illegible]	<1	ug/l	[illegible]	04/13/91
Dichlorodifluoromethane	EPA 601	<1	ug/l	[illegible]	04/13/91
[illegible]	EPA-601	<1	ug/l	MT-M-19	04/13/91
[illegible]	[illegible]	<1	ug/l	MT-M-19	04/13/91
Methylene Chloride	EPA-601	<1	ug/l	[illegible]	[illegible]
Trichlorofluoromethane	EPA-601	[illegible]	ug/l	MT-M-19	[illegible]
[illegible]	EPA-601	<1	ug/l	MT-M-19	04/13/91
1,1 Dichloroethane	EPA-601	<1	ug/l	MT-M-19	04/13/91
t-1,2-Dichloroethene	[illegible]	[illegible]	ug/l	MT-M-19	04/13/91
Chloroform	[illegible]	<1	ug/l	MT M-19	04/13/91
[illegible]	EPA-601	[illegible]	ug/l	MT-M-19	04/13/91
1,1,1 Trichloroethane	EPA-601	<1	[illegible]	MT-M-19	[illegible]
[illegible]	EPA-601	<1	[illegible]	MT-M-19	04/13/91
[illegible]	EPA-601	<1	ug/l	MT-M-19	04/13/91
1,2-Dichloropropane	EPA-601	<1	ug/l	MT-M-19	04/13/91
t-1,3-Dichloropropene	EPA-601	<1	ug/l	MT-M-19	04/13/91
Trichloroethylene	EPA-601	<1	ug/l	MT-M-19	04/13/91
Dibromochloromethane	EPA-601	<1	ug/l	[illegible]	04/13/91

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CLIENT: Smith & Mahoney, P.C.
CLIENT'S SAMPLE ID: MW 4A
AES sample #: 910409AC03
MATRIX:
Sampled: 04/09/91
Date sample received: 04/09/91
Location: 4110900
grab

		RESULT			
	EPA-601		ug/l	MT-M-19	04/13/91
		<1		MT-M-19	04/13/91
		<1	ug/l	MT-M-19	04/13/91
	EPA-601				
1,1,2,2-Tetrachloroethane	EPA-601	<1	ug/l	MT-M-19	04/13/91
Tetrachloroethylene	EPA-601	<1		MT-M-19	04/13/91
Benzene	EPA-602	<1	ug/l	MT-M-19	04/13/91
Toluene			ug/l	MT-M-19	04/13/91
Ethylbenzene	EPA-602	<1	ug/l		04/13/91
Chlorobenzene		<1	ug/l	MT-M-19	04/13/91
p-Dichlorobenzene	EPA-602	<1	ug/l	MT-M-19	04/13/91
m-Dichlorobenzene	EPA-602	<1		MT-M-19	04/13/91
o-Dichlorobenzene	EPA-602		ug/l	MT-M-19	04/13/91

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04/09/91
CLIENT'S SAMPLE ID: MW-1 - sample received: 04/09/91
Samples taken by: Steele/Lee
MATRIX: ground water

PARAMETER PERFORMED		RESULT			
[illegible]	[illegible]	7.3	su	PH-D 11	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Turbidity	[illegible]	[illegible]	ntu	[illegible]	04/10/91
[illegible]	110.2	20	cpu	COT-B-10	04/10/91
Specific Conductance	EPA-120.1	260	umhos/cm	[illegible]	04/25/91
Total Dissolved Solids	EPA-160.1	158	mg/l	RES-P-3	04/10/91
Chemical Oxygen Demand	EPA-410.4	35	mg/l	COD-G-23	04/12/91
Biochemical Oxygen Demand 5	EPA-405.1	2	mg/l	BOD-F	04/10/91
Total Organic Carbon	EPA-415.1	6.9	mg/l	DB	04/14/91
Sulfate S	EPA-375.4	27	[illegible]	SULF-B-28	04/13/91
Alkalinity, as CaCO3	EPA-310.1	96	mg/l	ALK-B-17	04/10/91
Chloride	EPA-325.3	2.0	mg/l	[illegible]	04/12/91
Hardness ,Total as CaCO3	EPA-130.2	[illegible]	mg/l	ICP-S-31	04/12/91
[illegible]	EPA-351.3	<0.5	mg/l	[illegible]	04/14/91
Ammonia-N	EPA-350.1	[illegible]	mg/l	NH3-A-31	04/15/91
Nitrate-N	EPA-353.3	0.15	mg/l	NIT-C 28	04/16/91
Phenols (CD),Total	EPA-420.1	0.005	[illegible]	PHEN-D-12	04/13/91
Cyanide,Total	EPA-335.2	<0.01	mg/l	CN-C-17	04/18/91
Aluminum	EPA-200.7	0.73	[illegible]	ICP-S-31	04/12/91
Antimony	EPA-200.7	<0.06	mg/l	ICP-S-31	04/12/91

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CLIENT: Smith & Mahoney, [illegible]
CLIENT'S SAMPLE ID: MW-1
[illegible]

Date [illegible] 04/09/91
Date [illegible] 04/09/91

cont'

PARAMETER PERFORMED	METHOD	RESULT	UNITS	[illegible]	TEST DATE
[illegible]	[illegible]	<0.005	mg/l	[illegible]	04/12/91
[illegible]um	[illegible]	0.04	mg/l	ICP-S-31	04/12/91
[illegible]	EPA-200.7	[illegible]	mg/l	ICP-S-31	04/12/91
[illegible]	EPA-200.7	<0.05	mg/l	ICP-S-31	04/12/91
Cadmium	EPA-213.2	<0.001	mg/l	MT AGN 119	04/12/91
Calcium	EPA-200.7	[illegible]	mg/l	ICP-S-31	04/12/91
[illegible]	EPA-218.2	<0.005	mg/l	MT-AGN-117	04/11/91
[illegible]	SM-312B	<0.02	mg/l	HEX-B-15	04/10/91
[illegible]	[illegible]	<0.05	mg/l	[illegible]	[illegible]
Iron	EPA-200.7	0.90	mg/l	ICP-S-31	04/12/91
Lead	EPA-239.2	0.01	mg/l	MET-AGO-11	04/16/91
[illegible]	EPA-200.7	4.26	mg/l	[illegible]	04/12/91
[illegible]	EPA-200.7	0.40	mg/l	[illegible]	04/12/91
[illegible]	EPA-245.1	<0.0004	mg/l	MET-FV-36	04/10/91
[illegible]	EPA-200.7	<0.05	mg/l	[illegible]	04/12/91
Potassium	EPA-200.7	1.46	mg/l	ICP-S-31	04/12/91
[illegible]	EPA-270.2	<0.005	mg/l	MET-AGO-5	04/15/91
[illegible]	EPA-200.7	<0.02	mg/l	ICP-S-31	04/12/91
Sodium	EPA-200.7	22.3	mg/l	ICP-S-31	04/12/91
Thallium	EPA-279.2	<0.01	mg/l	MET-AGO-23	04/18/91

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CLIENT: [illegible] 04/09/91
[illegible] sample received: 04/09/91
[illegible] Samples taken by: Steele/[illegible] Location: 4110900
[illegible] ground water grab

[illegible]	[illegible]	RESULT	UNITS	[illegible]	[illegible]
[illegible]	[illegible] 200.7	[illegible]	mg/l	[illegible]	04/12/91
[illegible]	[illegible] 601	<1	[illegible]	[illegible]	04/13/91
[illegible]	EPA 601	[illegible]	ug/l	[illegible]	[illegible]
Dichlorodifluoromethane	[illegible]	[illegible]	ug/l	[illegible]	04/13/91
Vinyl Chloride	EPA-601	[illegible]	ug/l	MT-M-19	04/13/91
Chloroethane	[illegible]	[illegible]	ug/l	MT-M-19	04/13/91
Methylene Chloride	[illegible]	[illegible]	ug/l	MT-M-19	04/13/91
Trichloroflouromethane	EPA-601	[illegible]	ug/l	[illegible]	04/13/91
1,1 Dichloroethene	EPA-601	<1	ug/l	MT-M-19	04/13/91
1,1 [illegible]	EPA-601	<1	ug/l	MT-M-19	04/13/91
t-1,2 [illegible]	EPA-601	<1	ug/l	[illegible]	04/13/91
Chloroform	EPA 601	<1	[illegible]	MT-M-19	04/13/91
1,2 Dichloroethane	EPA-601	[illegible]	ug/l	MT-M-19	[illegible]
1,1,1 Trichloroethane	[illegible]	[illegible]	ug/l	MT-M-19	04/13/91
Carbon Tetrachloride	EPA 601	<1	ug/l	[illegible]	04/13/91
Bromodichloromethane	EPA-601	[illegible]	[illegible]	MT-M-19	04/13/91
1,2-Dichloropropane	EPA 601	<1	ug/l	MT-M-19	04/13/91
t-1,3-Dichloropropene	EPA 601	1	ug/l	MT-M-19	04/13/91
Trichloroethylene	EPA-601	<1	ug/l	MT-M-19	04/13/91
[illegible]	[illegible]	<1	ug/l	MT-M 19	04/13/91

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CLIENT: Smith & Mahoney, P.C. 04/09/91
CLIENT'S SAMPLE ID: MW 1 Date sample received: 04/09/91
Samples taken by: Steele/Lee Location: 4110900
ground water

PARAMETER PERFORMED	METHOD		UNITS		TEST DATE
	EPA 601		ug/l	MT Y 19	04/13/91
cis-1,3-Dichloropropene	EPA-601		ug/l	MT M-19	04/13/91
2-Chloroethylvinylether	EPA-601	<1	ug/l		
	EPA-601	<1	ug/l		04/13/91
1,1,2,2-Tetrachloroethane	EPA-601		ug/l	MT-M-19	
Tetrachloroethylene			ug/l		04/13/91
Benzene	EPA-602		ug/l		04/13/91
Toluene	EPA-602		ug/l		04/13/91
Ethylbenzene	EPA-602	<1	ug/l		04/13/91
	EPA-602	<1	ug/l		
p-Dichlorobenzene	EPA 602		ug/l		
m-Dichlorobenzene		<1	ug/l		04/13/91
	EPA-602		ug/l		04/13/91

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CLIENT: [illegible] & Mahoney, [illegible] Date Sampled: 04/09/91
CLIENT'S [illegible] 910409A005 [illegible] Steele/Lee 4110900
MATRIX: ground water

[illegible]	METHOD	[illegible]	UNITS	[illegible]	[illegible]
[illegible]	EPA [illegible]	[illegible]	[illegible]	[illegible]	04/09/91
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	04/25/91
Turbidity	[illegible] 180.1	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	EPA 110.2	[illegible]	cpu	[illegible]	[illegible]
Specific [illegible]	EPA-120.1	[illegible]	umhos/cm	EH-B-21	04/25/91
Total Dissolved [illegible]	EPA-160.1	[illegible]	mg/l	[illegible]	04/10/91
[illegible]	[illegible]	66	mg/l	[illegible]	04/12/91
[illegible]	[illegible]	[illegible]	mg/l	BOD-F	04/10/91
[illegible] Carbon	EPA 415.1	10.7	mg/l	DB	04/14/91
Sulfate S	EPA-375.4	<2	mg/l	SULF-B-28	04/13/91
[illegible]	[illegible]	500	[illegible]	ALK-B-17	04/10/91
[illegible]	[illegible]	84	[illegible]	CHLOR-B-8	04/12/91
Hardness [illegible]	EPA-130.2	417	mg/l	ICP-S-31	04/12/91
[illegible]	[illegible]	3.2	mg/l	DB	04/14/91
[illegible]	EPA-350.1	[illegible]	mg/l	NH3-A-31	04/15/91
[illegible]	EPA-353.3	0.04	mg/l	NIT-C-28	04/16/91
Phenols (CD),Total	EPA-420.1	0.008	mg/l	PHEN-D-12	04/13/91
Cyanide,Total	[illegible]	[illegible]	mg/l	CN-C-17	04/18/91
Aluminum	EPA-200.7	[illegible]	mg/l	ICP-S-31	04/12/91
Antimony	EPA-200.7	<0.06	mg/l	[illegible]	04/12/91

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CLIENT: [illegible]
CLIENT'S SAMPLE ID: [illegible]
AES Sample #: 910409AC05 [illegible] Sterile [illegible] grab

Date [illegible]: 04/09/91
Date Sampled: 04/09/91
[illegible] 0900

PARAMETER PERFORMED	METHOD	RESULT	UNITS	[illegible]	DATE
[illegible]	EP [illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	EPA 200.7	[illegible]	[illegible]	CP [illegible]	[illegible]2/[illegible]
[illegible]	[illegible] 200.7	[illegible]	[illegible]	CP [illegible]	[illegible]
Boron	EPA 200.7	[illegible]	mg/l	[illegible]	[illegible]
Cadmium	EPA 2[illegible]	0.00[illegible]	[illegible]	MT-AG[illegible]	[illegible]
Calcium	EPA-200.7	[illegible]	[illegible]	CP-S-[illegible]	04/[illegible]
[illegible]	EPA 218.2	0.008	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	EX B-[illegible]	[illegible]
Copper	EPA [illegible] 7	0.05	[illegible]	CP [illegible]	[illegible]2/91
Iron	[illegible]	[illegible]	[illegible]	CP [illegible]	[illegible]
Lead	[illegible] 2	0.02	[illegible]	[illegible]	04/[illegible]1
Magnesium	EPA 200.7	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	EPA 200.7	[illegible]	[illegible]	CP-S [illegible]	[illegible]
[illegible]	EPA [illegible]	<0.0004	[illegible]	MET-FV [illegible]	[illegible]
[illegible]	EPA-200.7	[illegible]	[illegible]	CP [illegible]	[illegible]/91
[illegible]um	EPA 200.7	[illegible]2.2	[illegible]	CP [illegible]	[illegible]
[illegible]	EPA 270.2	<0.[illegible]	[illegible]	[illegible] 5	04/[illegible]
Silver	EPA 200.7	[illegible]	[illegible]	CP [illegible]	[illegible]2/91
Sodium	EPA 200.[illegible]	[illegible]	[illegible]	CP-S [illegible]	04/[illegible]
[illegible]	EPA [illegible].2	[illegible]	[illegible]	MET-A[illegible] 23	[illegible]

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CLIENT'S SAMPLE I.D.: MW-3
AES Sample #: 910403AC05
MATRIX: Steele/Lee
Date: 04/09/91

Continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	METHOD NO.	DATE ANALYZED
[illegible]	[illegible] 200.7	[illegible]	mg/l	ICP [illegible]	04/12/91
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	04/13/91
[illegible]	[illegible]	[illegible]	ug/l	[illegible]	04/13/91
[illegible]	[illegible]	<1	[illegible]	[illegible]	04/13/91
Vinyl Chloride	EPA-601	[illegible]	[illegible]	[illegible]	04/13/91
[illegible]	[illegible]	<1	[illegible]	[illegible]	04/13/91
[illegible]	[illegible]	<1	ug/l	[illegible]	04/13/91
[illegible]	[illegible]	<1	ug/l	[illegible]	04/13/91
1,1 [illegible]	EPA-601	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	EPA-601	[illegible]	ug/l	[illegible]	04/13/91
[illegible]	EPA-601	<1	ug/l	[illegible]	04/13/91
[illegible]	EPA-601	[illegible]	ug/l	MT-M-19	04/13/91
[illegible]	EPA-601	<1	ug/l	[illegible]	04/13/91
1,1,1 Trichloroethane	EPA-601	<1	ug/l	MT-M-19	04/13/91
[illegible]	EPA-601	<1	ug/l	MT-M-19	04/13/91
[illegible]	EPA-601	<1	ug/l	MT-M-19	04/13/91
1,2-Dichloropropane	[illegible]	[illegible]	ug/l	[illegible]	04/13/91
t-1,3-Dichloropropene	EPA-601	<1	ug/l	MT-M-19	04/13/91
Trichloroethylene	EPA-601	<1	ug/l	MT-M-19	04/13/91
[illegible]	EPA-601	<1	[illegible]	MT-M-19	04/13/91

