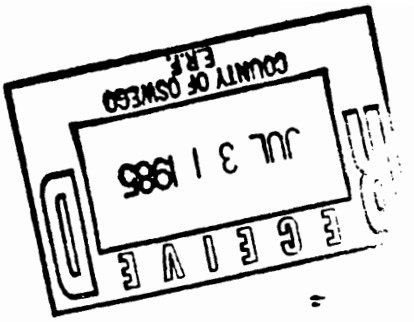

HYDROGEOLOGIC INVESTIGATION OF THE

OSWEGO VALLEY LANDFILL SITE

VOLNEY, NEW YORK

Prepared for the County of Oswego,
Oswego, New York

July 1985

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EXECUTIVE SUMMARY

1) Ground water in the water-table aquifer at the Oswego Valley Landfill flows radially from the site towards nearby residential wells and surface water systems. In terms of water quality, the landfill has its greatest impact on the water-table aquifer (above the lodgement till).

2) Inorganic compounds moving from the landfill in the water-table aquifer, exceed background levels of similar compounds in the ground-water system and are indicative of leachate from a municipal landfill.

3) The quality of water in nearby drinking water supply wells and surface water bodies is within state and federal drinking water standards and guidelines and does not appear to have been affected by the landfill.

4) Surface water quality in Bell Creek meets state and federal guidelines and standards. However, the landfill does appear to influence concentrations of inorganic compounds downstream of the site.

5) Ground-water quality in the bedrock formation, which serves as a water supply for several residences, has not been affected by the landfill. This is most likely due to the low-permeability glacial material (lodgement till) that acts as a confining unit between water-table and artesian aquifers.

6) The potential risk to drinking water supplies is greatest in areas south and west of the landfill. There is no apparent risk to drinking water supplies east or north of the landfill since creeks that separate the landfill from residential wells act as a boundary to ground-water flow.

7) Analyses of leachate samples (OVL-1, 2 and 3) indicate the presence of volatile organic compounds. Similar compounds were detected in several ground-water monitoring wells near the landfill, indicating the landfill is a source of these compounds.

8) The types of volatile organic compounds detected in ground-water samples near the landfill are common and widely used for both household and commercial purposes. Therefore, their presence could also be a result of activities in the vicinity of the landfill unassociated with leachate.

9) Of all chemical constituents detected in ground water near the Oswego Valley Landfill, the volatile organic compounds pose the greatest risk to drinking water supplies. However, because of their sparse distribution in the area and since they were not detected in residential wells or surface water samples, they do not present an imminent hazard. Monitoring for these compounds should continue.

10) The potential risk to ground-water supplies will be reduced by capping the landfill. Capping would result in reduced infiltration and less generation of leachate, which in turn will reduce concentrations of contaminants and rates of ground-water flow moving offsite.

11) Quarterly monitoring of ground water and surface water for one year is recommended to establish a sound, comprehensive data base and detect seasonal water-quality variablity.

12) Several new monitoring wells are needed to map underground leachate movement. In addition, several monitoring wells need to be replaced to upgrade the monitoring well network.

HYDROGEOLOGIC INVESTIGATION OF THE OSWEGO VALLEY LANDFILL SITE, VOLNEY, NEW YORK

INTRODUCTION

In March, 1984, the County of Oswego retained Geraghty & Miller, Inc. to conduct a hydrogeologic investigation of the Oswego Valley Landfill in Volney, New York. A first report on ground-water conditions based on existing data was issued by Geraghty & Miller in August, 1984. The report contained recommendations for installation of additional monitoring wells and comprehensive water sampling in order to further determine the impact of the landfill on the environment. The County of Oswego subsequently authorized Geraghty & Miller, Inc. to carry out this supplemental program. This report describes the field program carried out in January, 1985 (Appendix A) and contains the results of the water-quality assessment. A program for future monitoring of ground water and surface water is included.

2. HYDROGEOLOGY

2.1 Geology

Geologic conditions in the vicinity of the Oswego Valley Landfill have been investigated through a number of test borings, monitoring wells, and residential wells drilled in the area. In addition, soil samples were collected by Geraghty & Miller for geologic interpretation during the drilling of the supplemental (SGW) wells. Construction data for test wells and residential wells are summarized in Tables 1 and 2 of our August, 1984 report: "Evaluation of Hydrogeologic Conditions and Preparation of a Proposed Ground Water Monitoring Program, Oswego Valley Landfill." Geologic descriptions of samples collected from the supplemental wells are included in Table 1. The locations of all wells are shown on Figure 1.

The geologic setting of the Oswego Valley Landfill area has been described in detail in publications of the U.S. Geological Survey (USGS) (Anderson, 1982 and Miller, 1982). These reports indicate that the area is underlain by glacial deposits over sandstone bedrock. The surficial glacial deposits have been identified as beach sand and gravel, lacustrine fine sand, and lodgement till.

The supplementary well drilling explored the unconsolidated deposits and the upper zone of the underlying lodgement till. Our interpretations of lithologic and textural changes within the unconsolidated deposits agree with previous findings as shown in geologic cross sections A - A' and B - B' on, Figures 2 and 3, respectively. The lines of section are shown on Figure 4. Geologic data from existing USGS wells have been incorporated.

Table 1. Geologic Logs Compiled by Geraghty & Miller, Inc. for Monitoring Wells Installed Between December 3 and 7, 1984, Oswego County Landfill, Volney, New York.

Well No.	Description	Depth (feet)
SGW-26	Sand, cobbles, black, moist	0 - 2.5
	Sand, fine to medium, trace fine gravel, tan, wet	2.5 - 4
	Sand, very fine, gray, wet	4 - 8
	Sand, fine to coarse, with layers of fine gravel, some silt and clay streamers, reddish-gray, wet	8 - 24
	Silt, sandy (very dense) some fine to coarse gravel and cobbles, red, moist (lodgement till)	24 - 25
SGW-27A and SGW-27B	Topsoil, sandy, black, moist	0 - 1.5
	Sand, medium to coarse, trace fine gravel, dark brown, wet	1.5 - 13
	Sand, fine, dark brown, wet	13 - 18
	Silt and very fine sand, brown to gray-brown, wet	18 - 31
	Sand, fine, some fine gravel, brown, wet	31 - 36
	Silt and very fine sand, (moderately dense), reddish-gray (weathered lodgement till)	36 - 38.5
SGW-28	Sand, fine to medium, brown, wet	0 - 10
	Silt, some very fine sand, gray-brown, wet	10 - 13
	Sand and fine gravel, reddish-brown, wet	13 - 24
	Silt, sandy (very dense), some fine to coarse gravel and cobbles, red, moist (lodgement till)	24 - 26.5
SGW-29	Gravel, fine to coarse, some sand, (brown wet silt at 10 to 11 feet)	0 - 19
	Silt, sandy (very dense), some fine to coarse gravel and cobbles, red, moist (lodgement till)	19 - 21.5
SGW-30A and SGW-30B	Sand, very fine to medium, little coarse sand, some fine gravel, trace silt, brown to gray-brown, wet	0 - 12
	Silt, some very fine sand, gray, wet	12 - 23.5
	Gravel, fine, some sand, red, wet	23.5 - 27
	Silt, sandy (very dense), some fine to coarse gravel and cobbles, red, moist (lodgement till)	27 - 34.5

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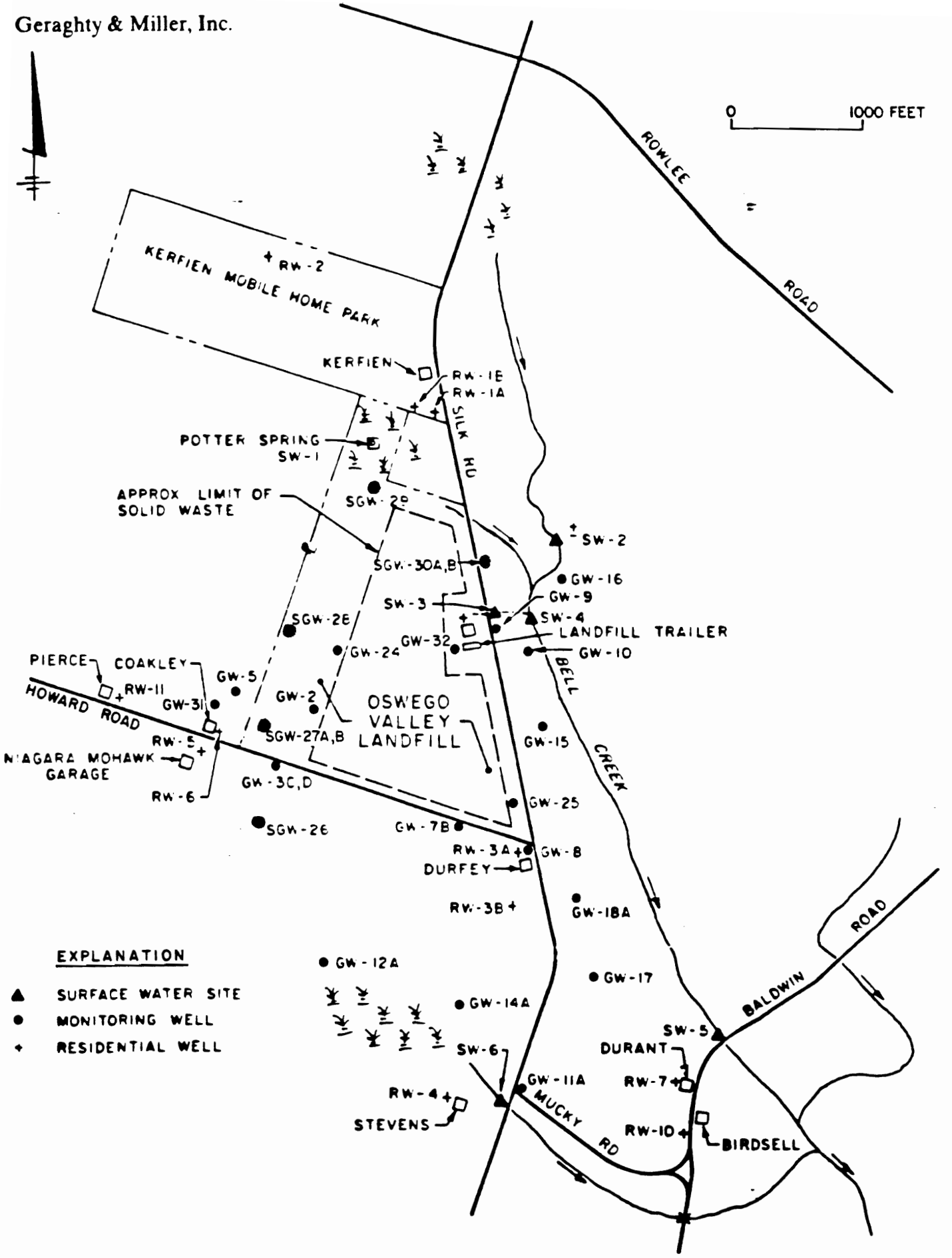
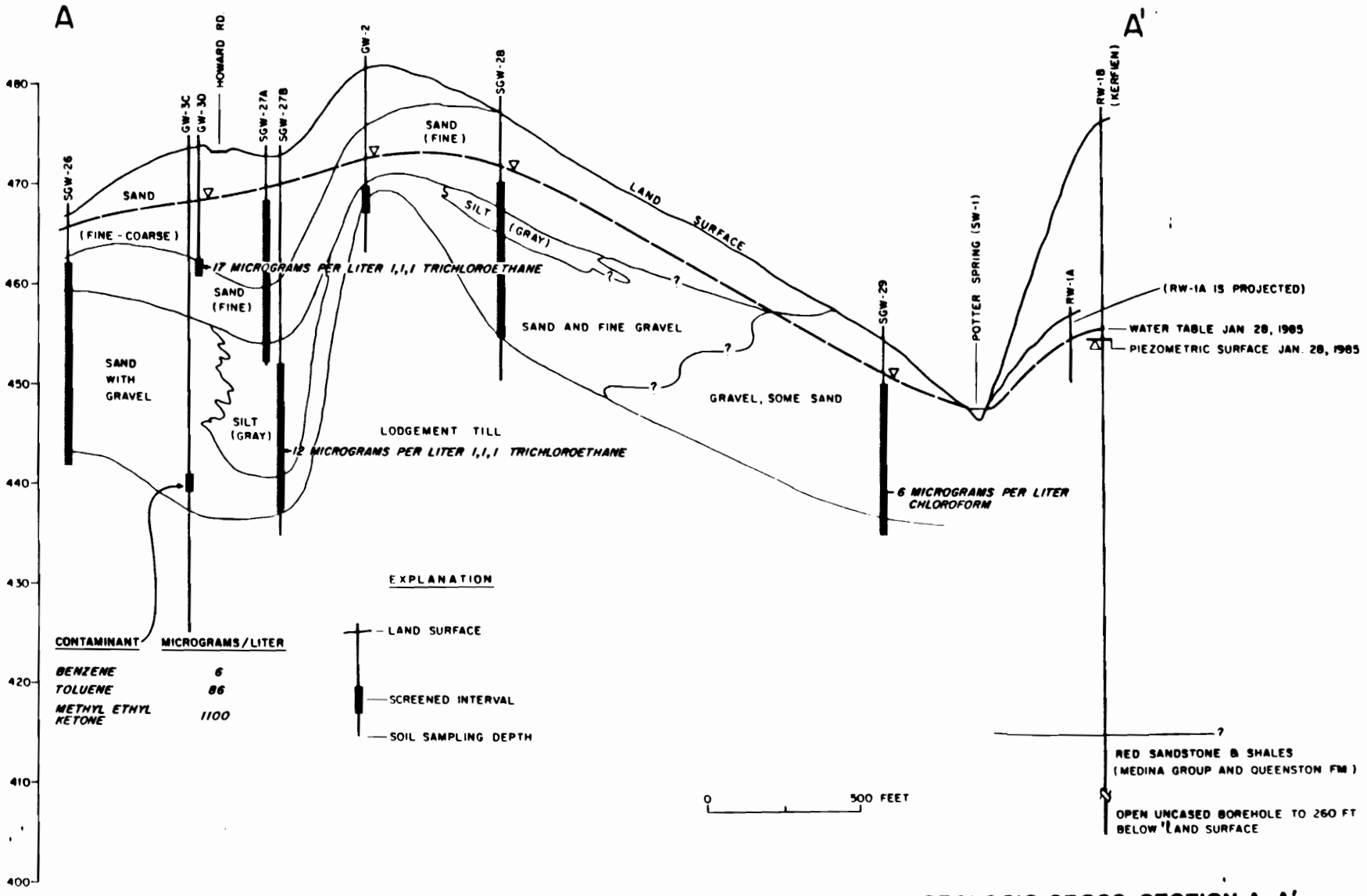