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CLIENT: [illegible]
CLIENT'S SAMPLE ID: [illegible]
[illegible]

Sampled: 04/[illegible]/91
Sample received: 04/09/91
Location: [illegible]
grab

[illegible]	[illegible]	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
[illegible]		[illegible] 601	[illegible]	[illegible]	MT [illegible]	04/13/91
[illegible]		[illegible]	[illegible]	ug/l	MT M 19	[illegible]
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]		EPA 601	<1	ug/l	[illegible]	04/13/91
[illegible]		EPA 601	<1	ug/l	[illegible]	04/13/91
Tetrachloroethylene		EPA 601	<1	ug/l	MT-M-19	04/13/91
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	04/13/91
[illegible]		[illegible]	5	ug/l	MT-M-19	[illegible]
[illegible]		[illegible]	[illegible]	ug/l	MT-M-19	04/13/91
Chlorobenzene		EPA-602	[illegible]	ug/l	[illegible]	04/13/91
[illegible]		[illegible]	[illegible]	ug/l	MT-M-19	04/13/91
[illegible]		[illegible]	[illegible]	ug/l	[illegible]	04/13/91
o-Dichlorobenzene		[illegible]	<1	ug/l	MT-M-19	04/13/91

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CLIENT: Smith & Mahoney, P.C. Date Sampled: 04/09/91
CLIENT'S SAMPLE ID: MW-4 Date sample received: 04/09/91
AES sample #: 910409AC06 Samples taken by: Steele/Lee Location: 4110900
MATRIX: ground water grab

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
pH	EPA-150.1	6.7	su	PH-D-11	04/09/91
EH	Orion	243	mv	EH-B-21	04/25/91
Turbidity	EPA-180.1	400	ntu	COT-B-10	04/10/91
Color	EPA-110.2	10	cpu	COT-B-10	04/10/91
Specific Conductance	EPA-120.1	652	umhos/cm	EH-B-21	04/25/91
Total Dissolved Solids	EPA-160.1	413	mg/l	RES-P-3	04/10/91
Chemical Oxygen Demand	EPA-410.4	22	mg/l	COD-G-23	04/12/91
Biochemical Oxygen Demand 5	EPA-405.1	6	mg/l	BOD-F	04/10/91
Total Organic Carbon	EPA-415.1	10.4	mg/l	DB	04/14/91
Sulfate-S	EPA-375.4	2.5	mg/l	SULF-B-28	04/13/91
Alkalinity, as CaCO3	EPA-310.1	325	mg/l	ALK-B-17	04/10/91
Chloride	EPA-325.3	52	mg/l	CHLOR-B-8	04/12/91
Hardness ,Total as CaCO3	EPA-130.2	220	mg/l	ICP-S-31	04/12/91
Total Kjeldahl Nitrogen-N	EPA-351.3	2.9	mg/l	DB	04/14/91
Ammonia-N	EPA-350.1	2.1	mg/l	NH3-A-31	04/15/91
Nitrate-N	EPA-353.3	0.03	mg/l	NIT-C-28	04/16/91
Phenols (CD),Total	EPA-420.1	0.015	mg/l	PHEN-D-12	04/18/91
Cyanide,Total	EPA-335.2	<0.01	mg/l	CN-C-17	04/18/91
Aluminum	EPA-200.7	1.00	mg/l	ICP-S-31	04/12/91
Antimony	EPA-200.7	<0.06	mg/l	ICP-S-31	04/12/91

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ID: 910409AC06 Sampl 04/09/91
Sample 04/09/91
MATR ground water

TEST	METHOD	RESULT	UNITS	[illegible]	TEST DATE
[illegible]	[illegible] A 200.8	0.010	[illegible]	MET AGO 9	[illegible]
[illegible]	EPA 200.7	[illegible]	mg/l	[illegible]	04/12/91
Beryllium	EPA-200.7	<0.005	[illegible]	ICP-S-31	04/12/91
[illegible]	[illegible]	[illegible]	mg/l	ICP-S-31	04/12/91
[illegible]	[illegible]	<0.001	mg/l	[illegible]	04/12/91
[illegible]	EPA-200.7	[illegible]	mg/l	ICP-S-31	04/12/91
[illegible]	EPA 218.2	<0.005	mg/l	MET AGO 9	[illegible]
Chromium, Hexavalent	[illegible]	<0.02	mg/l	[illegible]	04/10/91
[illegible]	[illegible] A-200.7	0.29	mg/l	ICP-S-31	04/12/91
[illegible]	EPA-200.7	4.90	mg/l	[illegible]	04/12/91
[illegible]	[illegible]	[illegible]	[illegible]	MET-AGO-11	04/16/91
[illegible]	[illegible] 200.7	15.0	mg/l	ICP-S-31	04/12/91
[illegible]	[illegible]	49.2	mg/l	ICP-S-31	04/12/91
[illegible]	EPA-245.1	<0.0004	mg/l	MET-FV-36	04/10/91
[illegible]	EPA-200.[illegible]	[illegible]	mg/l	ICP-S-31	04/12/91
[illegible]	EPA-200.7	7.90	mg/l	ICP-S-31	04/12/91
Selenium	EPA-270.2	<0.005	[illegible]	MET-AGO-5	04/15/91
Silver	EPA-200.[illegible]	<0.02	mg/l	ICP-S-31	04/12/91
Sodium	EPA-200.7	36.6	mg/l	ICP-S-31	04/12/91
[illegible]	EPA-279.2	<0.01	[illegible]	[illegible]	04/18/91

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CLIENT: Smith & Mahoney, P.C. Date Sampled: 04/09/91
CLIENT'S SAMPLE ID: MW-4 Date sample received: 04/09/91
AES sample #: 910409AC06 Samples taken by. Steele/Lee Location: 4110900
MATRIX: ground water grab

continued:

PARAMETER	METHOD	RESULT	UNITS		
Zinc	EPA-200.7		mg/l	ICP-S-31	04/12/91
Chloromethane	EPA-601	<1	ug/l	MT-M-19	04/13/91
Bromomethane	EPA-601	<1	ug/l	MT-M-19	04/13/91
Dichlorodifluoromethane	EPA-601	<1	ug/l	MT-M-19	04/13/91
Vinyl Chloride	EPA-601	<1	ug/l	MT-M-19	04/13/91
Chloroethane	EPA-601	<1	ug/l	MT-M-19	04/13/91
Methylene Chloride	EPA-601	<1	ug/l	MT-M-19	04/13/91
Trichlorofluoromethane	EPA-601	<1	ug/l	MT-M-19	04/13/91
1,1 Dichloroethene	EPA-601	<1	ug/l	MT-M-19	04/13/91
1,1 Dichloroethane	EPA-601	<1	ug/l	MT-M-19	04/13/91
t-1,2-Dichloroethene	EPA-601	<1	ug/l	MT-M-19	04/13/91
Chloroform	EPA-601	<1	ug/l	MT-M-19	04/13/91
1,2 Dichloroethane	EPA-601	<1	ug/l	MT-M-19	04/13/91
1,1,1 Trichloroethane	EPA-601	<1	ug/l	MT-M-19	04/13/91
Carbon Tetrachloride	EPA-601	<1	ug/l	MT-M-19	04/13/91
Bromodichloromethane	EPA-601	<1	ug/l	MT-M-19	04/13/91
1,2-Dichloropropane	EPA-601	<1	ug/l	MT-M-19	04/13/91
t-1,3-Dichloropropene	EPA-601	<1	ug/l	MT-M-19	04/13/91
Trichloroethylene	EPA-601	<1	ug/l	MT-M-19	04/13/91
Dibromochloromethane	EPA-601	<1	ug/l	MT-M-19	04/13/91

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CLIENT: Smith & Mahoney, P.C. Date Sampled: 04/09/91
CLIENT'S SAMPLE ID: MW-4 Date sample received: 04/09/91
AES sample #: 910409AC06 Samples taken by: Steele/Lee Location: 4110900
MATRIX: ground water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	[illegible]	[illegible]
1,1,2-Trichloroethane	EPA-601	<1	ug/l	[illegible]	04/13/91
cis-1,3-Dichloropropene	EPA-601	<1	[illegible]	[illegible]	04/13/91
2-Chloroethylvinylether	EPA-601	<1	ug/l	MT-M-19	04/13/91
Bromoform	EPA-601	<1	ug/l	MT-M-19	04/13/91
1,1,2,2-Tetrachloroethane	EPA-601	<1	ug/l	MT-M-19	04/13/91
Tetrachloroethylene	EPA-601	<1	ug/l	MT-M-19	04/13/91
Benzene	EPA-602	<1	ug/l	MT-M-19	04/13/91
Toluene	EPA-602	<1	ug/l	MT-M-19	04/13/91
Ethylbenzene	EPA-602	<1	ug/l	MT-M-19	04/13/91
Chlorobenzene	EPA-602	<1	ug/l	MT-M-19	04/13/91
p-Dichlorobenzene	EPA-602	<1	ug/l	MT-M-19	04/13/91
m-Dichlorobenzene	EPA-602	<1	ug/l	MT-M-19	04/13/91
o-Dichlorobenzene	EPA-602	<1	ug/l	MT-M-19	04/13/91

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CLIENT. Smith & Mahoney, P.C. Date Sampled: 04/09/91
CLIENT'S SAMPLE ID: Precision Date sample received: 04/09/91
AES sample #: 910409AC07 Samples taken by: Steele/Lee Location: 4110900
MATRIX: ground water grab

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK #	TEST DATE
pH	EPA-150.1	<1	%	PH-D-11	04/09/91
EH	Orion	7.4	%	EH-B-21	04/25/91
Turbidity	EPA-180.1	5.8	%	COT-B-10	04/10/91
Color	EPA-110.2	<1	%	COT-B-10	04/10/91
Specific Conductance	EPA-120.1	<1	%	EH-B-21	04/25/91
Total Dissolved Solids	EPA-160.1	<1	%	RES-P-3	04/10/91
Chemical Oxygen Demand	EPA-410.4	11	%	COD-G-23	04/15/91
Biochemical Oxygen Demand 5	EPA-405.1	<1	%	BOD-F	04/10/91
Total Organic Carbon	EPA-415.1	2.8	%	DB	04/14/91
Sulfate-S	EPA-375.4	<1	%	SULF-B-28	04/13/91
Alkalinity, as CaCO3	EPA-310.1	2.2	%	ALK-B-17	04/10/91
Chloride	EPA-325.3	<1	%	CHLOR-B-8	04/12/91
Hardness ,Total as CaCO3	EPA-130.2	2.7	%	ICP-S-31	04/12/91
Total Kjeldahl Nitrogen-N	EPA-351.3	4.3	%	DB	04/14/91
Ammonia-N	EPA-350.1	4.9	%	NH3-A-31	04/15/91
Nitrate-N	EPA-353.3	14	%	NIT-C-28	04/16/91
Phenols (CD),Total	EPA-420.1	<1	%	PHEN-D-12	04/18/91
Cyanide,Total	EPA-335.2	ND	%	CN-C-17	04/18/91
Aluminum	EPA-200.7	1.0	%	ICP-S-31	04/12/91
Antimony	EPA-200.7	ND	%	ICP-S-31	04/12/91

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CLIENT: Smith & Mahoney, P.C. Date Sampled: 04/09/91
CLIENT'S SAMPLE ID: Precision Date sample received: 04/09/91
AES sample #: 910409AC07 Samples taken by: Steele/Lee Location: 4110900
MATRIX: ground water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Arsenic	EPA 206.2	1.5	%	MET-AGO-3	04/12/91
Barium	EPA-200.7	<1	%	ICP-S-31	04/12/91
Beryllium	EPA-200.7	ND	%	ICP-S-31	04/12/91
Boron	EPA-200.7	<1	%	ICP-S-31	04/12/91
Cadmium	EPA-213.2	1.3	%	MT-AGN-119	04/12/91
Calcium	EPA-200.7	2.8	%	ICP-S-31	04/12/91
Chromium	EPA-218.2	<1	%	MT-AGN-117	04/11/91
Chromium, Hexavalent	SM-312B	ND	%	HEX-B-15	04/10/91
Copper	EPA-200.7	<1	%	ICP-S-31	04/12/91
Iron	EPA-200.7	2.2	%	ICP-S-31	04/12/91
Lead	EPA-239.2	<1	%	MET-AGO-11	04/16/91
Magnesium	EPA-200.7	2.0	%	ICP-S-31	04/12/91
Manganese	EPA-200.7	2.0	%	ICP-S-31	04/12/91
Mercury	EPA-245.1	ND	%	MET-FV-36	04/10/91
Nickel	EPA-200.7	ND	%	ICP-S-31	04/12/91
Potassium	EPA-200.7	7.7	%	ICP-S-31	04/12/91
Selenium	EPA-270.2	ND	%	MET-AGO-5	04/15/91
Silver	EPA-200.7	ND	%	ICP-S-31	04/12/91
Sodium	EPA-200.7	1.8	%	ICP-S-31	04/12/91
Thallium	EPA-279.2	ND	%	MET-AGO-23	04/18/91

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CLIENT: Smith & Mahoney, P.C. Date Sampled: 04/09/91
CLIENT'S SAMPLE ID: Precision Date sample received: 04/09/91
AES sample #: 910409AC07 Samples taken by: Steele/Lee Location: 4110900
MATRIX: ground water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Zinc	EPA-200.7	4.5	%	ICP-S-31	04/12/91
Chloromethane	EPA-601	ND	%	MT-M-19	04/13/91
Bromomethane	EPA-601	ND	%	MT-M-19	04/13/91
Dichlorodifluoromethane	EPA-601	5	%	MT-M-19	04/13/91
Vinyl Chloride	EPA-601	ND	%	MT-M-19	04/13/91
Chloroethane	EPA-601	ND	%	MT-M-19	04/13/91
Methylene Chloride	EPA-601	4	%	MT-M-19	04/13/91
Trichloroflouromethane	EPA-601	4	%	MT-M-19	04/13/91
1,1 Dichloroethene	EPA-601	ND	%	MT-M-19	04/13/91
1,1 Dichloroethane	EPA-601	<1	%	MT-M-19	04/13/91
t-1,2-Dichloroethene	EPA-601	ND	%	MT-M-19	04/13/91
Chloroform	EPA-601	ND	%	MT-M-19	04/13/91
1,2 Dichloroethane	EPA-601	ND	%	MT-M-19	04/13/91
1,1,1 Trichloroethane	EPA-601	6	%	MT-M-19	04/13/91
Carbon Tetrachloride	EPA-601	ND	%	MT-M-19	04/13/91
Bromodichloromethane	EPA-601	ND	%	MT-M-19	04/13/91
1,2-Dichloropropane	EPA-601	ND	%	MT-M-19	04/13/91
t-1,3-Dichloropropene	EPA-601	ND	%	MT-M-19	04/13/91
Trichloroethylene	EPA-601	ND	%	MT-M-19	04/13/91
Dibromochloromethane	EPA-601	ND	%	MT-M-19	04/13/91

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CLIENT'S SAMPLE ID: 910409AC07 Date 04/09/91

PERFORMED	METHOD	RESULT	UNITS	NOTE	TEST
	EPA 601				04/13/91
	EPA 601		%	MT 9	
	EPA 601		%	MT 9	
				MT 9	04/13/91
			%		04/13/91
Tetrachloroethylene	EPA-601		%		
					04/13/91
Toluene		C			04/13/91
			%		04/13/91
	EPA-602		%	MT-M-19	04/13/91
	EPA 602		%		04/13/91
	EPA 602		%		04/13/91
	EPA-602				04/13/91

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CLIENT: Smith & Mahoney, P.C.
CLIENT'S SAMPLE ID: Accuracy
AES sample #: 910409AC08 Samples taken by: Steele/Lee
MATRIX: ground water

Sampled: 04/09/91
sample received: 04/09/91
Location: 4110900
grab

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
pH	EPA-150.1	101	%	PH-D-11	04/09/91
EH	Orion	110	%	EH-B-21	04/25/91
Turbidity	EPA-180.1	96	%	COT-B-10	04/10/91
Color	EPA-110.2	NA	%	COT-B-10	04/10/91
Specific Conductance	EPA-120.1	97	%	EH-B-21	04/25/91
Total Dissolved Solids	EPA-160.1	94	%	RES-P-3	04/10/91
Chemical Oxygen Demand	EPA-410.4	98	%	COD-G-23	04/13/91
Biochemical Oxygen Demand 5	EPA-405.1	119	%	BOD-F	04/10/91
Total Organic Carbon	EPA-415.1	99	%	DB	04/14/91
Sulfate-S	EPA-375.4	92	%	SULF-B-28	04/13/91
Alkalinity, as CaCO3	EPA-310.1	101	%	ALK-B-17	04/10/91
Chloride	EPA-325.3	103	%	CHLOR-B-8	04/12/91
Hardness ,Total as CaCO3	EPA-130.2	103	%	ICP-S-31	04/12/91
Total Kjeldahl Nitrogen-N	EPA-351.3	106	%	DB	04/14/91
Ammonia-N	EPA-350.1	98	%	NH3-A-31	04/15/91
Nitrate-N	EPA-353.3	104	%	NIT-C-28	04/16/91
Phenols (CD),Total	EPA-420.1	106	%	PHEN-D-12	04/18/91
Cyanide,Total	EPA-335.2	88	%	CN-C-17	04/18/91
Aluminum	EPA-200.7	101	%	ICP-S-31	04/12/91
Antimony	EPA-200.7	105	%	ICP-S-31	04/12/91

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CLIENT: Smith & Mahoney, P.C. Date Sampled: 04/09/91
CLIENT'S SAMPLE ID: Accuracy Date sample received: 04/09/91
AES sample #: 910409AC08 Samples taken by: Steele/Lee Location: 4110900
MATRIX: ground water

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Arsenic	EPA-206.2	106	%	MET-AGO-3	04/12/91
Barium	EPA 200.7	100	%	ICP-S-31	04/12/91
Beryllium	EPA-200.7	106	%	ICP-S-31	04/12/91
Boron	EPA-200.7	105	%	ICP-S-31	04/12/91
Cadmium	EPA-213.2	110	%	MT-AGN-119	04/12/91
Calcium	EPA-200.7	105	%	ICP-S-31	04/12/91
Chromium	EPA-218.2	110	%	MT-AGN-117	04/11/91
Chromium, Hexavalent	SM-312B	94	%	HEX-B-15	04/10/91
Copper	EPA-200.7	98	%	ICP-S-31	04/12/91
Iron	EPA 200.7	91	%	ICP-S-31	04/12/91
Lead	EPA-239.2	102	%	MET-AGO-11	04/16/91
Magnesium	EPA-200.7	100	%	ICP-S-31	04/12/91
Manganese	EPA-200.7	103	%	ICP-S-31	04/12/91
Mercury	EPA-245.1	102	%	MET-FV-36	04/10/91
Nickel	EPA-200.7	103	%	ICP-S-31	04/12/91
Potassium	EPA-200.7	105	%	ICP-S-31	04/12/91
Selenium	EPA-270.2	110	%	MET-AGO-5	04/15/91
Silver	EPA-200.7	99	%	ICP-S-31	04/12/91
Sodium	EPA-200.7	100	%	ICP-S-31	04/12/91
Thallium	EPA-279.2	90	%	MET-AGO-23	04/18/91

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Sampled: 04/03/91
: 04/08/91
910403AC08 Steele/Lee Location: 4110900

PARAMETER PERFORMED	METHOD	RESULT	UNITS	LEVEL	TEST DATE
[illegible]	EPA 200.[illegible]	[illegible]	%	[illegible]	04/12/91
[illegible]ethene	EPA 601	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	EPA-601	[illegible]	[illegible]	[illegible]	04/13/91
Chlorobenzen[illegible]	EPA 602	[illegible]	[illegible]	[illegible] M 19	04/13/91
[illegible]	[illegible]	97	[illegible]	[illegible]	[illegible]
[illegible]	EPA-602	96	%	MT-M-19	[illegible]

APPROVED BY: [signature]
Report date:

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CHAIN OF CUSTODY RECORD

CLIENT NAME	PROJECT NAME (Location)	SAMPLERS' (Names)
Smith + Mahoney P.C.	4110900	Amy Steele, Dave Lee
ADDRESS 79 N. Pearl St.	**PO NUMBER**	**SAMPLERS: (Signature)** Amy C. Steele

AES SAMPLE NUMBER	CLIENT SAMPLE IDENTIFICATION & LOCATION	DATE SAMPLED	TIME A=a.m. P=p.m.	SAMPLE TYPE MATRIX	COMP	GRAB	NUMBER OF CONT'S	ANALYSIS REQUIRED
~~AES~~ A	MW-5	4/9/91	A P					BTEX + MTBE
G	MW-1G		A P				6	
C	MW-4A		A P					
F	MW-1		A P					
E	MW-3		A P					
D	MW-4		A P					
			A P					
			A P					
			A P					
			A P					
			A P					
			A P					

Turnaround Time **Laboratory Approval:**

Relinquished by: ~~(Signature)~~ Amy C. Steele	**Received by:** *(Signature)*	**Date/Time**
Relinquished by: *(Signature)*	**Received by:** *(Signature)*	**Date/Time**
Relinquished by: *(Signature)*	**Received by:** *(Signature)*	**Date/Time**
Dispatched by: *(Signature)* / **Date/Time**	**Received for Laboratory by:**	**Date/Time** 4/9/91 5:10
Method of Shipment:	**Send Report To:**	**Client Phone No.:**

The Laboratory reserves the right to return hazardous samples to the client or may levy a fee of $10.00 per container for disposal.

WHITE - Lab Copy YELLOW - Sampler Copy PINK - Generator Copy

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CHAIN OF CUSTODY RECORD

CLIENT NAME	PROJECT NAME (Location)	SAMPLERS' (Names)
SMITH & MAHONEY P.C.		J COBB
ADDRESS	**PO NUMBER**	**SAMPLERS: (Signature)**
70 N. Pearl St		

AES SAMPLE NUMBER	CLIENT SAMPLE IDENTIFICATION & LOCATION	DATE SAMPLED	TIME A=a.m. P=p.m.	SAMPLE TYPE MATRIX	COMP	GRAB	NUMBER OF CONT'S	ANALYSIS REQUIRED
41009 A(D)	#4110900 MW-1A (ANT'D)	4/10/90	10:0 P			✓	8	NYSDEC BASELINE
			A/P					
			A/P					
			A/P					
			A/P					
			A/P					
			A/P					
			A/P					
			A/P					
			A/P					
			A/P					
			A/P					
			A/P					
			A/P					

Turnaround Time | **Laboratory Approval:**

Relinquished by: (Signature)	Received by: (Signature)	Date/Time 4/10
Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Dispatched by: (Signature) / Date/Time	Received for Laboratory by:	Date/Time 4/10/90
Method of Shipment:	Send Report To:	Client Phone No.:

The Laboratory reserves the right to return hazardous samples to the client or may levy a fee of $10.00 per container for disposal.

WHITE - Lab Copy YELLOW - Sampler Copy PINK - Generator Copy

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TERMS, CONDITIONS & LIMITATIONS

All Services rendered by **Adirondack Environmental Services, Inc.** are undertaken and all rates are based upon the following terms:

(a) Neither **Adirondack Environmental Services, Inc.,** nor any of its employees, agents or sub-contractors shall be liable for any loss or damage arising out of **Adirondack Environmental Services, Inc.'s** performance or non-performance, whether by way of negligence or breach of contract, or otherwise, in any amount greater than twice the amount billed to the customer for the work leading to the claim of the customer. Said remedy shall be the sole and exclusive remedy against **Adirondack Environmental Services, Inc.** arising out of its work.

(b) All claims made must be in writing within forty-five (45) days after delivery of the **Adirondack Environmental Services, Inc.** report regarding said work or such claim shall be deemed as irrovacably waived.

(c) **Adirondack Environmental Services, Inc.** reports are submitted in writing and are for our customers only. Our customers are considered to be only those entities being billed for our services. Acquisition of an **Adirondack Environmental Services, Inc.** report by other than our customer does not constitute a representation of **Adirondack Environmental Services, Inc.** as to the accuracy of the contents thereof.

(d) In no event shall **Adirondack Environmental Services, Inc.,** its employees agents or sub-contractors be responsible for consequential or special damages of any kind or in any amount.

(e) No deviation from the terms set forth herein shall bind **Adirondack Environmental Services, Inc.** unless in writing and signed by a Director of **Adirondack Environmental Services, Inc.**

Adirondack Environmental Services, Inc.

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LABORATORY REPORT

for

Smith & Mahoney, P.C.
79 North Pearl Street
Albany, NY 12201

Attention: Amy Steele

Report date: 06/14/91
Number of samples analyzed: 4
AES Project ID: 910524 O
Invoice #: 106095

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CLIENT: Smith & Mahoney, P.C. Date Sampled: 05/24/91
CLIENT'S SAMPLE ID: B Date sample received: 05/24/91
AES sample #: 910524 001 Samples taken by: Robert Jacobs Location: 4110900
MATRIX: surface water grab

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
pH	EPA-150.1	6.5	su	PH-E-22	05/24/91
EH	Orion	274	mv	EH-B-26	06/05/91
Turbidity	EPA-180.1	>1000	ntu	COT-B-17	05/24/91
Color	EPA-110.2	>70	cpu	COT-B-17	05/24/91
Specific Conductance	EPA-120.1	7040	umhos/cm	EH-B-26	06/05/91
Total Dissolved Solids	EPA-160.1	5730	mg/l	RES-P-35	05/29/91
Chemical Oxygen Demand	EPA-410.4	6180	mg/l	COD-H-39	06/04/91
Biochemical Oxygen Demand 5	EPA-405.1	4110	mg/l	BOD-G	06/03/91
Total Organic Carbon	EPA-415.1	46	mg/l	DB	06/01/91
Sulfate-S	EPA-375.4	65	mg/l	SULF-B-41	05/29/91
Alkalinity, as CaCO3	EPA-310.1	2470	mg/l	ALK-B-26	06/03/91
Chloride	EPA-325.3	462	mg/l	CHLOR-B-23	06/03/91
Hardness ,Total as CaCO3	EPA-130.2	2520	mg/l	ICP-T-6	05/28/91
Total Kjeldahl Nitrogen-N	EPA-351.3	125	mg/l	DB	06/01/91
Ammonia-N	EPA-350.1	118	mg/l	NH3-B-9	05/31/91
Nitrate-N	EPA-353.1	0.03	mg/l	NIT-D-9	05/29/91
Phenols (CD),Total	EPA-420.1	0.006	mg/l	PHEN-D-33	06/06/91
Cyanide,Total	EPA-335.2	<0.01	mg/l	CN-C-37	06/04/91
Aluminum	EPA-200.7	2.63	mg/l	ICP-T-6	05/28/91
Antimony	EPA-200.7	<0.06	mg/l	ICP-T-6	05/28/91

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CLIENT: Smith & Mahoney, P.C. Date Sampled: 05/24/91
CLIENT'S SAMPLE ID: B Date sample received: 05/24/91
AES sample #: 910524 001 Samples taken by: Robert Jacobs Location: 4110900
MATRIX: surface water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Arsenic	EPA-206.2	0.009	mg/l	MET-AGP-59	05/28/91
Barium	EPA-200.7	0.75	mg/l	ICP-T-6	05/28/91
Beryllium	EPA-200.7	<0.005	mg/l	ICP-T-6	05/28/91
Boron	EPA-200.7	3.11	mg/l	ICP-T-6	05/28/91
Cadmium	EPA-213.2	<0.001	mg/l	MET-AGP-63	05/28/91
Calcium	EPA-200.7	828	mg/l	ICP-T-6	05/28/91
Chromium	EPA-218.2	0.056	mg/l	MET-AGP-89	06/04/91
Chromium, Hexavalent	SM-312B	<0.02	mg/l	HEX-B-23	05/24/91
Copper	EPA-200.7	<0.05	mg/l	ICP-T-6	05/28/91
Iron	EPA-200.7	99.1	mg/l	ICP-T-6	05/28/91
Lead	EPA-239.2	0.04	mg/l	MET-AGP-61	05/29/91
Magnesium	EPA-200.7	111	mg/l	ICP-T-6	05/28/91
Manganese	EPA-200.7	94.1	mg/l	ICP-T-6	05/28/91
Mercury	EPA-245.1	<0.0004	mg/l	MET-FW-25	05/30/91
Nickel	EPA-200.7	0.10	mg/l	ICP-T-6	05/28/91
Potassium	EPA-200.7	177	mg/l	ICP-T-6	05/28/91
Selenium	EPA-270.2	0.040	mg/l	MET-AGP-95	06/05/91
Silver	EPA-200.7	<0.02	mg/l	ICP-T-6	05/28/91
Sodium	EPA-200.7	382	mg/l	ICP-T-6	05/28/91
Thallium	EPA-279.2	<0.01	mg/l	MET-AGP-69	05/30/91

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CLIENT: Smith & Mahoney, P.C. Date Sampled: 05/24/91
CLIENT'S SAMPLE ID: B Date sample received: 05/24/91
AES sample #: 910524 001 Samples taken by: Robert Jacobs Location: 4110900
MATRIX: surface water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Zinc	EPA-200.7	1.50	mg/l	ICP-T-6	05/28/91
Chloromethane	EPA-601	<1	ug/l	MT-M-39	05/24/91
Bromomethane	EPA-601	<1	ug/l	MT-M-39	05/24/91
Dichlorodifluoromethane	EPA-601	<1	ug/l	MT-M-39	05/24/91
Vinyl Chloride	EPA-601	<1	ug/l	MT-M-39	05/24/91
Chloroethane	EPA-601	21	ug/l	MT-M-39	05/24/91
Methylene Chloride	EPA-601	205	ug/l	MT-M-39	05/24/91
Trichloroflouromethane	EPA-601	31	ug/l	MT-M-39	05/24/91
1,1 Dichloroethene	EPA-601	<1	ug/l	MT-M-39	05/24/91
1,1 Dichloroethane	EPA-601	<1	ug/l	MT-M-39	05/24/91
t-1,2-Dichloroethene	EPA-601	<1	ug/l	MT-M-39	05/24/91
Chloroform	EPA-601	<1	ug/l	MT-M-39	05/24/91
1,2 Dichloroethane	EPA-601	<1	ug/l	MT-M-39	05/24/91
1,1,1 Trichloroethane	EPA-601	73	ug/l	MT-M-39	05/24/91
Carbon Tetrachloride	EPA-601	<1	ug/l	MT-M-39	05/24/91
Bromodichloromethane	EPA-601	<1	ug/l	MT-M-39	05/24/91
1,2-Dichloropropane	EPA-601	<1	ug/l	MT-M-39	05/24/91
t-1,3-Dichloropropene	EPA-601	<1	ug/l	MT-M-39	05/24/91
Trichloroethylene	EPA-601	2	ug/l	MT-M-39	05/24/91
Dibromochloromethane	EPA-601	<1	ug/l	MT-M-39	05/24/91