LOCATION OF WELLS AND SURFACE WATER SAMPLING SITES
OSWEGO VALLEY LANDFILL, VOLNEY, NEW YORK

Figure 1

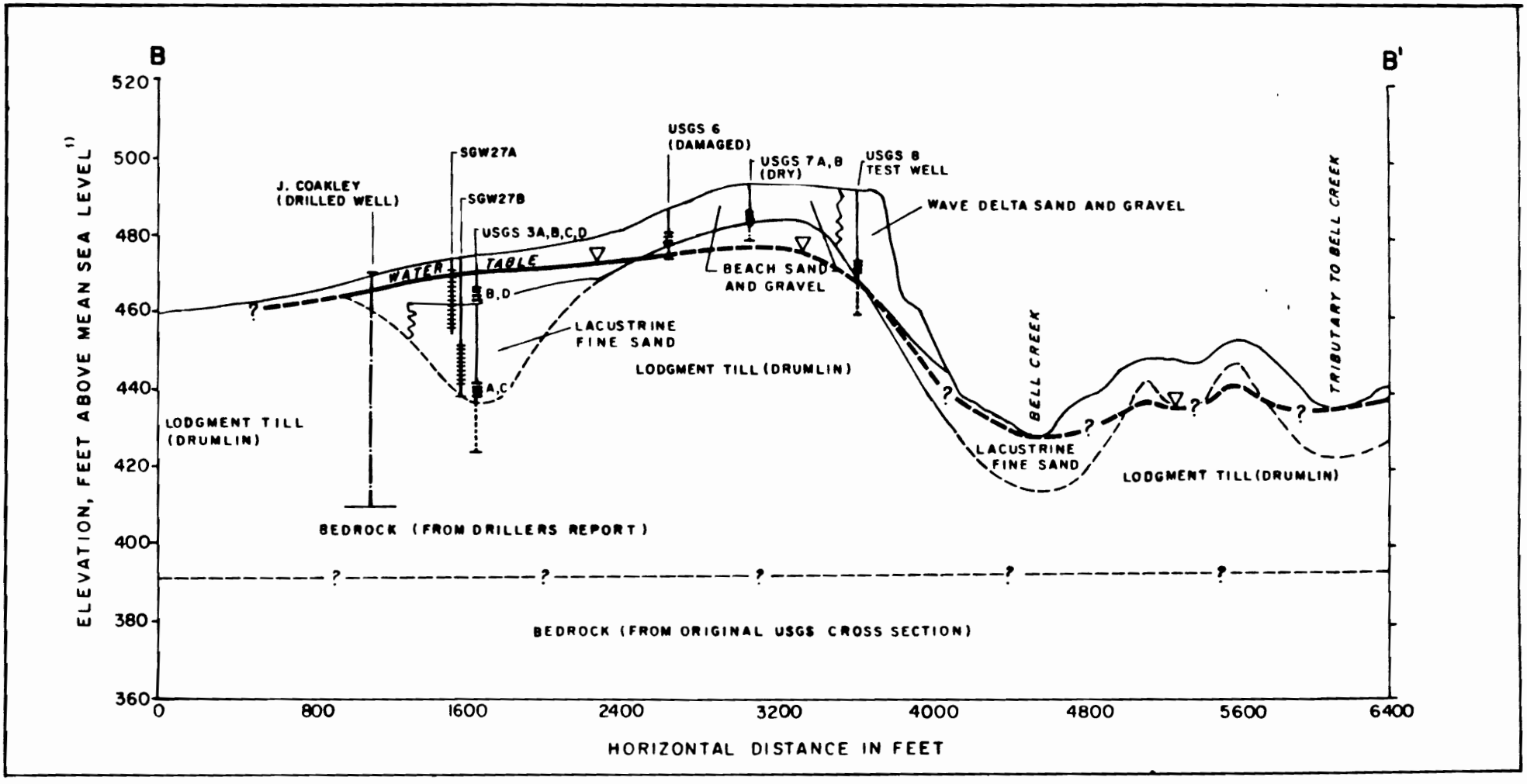


NOTE REFER TO FIGURE 4 FOR LINE OF CROSS SECTION

GEOLOGIC CROSS-SECTION A-A'

OSWEGO VALLEY LANDFILL
Volney, New York

Figure 2



AFTER MILLER, 1982

EXPLANATION

- TEST WELL
- SCREENED INTERVAL
- TOTAL BOREHOLE DEPTH
- DRILLED WELL, PRIVATE SUPPLY (SCREENED ZONE NOT KNOWN)
- WATER TABLE JAN. 28, 1985 (DASHED WHERE INFERRED)
- ? INFERRED FROM AVAILABLE DATA
- 1) NATIONAL GEODETIC VERTICAL DATUM OF 1929

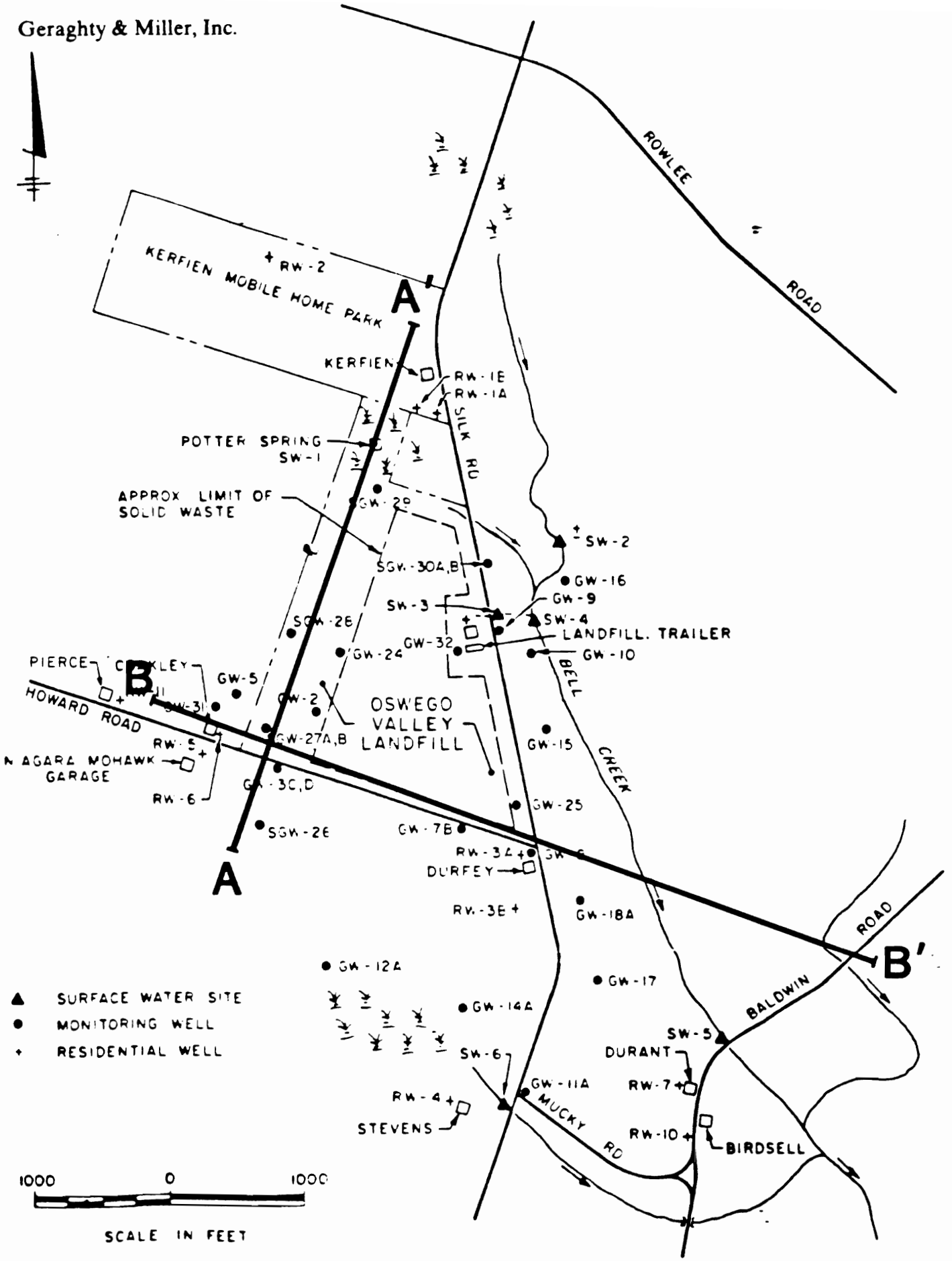
GEOLOGIC CROSS SECTION B-B'

OSWEGO VALLEY LANDFILL

Oswego County, New York

FIGURE 3

Geraghty & Miller, Inc.



LINES OF GEOLOGIC CROSS SECTIONS
OSWEGO VALLEY LANDFILL, VOLNEY, NEW YORK

Figure 4

The unconsolidated zone is comprised of four zones with different textural characteristics. Valleys cut into the dense lodgement till, most likely by glacial melt-water, are filled with sand and gravel deposits and a discontinuous layer of gray silt (outwash deposits). The valleys in the till roughly follow current streams and tributaries to the north and east of the site. One such valley was defined during the drilling program at the southwestern tip of the landfill property and runs in a southeasterly direction from wells SGW-27A to GW-3. The sand and gravel deposits outcrop on the northern boundary of site and along Potter Spring and its connecting tributary. This outcrop continues east toward Bell Creek. The sand and gravel deposits and the gray silt zone in the southern half of the landfill and areas south and west are overlain by a fine sand zone with a thickness of 10 to 15 feet. A zone of fine to coarse sand overlies the fine sand zone along the southwest portion of the landfill property (near the Coakley residence) and directly overlies a gray silt zone near well SGW 30 (the fine sand zone is absent here).

The lodgement till was described in well logs from previous studies as a dense, compact material. This characteristic was noted during Geraghty & Miller, Inc.'s drilling program, since more than 100 blows per 6 inches with a 180-pound weight were required to penetrate the till with a split-barrel (core) sampler. The upper 5 feet of the till layer is primarily a very densely compacted silt. The influence of this resistant lodgement till material on land surface topography as well as the hydrogeology of the site is evident from examining the cross-sections.

The bedrock underlying the lodgement till is a red sandstone and shale, and has been mapped as the Medina Group and the Queenston Form-

ation (Miller, 1982). Depths to bedrock near the landfill, based on driller's reports from nearby residential wells, are approximately 30 to 50 feet. These drilling records do not contain detailed descriptions of the bedrock, such as rock type, grain size, and fracturing.

2.2 Hydrology

Water levels were measured in monitoring wells, surface water stations, and in accessible residential wells at the Oswego Valley Landfill site. A preliminary measurement round was completed on January 21, 1985; a second, more complete round, was completed on January 28, 1985. Water-level elevations collected on both occasions are given in Table 2. The results of the second round were used to construct the water-level maps for this report.