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CLIENT: Smith & Mahoney, P.C. Date Sampled: 05/24/91
CLIENT'S SAMPLE ID: B Date sample received: 05/24/91
AES sample #: 910524 001 Samples taken by: Robert Jacobs Location: 4110900
MATRIX: surface water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
1,1,2-Trichloroethane	EPA-601	<1	ug/l	MT-M-39	05/24/91
cis-1,3-Dichloropropene	EPA-601	<1	ug/l	MT-M-39	05/24/91
2-Chloroethylvinylether	EPA-601	<1	ug/l	MT-M-39	05/24/91
Bromoform	EPA-601	<1	ug/l	MT-M-39	05/24/91
1,1,2,2-Tetrachloroethane	EPA-601	<1	ug/l	MT-M-39	05/24/91
Tetrachloroethylene	EPA-601	30	ug/l	MT-M-39	05/24/91
Benzene	EPA-602	4	ug/l	MT-M-39	05/24/91
Toluene	EPA-602	62	ug/l	MT-M-39	05/24/91
Ethylbenzene	EPA-602	16	ug/l	MT-M-39	05/24/91
Chlorobenzene	EPA-602	<1	ug/l	MT-M-39	05/24/91
p-Dichlorobenzene	EPA-602	*	ug/l	MT-M-39	05/24/91
m-Dichlorobenzene	EPA-602	<1	ug/l	MT-M-39	05/24/91
o-Dichlorobenzene	EPA-602	<1	ug/l	MT-M-39	05/24/91

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CLIENT: Smith & Mahoney, P.C. Date Sampled: 05/24/91
CLIENT'S SAMPLE ID: SW-2 Date sample received: 05/24/91
AES sample #: 910524 002 Samples taken by: Robert Jacobs Location: 4110900
MATRIX: surface water grab

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
pH	EPA-150.1	7.6	su	PH-E-22	05/24/91
EH	Orion	-16	mv	EH-B-26	06/05/91
Turbidity	EPA-180.1	20	ntu	COT-B-17	05/24/91
Color	EPA-110.2	40	cpu	COT-B-17	05/24/91
Specific Conductance	EPA-120.1	349	umhos/cm	EH-B-25	06/05/91
Total Dissolved Solids	EPA-160.1	130	mg/l	RES-P-35	05/29/91
Chemical Oxygen Demand	EPA-410.4	226	mg/l	COD-G-39	06/04/91
Biochemical Oxygen Demand 5	EPA-405.1	381	mg/l	BOD-G	06/03/91
Total Organic Carbon	EPA-415.1	1910	mg/l	DB	06/01/91
Sulfate-S	EPA-375.4	35	mg/l	SULF-B-41	05/29/91
Alkalinity, as CaCO3	EPA-310.1	55	mg/l	ALK-B-26	06/03/91
Chloride	EPA-325.3	35	mg/l	CHLOR-B-23	06/03/91
Hardness ,Total as CaCO3	EPA-130.2	123	mg/l	ICP-T-6	05/28/91
Total Kjeldahl Nitrogen-N	EPA-351.3	2.6	mg/l	DB	06/01/91
Ammonia-N	EPA-350.1	1.4	mg/l	NH3-B-9	05/31/91
Nitrate-N	EPA-353.1	0.45	mg/l	NIT-D-9	05/29/91
Phenols (CD),Total	EPA-420.1	0.38	mg/l	PHEN-D-29	05/30/91
Cyanide,Total	EPA-335.2	<0.01	mg/l	CN-C-37	06/05/91
Aluminum	EPA-200.7	<0.20	mg/l	ICP-T-6	05/28/91
Antimony	EPA-200.7	<0.06	mg/l	ICP-T-6	05/28/91

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CLIENT: Smith & Mahoney, P.C.
CLIENT'S SAMPLE ID: SW-2
AES sample #: 910524 002
Samples taken by: Robert Jacobs
MATRIX: surface water

Date Sampled: 05/24/91
Date sample received: 05/24/91
Location: 4110900
grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Arsenic	EPA-206.2	<0.005	mg/l	MET-AGP-59	05/28/91
Barium	EPA-200.7	0.08	mg/l	ICP-T-6	05/28/91
Beryllium	EPA-200.7	<0.005	mg/l	ICP-T-6	05/28/91
Boron	EPA-200.7	0.10	mg/l	ICP-T-6	05/28/91
Cadmium	EPA-213.2	<0.001	mg/l	MET-AGP-63	05/29/91
Calcium	EPA-200.7	39.5	mg/l	ICP-T-6	05/28/91
Chromium	EPA-218.2	<0.005	mg/l	MET-AGP-89	06/04/91
Chromium, Hexavalent	SM-312B	<0.02	mg/l	HEX-B-23	05/24/91
Copper	EPA-200.7	<0.05	mg/l	ICP-T-6	05/28/91
Iron	EPA-200.7	1.30	mg/l	ICP-T-6	05/28/91
Lead	EPA-239.2	<0.01	mg/l	MET-AGP-61	05/29/91
Magnesium	EPA-200.7	5.90	mg/l	ICP-T-6	05/28/91
Manganese	EPA-200.7	6.23	mg/l	ICP-T-6	05/28/91
Mercury	EPA-245.1	<0.0004	mg/l	MET-FW-25	05/30/91
Nickel	EPA-200.7	<0.05	mg/l	ICP-T-6	05/28/91
Potassium	EPA-200.7	4.84	mg/l	ICP-T-6	05/28/91
Selenium	EPA-270.2	<0.005	mg/l	MET-AGP-95	06/05/91
Silver	EPA-200.7	<0.02	mg/l	ICP-T-6	05/28/91
Sodium	EPA-200.7	20.9	mg/l	ICP-T-6	05/28/91
Thallium	EPA-279.2	<0.01	mg/l	MET-AGP-69	05/30/91

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CLIENT'S SAMPLE ID: SW-2 Date sample received: 05/24/91
AES sample #: 910524 002 Samples taken by: Robert Jacobs Location: 4110900
MATRIX: surface water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF.	TEST DATE
Zinc	EPA-200.7	<0.01	mg/l	ICP-T-6	05/28/91
Chloromethane	EPA-601	<1	ug/l	MT-M-39	05/24/91
Bromomethane	EPA-601	<1	ug/l	MT-M-39	05/24/91
Dichlorodifluoromethane	EPA-601	<1	ug/l	MT-M-39	05/24/91
Vinyl Chloride	EPA-601	<1	ug/l	MT-M-39	05/24/91
Chloroethane	EPA-601	<1	ug/l	MT-M-39	05/24/91
Methylene Chloride	EPA-601	<1	ug/l	MT-M-39	05/24/91
Trichloroflouromethane	EPA-601	<1	ug/l	MT-M-39	05/24/91
1,1 Dichloroethene	EPA-601	<1	ug/l	MT-M-39	05/24/91
1,1 Dichloroethane	EPA-601	<1	ug/l	MT-M-39	05/24/91
t-1,2-Dichloroethene	EPA-601	<1	ug/l	MT-M-39	05/24/91
Chloroform	EPA-601	<1	ug/l	MT-M-39	05/24/91
1,2 Dichloroethane	EPA-601	<1	ug/l	MT-M-39	05/24/91
1,1,1 Trichloroethane	EPA-601	<1	ug/l	MT-M-39	05/24/91
Carbon Tetrachloride	EPA-601	<1	ug/l	MT-M-39	05/24/91
Bromodichloromethane	EPA-601	<1	ug/l	MT-M-39	05/24/91
1,2-Dichloropropane	EPA-601	<1	ug/l	MT-M-39	05/24/91
t-1,3-Dichloropropene	EPA-601	<1	ug/l	MT-M-39	05/24/91
Trichloroethylene	EPA-601	<1	ug/l	MT-M-39	05/24/91
Dibromochloromethane	EPA-601	<1	ug/l	MT-M-39	05/24/91

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CLIENT'S SAMPLE ID: SW-2
AES sample #: 910524 002

Date Sampled: 05/24/91
Date sample received: 05/24/91
Samples taken by: Robert Jacobs Location: 4110900
MATRIX: surface water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF.	TEST DATE
1,1,2-Trichloroethane	EPA-601	<1	ug/l	MT-M-39	05/24/91
cis-1,3-Dichloropropene	EPA-601	<1	ug/l	MT-M-39	05/24/91
2-Chloroethylvinylether	EPA-601	<1	ug/l	MT-M-39	05/24/91
Bromoform	EPA-601	<1	ug/l	MT-M-39	05/24/91
1,1,2,2-Tetrachloroethane	EPA-601	<1	ug/l	MT-M-39	05/24/91
Tetrachloroethylene	EPA-601	<1	ug/l	MT-M-39	05/24/91
Benzene	EPA-602	<1	ug/l	MT-M-39	05/24/91
Toluene	EPA-602	<1	ug/l	MT-M-39	05/24/91
Ethylbenzene	EPA-602	<1	ug/l	MT-M-39	05/24/91
Chlorobenzene	EPA-602	<1	ug/l	MT-M-39	05/24/91
p-Dichlorobenzene	EPA-602	<1	ug/l	MT-M-39	05/24/91
m-Dichlorobenzene	EPA-602	<1	ug/l	MT-M-39	05/24/91
o-Dichlorobenzene	EPA-602	<1	ug/l	MT-M-39	05/24/91

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CLIENT: Smith & Mahoney, P.C. Date Sampled: 05/24/91
CLIENT'S SAMPLE ID: Precision Date sample received: 05/24/91
AES sample #: 910524 003 Samples taken by: Robert Jacobs Location: 4110900
MATRIX: surface water grab

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
pH	EPA-150.1	2.6	%	PH-E-22	05/24/91
EH	Orion	<1	%	EH-B-25	06/05/91
Turbidity	EPA-180.1	<1	%	COT-B-17	05/24/91
Color	EPA-110.2	<1	%	COT-B-17	05/24/91
Specific Conductance	EPA-120.1	<1	%	EH-B-25	06/05/91
Total Dissolved Solids	EPA-160.1	<1	%	RES-P-36	05/29/91
Chemical Oxygen Demand	EPA-410.4	7.5	%	COD-G-39	06/04/91
Biochemical Oxygen Demand 5	EPA-405.1	2.5	%	BOD-G	06/03/91
Total Organic Carbon	EPA-415.1	16	%	DB	06/01/91
Sulfate-S	EPA-375.4	<1	%	SULF-B-42	05/29/91
Alkalinity, as CaCO3	EPA-310.1	2.4	%	ALK-B-26	06/03/91
Chloride	EPA-325.3	<1	%	CHLOR-B-23	06/03/91
Hardness ,Total as CaCO3	EPA-130.2	1.5	%	ICP-T-6	05/28/91
Total Kjeldahl Nitrogen-N	EPA-351.3	1.6	%	DB	06/01/91
Ammonia-N	EPA-350.1	6.9	%	NH3-B-9	05/31/91
Nitrate-N	EPA-353.1	2.2	%	NIT-D-9	05/29/91
Phenols (CD),Total	EPA-420.1	1.2	%	PHEN-D-29	05/30/91
Cyanide,Total	EPA-335.2	ND	%	CN-C-37	06/05/91
Aluminum	EPA-200.7	4.7	%	ICP-T-6	05/28/91
Antimony	EPA-200.7	ND	%	ICP-T-6	05/28/91

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CLIENT'S SAMPLE ID: Precision Date sample received: 05/24/91
AES sample #: 910524 003 Samples taken by: Robert Jacobs Location: 4110900
MATRIX: surface water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Arsenic	EPA-206.2	<1	%	MET-AGP-59	05/28/91
Barium	EPA-200.7	1.4	%	ICP-T-6	05/28/91
Beryllium	EPA-200.7	ND	%	ICP-T-6	05/28/91
Boron	EPA-200.7	2.6	%	ICP-T-6	05/28/91
Cadmium	EPA-213.2	ND	%	MET-AGP-63	05/29/91
Calcium	EPA-200.7	1.8	%	ICP-T-6	05/28/91
Chromium	EPA-218.2	3.5	%	MET-AGP-89	06/04/91
Chromium, Hexavalent	SM-312B	ND	%	HEX-B-23	05/24/91
Copper	EPA-200.7	ND	%	ICP-T-6	05/28/91
Iron	EPA-200.7	<1	%	ICP-T-6	05/28/91
Lead	EPA-239.2	ND	%	MET-AGP-61	05/29/91
Magnesium	EPA-200.7	3.1	%	ICP-T-6	05/28/91
Manganese	EPA-200.7	<1	%	ICP-T-6	05/28/91
Mercury	EPA-245.1	ND	%	MET-FW-25	05/30/91
Nickel	EPA-200.7	<1	%	ICP-T-6	05/28/91
Potassium	EPA-200.7	2.2	%	ICP-T-6	05/28/91
Selenium	EPA-270.2	<1	%	MET-AGP-95	06/05/91
Silver	EPA-200.7	ND	%	ICP-T-6	05/28/91
Sodium	EPA-200.7	1.7	%	ICP-T-6	05/28/91
Thallium	EPA-279.2	ND	%	MET-AGP-69	05/30/91

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CLIENT: Smith & Mahoney, P.C. Date Sampled: 05/24/91
CLIENT'S SAMPLE ID: Precision Date sample received: 05/24/91
AES sample #: 910524 003 Samples taken by: Robert Jacobs Location: 4110900
MATRIX: surface water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Zinc	EPA-200.7	1.6	%	ICP-T-6	05/28/91
Chloromethane	EPA-601	ND	%	MT-M-39	05/24/91
Bromomethane	EPA-601	ND	%	MT-M-39	05/24/91
Dichlorodifluoromethane	EPA-601	ND	%	MT-M-39	05/24/91
Vinyl Chloride	EPA-601	ND	%	MT-M-39	05/24/91
Chloroethane	EPA-601	<1	%	MT-M-39	05/24/91
Methylene Chloride	EPA-601	9	%	MT-M-39	05/24/91
Trichloroflouromethane	EPA-601	10	%	MT-M-39	05/24/91
1,1 Dichloroethene	EPA-601	ND	%	MT-M-39	05/24/91
1,1 Dichloroethane	EPA-601	5	%	MT-M-39	05/24/91
t-1,2-Dichloroethene	EPA-601	ND	%	MT-M-39	05/24/91
Chloroform	EPA-601	ND	%	MT-M-39	05/24/91
1,2 Dichloroethane	EPA-601	ND	%	MT-M-39	05/24/91
1,1,1 Trichloroethane	EPA-601	3	%	MT-M-39	05/24/91
Carbon Tetrachloride	EPA-601	ND	%	MT-M-39	05/24/91
Bromodichloromethane	EPA-601	ND	%	MT-M-39	05/24/91
1,2-Dichloropropane	EPA-601	ND	%	MT-M-39	05/24/91
t-1,3-Dichloropropene	EPA-601	ND	%	MT-M-39	05/24/91
Trichloroethylene	EPA-601	<1	%	MT-M-39	05/24/91
Dibromochloromethane	EPA-601	ND	%	MT-M-39	05/24/91