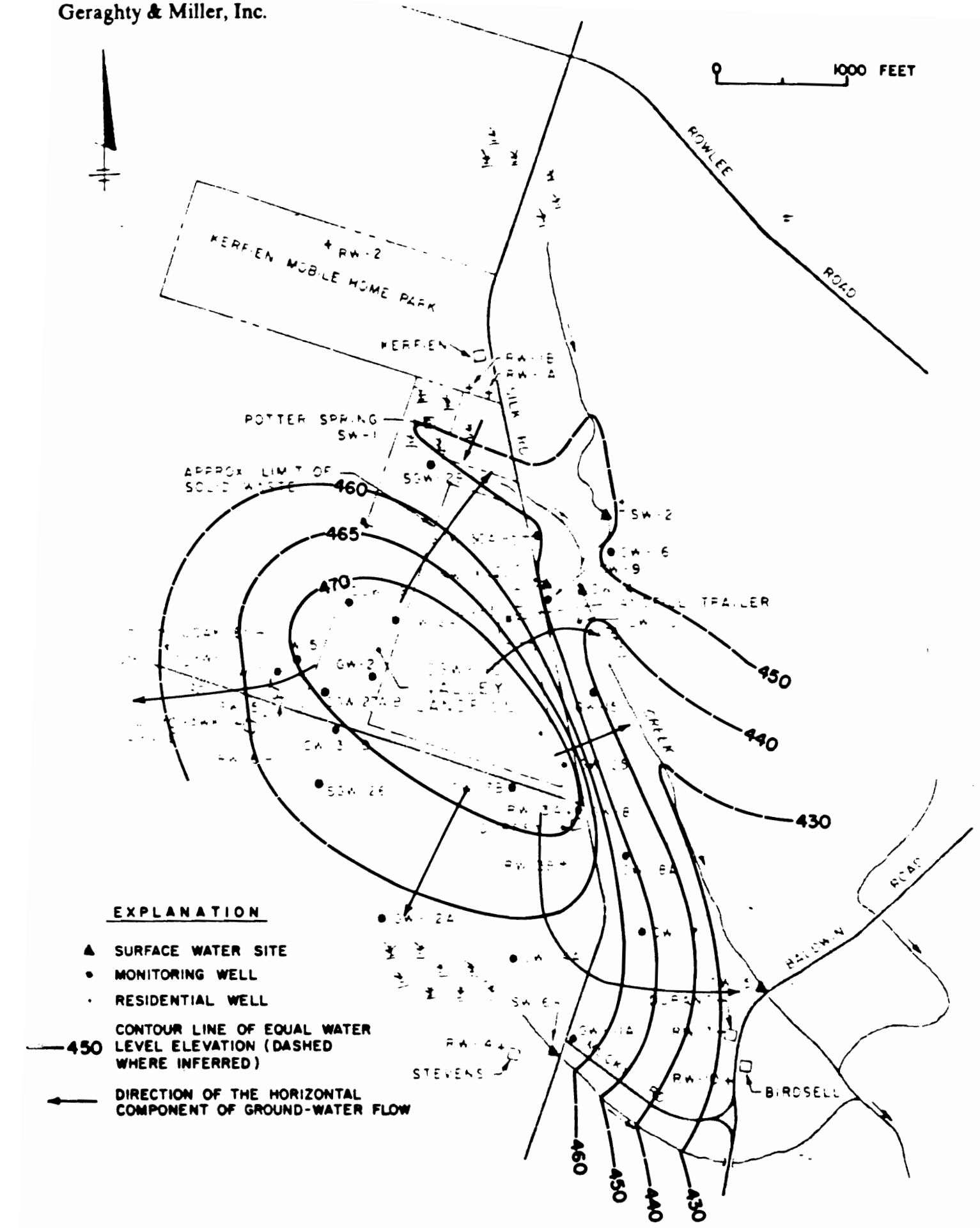
The water-table contour map (Figures 5) indicates that ground water flows radially from beneath the Oswego Valley Landfill toward surface water discharge points. The western component of ground-water flow was suspected during Geraghty & Miller, Inc.'s initial assessment of ground-water conditions at the site (August, 1984) and confirmed by contouring water-level elevations obtained from the supplemental (SGW) wells in January, 1985. The water-table surface generally conforms to the topographic surface and is largely controlled by the slope and geology of the lodgement till. The water table, as shown in the cross-sections is roughly parallel to the slope of the lodgement till.

Ground water in the immediate vicinity of the landfill discharges north to Potter Spring and the connecting tributary to Bell Creek, east

Table 2. Water-Level Elevations Relative to Mean Sea Level Datum, Measured January 21 and 28, 1985 at the Oswego Valley Landfill, Volney, New York.

Well Number	Measuring Point Elevation[1] (feet)	Water-Level Elevation January 21, 1985 (feet)	Water-Level Elevation January 28, 1985 (feet)
GW-2	484.67	471.92	472.63
GW-3C	476.94	468.83	468.58
GW-3D	476.88	468.75	468.52
GW-5	473.40	470.95	470.70
GW-7	498.93	Dry	Dry
GW-8	497.09	470.68	470.20
GW-9	473.48	448.82	448.58
GW-10	458.63	444.41	443.26
GW-11A	471.66	461.62	461.51
GW-12A	472.53	463.31	463.14
GW-14A	474.85	462.63	462.49
GW-15	451.57	440.25	440.08
GW-16	469.94	458.69	458.38
GW-17	466.49	451.42	454.11
GW-18A	466.94	455.38	451.55
GW-24	483.20	480.10	479.40
GW-25	495.60	472.10	Dry
SGW-26	470.24	465.79	465.78
SGW-27A	475.44	470.23	469.91
SGW-27B	475.50	470.08	469.75
SGW-28	479.99	472.93	472.75
SGW-29	458.42	452.90	452.80
SGW-30A	457.13	450.11	450.05
SGW-30B	456.37	450.55	450.46
GW-31	472.60	Not Measured	470.55
GW-32	469.90	Not Measured	442.40
RW-1A	457.9	Not Measured	454.9
RW-1B	479.1	Not Measured	454.0
RW-2	458.2	Not Measured	Inaccessible
RW-3A	472.7	Not Measured	471.8
RW-3B	496.8	Not Measured	469.0
RW-4	472.5	Not Measured	463.0
RW-5	467.9	Not Measured	465.4
RW-6	472.1	Not Measured	466.8
RW-7	436.4	Not Measured	434.6
RW-10	444.1	Not Measured	Not Measured
RW-11	468.94	Not Measured	463.28
Surface Water Stations			
SW-1	454.54	452.39	450.72
SW-4	447.37	444.97	444.96
SW-5	428.15	Not Measured	425.60
SW-6	463.62	461.46	461.34

1) Measuring point elevations for ground-water monitoring wells = top of well casings. Measuring point elevations for surface-water monitoring points = top of staff gauges.



WATER TABLE MEASURED 1-28-85 AT THE
OSWEGO VALLEY LANDFILL, VOLNEY, NEW YORK

Figure 5

to Bell Creek, and south from the landfill to a wetland area and tributary which feed into Bell Creek. Surface-water levels measured at Potter Spring and in creeks and tributaries surrounding the landfill confirm that these surface-water features act as hydraulic boundaries to ground-water flow. In other words, shallow ground water in the water-table zone moves away from the landfill and discharges along the creek beds.

The lodgement till functions as a low-permeability confining unit that separates the unconsolidated sand and gravel zone from the bedrock formation. The primary permeability of the till, which governs flow of ground water between grains of silt and other sediment, is probably very low because of till's compact nature. Secondary permeability, whereby ground water flows through fractures, can occur in till and clay formations. The occurrence and extent of fracturing within the lodgement till is not known. Considering the thickness and compact nature of the till layer, flow through the till between the water-table and artesian zones is either not possible or insignificant.

Estimates of ground-water flow velocity and travel time in the water-table zone have been made from the perimeter of the landfill to selected points hydraulically downgradient. These estimates are determined from Darcy's Equation for Velocity (V);

$$V = \frac{K \times dh/dl}{n}$$

General values of permeability (K) and porosity (n) are used from the literature (Freeze and Cherry, 1982) for earth materials similar to the type observed at the site during the drilling program. The hydraulic

gradient (dh/dl), or slope of the water table, was measured directly from the January 28, 1985, water-level contour map shown on Figure 5.

The landfill and surrounding areas have been divided into two permeability zones based on our observations in the field and past drilling records. For the eastern zone, where fine sands were encountered during drilling and where the hydrogeologic gradient is fairly steep (indicative of lower permeability zones), we have assumed a permeability of 2.8 feet per day. In the western zone where more coarse material (sand and gravel) was encountered, we have assumed a permeability of 28 feet per day. We have assumed a porosity of 35 percent for both zones. Sections A, B, and C shown on Figure 6 represent ground-water flow paths toward residential areas (Sections A and B) and toward Bell Creek (Section C). Estimates of ground-water velocities and travel time are also shown on Figure 6.

Based on these estimates, the results of the ground-water quality survey, and the age of the facility (approximately 15 years), leachate has reached and is discharging into Bell Creek (5 years travel time), and has moved into areas south of the landfill near wells GW-12 and 14 (10 years travel time). Our travel time estimates indicate that leachate could have traveled as far as RW-11 (Pierce Well) to the west in 10 years, however, the water quality data does not support this estimate indicating that leachate has not yet reached this area.

Ground water in the bedrock formation is under confined or artesian conditions, and the water levels measured in wells tapping the bedrock and the bedrock/till interface represent a pressure or piezometric head. The piezometric surface shown on Figure 7 was determined from water-levels

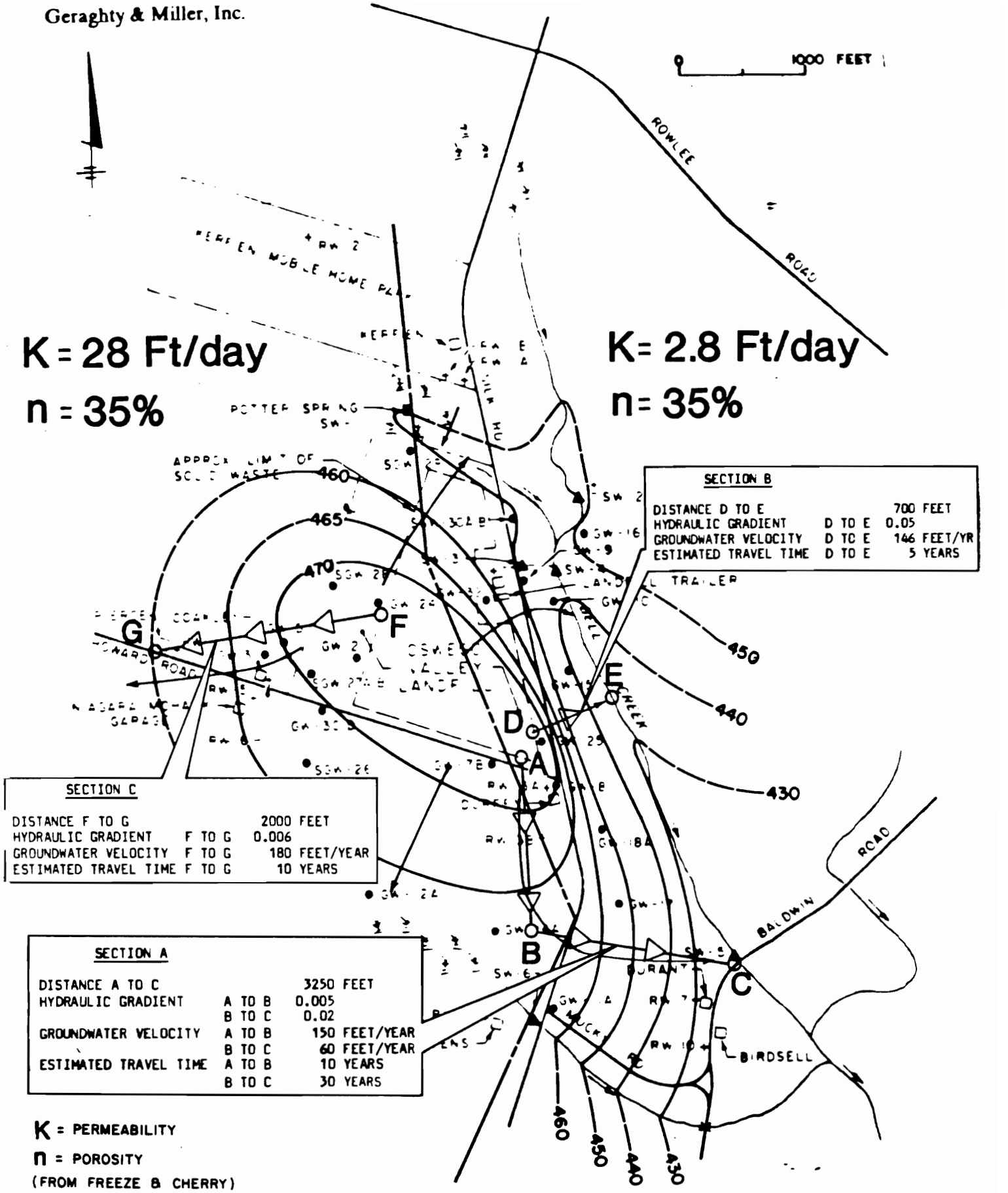


Figure 6

ESTIMATED GROUND-WATER VELOCITIES AND TRAVEL TIME

Regional BK Piezo

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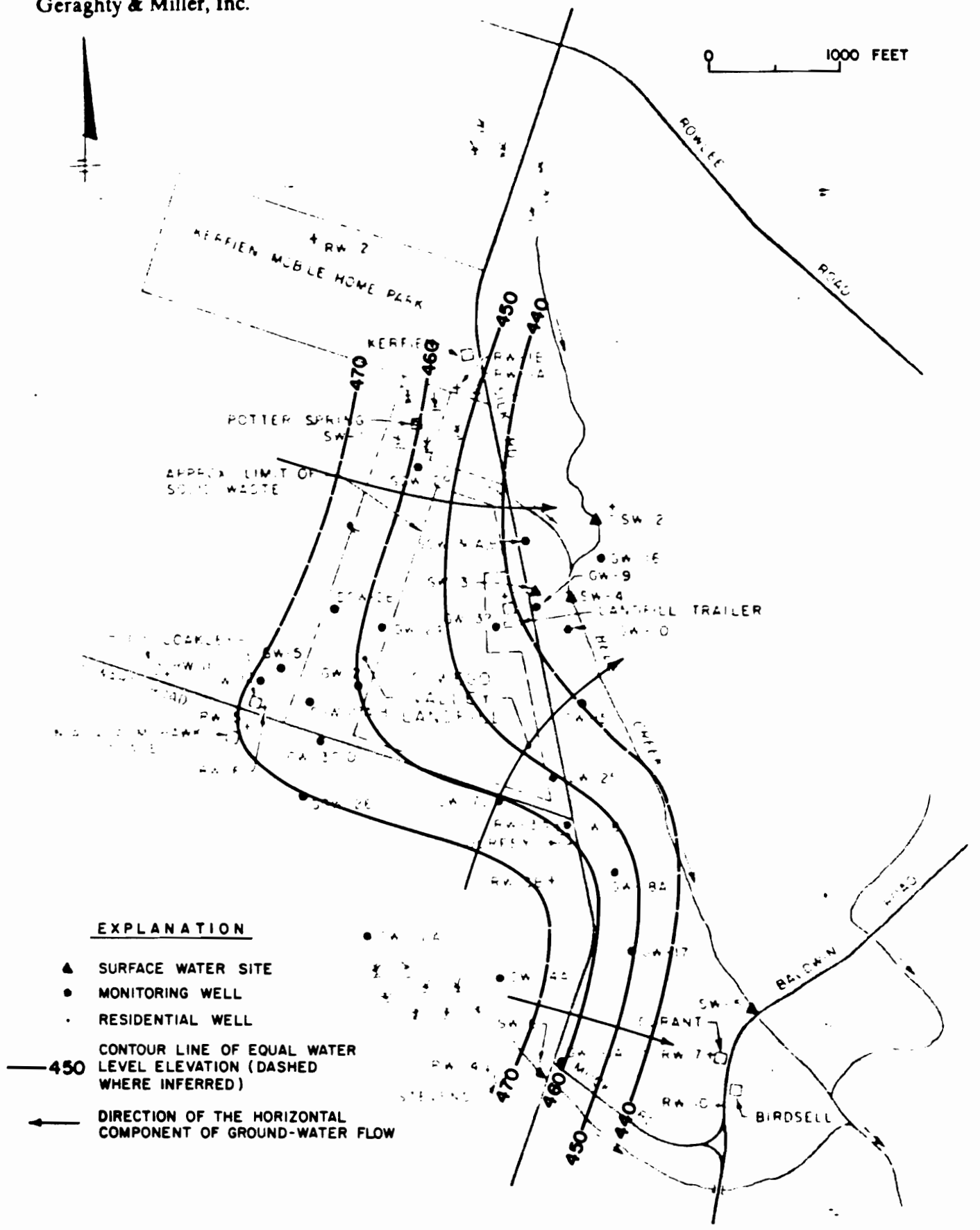

PIEZOMETRIC SURFACE MEASURED 1-28-85 AT THE OSWEGO VALLEY LANDFILL, VOLNEY, NEW YORK

Figure 7

measured in monitoring wells and residential wells screened in the deeper aquifer. Ground-water flow in the artesian zone is generally to the northeast which agrees with regional ground-water flow patterns in the bedrock as discussed in published reports (Miller, 1982). Many of the piezometric surface contour lines are inferred since there are relatively few deep wells near the landfill.

The vertical head gradient, i.e., the difference between the water-table elevation and the piezometric surface elevation, indicates a downward potential for ground-water flow from the water-table zone to the artesian zone directly beneath the landfill. Downward flow of ground-water would probably occur if it were not for the presence of the till layer. The vertical head gradient decreases east toward Bell Creek where the water-table elevation and stream elevation are roughly equal to the piezometric surface elevation. This implies that flow in both the artesian zone and the water-table zone may be discharging to Bell Creek. There is an upward head gradient, indicating an upward component of ground-water flow from the artesian zone, which begins approximately at the western property boundary of the landfill and increases westward. Under these conditions no downward flow of ground water from the water-table aquifer to the artesian aquifer could take place.

3. Water Quality Analysis

During January 22-28, 1985 water samples were collected from selected monitoring wells, residential wells, and surface-water stations on and near the Oswego Valley Landfill site. In addition, leachate samples were collected from the landfill's leachate collection system to determine

the types and concentrations of compounds that are being generated at the site. The purpose of this sampling program was to determine the impact of the landfill on the chemical quality of surrounding surface water and ground water and to assess the potential risk to nearby drinking water supplies. The results of chemical analyses for all sampling points are given in Appendix F.

A purgeable organic analysis performed on ground-water samples from both the water table and artesian aquifers detected a number of compounds. Benzene, toluene, and 1,1,1-trichloroethane were found the most frequently. However, the distribution of these compounds when mapped does not form a coherent pattern that would indicate that they are exclusively components of the landfill leachate plume (Figure 8). Benzene and toluene are components of gasoline and 1,1,1-trichloroethane is a widely used solvent and degreaser. Benzene and 1,1,1-trichloroethane were not prevalent in the leachate samples, 19 ppb (OVL-1) and non-detectable, respectively. Therefore, the presence of these compounds in ground water could also be a result of activities in the vicinity of the landfill unassociated with the leachate.

One compound was found at relatively high concentrations in both the leachate and ground water. Methyl ethyl ketone (MEK) was present in the water sample from GW-3C at 1,100 ppb and in the leachate sample OVL-3 at 12,000 ppb. This correlations suggests that the leachate is a source of some volatile organics as well.

The results of the analysis for non-priority pollutant volatile organic peaks are shown in Table 3. The compounds are noted only as to their presence or absence in the water samples. More of the extra

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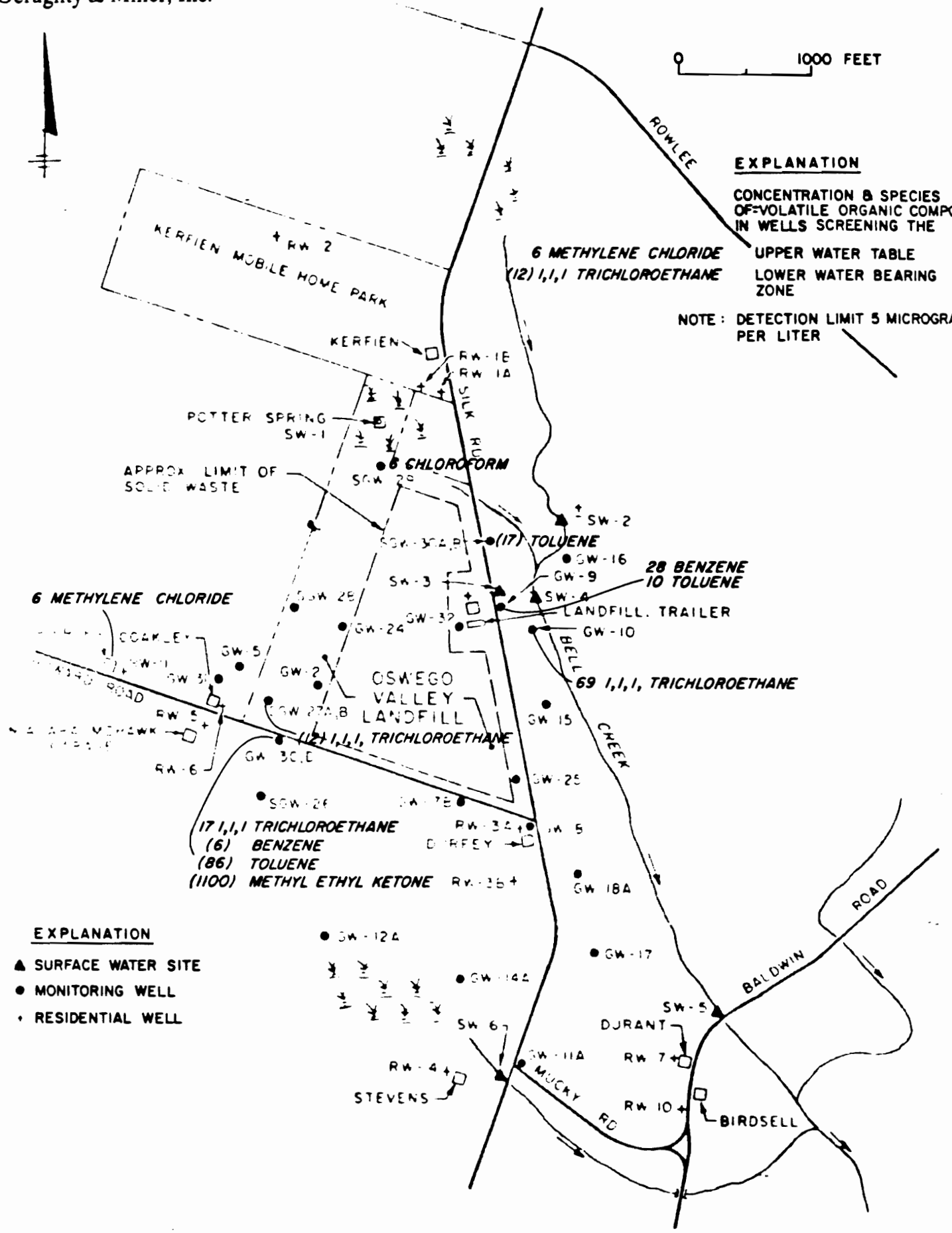

VOLATILE ORGANIC COMPOUND CONCENTRATIONS IN MICROGRAMS PER LITER
OSWEGO VALLEY LANDFILL, VOLNEY, NEW YORK

Figure 8

Table 3. Qualitative Listing of Extra Chromatographic Peaks for Volatile Organic Compounds on the EPA 624 Scan (Greater than 10% IS); Oswego County Landfill, Volney, New York.

Peaks	GW-3C	GW-9	GW-14A	GW-24	Birdsell RW-10	OVL-1 (Sump)	OVL-2 (Tank)	OVL-3 (Pump)
Sulfur Dioxide					X		X	
Oxybismethane						X	X	X
Acetone	X					X	X	X
Isopropanol	X						X	X
2-Butanol							X	X
Tetrahydrofuran			X	X		X	X	X
Dichlorofluoromethane	X	X						
Chlorodifluoromethane		X						

compounds were detected in leachate than in ground-water samples. That is not surprising since there is only a fraction of the leachate that apparently discharges to ground water. Two compounds, chlorofluoromethanes or Freons, were detected in ground water but not in leachate. These compounds are used in refrigerating systems and may have other sources.

Our experience with organic contaminants has shown that there is usually a high variability in concentration with time. Therefore, a second or third sampling should take place before conclusions are drawn concerning the sources or degree of contamination.

The water quality of the water-table aquifer, the artesian bedrock/till aquifer, surface water, residential wells and leachate is discussed in the following sections:

3.1 Water-Table Aquifer

3.1.1 Alkalinity

The reactions that occur in a landfill causing the decomposition of organic matter, produce carbon dioxide. Carbon dioxide reacts with water to form the bicarbonate ion. The presence of biocarbonate in solution produces a condition that is described as alkalinity, that is, the ability to neutralize acid. An increase in alkalinity or the ability of the water to maintain at pH 7 or above is typical of landfill leachates. The bicarbonate ion is usually more concentrated in the landfill leachate than it would be in natural waters because the carbon dioxide is the system is present at higher concentrations than it is in the atmosphere and is also under pressure.

Figure 9 shows the contours for concentrations of alkalinity in the vicinity of the landfill. It should be noted that the concentration above ambient extends outward from the landfill in the southeasterly direction following the gradient of the water table. The outline of the alkalinity illustrates the shape of the inorganic leachate plume emanating from the landfill.

Two anomalies are evident in the distribution of alkalinity concentration. One is in the vicinity of the Pierce well and the other is at Well 16. Alkalinity is enhanced in septic tank effluent for the same reason it is in landfill leachate. This area of increased alkalinity may result from septic system influence. This is suggested particularly because wells between Pierce and the landfill are at ambient concentration levels.

The higher alkalinity at well GW-16 may be a result of easterly flow of some leachate-contaminated ground water beyond Bell Creek. Movement of leachate past Bell Creek, if this does in fact occur, may be due to the steep hydraulic gradient (slope) that exists east of the landfill. There is no evidence of any activity other than the landfill near well GW-16 that would cause degradation of water quality. Additional water quality and water level data are needed to better access alkalinity concentrations and levels of other inorganic compounds near well GW-16 and east of Bell Creek.