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CLIENT: Smith & Mahoney, P.C. Date Sampled: 05/24/91
CLIENT'S SAMPLE ID: Precision Date sample received: 05/24/91
AES sample #: 910524 003 Samples taken by: Robert Jacobs Location: 4110900
MATRIX: surface water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
1,1,2-Trichloroethane	EPA-601	ND	%	MT-M-39	05/24/91
cis-1,3-Dichloropropene	EPA-601	ND	%	MT-M-39	05/24/91
2-Chloroethylvinylether	EPA-601	ND	%	MT-M-39	05/24/91
Bromoform	EPA-601	ND	%	MT-M-39	05/24/91
1,1,2,2-Tetrachloroethane	EPA-601	ND	%	MT-M-39	05/24/91
Tetrachloroethylene	EPA-601	ND	%	MT-M-39	05/24/91
Benzene	EPA-602	<1	%	MT-M-39	05/24/91
Toluene	EPA-602	<1	%	MT-M-39	05/24/91
Ethylbenzene	EPA-602	33	%	MT-M-39	05/24/91
Chlorobenzene	EPA-602	ND	%	MT-M-39	05/24/91
p-Dichlorobenzene	EPA-602	ND	%	MT-M-39	05/24/91
m-Dichlorobenzene	EPA-602	ND	%	MT-M-39	05/24/91
o-Dichlorobenzene	EPA-602	<1	%	MT-M-39	05/24/91

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CLIENT: Smith & Mahoney, P.C. Date Sampled: 05/24/91
CLIENT'S SAMPLE ID: Accuracy Date sample received: 05/24/91
AES sample #: 910524 004 Samples taken by: Robert Jacobs Location: 4110900
MATRIX: surface water grab

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
pH	EPA-150.1	102	%	PH-E-22	05/24/91
EH	Orion	96	%	EH-B-25	06/05/91
Turbidity	EPA-180.1	85	%	COT-B-16	05/23/91
Color	EPA-110.2	NA	%	COT-B-17	05/24/91
Specific Conductance	EPA-120.1	96	%	EH-B-25	06/05/91
Total Dissolved Solids	EPA-160.1	115	%	RES-P-29	05/30/91
Chemical Oxygen Demand	EPA-410.4	85	%	COD-H-39	06/04/91
Biochemical Oxygen Demand 5	EPA-405.1	100	%	BOD-6	06/03/91
Total Organic Carbon	EPA-415.1	96	%	DB	06/01/91
Sulfate-S	EPA-375.4	98	%	SULF-B-42	05/29/91
Alkalinity, as CaCO3	EPA-310.1	100	%	ALK-B-26	06/03/91
Chloride	EPA-325.3	104	%	CHLOR-B-23	06/03/91
Hardness ,Total as CaCO3	EPA-130.2	102	%	ICP-T-6	05/28/91
Total Kjeldahl Nitrogen-N	EPA-351.3	91	%	DB	06/01/91
Ammonia-N	EPA-350.1	96	%	NH3-B-9	05/31/91
Nitrate-N	EPA-353.1	99	%	NIT-D-9	05/29/91
Phenols (CD),Total	EPA-420.1	101	%	PHEN-D-29	05/30/91
Cyanide,Total	EPA-335.2	84	%	CN-C-38	06/07/91
Aluminum	EPA-200.7	90	%	ICP-T-6	05/28/91
Antimony	EPA-200.7	97	%	ICP-T-6	05/28/91

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CLIENT: Smith & Mahoney, P.C. Date Sampled: 05/24/91
CLIENT'S SAMPLE ID: Accuracy Date sample received: 05/24/91
AES sample #: 910524 004 Samples taken by: Robert Jacobs Location: 4110900
MATRIX: surface water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Arsenic	EPA-206.2	110	%	MET-AGP-59	05/28/91
Barium	EPA-200.7	102	%	ICP-T-6	05/28/91
Beryllium	EPA-200.7	100	%	ICP-T-6	05/28/91
Boron	EPA-200.7	117	%	ICP-T-6	05/28/91
Cadmium	EPA-213.2	93	%	MET-AGP-63	05/29/91
Calcium	EPA-200.7	110	%	ICP-T-6	05/28/91
Chromium	EPA-218.2	95	%	MET-AGP-89	06/04/91
Chromium, Hexavalent	SM-312B	100	%	HEX-B-23	05/24/91
Copper	EPA-200.7	104	%	ICP-T-6	05/28/91
Iron	EPA-200.7	101	%	ICP-T-6	05/28/91
Lead	EPA-239.2	85	%	MET-AGP-61	05/29/91
Magnesium	EPA-200.7	102	%	ICP-T-6	05/28/91
Manganese	EPA-200.7	106	%	ICP-T-6	05/28/91
Mercury	EPA-245.1	96	%	MET-FW-25	05/30/91
Nickel	EPA-200.7	117	%	ICP-T-6	05/28/91
Potassium	EPA-200.7	100	%	ICP-T-6	05/28/91
Selenium	EPA-270.2	95	%	MET-AGP-95	06/05/91
Silver	EPA-200.7	98	%	ICP-T-6	05/28/91
Sodium	EPA-200.7	98	%	ICP-T-6	05/28/91
Thallium	EPA-279.2	98	%	MET-AGP-69	05/30/91

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CLIENT: Smith & Mahoney, P.C. Date Sampled: 05/24/91
CLIENT'S SAMPLE ID: Accuracy Date sample received: 05/24/91
AES sample #: 910524 004 Samples taken by: Robert Jacobs Location: 4110900
MATRIX: surface water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF.	TEST DATE
Zinc	EPA-200.7	110	%	ICP-T-6	05/28/91
1,1 Dichloroethene	EPA-601	107	%	MT-M-39	05/24/91
Trichloroethylene	EPA-601	109	%	MT-M-39	05/24/91
Chlorobenzene	EPA-602	102	%	MT-M-39	05/24/91
Benzene	EPA-602	107	%	MT-M-39	05/24/91
Toluene	EPA-602	109	%	MT-M-39	05/24/91

APPROVED BY: Frank Sinden
Report date: 05/28/91

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CHAIN OF CUSTODY RECORD

CLIENT NAME	PROJECT NAME (Location)	SAMPLERS' (Names)
Smith & Mahoney		Scott Jacobs
ADDRESS: 314 Pearl St.	PO NUMBER	SAMPLERS: (Signature) Robert A. Jacobs

AES SAMPLE NUMBER	CLIENT SAMPLE IDENTIFICATION & LOCATION	DATE SAMPLED	TIME A=a.m. P=p.m.	SAMPLE TYPE MATRIX	COMP	GRAB	NUMBER OF CONT'S	ANALYSIS REQUIRED
10504 001	[illegible]	5/5/-	A/P	[illegible]				Gasoline
002	MW-2	4110900	5-[illegible]	A/P SF				Gasoline
[illegible]	[illegible]	[illegible]	A/P	[illegible]				[illegible]
			A/P					
	[illegible] 5 [illegible]		A/P					
	[illegible]		A/P					
			A/P					
			A/P					
			A/P					
			A/P					
			A/P					
			A/P					
			A/P					

Turnaround Time — **Laboratory Approval:**

Relinquished by: (Signature) [illegible] Jacobs	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Dispatched by: (Signature) / Date/Time	Received for Laboratory by: [illegible]	Date/Time 5 Bus 2:15
Method of Shipment:	Send Report To:	Client Phone No.:

The Laboratory reserves the right to return hazardous samples to the client or may levy a fee of $10.00 per container for disposal.

WHITE - Lab Copy YELLOW - Sampler Copy PINK - Generator Copy

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TERMS, CONDITIONS & LIMITATIONS

All Services rendered by **Adirondack Environmental Services, Inc.** are undertaken and all rates are based upon the following terms:

(a) Neither **Adirondack Environmental Services, Inc.,** nor any of its employees, agents or sub-contractors shall be liable for any loss or damage arising out of **Adirondack Environmental Services, Inc.'s** performance or non-performance, whether by way of negligence or breach of contract, or otherwise, in any amount greater than twice the amount billed to the customer for the work leading to the claim of the customer. Said remedy shall be the sole and exclusive remedy against **Adirondack Environmental Services, Inc.** arising out of its work.

(b) All claims made must be in writing within forty-five (45) days after delivery of the **Adirondack Environmental Services, Inc.** report regarding said work or such claim shall be deemed as irrovacably waived.

(c) **Adirondack Environmental Services, Inc.** reports are submitted in writing and are for our customers only. Our customers are considered to be only those entities being billed for our services. Acquisition of an **Adirondack Environmental Services, Inc.** report by other than our customer does not constitute a representation of **Adirondack Environmental Services, Inc.** as to the accuracy of the contents thereof.

(d) In no event shall **Adirondack Environmental Services, Inc.,** its employees agents or sub-contractors be responsible for consequential or special damages of any kind or in any amount.

(e) No deviation from the terms set forth herein shall bind **Adirondack Environmental Services, Inc.** unless in writing and signed by a Director of **Adirondack Environmental Services, Inc.**

Adirondack Environmental Services, Inc.

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LABORATORY REPORT

for

Smith & Mahoney, P.C.
79 North Pearl Street
Albany, NY 12201

Attention: Amy Steele

Report date: 06/20/91
Number of samples analyzed: 4
AES Project ID: 910531 Q
Invoice #: 106264

ELAP ID#: 10709

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Albany, New York 12207
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CLIENT: Smith & Mahoney, P.C. Date Sampled: 05/31/91
CLIENT'S SAMPLE ID: MW 6 Date sample received: 05/31/91
AES sample #: 910531 Q01 Samples taken by: Eric Dykstra Location: Petersburg
MATRIX: ground water grab

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
pH	EPA-150.1	7.5	su	PH-E-23	05/31/91
EH	Orion	228	mv	EH-B-26	06/07/91
Turbidity	EPA-180.1	>1000	ntu	COT-B-17	05/31/91
Color	EPA-110.2	15	cpu	COT-B-17	05/31/91
Specific Conductance	EPA-120.1	240	umhos/cm	EH-B-26	06/07/91
Total Dissolved Solids	EPA-160.1	140	mg/l	RES-P-43	06/06/91
Chemical Oxygen Demand	EPA-410.4	15	mg/l	COD-H-39	06/04/91
Biochemical Oxygen Demand 5	EPA-405.1	<2	mg/l	BOD-G	05/31/91
Total Organic Carbon	EPA-415.1	2.0	mg/l	DB	06/10/91
Sulfate-S	EPA-375.4	18	mg/l	SULF-B-43	06/04/91
Alkalinity, as CaCO3	EPA-310.1	90	mg/l	ALK-B-26	06/03/91
Chloride	EPA-325.3	24	mg/l	CHLOR-B-23	06/03/91
Hardness ,Total as CaCO3	EPA-130.2	140	mg/l	ICP-T-10	06/03/91
Total Kjeldahl Nitrogen-N	EPA-351.3	<0.5	mg/l	DB	06/06/91
Ammonia-N	EPA-350.1	0.4	mg/l	NH3-B-12	06/07/91
Nitrate-N	EPA-353.1	0.27	mg/l	NIT-D-13	06/05/91
Phenols (CD),Total	EPA-420.1	0.002	mg/l	PHEN-D-33	06/06/91
Cyanide,Total	EPA-335.2	<0.01	mg/l	CN-C-38	06/07/91
Aluminum	EPA-200.7	2.1	mg/l	ICP-T-10	06/03/91
Antimony	EPA-200.7	<0.06	mg/l	ICP-T-10	06/03/91

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CLIENT: Smith & Mahoney, P.C. Date Sampled: 05/31/91
CLIENT'S SAMPLE ID: MW 6 Date sample received: 05/31/91
AES sample #: 910531 Q01 Samples taken by: Eric Dykstra Location: Petersburg
MATRIX: ground water grab

continued:

PARAMETER	METHOD PERFORMED	RESULT	UNITS	NOTEBK REF	TEST DATE
Arsenic	EPA-206.2	0.011	mg/l	MET-AGQ-13	06/12/91
Barium	EPA-200.7	0.07	mg/l	ICP-T-10	06/03/91
Beryllium	EPA-200.7	<0.005	mg/l	ICP-T-10	06/03/91
Boron	EPA-200.7	<0.05	mg/l	ICP-T-15	06/12/91
Cadmium	EPA-213.2	0.002	mg/l	MET-AGQ-4	06/11/91
Calcium	EPA-200.7	45.9	mg/l	ICP-T-10	06/03/91
Chromium	EPA-218.2	<0.005	mg/l	MET-AGP-89	06/04/91
Chromium, Hexavalent	SM-312B	<0.02	mg/l	HEX-B-23	05/31/91
Copper	EPA-200.7	<0.05	mg/l	ICP-T-10	06/03/91
Iron	EPA-200.7	3.5	mg/l	ICP-T-10	06/03/91
Lead	EPA-239.2	0.02	mg/l	MET-AGQ-11	06/12/91
Magnesium	EPA-200.7	6.2	mg/l	ICP-T-10	06/03/91
Manganese	EPA-200.7	0.60	mg/l	ICP-T-10	06/03/91
Mercury	EPA-245.1	<0.0004	mg/l	MET-FW-29	06/04/91
Nickel	EPA-200.7	<0.05	mg/l	ICP-T-10	06/03/91
Potassium	EPA-200.7	0.97	mg/l	ICP-T-10	06/03/91
Selenium	EPA-270.2	<0.001	mg/l	MET-AGQ-13	06/12/91
Silver	EPA-200.7	<0.02	mg/l	ICP-T-10	06/03/91
Sodium	EPA-200.7	5.9	mg/l	ICP-T-10	06/03/91
Thallium	EPA-279.2	<0.01	mg/l	MET-AGQ-13	06/13/91

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CLIENT: Smith & Mahoney, P.C. Date Sampled: 05/31/91
CLIENT'S SAMPLE ID: MW 6 Date sample received: 05/31/91
AES sample #: 910531 Q01 Samples taken by: Eric Dykstra Location: Petersburg
MATRIX: ground water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Zinc	EPA-200.7	0.02	mg/l	ICP-T-10	06/03/91
Chloromethane	EPA-601	<1	ug/l	MT-M-43	06/06/91
Bromomethane	EPA-601	<1	ug/l	MT-M-43	06/06/91
Dichlorodifluoromethane	EPA-601	<1	ug/l	MT-M-43	06/06/91
Vinyl Chloride	EPA-601	<1	ug/l	MT-M-43	06/06/91
Chloroethane	EPA-601	<1	ug/l	MT-M-43	06/06/91
Methylene Chloride	EPA-601	<1	ug/l	MT-M-43	06/06/91
Trichloroflouromethane	EPA-601	<1	ug/l	MT-M-43	06/06/91
1,1 Dichloroethene	EPA-601	<1	ug/l	MT-M-43	06/06/91
1,1 Dichloroethane	EPA-601	<1	ug/l	MT-M-43	06/06/91
t-1,2-Dichloroethene	EPA-601	<1	ug/l	MT-M-43	06/06/91
Chloroform	EPA-601	<1	ug/l	MT-M-43	06/06/91
1,2 Dichloroethane	EPA-601	<1	ug/l	MT-M-43	06/06/91
1,1,1 Trichloroethane	EPA-601	<1	ug/l	MT-M-43	06/06/91
Carbon Tetrachloride	EPA-601	<1	ug/l	MT-M-43	06/06/91
Bromodichloromethane	EPA-601	<1	ug/l	MT-M-43	06/06/91
1,2-Dichloropropane	EPA-601	<1	ug/l	MT-M-43	06/06/91
t-1,3-Dichloropropene	EPA-601	<1	ug/l	MT-M-43	06/06/91
Trichloroethylene	EPA-601	<1	ug/l	MT-M-43	06/06/91
Dibromochloromethane	EPA-601	<1	ug/l	MT-M-43	06/06/91