3.1.2 Ammonia

Nitrogeneous components in putrescible waste decompose under conditions in the landfill to produce ammonia. Ammonia is the most reduced form of nitrogen and forms under anaerobic conditions. Ammonia is not

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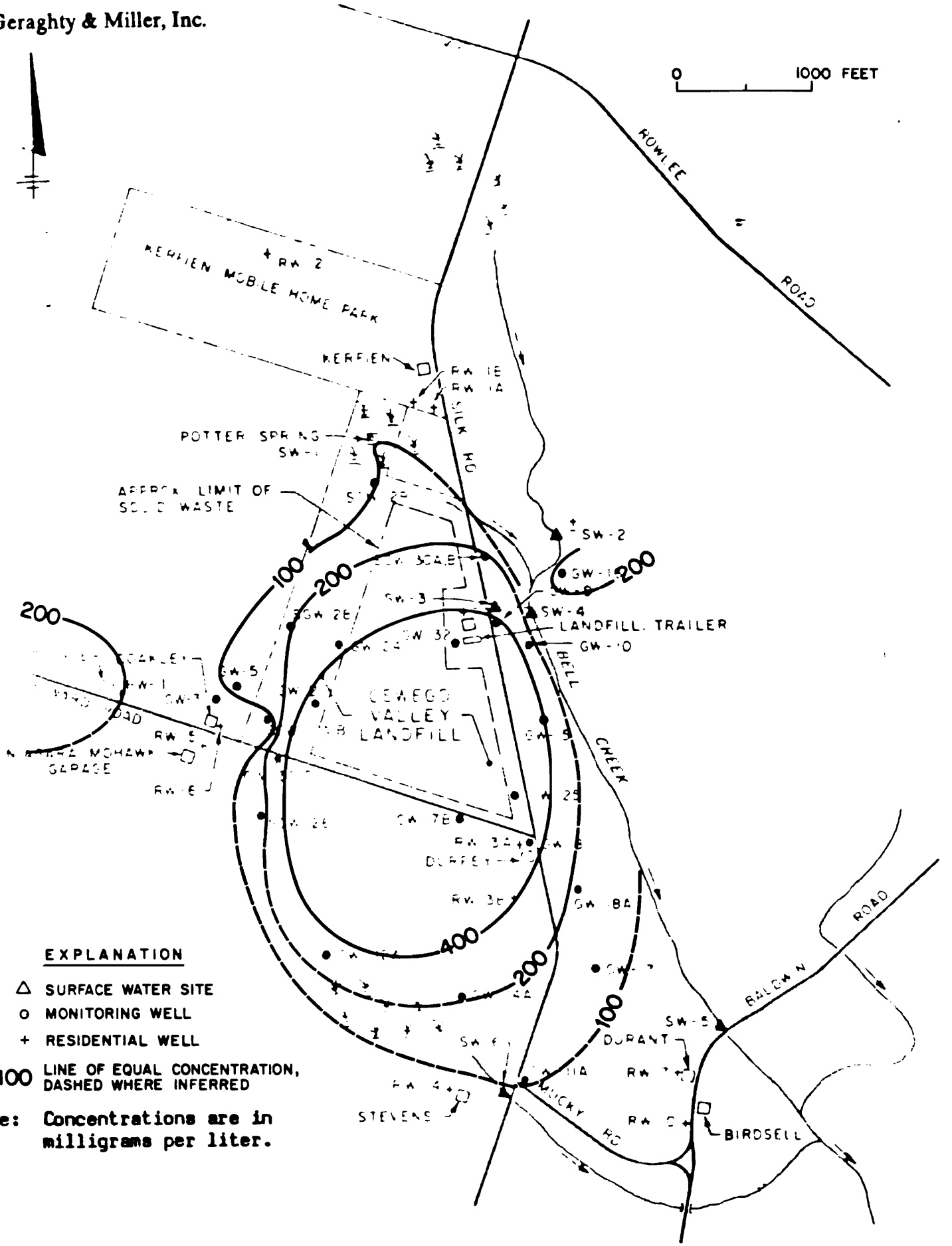

EXPLANATION

△ SURFACE WATER SITE

o MONITORING WELL

\+ RESIDENTIAL WELL

—100 LINE OF EQUAL CONCENTRATION, DASHED WHERE INFERRED

Note: Concentrations are in milligrams per liter.

ALKALINITY CONCENTRATIONS IN THE SHALLOW WATER BEARING ZONE
OSWEGO VALLEY LANDFILL, VOLNEY, NEW YORK

Figure 9

found at concentrations that are significant in natural water because oxidative conditions (the presence of dissolved oxygen) result in ammonia being converted rather quickly to nitrate. Thus, in analyzing ground-water quality data, the presence of ammonia is usually indicative of some sort of contamination. Landfill leachate is a typical source as is septic tank effluent. Under the conditions found in landfill leachate which usually include no dissolved oxygen, ammonia will remain unchanged. It is thus a good tracer for leachate because it appears in ground water when ambient ground water is likely to show little or none. In Figure 10 the concentrations of ammonia in ground water in the vicinity of the landfill are contoured. The enhanced concentrations are shown to extend in a southeasterly direction according to the ground-water flow direction. A slight lobe of ammonia also extends to the west.

Ammonia is also indicative of domestic septic tank leachate which may have affected one or more wells on the west side of the landfill (GW-5 and RW-5). Enhanced concentrations of ammonia are noted at well GW-16 as are concentrations of several other leachate indicators. As discussed in the previous section this phenomenon may be the result of local hydrologic conditions in the area east of Bell Creek.

3.1.3 Chemical oxygen demand (COD)

Many kinds of organic materials are deposited in municipal landfills. Much of the organic matter is rather easily biodegraded and in this process decomposition products are produced having a higher water solubility than the original organic materials. Some of these materials are dissolved in water and become part of the constituents of the landfill

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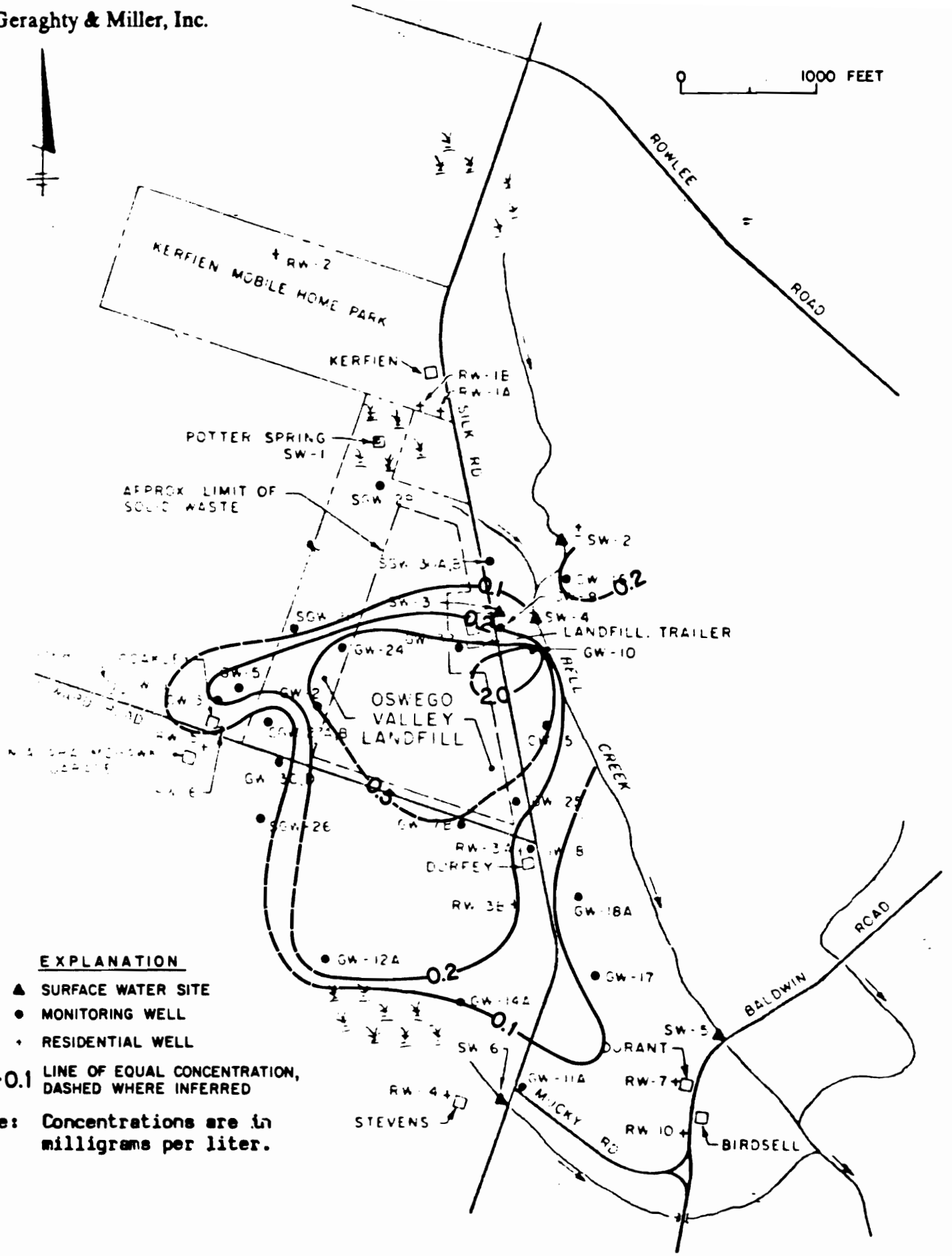

AMMONIA CONCENTRATIONS IN THE SHALLOW WATER BEARING ZONE
OSWEGO VALLEY LANDFILL, VOLNEY, NEW YORK

Figure 10

leachate. The dissolved organic chemicals in the water will react with an oxidizing agent and that reaction is described as a chemical oxygen demand. This value is simply an index to the amount of oxygen used in the oxidation of dissolved organic matter which occurs in a water sample.

The COD values are contoured in Figure 11 and show the same sort of pattern as was noted for alkalinity and ammonia. The extension to the southeast of concentrations of COD indicate the path that the landfill leachate takes. The lobe to the west may indicate slight radial flow in this direction. An area of slightly higher concentration of COD is noted in the vicinity of leachate treatment plant.

3.1.4 Hardness

Hardness is a term used to describe the mineral and alkalinity content of water. When calcium and magnesium carbonates or other calcium and magnesium minerals dissolve in water, the water will form deposits of mineral matter upon its evaporation. In addition, the calcium and magnesium react with soap to form insoluble precipitates that flock out of solution causing a scum in wash water and inefficiency in the use of soap. Hard water will cause a buildup of mineral deposits in pipes and will show up as deposits in fixtures and on the ends of water faucets. In the landfill there is a deposit of organic and mineral matter which releases calcium and magnesium enriching the leachate with those elements. This reaction increases the hardness of the water contaminated by leachate. In areas of generally soft water such as that at Oswego, the increased hardness is quite apparent when leachate contamination occurs.

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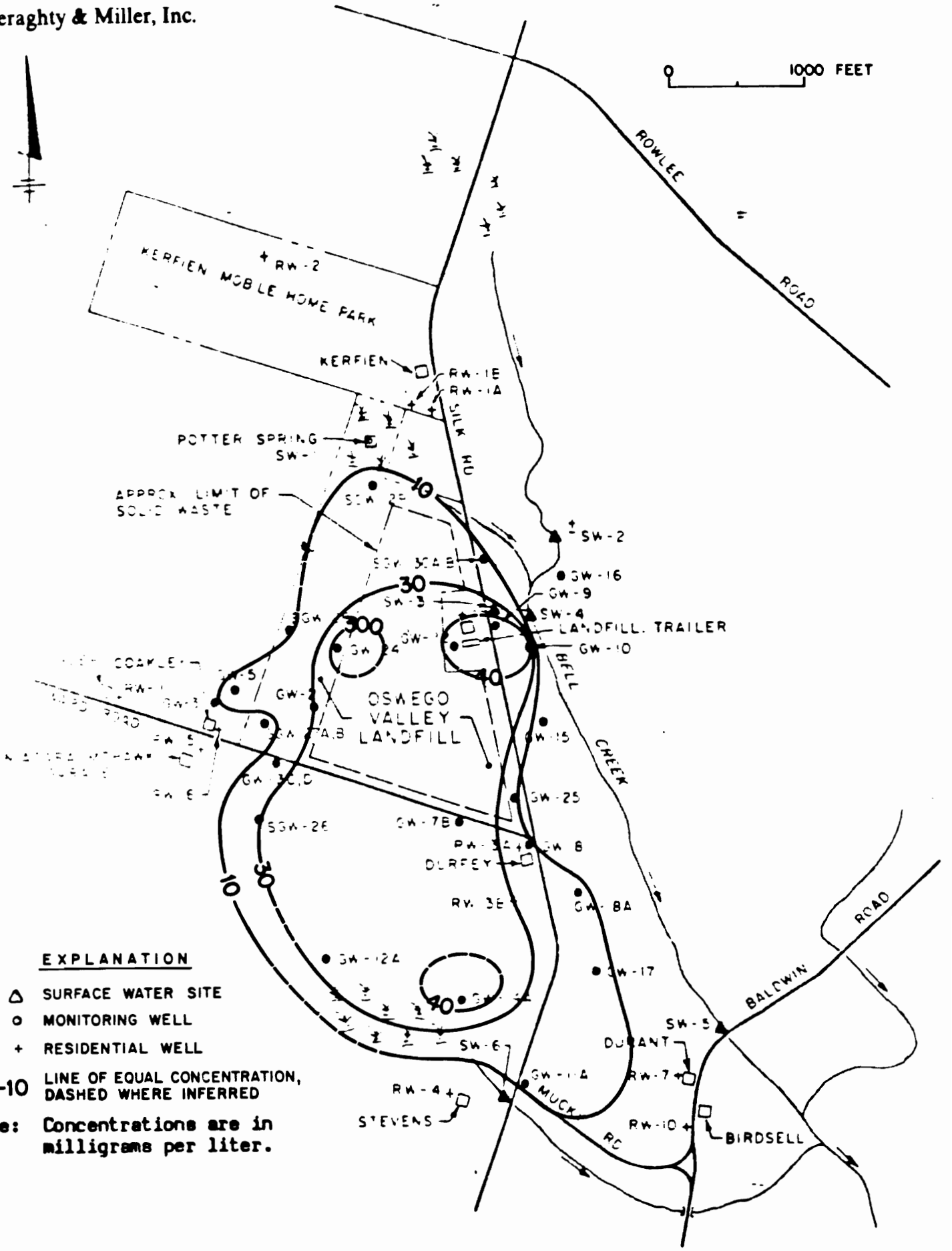

EXPLANATION

- △ SURFACE WATER SITE
- o MONITORING WELL
- \+ RESIDENTIAL WELL
- —10 LINE OF EQUAL CONCENTRATION, DASHED WHERE INFERRED

Note: Concentrations are in milligrams per liter.

CHEMICAL OXYGEN DEMAND CONCENTRATIONS IN THE SHALLOW WATER BEARING ZONE
OSWEGO VALLEY LANDFILL, VOLNEY, NEW YORK

Figure 11

The pattern of hardness follows that of other leachate indicators and is shown in Figure 12. Anomalous hardness concentrations, above ambient concentrations, were found at wells GW-16 and RW-11.

3.1.5 Iron

Chemical conditions in a landfill are highly reducing. This means that there is no dissolved oxygen present and that decomposition processes take place anaerobically. Under these conditions, iron present in the landfill can also be reduced and become more soluble. Iron in a reduced state chemically dissolves in water much more readily than it does in an oxidized state. The flow of highly reduced water such as landfill leachate into native soil or sediment will reduce iron which is coating the sediment particles and lead to relatively high iron concentrations in the water. This phenomenon is almost universally true at landfills that receive putrescible wastes. In Figure 13, the iron concentration contours show a southeasterly extension. This follows the general trend showing the pathway of the leachate-contaminated ground water.

Iron concentrations are the highest at Well 11A (200 mg/l) and do not appear to be related to the leachate plume. There is no ready explanation for the elevated iron concentrations, however, the well is located at the edge of the road and could be affected by deicing chemicals (TDS concentration, is also elevated).

3.1.6 Total Dissolved Solids (TDS)

A measure of the total amount of inorganic material dissolved in water is termed total dissolved solids (TDS). The TDS is simply the

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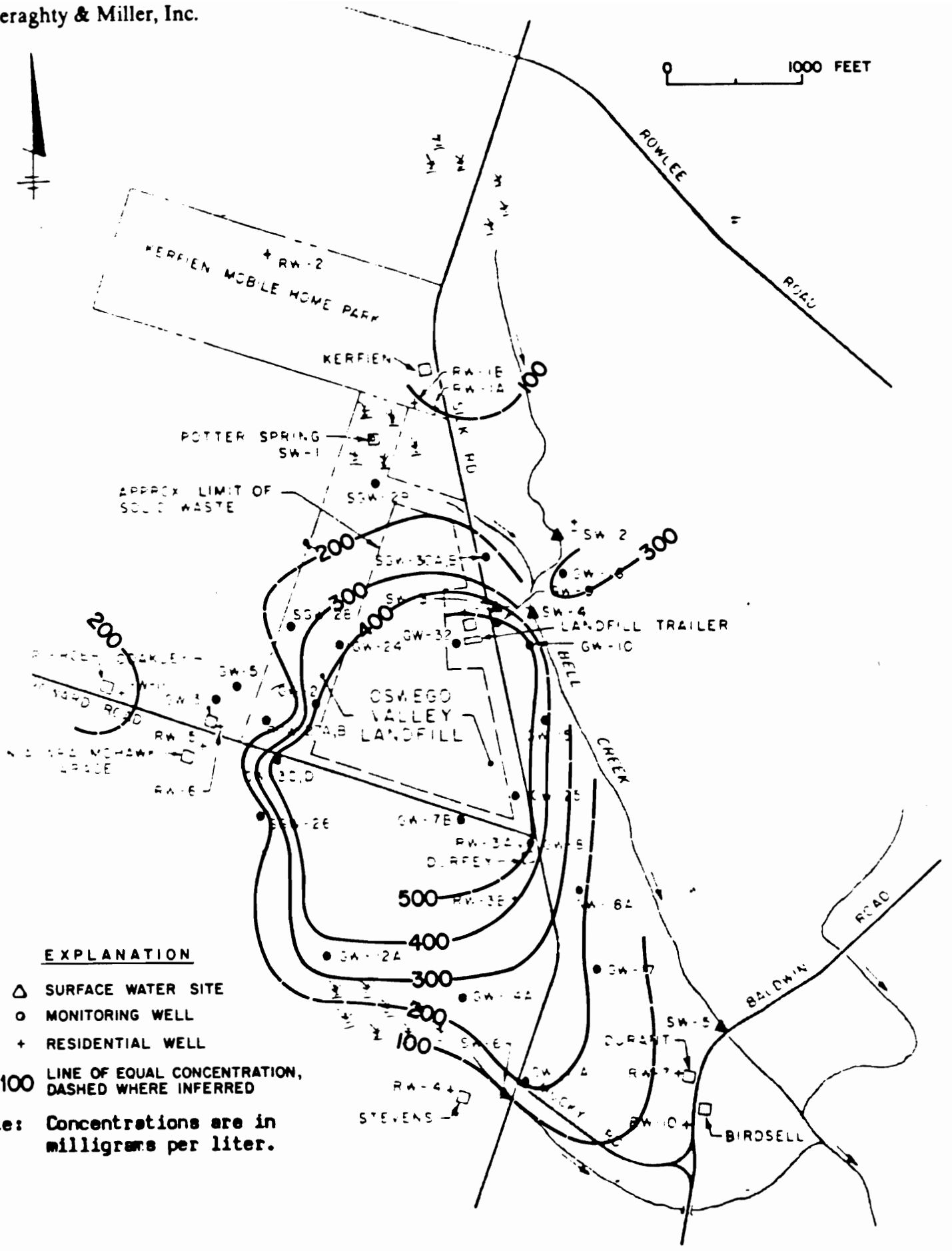

HARDNESS CONCENTRATIONS IN THE SHALLOW WATER BEARING ZONE
OSWEGO VALLEY LANDFILL, VOLNEY, NEW YORK

Figure 12

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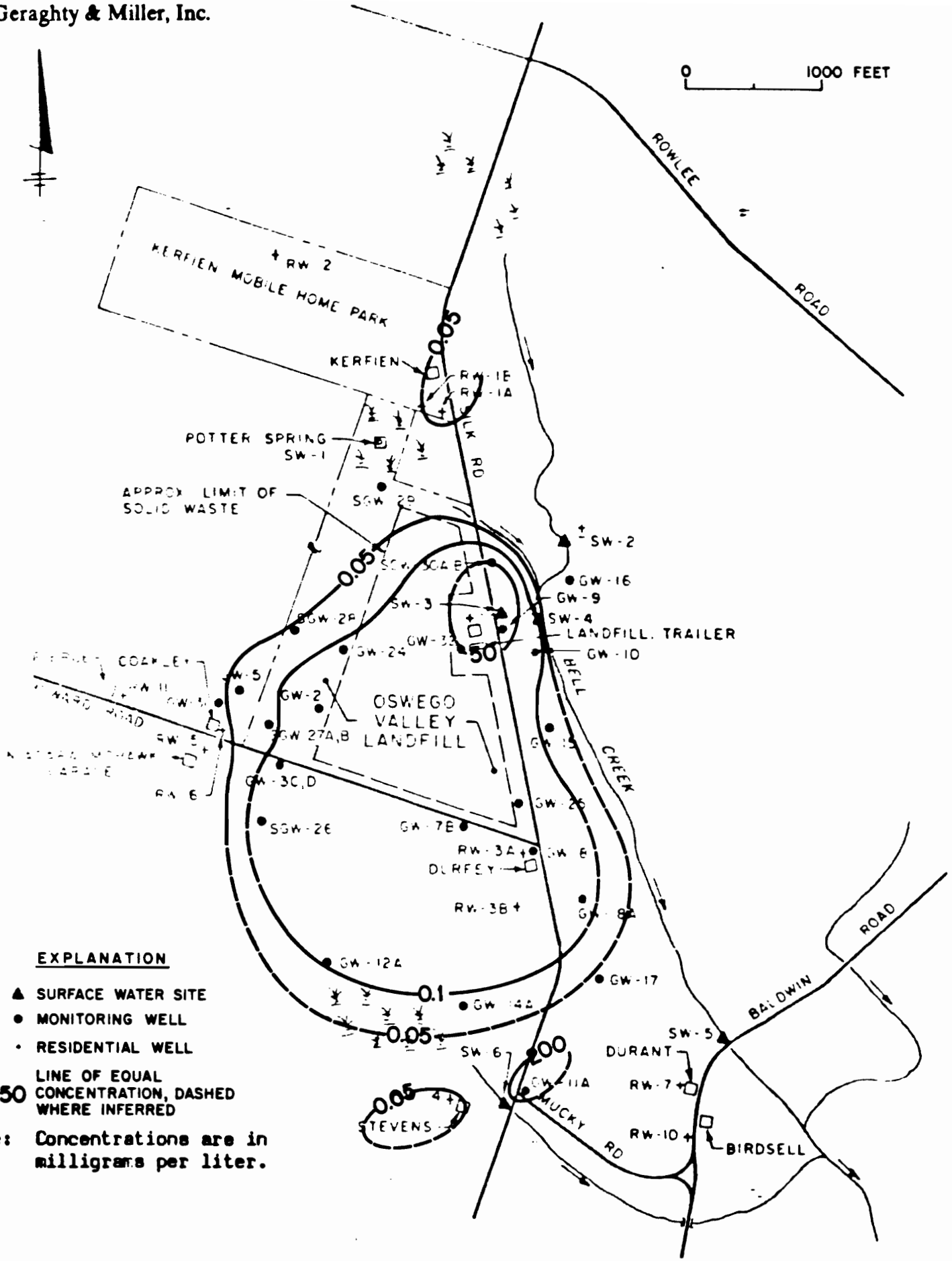

IRON CONCENTRATIONS IN THE SHALLOW WATER BEARING ZONE
OSWEGO VALLEY LANDFILL, VOLNEY, NEW YORK

Figure 13

residue remaining after a water sample has been totally evaporated. Organic material may make up a small portion of the TDS, but as a rule it is not significant. The TDS is an index of the amount of mineral matter that has been dissolved in ground water and in this case represents a general index of the strength of the landfill leachate. TDS does not discriminate in terms of the individual components that may be dissolved.

TDS is related to the specific conductivity of a water sample because it is the dissolved solid concentration which gives rise to the electrical conductivity. The TDS contours are shown in Figure 14 and generally agree with the pattern of leachate flow. There are several locations where concentrations of TDS are slightly higher than the concentration in the immediate vicinity. There are a number of potential causes such as the influence of septic tank effluent or road salting or other activities that may add dissolved substances to the water.

3.1.7 Total Organic Carbon (TOC)

The TOC concentrations are similar to the COD as they represent dissolved organic matter. In this case, the measurement is made directly of combustible carbon rather than indirectly by using an oxidizing agent. There is no discrimination in the organic matter which is being measured as it is totally combusted.

TOC concentration contours shown in Figure 15 follow the same flow path as other contours denoting the area of leachate contamination. It should also be noted that the area near well GW-16 and the Pierce residence shows a slight increase in TOC values. These anomalies show up and have been explained previously.

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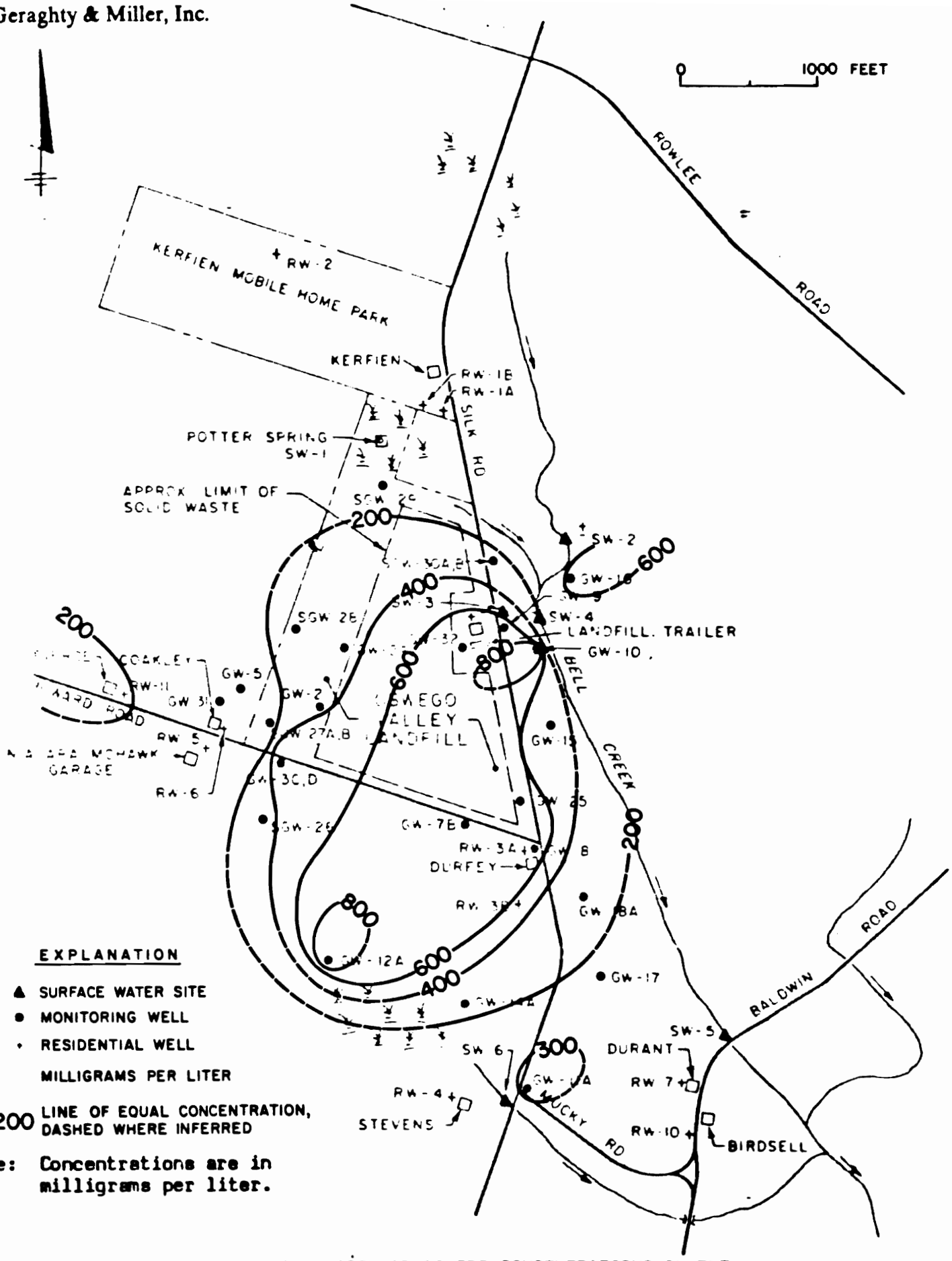