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CLIENT: Smith & Mahoney, P.C.
CLIENT'S SAMPLE ID: MW 6
AES sample #: 910531 Q01

Date Sampled: 05/31/91
Date sample received: 05/31/91
Samples taken by: Eric Dykstra Location: Petersburg
MATRIX: ground water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
1,1,2-Trichloroethane	EPA-601	<1	ug/l	MT-M-43	06/06/91
cis-1,3-Dichloropropene	EPA-601	<1	ug/l	MT-M-43	06/06/91
2-Chloroethylvinylether	EPA-601	<1	ug/l	MT-M-43	06/06/91
Bromoform	EPA-601	<1	ug/l	MT-M-43	06/06/91
1,1,2,2-Tetrachloroethane	EPA-601	<1	ug/l	MT-M-43	06/06/91
Tetrachloroethylene	EPA-601	<1	ug/l	MT-M-43	06/06/91
Benzene	EPA-602	<1	ug/l	MT-M-43	06/06/91
Toluene	EPA-602	<1	ug/l	MT-M-43	06/06/91
Ethylbenzene	EPA-602	<1	ug/l	MT-M-43	06/06/91
Chlorobenzene	EPA-602	<1	ug/l	MT-M-43	06/06/91
p-Dichlorobenzene	EPA-602	<1	ug/l	MT-M-43	06/06/91
m-Dichlorobenzene	EPA-602	<1	ug/l	MT-M-43	06/06/91
o-Dichlorobenzene	EPA-602	<1	ug/l	MT-M-43	06/06/91

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CLIENT: Smith & Mahoney, P.C. Date Sampled: 05/31/91
CLIENT'S SAMPLE ID: Precision Date sample received: 05/31/91
AES sample #: 910531 Q02 Samples taken by: Eric Dykstra Location: Petersburg
MATRIX: ground water grab

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
pH	EPA-150.1	<1	%	PH-E-23	05/31/91
EH	Orion	<1	%	EH-B-25	06/05/91
Turbidity	EPA-180.1	<1	%	COT-B-17	05/30/91
Color	EPA-110.2	<1	%	COT-B-17	05/31/91
Specific Conductance	EPA-120.1	<1	%	EH-B-26	06/07/91
Total Dissolved Solids	EPA-160.1	8	%	RES-P-43	06/06/91
Chemical Oxygen Demand	EPA-410.4	7.5	%	COD-G-39	06/04/91
Biochemical Oxygen Demand 5	EPA-405.1	<1	%	BOD-G	05/31/91
Total Organic Carbon	EPA-415.1	10	%	DB	06/10/91
Sulfate-S	EPA-375.4	<1	%	SULF-B-43	06/04/91
Alkalinity, as CaCO3	EPA-310.1	2.4	%	ALK-B-26	06/03/91
Chloride	EPA-325.3	<1	%	CHLOR-B-23	06/03/91
Hardness ,Total as CaCO3	EPA-130.2	8.1	%	ICP-T-10	06/03/91
Total Kjeldahl Nitrogen-N	EPA-351.3	8.1	%	DB	06/06/91
Ammonia-N	EPA-350.1	50	%	NH3-B-12	06/07/91
Nitrate-N	EPA-353.1	25	%	NIT-D-13	06/05/91
Phenols (CD),Total	EPA-420.1	6.6	%	PHEN-D-30	05/29/91
Cyanide,Total	EPA-335.2	ND	%	CN-C-38	06/07/91
Aluminum	EPA-200.7	19	%	ICP-T-10	06/03/91
Antimony	EPA-200.7	ND	%	ICP-T-10	06/03/91

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CLIENT: Smith & Mahoney, P.C. Date Sampled: 05/31/91
CLIENT'S SAMPLE ID: Precision Date sample received: 05/31/91
AES sample #: 910531 Q02 Samples taken by: Eric Dykstra Location: Petersburg
MATRIX: ground water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Arsenic	EPA-206.2	9	%	MET-AGQ-13	06/12/91
Barium	EPA-200.7	13	%	ICP-T-10	06/03/91
Beryllium	EPA-200.7	ND	%	ICP-T-10	06/03/91
Boron	EPA-200.7	ND	%	ICP-T-15	06/12/91
Cadmium	EPA-213.2	1.4	%	MET-AGQ-4	06/11/91
Calcium	EPA-200.7	8.3	%	ICP-T-10	06/03/91
Chromium	EPA-218.2	3.5	%	MET-AGP-89	06/04/91
Chromium, Hexavalent	SM-312B	ND	%	HEX-B-23	05/31/91
Copper	EPA-200.7	ND	%	ICP-T-10	06/03/91
Iron	EPA-200.7	13	%	ICP-T-10	06/03/91
Lead	EPA-239.2	4	%	MET-AGQ-11	06/12/91
Magnesium	EPA-200.7	7.4	%	ICP-T-10	06/03/91
Manganese	EPA-200.7	12	%	ICP-T-10	06/03/91
Mercury	EPA-245.1	ND	%	MET-FW-29	06/04/91
Nickel	EPA-200.7	ND	%	ICP-T-10	06/03/91
Potassium	EPA-200.7	1.6	%	ICP-T-10	06/03/91
Selenium	EPA-270.2	ND	%	MET-AGQ-13	06/12/91
Silver	EPA-200.7	ND	%	ICP-T-10	06/03/91
Sodium	EPA-200.7	9.4	%	ICP-T-10	06/03/91
Thallium	EPA-279.2	ND	%	MET-AGQ-13	06/13/91

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CLIENT: Smith & Mahoney, P.C. Date Sampled: 05/31/91
CLIENT'S SAMPLE ID: Precision Date sample received: 05/31/91
AES sample #: 910531 Q02 Samples taken by: Eric Dykstra Location: Petersburg
MATRIX: ground water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Zinc	EPA-200.7	3.7	%	ICP-T-10	06/03/91
Chloromethane	EPA-601	ND	%	MT-M-43	06/06/91
Bromomethane	EPA-601	ND	%	MT-M-43	06/06/91
Dichlorodifluoromethane	EPA-601	ND	%	MT-M-43	06/06/91
Vinyl Chloride	EPA-601	ND	%	MT-M-43	06/06/91
Chloroethane	EPA-601	ND	%	MT-M-43	06/06/91
Methylene Chloride	EPA-601	ND	%	MT-M-43	06/06/91
Trichloroflouromethane	EPA-601	ND	%	MT-M-43	06/06/91
1,1 Dichloroethene	EPA-601	ND	%	MT-M-43	06/06/91
1,1 Dichloroethane	EPA-601	ND	%	MT-M-43	06/06/91
t-1,2-Dichloroethene	EPA-601	ND	%	MT-M-43	06/06/91
Chloroform	EPA-601	ND	%	MT-M-43	06/06/91
1,2 Dichloroethane	EPA-601	ND	%	MT-M-43	06/06/91
1,1,1 Trichloroethane	EPA-601	ND	%	MT-M-43	06/06/91
Carbon Tetrachloride	EPA-601	ND	%	MT-M-43	06/06/91
Bromodichloromethane	EPA-601	ND	%	MT-M-43	06/06/91
1,2-Dichloropropane	EPA-601	ND	%	MT-M-43	06/06/91
t-1,3-Dichloropropene	EPA-601	ND	%	MT-M-43	06/06/91
Trichloroethylene	EPA-601	ND	%	MT-M-43	06/06/91
Dibromochloromethane	EPA-601	ND	%	MT-M-43	06/06/91

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CLIENT: Smith & Mahoney, P.C.
CLIENT'S SAMPLE ID: Precision
AES sample #: 910531 Q02
Samples taken by: Eric Dykstra
MATRIX: ground water
Date Sampled: 05/31/91
Date sample received: 05/31/91
Location: Petersburg
grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
1,1,2-Trichloroethane	EPA-601	ND	%	MT-M-43	06/06/91
cis-1,3-Dichloropropene	EPA-601	ND	%	MT-M-43	06/06/91
2-Chloroethylvinylether	EPA-601	ND	%	MT-M-43	06/06/91
Bromoform	EPA-601	ND	%	MT-M-43	06/06/91
1,1,2,2-Tetrachloroethane	EPA-601	ND	%	MT-M-43	06/06/91
Tetrachloroethylene	EPA-601	ND	%	MT-M-43	06/06/91
Benzene	EPA-602	ND	%	MT-M-43	06/06/91
Toluene	EPA-602	ND	%	MT-M-43	06/06/91
Ethylbenzene	EPA-602	ND	%	MT-M-43	06/06/91
Chlorobenzene	EPA-602	ND	%	MT-M-43	06/06/91
p-Dichlorobenzene	EPA-602	ND	%	MT-M-43	06/06/91
m-Dichlorobenzene	EPA-602	ND	%	MT-M-43	06/06/91
o-Dichlorobenzene	EPA-602	ND	%	MT-M-43	06/06/91

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CLIENT: Smith & Mahoney, P.C. Date Sampled: 05/31/91
CLIENT'S SAMPLE ID: Acciracu Date sample received: 05/31/91
AES sample #: 910531 Q03 Samples taken by: Eric Dykstra Location: Petersburg
MATRIX: ground water grab

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
pH	EPA-150.1	102	%	PH-E-23	05/31/91
EH	Orion	113	%	EH-B-26	06/07/91
Turbidity	EPA-180.1	95	%	COT-B-17	05/31/91
Color	EPA-110.2	NA	%	COT-B-17	05/31/91
Specific Conductance	EPA-120.1	101	%	EH-B-26	06/07/91
Total Dissolved Solids	EPA-160.1	73	%	RES-P-43	06/06/91
Chemical Oxygen Demand	EPA-410.4	85	%	COD-H-39	06/04/91
Biochemical Oxygen Demand 5	EPA-405.1	87	%	BOD-G	05/31/91
Total Organic Carbon	EPA-415.1	98	%	DB	06/10/91
Sulfate-S	EPA-375.4	101	%	SULF-B-43	06/04/91
Alkalinity, as CaCO3	EPA-310.1	100	%	ALK-B-26	06/03/91
Chloride	EPA-325.3	104	%	CHLOR-B-23	06/03/91
Hardness ,Total as CaCO3	EPA-130.2	101	%	ICP-T-10	06/03/91
Total Kjeldahl Nitrogen-N	EPA-351.3	106	%	DB	06/06/91
Ammonia-N	EPA-350.1	107	%	NH3-B-12	06/07/91
Nitrate-N	EPA-353.1	104	%	NIT-D-13	06/05/91
Phenols (CD),Total	EPA-420.1	101	%	PHEN-D-30	05/29/91
Cyanide,Total	EPA-335.2	84	%	CN-C-38	06/07/91
Aluminum	EPA-200.7	94	%	ICP-T-10	06/03/91
Antimony	EPA-200.7	96	%	ICP-T-10	06/03/91

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CLIENT: Smith & Mahoney, P.C.
CLIENT'S SAMPLE ID: Acciracu
AES sample #: 910531 Q03
Samples taken by: Eric Dykstra
MATRIX: ground water

Date Sampled: 05/31/91
Date sample received: 05/31/91
Location: Petersburg
grab

continued:

PARAMETER	PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Arsenic		EPA-206.2	98	%	MET-AGQ-13	06/12/91
Barium		EPA-200.7	94	%	ICP-T-10	06/03/91
Beryllium		EPA-200.7	103	%	ICP-T-10	06/03/91
Boron		EPA-200.7	110	%	ICP-T-15	06/12/91
Cadmium		EPA-213.2	102	%	MET-AGQ-4	06/11/91
Calcium		EPA-200.7	105	%	ICP-T-10	06/03/91
Chromium		EPA-218.2	125	%	MET-AGP-89	06/04/91
Chromium, Hexavalent		SM-312B	100	%	HEX-B-23	05/31/91
Copper		EPA-200.7	97	%	ICP-T-10	06/03/91
Iron		EPA-200.7	92	%	ICP-T-10	06/03/91
Lead		EPA-239.2	100	%	MET-AGQ-11	06/12/91
Magnesium		EPA-200.7	99	%	ICP-T-10	06/03/91
Manganese		EPA-200.7	102	%	ICP-T-10	06/03/91
Mercury		EPA-245.1	101	%	MET-FW-29	06/04/91
Nickel		EPA-200.7	100	%	ICP-T-10	06/03/91
Potassium		EPA-200.7	102	%	ICP-T-10	06/03/91
Selenium		EPA-270.2	100	%	MET-AGQ-13	06/12/91
Silver		EPA-200.7	87	%	ICP-T-10	06/03/91
Sodium		EPA-200.7	92	%	ICP-T-10	06/03/91
Thallium		EPA-279.2	105	%	MET-AGQ-13	06/13/91

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CLIENT: Smith & Mahoney, P.C. Date Sampled: 05/31/91
CLIENT'S SAMPLE ID: Acciracu Date sample received: 05/31/91
AES sample #: 910531 Q03 Samples taken by: Eric Dykstra Location: Petersburg
MATRIX: ground water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Zinc	EPA-200.7	111	%	ICP-T-10	06/03/91
1,1 Dichloroethene	EPA-601	104	%	MT-M-42	06/06/91
Trichloroethylene	EPA-601	108	%	MT-M-42	06/06/91
Chlorobenzene	EPA-602	105	%	MT-M-42	06/06/91
Benzene	EPA-602	110	%	MT-M-42	06/06/91
Toluene	EPA-602	108	%	MT-M-42	06/06/91

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CLIENT: Smith & Mahoney, P.C. Date Sampled: 05/31/91
CLIENT'S SAMPLE ID: Trip Blank Date sample received: 05/31/91
AES sample #: 910531 Q04 Samples taken by: Eric Dykstra Location: Petersburg
MATRIX: water grab

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Chloromethane	EPA-601	<1	ug/l	MT-M-43	06/06/91
Bromomethane	EPA-601	<1	ug/l	MT-M-43	06/06/91
Dichlorodifluoromethane	EPA-601	<1	ug/l	MT-M-43	06/06/91
Vinyl Chloride	EPA-601	<1	ug/l	MT-M-43	06/06/91
Chloroethane	EPA-601	<1	ug/l	MT-M-43	06/06/91
Methylene Chloride	EPA-601	<1	ug/l	MT-M-43	06/06/91
Trichlorofloumethane	EPA-601	<1	ug/l	MT-M-43	06/06/91
1,1 Dichloroethene	EPA-601	<1	ug/l	MT-M-43	06/06/91
1,1 Dichloroethane	EPA-601	<1	ug/l	MT-M-43	06/06/91
t-1,2-Dichloroethene	EPA-601	<1	ug/l	MT-M-43	06/06/91
Chloroform	EPA-601	<1	ug/l	MT-M-43	06/06/91
1,2 Dichloroethane	EPA-601	<1	ug/l	MT-M-43	06/06/91
1,1,1 Trichloroethane	EPA-601	<1	ug/l	MT-M-43	06/06/91
Carbon Tetrachloride	EPA-601	<1	ug/l	MT-M-43	06/06/91
Bromodichloromethane	EPA-601	<1	ug/l	MT-M-43	06/06/91
1,2-Dichloropropane	EPA-601	<1	ug/l	MT-M-43	06/06/91
t-1,3-Dichloropropene	EPA-601	<1	ug/l	MT-M-43	06/06/91
Trichloroethylene	EPA-601	<1	ug/l	MT-M-43	06/06/91
Dibromochloromethane	EPA-601	<1	ug/l	MT-M-43	06/06/91
1,1,2-Trichloroethane	EPA-601	<1	ug/l	MT-M-43	06/06/91