EXPLANATION

- ▲ SURFACE WATER SITE
- ● MONITORING WELL
- • RESIDENTIAL WELL

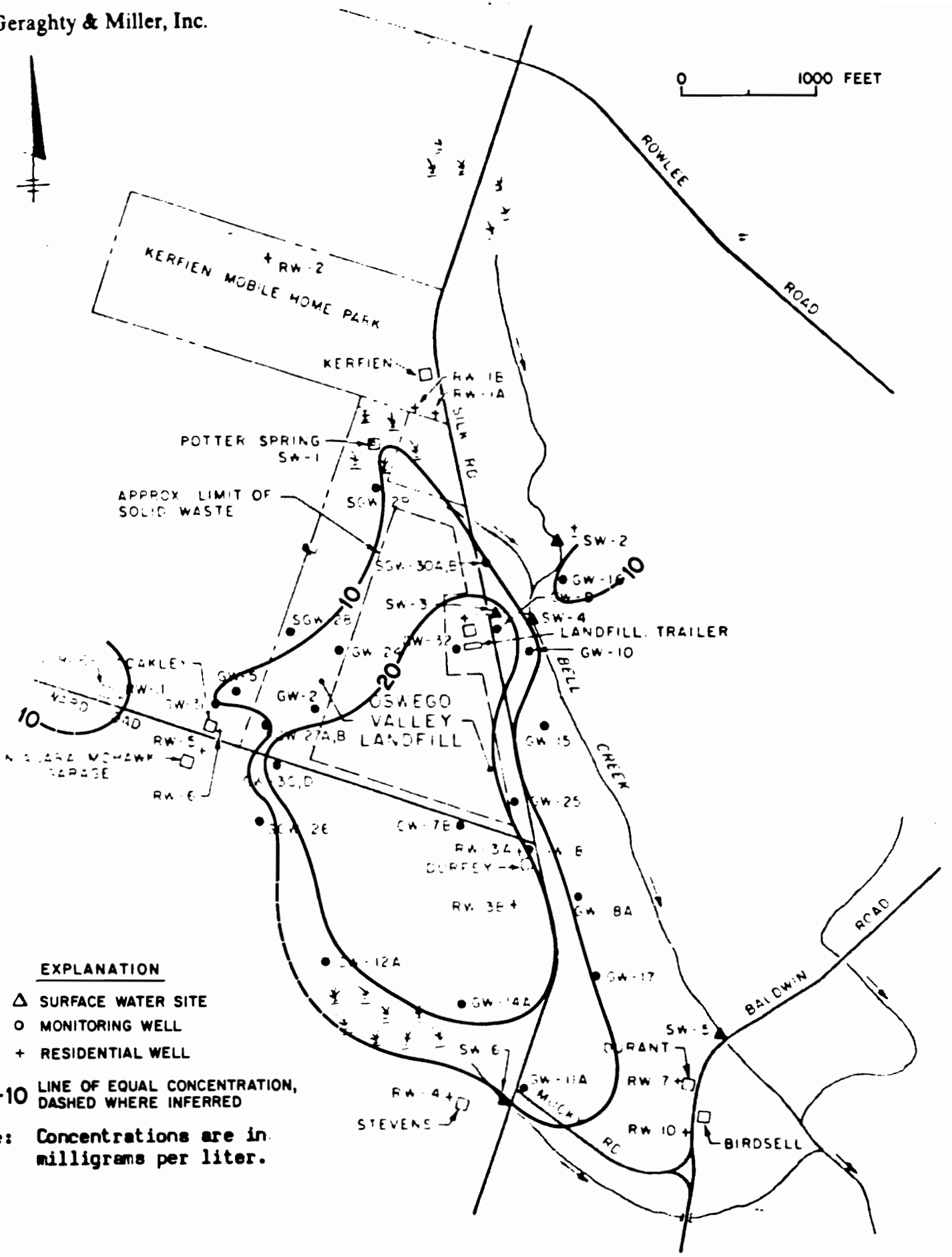
MILLIGRAMS PER LITER

—200 LINE OF EQUAL CONCENTRATION, DASHED WHERE INFERRED

Note: Concentrations are in milligrams per liter.

TOTAL DISSOLVED SOLIDS CONCENTRATIONS IN THE SHALLOW WATER-BEARING ZONE
OSWEGO VALLEY LANDFILL, VOLNEY, NEW YORK

Figure 14



TOTAL ORGANIC CARBON CONCENTRATIONS IN THE SHALLOW WATER BEARING ZONE
OSWEGO VALLEY LANDFILL, VOLNEY, NEW YORK

Figure 15

3.3 Artesian Aquifer (Bedrock/Till)

Analytical work had been done on ground-water samples from the bedrock aquifer and the deep unconsolidated zone above the bedrock. The results depicted in Figure 16 are for the same suite of leachate indicator parameters that was analyzed for in shallow ground-water samples. Although some differences may be noted between samples in certain of the chemical constituents, there does not seem to be any trend or any area delineated by higher than normal concentrations. Some samples such as GW-32 and GW-5 have somewhat elevated ammonia concentrations and iron and TDS concentration exceed the drinking water guidelines in a few samples. However, comparing the results, there appears to be no pattern of concentrations that delineate a leachate contamination plume. Thus it can be concluded that the leachate has not had any influence on the bedrock and deep unconsolidated aquifer.

3.3 Surface Water

Surface-water samples were collected from Potter's spring, Bell Creek and other surface water drainage areas and analyzed for leachate indicator constituents and volatile organic compounds. The results of these analyses are shown in Figure 17. Bell Creek in the reach between surface water sampling site SW-2 and surface water sampling site SW-5 has been slightly influenced by discharge of leachate-contaminated ground water as indicated by increased concentrations of TDS, hardness, ammonia, and alkalinity. Iron concentration also appears to be influenced, but the differences in concentration may not be statistically significant. This interpretation of the surface-water quality is consistent with the previous ground-water quality data and understanding of the ground-water flow system.

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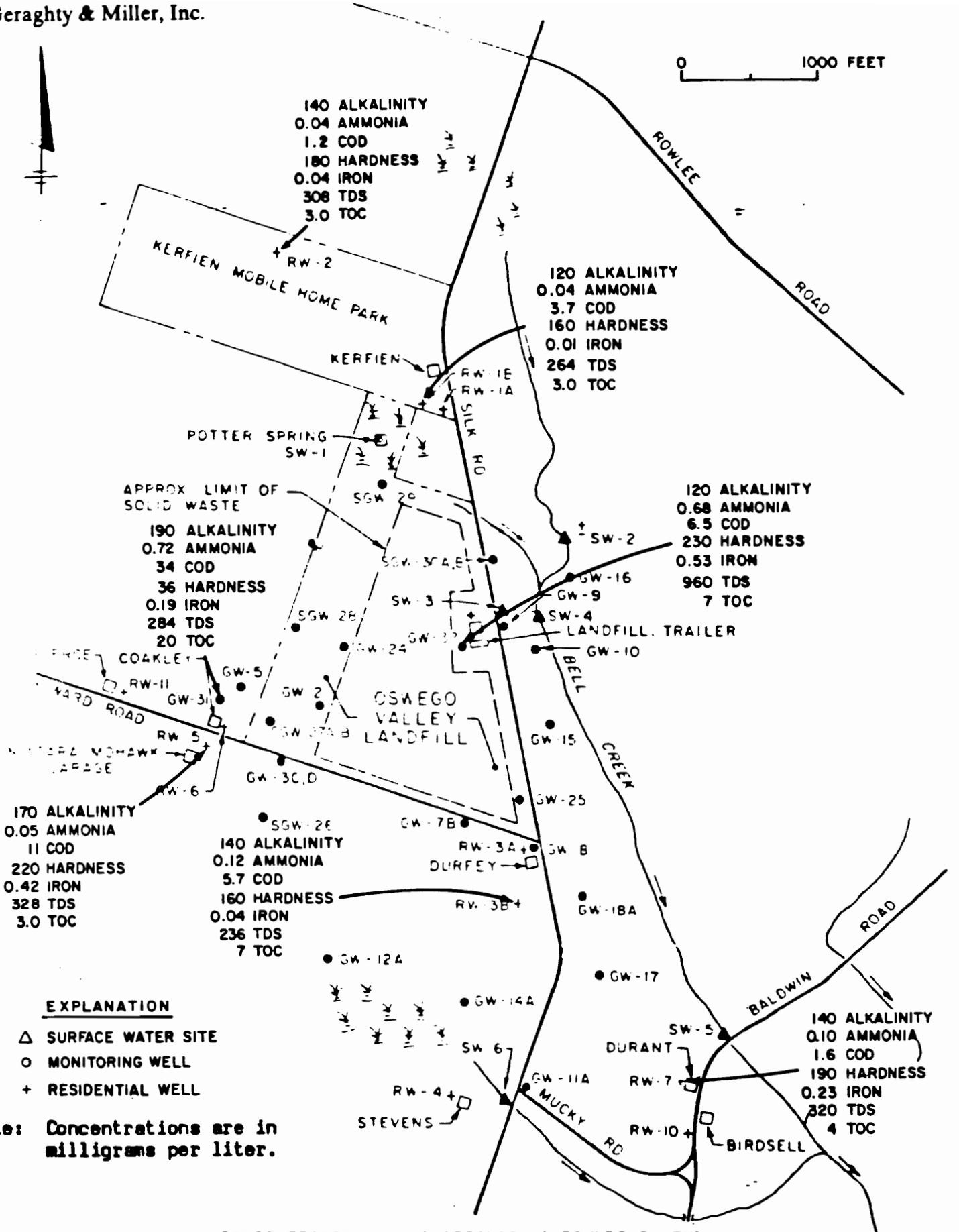
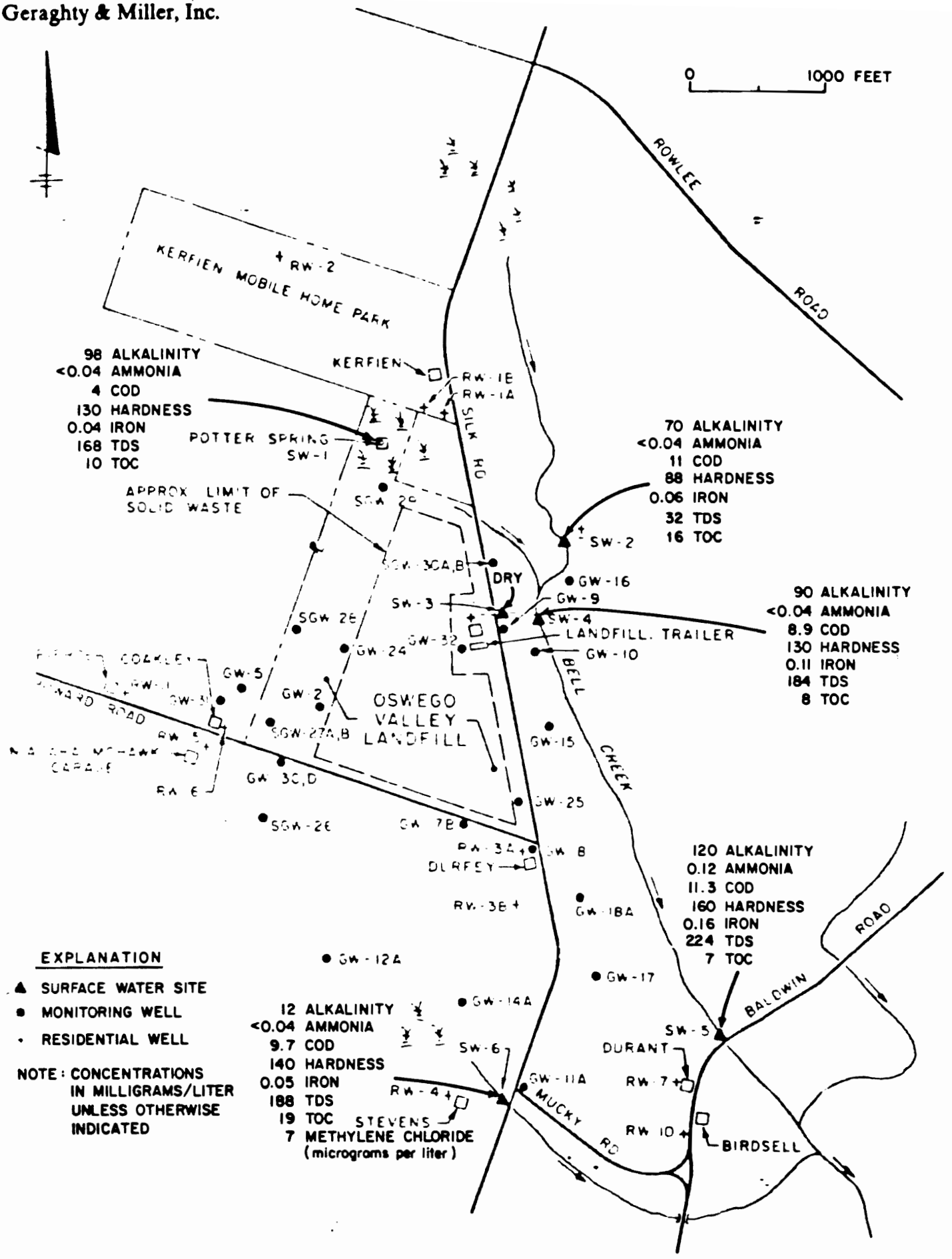


Note: Concentrations are in milligrams per liter.

CONCENTRATIONS OF INORGANIC COMPOUNDS IN THE BEDROCK AQUIFER (INCLUDES ANALYTICAL RESULTS FROM SAMPLES COLLECTED FROM THE UNCONSOLIDATED ZONE - BEDROCK INTERFACE)
OSWEGO VALLEY LANDFILL, VOLNEY, NEW YORK

Figure 16



CONCENTRATIONS OF INORGANIC AND ORGANIC COMPOUNDS
IN SURFACE WATER SAMPLES JANUARY 26, 1985
OSWEGO VALLEY LANDFILL, VOLNEY, NEW YORK

Figure 17

A trace amount (7 micrograms per liter) of methylene chloride was detected in surface water sample SW-6. Methylene chloride is a common laboratory reagent and is a problem as a trace contaminant. When methylene chloride is present at levels of 10 micrograms per liter or less in a sample it is probable that it is a laboratory artifact. Unless it is confirmed during future analyses, we do not attach much significance to this result.

3.4 Residential Wells

Residential wells were sampled for the purpose of analyzing the water for inorganic, volatile organic, and microbiological constituents. The results are presented in Table 4. Inorganic analyses included the suite of leachate indicators discussed above. None of the inorganic constituents in residential wells exceeded the NYSDEC Class GA ground-water standards. Generally the water would be classified as neutral to slightly alkaline, hard to very hard, and moderately mineralized.

→ previous statement that regional water was "soft" (pg 12)

The Kerfien well sample was the most affected by biological contamination. The Pierce and Stevens wells showed slight contamination. Up to four bacterial colonies are tolerable under the state sanitary code, but the presence of coliform bacteria indicates further sampling should be done. In all cases, the samples were obtained from dug wells which seldom have effective sanitary seals.

Only the Pierce well showed a positive test for volatile organic compounds. In this case, 6 ug/L of methylene chloride was detected. Methylene chloride is universally used in laboratories for extraction and cleaning and, as explained in the previous section, is a problem as a trace

Table 4. Chemical Quality of Drinking Water from Residential Wells near the Oswego Valley Landfill, Volney, New York, January 27, 1985 (concentrations in milligrams per liter, unless otherwise indicated).

Parameter	NYSDEC Class GA Drinking Water Standards	Birdsell (RW-10) (Dug Well)	Durant (RW-7) (Drilled Well)	Durfey (RW-3A) (Dug Well)	Durfey (RW-3B) (Drilled Well)	Kerfien (RW-1A) (Dug Well)
Alkalinity	-	38	140	200	140	56
COD	-	4.1	1.6	7.8	5.7	2
Chloride	250	4	29	4	10	27
Specific Conductance (umhos/cm)	-	200	400	400	300	190
Hardness	-	92	190	220	160	100
Ammonia	-	0.05	0.10	<0.04	0.12	<0.04
Nitrate	10	2.25	<0.04	0.05	<0.04	0.47
pH (standard units)	6.8-8.5	7.3	7.4	6.6	7.9	7.1
TDS	500[2)]	168	320	296	236	152
Sulfate	250	18	27	7	6.5	8.2
TOC	-	4	4	9	7	<3.0
Iron	0.3	0.03	0.23	<0.01	0.04	0.08
Manganese	0.3	0.01	0.03	<0.01	0.04	0.03
Zinc	5	0.21	0.05	0.49	0.10	0.17
Coliform Fecal (colonies/100 ml)	<1	<1	<1	<1	<1	Positive
Coliform Total (colonies/100 ml)	<1	<1	<1	<1	<1	25
Volatile Organic Compounds (ug/L)	-	ND	ND	ND	ND	ND

1) Methylene chloride detected.
2) USEPA Drinking Water Standard.
ND - None detected.

Table 4. (Continued)

Parameter	NYSDEC Class GA Drinking Water Standards	Kerfien (RW-1B) (Drilled Well)	Kerfien (RW-2) (Trailer Park Well)	Niagara Mohawk (RW-5) (Drilled Well)	Pierce (RW-11) (Dug Well)	Stevens (RW-4) (Dug Well)
Alkalinity	-	120	140	170	250	82
COD	-	3.7	1.2	11	8.6	4.1
Chloride	250	20	23	18	1	<1.0
Specific Conductance (umhos/cm)	-	300	400	400	450	200
Hardness	-	160	180	220	270	96
Ammonia	-	<0.04	<0.04	0.05	0.05	<0.04
Nitrate	10	1.45	0.41	<0.04	0.60	0.64
pH (standard units)	6.8-8.5	7.3	7.5	7.3	7.4	8.0
TDS	-	264	308	328	368	176
Sulfate	250	18	23	29	22	10
TOC	500[2]	<3.0	3.0	<3.0	19	9
Iron	0.3	<0.01	0.04	0.42	<0.01	0.06
Manganese	0.3	<0.01	0.01	0.24	<0.01	<0.01
Zinc	5	0.09	0.09	0.08	0.11	0.10
Coliform Fecal (colonies/100 ml)	<1	<1	<1	<1	2	<1
Coliform Total (colonies/100 ml)	<1	<1	<1	<1	3	3
Volatile Organic Compounds (ug/L)	-	ND	ND	ND	6[1]	ND

1) Methylene chloride detected.
2) USEPA Drinking Water Standard.
ND - None detected.

laboratory's atmosphere, therefore, we do not attach significance to this analysis unless it is confirmed with future sampling.

3.5 Leachate Quality

The Oswego Valley Landfill is constructed with a leachate collection system that allows leachate to be collected and treated on site. The collection accounts for the relatively low levels of leachate contamination in ground water as compared to other New York State sites without leachate control (Kimmel & Braids). Table 5 shows the results of analysis of samples from the leachate sump, the leachate tank, and the pump station. For comparative purposes, typical leachate composition is also shown.

The pump station presumably represents an integrated leachate sample, so that is the analysis that will be discussed. The solution is highly mineralized as indicated by the high TDS equal to about one third that of sea water. Alkalinity and hardness are also high as the leachate is charged with carbon dioxide. Ammonia is over 700 mg/L, whereas nitrate is less than 1 mg/L. This contrast illustrates the lack of oxidative conditions within the landfill. The reducing conditions also result in over 100 mg/L iron in solution and only a small concentration of sulfate.

COD and TOC concentrations reflect the high concentrations of organic substances in the leachate. Most of the organic matter is comprised of low molecular weight acids, alcohols, and ketones that are decomposition products of garbage. The synthetic organic compounds shown as Selected Organic Parameters are recorded in concentration units one thousand times smaller than the inorganic parameters. Thus they do not comprise a very significant percentage of the overall organic loading.

Table 5. Chemical Quality of Leachate Samples Collected from the Oswego Valley Landfill, Volney, New York, January 27, 1985

Inorganic Parameters mg/L	OVL-1 Leachate Sump	OVL-2 Leachate Tank	OVL-3 Pump Station	Chemical Quality of Typical Municipal Landfill Leachate[1] Fresh	Old
Alkalinity	8,000	2,900	5,300	0 - 20,850	-
Ammonia	822	290	713	0 - 1,106	-
COD	1,315	4,015	8,423	22,650	81.1
Chloride	1,800	610	130	742	197.4
Hardness	5,000	1,900	3,000	0 - 22,800	-
Iron	6.7	45	140	500	1.5
Nitrate	0.07	<0.04	0.07	0 - 1,300	-
Sulfate	67	4.5	4.5	1 - 1,826	-
TDS	8,824	5,244	10,952	12,620	1,144
TOC	1,100	140	2,100	6,500	70
Specific Conductance umhos/cm	14,500	4,000	12,000	9,200	1,400
pH (standard units)	7.0	7.2	6.9	5.2	7.3
Selected Organic Parameters ug/l					
Benzene	19	<5	<5	-	-
Ethylbenzene	134	8	49	-	-
Methylene Chloride	<5	140	530	-	-
Methyl Ethyl Ketone	420	3,200	12,000	-	-
Toluene	1,900	180	660	-	-
1,1,1-Trichloroethane	<5	<5	<5	-	-

1) Sources: Brunner and Carnes, 1974 and USEPA, 1973.

Methyl ethyl ketone, toluene, and methylene chloride are present in the highest concentrations of the volatile compounds. Methyl ethyl ketone was also found in well GW-3C at the highest concentration of all of the volatiles in ground water. All three compounds are commonly used as solvents in paints, paint removers, and degreasers. These substances could have originated in consumer products discarded in the landfill.

4. RECOMMENDED MONITORING PROGRAM

It is recommended that surface-water and ground-water monitoring continue on a quarterly basis for a period of one year. The purpose of continued monitoring is to establish a comprehensive data base to assess seasonal variability in ground-water and surface-water quality and to better quantify the impact of the landfill. The quarterly ground-water level and quality data will be evaluated after one year of sampling and, at that time, a future course of action will be recommended. Table 6 presents the recommended ground-water, surface-water and leachate sampling points and analytical parameters. Table 7 explains the rationale for monitoring at each data point.

In addition to the quarterly monitoring program, we recommend replacing several existing monitoring wells determined to be unsuitable for sampling purposes, and installing several new wells in areas where little is known about hydrogeologic ground-water quality conditions. USGS wells 6, 7 and 8, along Howard Road, are located at key early warning areas for movement of leachate from the landfill to the south. The integrity of these wells is questionable based on our field inspection during Task 1

Table 6. Recommended Quarterly Monitoring Program for the Oswego Valley Landfill, Volney, New York - May, 1985.

WELLS

Residential Wells		Monitoring Wells	
RW-1A	RW-5	GW-3C	GW-16
RW-1B	RW-6	GW-3D	GW-17
RW-2	RW-7	GW-5	GW-18A
RW-3A	RW-10	GW-7B	SGW-26
RW-3B	RW-11	GW-8	SGW-27A
RW-4		GW-9	SGW-27B
		GW-10	SGW-28
		GW-12A	SGW-29
		GW-14A	SGW-30A
		GW-15	SGW-30B

1) Replace existing wells.

LEACHATE

OVL-1 (Sump)

OVL-2 (Tank)

OVL-3 (Pump)

SURFACE-WATER

SW-1

SW-3

SW-5

Table 6. (Continued)

ANALYTICAL PARAMETERS

Alkalinity
Ammonia
Chemical Oxygen Demand
Chloride
Coliform (residential wells only)
Hardness
Nitrate
Sulfate
Total Dissolved Solids
Total Organic Carbon
Volatile Organic Analyses + Methyl Ethyl Ketone

Iron)
Manganese) Semi-annual parameters
Zinc)

Specific Conductance)
Temperature) Measured in field
pH)

BLANKS AND REPLICATES

(see text)

- WATER-LEVEL MEASUREMENTS

All wells and surface-water sites

Table 7. MONITORING RATIONALE

WELLS	RATIONALE
All residential wells	Public health and safety.
GW-3C GW-3D GW-9 GW-10 SGW-27 A, B SGW-29 SGW-30 A, B	Monitor concentration and species of volatile organic compounds.
GW-5 SGW-28	Monitor ground water quality moving west from the landfill.
*GW-7P *GW-8 SGW-26	Early warning wells, monitor ground water quality south of the landfill.
GW-12 GW-14A GW-17 GW-18A	Monitor quality of ground water moving toward residential areas along Baldwin Road.
GW-15	Monitor ground water moving east from landfill toward Bell Creek.
GW-16	Monitor elevated levels of inorganic compounds.
SURFACE WATER	
SW-1	Monitor ground water discharge zones nearest to the landfill.
SW-3	
SW-5	Monitor surface water quality down stream from the landfill.
LEACHATE	
OVL-1 OVL-2 OVL-3	Monitor concentration and species of volatile organic compounds.

*Replace, poor construction.

What is wrong with them?

and, therefore, we recommend that they be replaced. The replacement wells must be located further from Howard Road or Silk Road than the existing wells, so they will not be directly affected by street runoff.

As a quality control/quality assurrance (QC/QA) measure, at least two trip blanks and two field blanks should be analyzed for volatile organic compounds each quarter. A trip blank is a vial that is filled with organic-free water in the laboratory and travels unopened with the sample bottles. It is opened in the laboratory and analyzed along with the field samples for the constituents of interest. A field blank is made by taking organic-free water and placing it in contact with any field apparatus (bailer, pump, container) or with the atmosphere near a well that the samples contact and which conceivably is a source of contamination. The water is then sealed into the same type of sample bottle as will contain the actual samples.

In addition, "blind" replicate samples should be collected at two wells where elevated concentrations of contaminants are known or suspected, and two from background wells. These samples should be analyzed for the full suite of parameters recommended in this program. This procedure is done to monitor the reproducibility of the analytical procedure.

The concentrations of certain inorganic compounds in ground-water samples from well GW-16 were higher then expected for the area east of Bell Creek. Bell Creek is thought to be a hydraulic boundary to ground-water flow from the landfill. It is uncertain whether the inorganic

compounds found in GW-16 have orginated from the landfill and traveled beneath the creek or have originated from another source. Because of the limited ground-water quality and water-level information east of Bell Creek we recommend that at least two monitoring wells be installed so that the impact of the landfill in this area can be assessed. The proposed locations of these wells are shown on Figure 18.

Respectfully submitted,

GERAGHTY & MILLER, INC.

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