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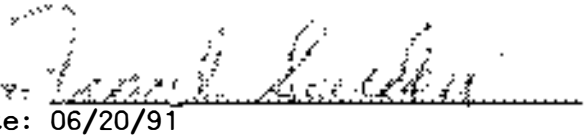
CLIENT: Smith & Mahoney, P.C. Date Sampled: 05/31/91
CLIENT'S SAMPLE ID: Trip Blank Date sample received: 05/31/91
AES sample #: 910531 Q04 Samples taken by: Eric Dykstra Location: Petersburg
MATRIX: water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
cis-1,3-Dichloropropene	EPA-601	<1	ug/l	MT-M-43	06/06/91
2-Chloroethylvinylether	EPA-601	<1	ug/l	MT-M-43	06/06/91
Bromoform	EPA-601	<1	ug/l	MT-M-43	06/06/91
1,1,2,2-Tetrachloroethane	EPA-601	<1	ug/l	MT-M-43	06/06/91
Tetrachloroethylene	EPA-601	<1	ug/l	MT-M-43	06/06/91
Benzene	EPA-602	<1	ug/l	MT-M-43	06/06/91
Toluene	EPA-602	<1	ug/l	MT-M-43	06/06/91
Ethylbenzene	EPA-602	<1	ug/l	MT-M-43	06/06/91
Chlorobenzene	EPA-602	<1	ug/l	MT-M-43	06/06/91
p-Dichlorobenzene	EPA-602	<1	ug/l	MT-M-43	06/06/91
m-Dichlorobenzene	EPA-602	<1	ug/l	MT-M-43	06/06/91
o-Dichlorobenzene	EPA-602	<1	ug/l	MT-M-43	06/06/91

APPROVED BY: 
Report date: 06/20/91

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CHAIN OF CUSTODY RECORD

CLIENT NAME	PROJECT NAME (Location)	SAMPLERS' (Names)
Smith & Mahoney	Berlin/Petersburg	Eric Dykstra
ADDRESS	PO NUMBER	SAMPLERS (Signature)
77 N. Pearl Albany		Eric Dykstra

AES SAMPLE NUMBER	CLIENT SAMPLE IDENTIFICATION & LOCATION	DATE SAMPLED	TIME A=a.m. P=p.m.	SAMPLE TYPE MATRIX	COMP	GRAB	NUMBER OF CONT'S	ANALYSIS REQUIRED
910531-C301	MW-6	5/31/91	1:30 P	GW		X	13	Base line
	Trip Blank		A/P				1	
			A/P					
			A/P					
			A/P					
			A/P					
			A/P					
			A/P					
			A/P					
			A/P					
			A/P					
			A/P					
			A/P					

Turnaround Time | **Laboratory Approval:**

Relinquished by: *(Signature)*	**Received by:** *(Signature)*	**Date/Time**
Relinquished by: *(Signature)*	**Received by:** *(Signature)*	**Date/Time**
Relinquished by: *(Signature)*	**Received by:** *(Signature)*	**Date/Time**
Dispatched by: *(Signature)* Eric Dykstra	**Date/Time**	**Received for Laboratory by:**	**Date/Time** 5/1/91 | 9:10
Method of Shipment:	**Send Report To:**	**Client Phone No.:**

The Laboratory reserves the right to return hazardous samples to the client or may levy a fee of $10.00 per container for disposal.

WHITE - Lab Copy YELLOW - Sampler Copy PINK - Generator Copy

Adirondack
Environmental Services, Inc.

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TERMS, CONDITIONS & LIMITATIONS

All Services rendered by **Adirondack Environmental Services, Inc.** are undertaken and all rates are based upon the following terms:

(a) Neither **Adirondack Environmental Services, Inc.,** nor any of its employees, agents or sub-contractors shall be liable for any loss or damage arising out of **Adirondack Environmental Services, Inc.'s** performance or non-performance, whether by way of negligence or breach of contract, or otherwise, in any amount greater than twice the amount billed to the customer for the work leading to the claim of the customer. Said remedy shall be the sole and exclusive remedy against **Adirondack Environmental Services, Inc.** arising out of its work.

(b) All claims made must be in writing within forty-five (45) days after delivery of the **Adirondack Environmental Services, Inc.** report regarding said work or such claim shall be deemed as irrovacably waived.

(c) **Adirondack Environmental Services, Inc.** reports are submitted in writing and are for our customers only. Our customers are considered to be only those entities being billed for our services. Acquisition of an **Adirondack Environmental Services, Inc.** report by other than our customer does not constitute a representation of **Adirondack Environmental Services, Inc.** as to the accuracy of the contents thereof.

(d) In no event shall **Adirondack Environmental Services, Inc.,** its employees agents or sub-contractors be responsible for consequential or special damages of any kind or in any amount.

(e) No deviation from the terms set forth herein shall bind **Adirondack Environmental Services, Inc.** unless in writing and signed by a Director of **Adirondack Environmental Services, Inc.**

Adirondack Environmental Services, Inc.

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LABORATORY REPORT

for

Smith & Mahoney, P.C.
79 North Pearl Street
Albany, NY 12201

Attention: Amy Steele

Purchase Order #: 4110900

Report date: 06/26/91
Number of samples analyzed: 3
AES Project ID: 910528 P
Invoice #: 106145

ELAP ID#: 10709

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CLIENT: Smith & Mahoney, P.C.
CLIENT'S SAMPLE ID: C
AES sample #: 910528 P01
Samples taken by: David Lee
MATRIX: ground water
Date Sampled: 05/28/91
Date sample received: 05/28/91
Location: Petersburg, NY
grab

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
pH	EPA-150.1	7.6	su	PH-E-22	05/28/91
EH	Orion	244	mv	EH-B-25	06/05/91
Turbidity	EPA-180.1	1.1	ntu	COT-B-17	05/30/91
Color	EPA--110.2	45	cpu	COT-B-17	05/30/91
Specific Conductance	EPA-120.1	145	umhos/cm	EH-B-25	06/05/91
Total Dissolved Solids	EPA--160.1	69	mg/l	RES--P-40	06/25/91
Chemical Oxygen Demand	EPA-410.4	15	mg/l	COD-H-39	06/04/91
Biochemical Oxygen Demand 5	EPA--405.1	<2	mg/l	BOD-G	05/29/91
Total Organic Carbon	EPA-415.1	4.9	mg/l	DB	06/01/91
Sulfate-S	EPA--375.4	14	mg/l	SULF-B-43	06/04/91
Alkalinity, as CaCO3	EPA-310.1	34	mg/l	ALK-B-26	06/03/91
Chloride	EPA--325.3	22	mg/l	CHLOR--B--23	06/03/91
Hardness ,Total as CaCO3	EPA-130.2	56	mg/l	ICP-T-7	05/29/91
Total Kjeldahl Nitrogen-N	EPA--351.3	<0.5	mg/l	DB	06/01/91
Ammonia-N	EPA-350.1	<0.1	mg/l	NH3-B-10	05/31/91
Nitrate-N	EPA-353.1	0.20	mg/l	NIT-D-9	05/29/91
Phenols (CD),Total	EPA-420.1	0.005	mg/l	PHEN-D-29	05/30/91
Cyanide,Total	EPA-335.2	<0.01	mg/l	CN-C-37	06/06/91
Aluminum	EPA-200.7	<0.20	mg/l	ICP-T-7	05/29/91
Antimony	EPA-200.7	<0.06	mg/l	ICP--T-7	05/29/91

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CLIENT: Smith & Mahoney, P.C.
CLIENT'S SAMPLE ID: C
AES sample #: 910528 P01
Samples taken by: David Lee
MATRIX: ground water
Date Sampled: 05/28/91
Date sample received: 05/28/91
Location: Petersburg, NY
grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Arsenic	EPA-206.2	<0.005	mg/l	MET-AGP-77	05/31/91
Barium	EPA-200.7	<0.01	mg/l	ICP-T-7	05/29/91
Beryllium	EPA-200.7	0.01	mg/l	ICP-T-7	05/29/91
Boron	EPA-200.7	<0.05	mg/l	ICP-T-7	05/29/91
Cadmium	EPA-213.2	<0.001	mg/l	MET-AGP-75	06/03/91
Calcium	EPA-200.7	19.7	mg/l	ICP-T-7	05/29/91
Chromium	EPA-218.2	<0.005	mg/l	MET-AGP-89	06/03/91
Chromium, Hexavalent	SM-312B	<0.02	mg/l	HEX-B-23	05/28/91
Copper	EPA-200.7	<0.05	mg/l	ICP-T-7	05/29/91
Iron	EPA-200.7	0.25	mg/l	ICP-T-7	05/29/91
Lead	EPA-239.2	0.04	mg/l	MT-AGP-107	06/06/91
Magnesium	EPA-200.7	1.63	mg/l	ICP-T-7	05/29/91
Manganese	EPA-200.7	0.37	mg/l	ICP-T-7	05/29/91
Mercury	EPA-245.1	<0.0004	mg/l	MET-FW-25	05/30/91
Nickel	EPA-200.7	<0.05	mg/l	ICP-T-7	05/29/91
Potassium	EPA-200.7	2.49	mg/l	ICP-T-7	05/29/91
Selenium	EPA-270.2	<0.005	mg/l	MET-AGQ-13	06/12/91
Silver	EPA-200.7	<0.02	mg/l	ICP-T-7	05/29/91
Sodium	EPA-200.7	9.43	mg/l	ICP-T-7	05/29/91
Thallium	EPA-279.2	<0.01	mg/l	MET-AGP-69	05/30/91

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CLIENT: Smith & Mahoney, P.C.
CLIENT'S SAMPLE ID: C
AES sample #: 910528 P01
Samples taken by: David Lee
MATRIX: ground water
Date Sampled: 05/28/91
Date sample received: 05/28/91
Location: Petersburg, NY
grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Zinc	EPA-200.7	0.05	mg/l	ICP-T-7	05/29/91
Chloromethane	EPA-601	<1	ug/l	MT-M-40	05/29/91
Bromomethane	EPA-601	<1	ug/l	MT-M-40	05/29/91
Dichlorodifluoromethane	EPA-601	<1	ug/l	MT-M-40	05/29/91
Vinyl Chloride	EPA-601	<1	ug/l	MT-M-40	05/29/91
Chloroethane	EPA-601	<1	ug/l	MT-M-40	05/29/91
Methylene Chloride	EPA-601	<1	ug/l	MT-M-40	05/29/91
Trichloroflouromethane	EPA-601	<1	ug/l	MT-M-40	05/29/91
1,1 Dichloroethene	EPA-601	<1	ug/l	MT-M-40	05/29/91
1,1 Dichloroethane	EPA-601	<1	ug/l	MT-M-40	05/29/91
t-1,2-Dichloroethene	EPA-601	<1	ug/l	MT-M-40	05/29/91
Chloroform	EPA-601	<1	ug/l	MT-M-40	05/29/91
1,2 Dichloroethane	EPA-601	<1	ug/l	MT-M-40	05/29/91
1,1,1 Trichloroethane	EPA-601	<1	ug/l	MT-M-40	05/29/91
Carbon Tetrachloride	EPA-601	<1	ug/l	MT-M-40	05/29/91
Bromodichloromethane	EPA-601	<1	ug/l	MT-M-40	05/29/91
1,2-Dichloropropane	EPA-601	<1	ug/l	MT-M-40	05/29/91
t-1,3-Dichloropropene	EPA-601	<1	ug/l	MT-M-40	05/29/91
Trichloroethylene	EPA-601	<1	ug/l	MT-M-40	05/29/91
Dibromochloromethane	EPA-601	<1	ug/l	MT-M-40	05/29/91

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CLIENT: Smith & Mahoney, P.C. Date Sampled: 05/28/91
CLIENT'S SAMPLE ID: C Date sample received: 05/28/91
AES sample #: 910528 P01 Samples taken by: David Lee Location: Petersburg, NY
MATRIX: ground water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
1,1,2-Trichloroethane	EPA-601	<1	ug/l	MT-M-40	05/29/91
cis-1,3-Dichloropropene	EPA-601	<1	ug/l	MT-M-40	05/29/91
2-Chloroethylvinylether	EPA-601	<1	ug/l	MT-M-40	05/29/91
Bromoform	EPA-601	<1	ug/l	MT-M-40	05/29/91
1,1,2,2-Tetrachloroethane	EPA-601	<1	ug/l	MT-M-40	05/29/91
Tetrachloroethylene	EPA-601	<1	ug/l	MT-M-40	05/29/91
Benzene	EPA-602	<1	ug/l	MT-M-40	05/29/91
Toluene	EPA-602	<1	ug/l	MT-M-40	05/29/91
Ethylbenzene	EPA-602	<1	ug/l	MT-M-40	05/29/91
Chlorobenzene	EPA-602	<1	ug/l	MT-M-40	05/29/91
p-Dichlorobenzene	EPA-602	<1	ug/l	MT-M-40	05/29/91
m-Dichlorobenzene	EPA-602	<1	ug/l	MT-M-40	05/29/91
o-Dichlorobenzene	EPA-602	<1	ug/l	MT-M-40	05/29/91

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CLIENT: Smith & Mahoney, P.C. Date Sampled: 05/28/91
CLIENT'S SAMPLE ID: Precision Date sample received: 05/28/91
AES sample #: 910528 P02 Samples taken by: David Lee Location: Petersburg, NY
MATRIX: ground water grab

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
pH	EPA-150.1	<1	%	PH-E-22	05/28/91
EH	Orion	<1	%	EH-B-25	06/05/91
Turbidity	EPA-180.1	<1	%	COT-B-17	05/30/91
Color	EPA-110.2	<1	%	COT-B-17	05/30/91
Specific Conductance	EPA-120.1	<1	%	EH-B-25	06/05/91
Total Dissolved Solids	EPA-160.1	9.2	%	RES-P-40	06/04/91
Chemical Oxygen Demand	EPA-410.4	7.5	%	COD-G-39	06/04/91
Biochemical Oxygen Demand 5	EPA-405.1	6	%	BOD-G	05/29/91
Total Organic Carbon	EPA-415.1	16	%	DB	06/01/91
Sulfate-S	EPA-375.4	<1	%	SULF-B-43	06/04/91
Alkalinity, as CaCO3	EPA-310.1	2.4	%	ALK-B-26	06/03/91
Chloride	EPA-325.3	<1	%	CHLOR-B-23	06/03/91
Hardness ,Total as CaCO3	EPA-130.2	1	%	ICP-T-7	05/29/91
Total Kjeldahl Nitrogen-N	EPA-351.3	ND	%	DB	06/01/91
Ammonia-N	EPA-350.1	<1	%	NH3-B-10	05/31/91
Nitrate-N	EPA-353.1	<1	%	NIT-D-9	05/29/91
Phenols (CD),Total	EPA-420.1	1.2	%	PHEN-D-29	05/30/91
Cyanide,Total	EPA-335.2	ND	%	CN-C-37	06/06/91
Aluminum	EPA-200.7	12	%	ICP-T-7	05/29/91
Antimony	EPA-200.7	<1	%	ICP-T-7	05/29/91

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314 North Pearl Street
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CLIENT: Smith & Mahoney, P.C. Date Sampled: 05/28/91
CLIENT'S SAMPLE ID: Precision Date sample received: 05/28/91
AES sample #: 910528 P02 Samples taken by: David Lee Location: Petersburg, NY
MATRIX: ground water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Arsenic	EPA-206.2	1.0	%	MET-AGP-77	05/31/91
Barium	EPA-200.7	ND	%	ICP-T-7	05/29/91
Beryllium	EPA-200.7	11.0	%	ICP-T-7	05/29/91
Boron	EPA-200.7	ND	%	ICP-T-7	05/29/91
Cadmium	EPA-213.2	ND	%	MET-AGP-75	06/03/91
Calcium	EPA-200.7	2.0	%	ICP-T-7	05/29/91
Chromium	EPA-218.2	ND	%	MET-AGP-89	06/03/91
Chromium, Hexavalent	SM-312B	ND	%	HEX-B-23	05/28/91
Copper	EPA-200.7	ND	%	ICP-T-7	05/29/91
Iron	EPA-200.7	ND	%	ICP-T-7	05/29/91
Lead	EPA-239.2	2.4	%	MT-AGP-107	06/06/91
Magnesium	EPA-200.7	ND	%	ICP-T-7	05/29/91
Manganese	EPA-200.7	ND	%	ICP-T-7	05/29/91
Mercury	EPA-245.1	ND	%	MET-FW-25	05/30/91
Nickel	EPA-200.7	ND	%	ICP-T-7	05/29/91
Potassium	EPA-200.7	7.6	%	ICP-T-7	05/29/91
Selenium	EPA-270.2	ND	%	MET-AGQ-13	06/12/91
Silver	EPA-200.7	ND	%	ICP-T-7	05/29/91
Sodium	EPA-200.7	<1	%	ICP-T-7	05/29/91
Thallium	EPA-279.2	ND	%	MET-AGP-69	05/30/91

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CLIENT: Smith & Mahoney, P.C. Date Sampled: 05/28/91
CLIENT'S SAMPLE ID: Precision Date sample received: 05/28/91
AES sample #: 910528 P02 Samples taken by: David Lee Location: Petersburg, NY
MATRIX: ground water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Zinc	EPA-200.7	<1	%	ICP-T-7	05/29/91
Chloromethane	EPA-601	ND	%	MT-M-40	05/29/91
Bromomethane	EPA-601	ND	%	MT-M-40	05/29/91
Dichlorodifluoromethane	EPA-601	ND	%	MT-M-40	05/29/91
Vinyl Chloride	EPA-601	ND	%	MT-M-40	05/29/91
Chloroethane	EPA-601	ND	%	MT-M-40	05/29/91
Methylene Chloride	EPA-601	ND	%	MT-M-40	05/29/91
Trichloroflouromethane	EPA-601	ND	%	MT-M-40	05/29/91
1,1 Dichloroethene	EPA-601	ND	%	MT-M-40	05/29/91
1,1 Dichloroethane	EPA-601	ND	%	MT-M-40	05/29/91
t-1,2-Dichloroethene	EPA-601	ND	%	MT-M-40	05/29/91
Chloroform	EPA-601	ND	%	MT-M-40	05/29/91
1,2 Dichloroethane	EPA-601	ND	%	MT-M-40	05/29/91
1,1,1 Trichloroethane	EPA-601	ND	%	MT-M-40	05/29/91
Carbon Tetrachloride	EPA-601	ND	%	MT-M-40	05/29/91
Bromodichloromethane	EPA-601	ND	%	MT-M-40	05/29/91
1,2-Dichloropropane	EPA-601	ND	%	MT-M-40	05/29/91
t-1,3-Dichloropropene	EPA-601	ND	%	MT-M-40	05/29/91
Trichloroethylene	EPA-601	ND	%	MT-M-40	05/29/91
Dibromochloromethane	EPA-601	ND	%	MT-M-40	05/29/91

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CLIENT: Smith & Mahoney, P.C. Date Sampled: 05/28/91
CLIENT'S SAMPLE ID: Precision Date sample received: 05/28/91
AES sample #: 910528 P02 Samples taken by: David Lee Location: Petersburg, NY
MATRIX: ground water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF.	TEST DATE
1,1,2-Trichloroethane	EPA-601	ND	%	MT-M-40	05/29/91
cis-1,3-Dichloropropene	EPA-601	ND	%	MT-M-40	05/29/91
2-Chloroethylvinylether	EPA-601	ND	%	MT-M-40	05/29/91
Bromoform	EPA-601	ND	%	MT-M-40	05/29/91
1,1,2,2-Tetrachloroethane	EPA-601	ND	%	MT-M-40	05/29/91
Tetrachloroethylene	EPA-601	ND	%	MT-M-40	05/29/91
Benzene	EPA-602	ND	%	MT-M-40	05/29/91
Toluene	EPA-602	ND	%	MT-M-40	05/29/91
Ethylbenzene	EPA-602	ND	%	MT-M-40	05/29/91
Chlorobenzene	EPA-602	ND	%	MT-M-40	05/29/91
p-Dichlorobenzene	EPA-602	ND	%	MT-M-40	05/29/91
m-Dichlorobenzene	EPA-602	ND	%	MT-M-40	05/29/91
o-Dichlorobenzene	EPA-602	ND	%	MT-M-40	05/29/91

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CLIENT: Smith & Mahoney, P.C. Date Sampled: 05/28/91
CLIENT'S SAMPLE ID: Accuracy Date sample received: 05/28/91
AES sample #: 910528 P03 Samples taken by: David Lee Location: Petersburg, NY
MATRIX: ground water grab

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
pH	EPA-150.1	100	%	PH-E-22	05/28/91
EH	Orion	79	%	EH-B-25	06/05/91
Turbidity	EPA-180.1	85	%	COT-B-16	05/23/91
Color	EPA-110.2	ND	%	COT-B-17	05/30/91
Specific Conductance	EPA-120.1	96	%	EH-B-25	06/05/91
Total Dissolved Solids	EPA-160.1	115	%	RES-P-40	06/04/91
Chemical Oxygen Demand	EPA-410.4	85	%	COD-H-39	06/04/91
Biochemical Oxygen Demand 5	EPA-405.1	90	%	BOD-G	05/29/91
Total Organic Carbon	EPA-415.1	96	%	DB	06/01/91
Sulfate-S	EPA-375.4	101	%	SULF-B-43	06/04/91
Alkalinity, as CaCO3	EPA-310.1	100	%	ALK-B-26	06/03/91
Chloride	EPA-325.3	104	%	CHLOR-B-23	06/03/91
Hardness ,Total as CaCO3	EPA-130.2	104	%	ICP-T-7	05/29/91
Total Kjeldahl Nitrogen-N	EPA-351.3	91	%	DB	06/01/91
Ammonia-N	EPA-350.1	99	%	NH3-B-10	05/31/91
Nitrate-N	EPA-353.1	100	%	NIT-D-9	05/29/91
Phenols (CD),Total	EPA-420.1	101	%	PHEN-D-29	05/30/91
Cyanide,Total	EPA-335.2	84	%	CN-C-38	06/07/91
Aluminum	EPA-200.7	83	%	ICP-T-7	05/29/91
Antimony	EPA-200.7	110	%	ICP-T-7	05/29/91

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CLIENT: Smith & Mahoney, P.C. Date Sampled: 05/28/91
CLIENT'S SAMPLE ID: Accuracy Date sample received: 05/28/91
AES sample #: 910528 P03 Samples taken by: David Lee Location: Petersburg, NY
MATRIX: ground water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Arsenic	EPA-206.2	99	%	MET-AGP-77	05/31/91
Barium	EPA-200.7	99	%	ICP-T-7	05/29/91
Beryllium	EPA-200.7	122	%	ICP-T-7	05/29/91
Boron	EPA-200.7	111	%	ICP-T-7	05/29/91
Cadmium	EPA-213.2	100	%	MET-AGP-75	06/03/91
Calcium	EPA-200.7	105	%	ICP-T-7	05/29/91
Chromium	EPA-218.2	95	%	MET-AGP-89	06/03/91
Chromium, Hexavalent	SM-312B	83	%	HEX-B-23	05/28/91
Copper	EPA-200.7	102	%	ICP-T-7	05/29/91
Iron	EPA-200.7	97	%	ICP-T-7	05/29/91
Lead	EPA-239.2	100	%	MT-AGP-107	06/06/91
Magnesium	EPA-200.7	95	%	ICP-T-7	05/29/91
Manganese	EPA-200.7	103	%	ICP-T-7	05/29/91
Mercury	EPA-245.1	96	%	MET-FW-25	05/30/91
Nickel	EPA-200.7	104	%	ICP-T-7	05/29/91
Potassium	EPA-200.7	106	%	ICP-T-7	05/29/91
Selenium	EPA-270.2	100	%	MET-AGQ-13	06/12/91
Silver	EPA-200.7	98	%	ICP-T-7	05/29/91
Sodium	EPA-200.7	94	%	ICP-T-7	05/29/91
Thallium	EPA-279.2	91	%	MET-AGP-69	05/30/91

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CLIENT: Smith & Mahoney, P.C. Date Sampled: 05/28/91
CLIENT'S SAMPLE ID: Accuracy Date sample received: 05/28/91
AES sample #: 910528 P03 Samples taken by: David Lee Location: Petersburg, NY
MATRIX: ground water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Zinc	EPA-200.7	109	%	ICP-T-7	05/29/91
1,1 Dichloroethene	EPA-601	104	%	MT-M-40	05/29/91
Trichloroethylene	EPA-601	92	%	MT-M-40	05/29/91
Chlorobenzene	EPA-602	98	%	MT-M-40	05/29/91
Benzene	EPA-602	105	%	MT-M-40	05/29/91
Toluene	EPA-602	114	%	MT-M-40	05/29/91

APPROVED BY: Frank Sweden
Report date: 06/26/91

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CHAIN OF CUSTODY RECORD

CLIENT NAME	PROJECT NAME (Location)	SAMPLERS' (Names)
Smith & Mahoney	Berlin + Petersburg	DAVID A. LEE
ADDRESS	**PO NUMBER**	**SAMPLERS' (Signature)**
79 N. Pearl St.	9110900	

AES SAMPLE NUMBER	CLIENT SAMPLE IDENTIFICATION & LOCATION	DATE SAMPLED	TIME A=a.m. P=p.m.	SAMPLE TYPE MATRIX	COMP	GRAB	NUMBER OF CONT'S	ANALYSIS REQUIRED
910528-001	"C"	5-28-91	1240 A P	GW		X	12	BASELINE
			A P					
			A P					
			A P					
			A P					
			A P					
			A P					
			A P					
			A P					
			A P					
			A P					
			A P					
			A P					

Turnaround Time | **Laboratory Approval:**

Relinquished by: (Signature) D. A. Lee	**Received by:** (Signature)	**Date/Time**
Relinquished by: (Signature)	**Received by:** (Signature)	**Date/Time**
Relinquished by: (Signature)	**Received by:** (Signature)	**Date/Time**

Dispatched by: (Signature)	**Date/Time**	**Received for Laboratory by:**	**Date/Time** 5/28/91 1515

Method of Shipment:	**Send Report To:**	**Client Phone No.:**

The Laboratory reserves the right to return hazardous samples to the client or may levy a fee of $10.00 per container for disposal.

WHITE - Lab Copy YELLOW - Sampler Copy PINK - Generator Copy

Adirondack Environmental Services, Inc.

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TERMS, CONDITIONS & LIMITATIONS

All Services rendered by **Adirondack Environmental Services, Inc.** are undertaken and all rates are based upon the following terms:

(a) Neither **Adirondack Environmental Services, Inc.,** nor any of its employees, agents or sub-contractors shall be liable for any loss or damage arising out of **Adirondack Environmental Services, Inc.'s** performance or non-performance, whether by way of negligence or breach of contract, or otherwise, in any amount greater than twice the amount billed to the customer for the work leading to the claim of the customer. Said remedy shall be the sole and exclusive remedy against **Adirondack Environmental Services, Inc.** arising out of its work.

(b) All claims made must be in writing within forty-five (45) days after delivery of the **Adirondack Environmental Services, Inc.** report regarding said work or such claim shall be deemed as irrovacably waived.

(c) **Adirondack Environmental Services, Inc.** reports are submitted in writing and are for our customers only. Our customers are considered to be only those entities being billed for our services. Acquisition of an **Adirondack Environmental Services, Inc.** report by other than our customer does not constitute a representation of **Adirondack Environmental Services, Inc.** as to the accuracy of the contents thereof.

(d) In no event shall **Adirondack Environmental Services, Inc.,** its employees agents or sub-contractors be responsible for consequential or special damages of any kind or in any amount.

(e) No deviation from the terms set forth herein shall bind **Adirondack Environmental Services, Inc.** unless in writing and signed by a Director of **Adirondack Environmental Services, Inc.**

U.S. EPA - CLP

EPA SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

RR-489-1203-45-53401

Lab Name: WESTON-LIONVILLE Contract: 68-W8-0057

Lab Code: WESTON Case No.: NYS SAS No.: SDG No.: CLP764

Matrix (soil/water): WATER Lab Sample ID: 8912764001

Level (low/med): LOW Date Received: 12/07/89

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	84.0	U		P
7440-36-0	Antimony	30.3	B		P
7440-38-2	Arsenic	2.0	U		F
7440-39-3	Barium	329			P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	3.0	U		P
7440-70-2	Calcium	97200			P
7440-47-3	Chromium	2.0	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	8.0	B		P
7439-89-6	Iron	5950			P
7439-92-1	Lead	3.0	U		F
7439-95-4	Magnesium				
7439-96-5	Manganese	10400			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	26.5	B		P
7440-09-7	Potassium	30200			P
7782-49-2	Selenium	2.0	U	W	F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	90500			P
7440-28-0	Thallium	4.0	U	W	F
7440-62-2	Vanadium				
7440-66-6	Zinc	54.5			P
	Cyanide	10.0	U		C

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

RR-489-

Lab Name: WESTON-LIONVILLE Contract: 68-W8-0057

Lab Code: WESTON Case No.: NYS SAS No.: SDG No.:

Matrix (soil/water): WATER Lab Sample ID: 8912764002

Level (low/med): LOW Date Received: 12/07/89

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	84.0	U		P
7440-36-0	Antimony	22.0	U		P
7440-38-2	Arsenic	2.0	U		F
7440-39-3	Barium	13.8	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	3.0	U		P
7440-70-2	Calcium	14200			P
7440-47-3	Chromium	2.0	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	6.7	B		P
7439-89-6	Iron	226			P
7439-92-1	Lead	3.0	U		F
7439-95-4	Magnesium				
7439-96-5	Manganese	48.9			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	7.2	B		P
7440-09-7	Potassium	2670			P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	3.8	B		P
7440-23-5	Sodium	11000			P
7440-28-0	Thallium	4.0	U		F
7440-62-2	Vanadium				
7440-66-6	Zinc	6.6	B		P
	Cyanide	10.0	U		C

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments: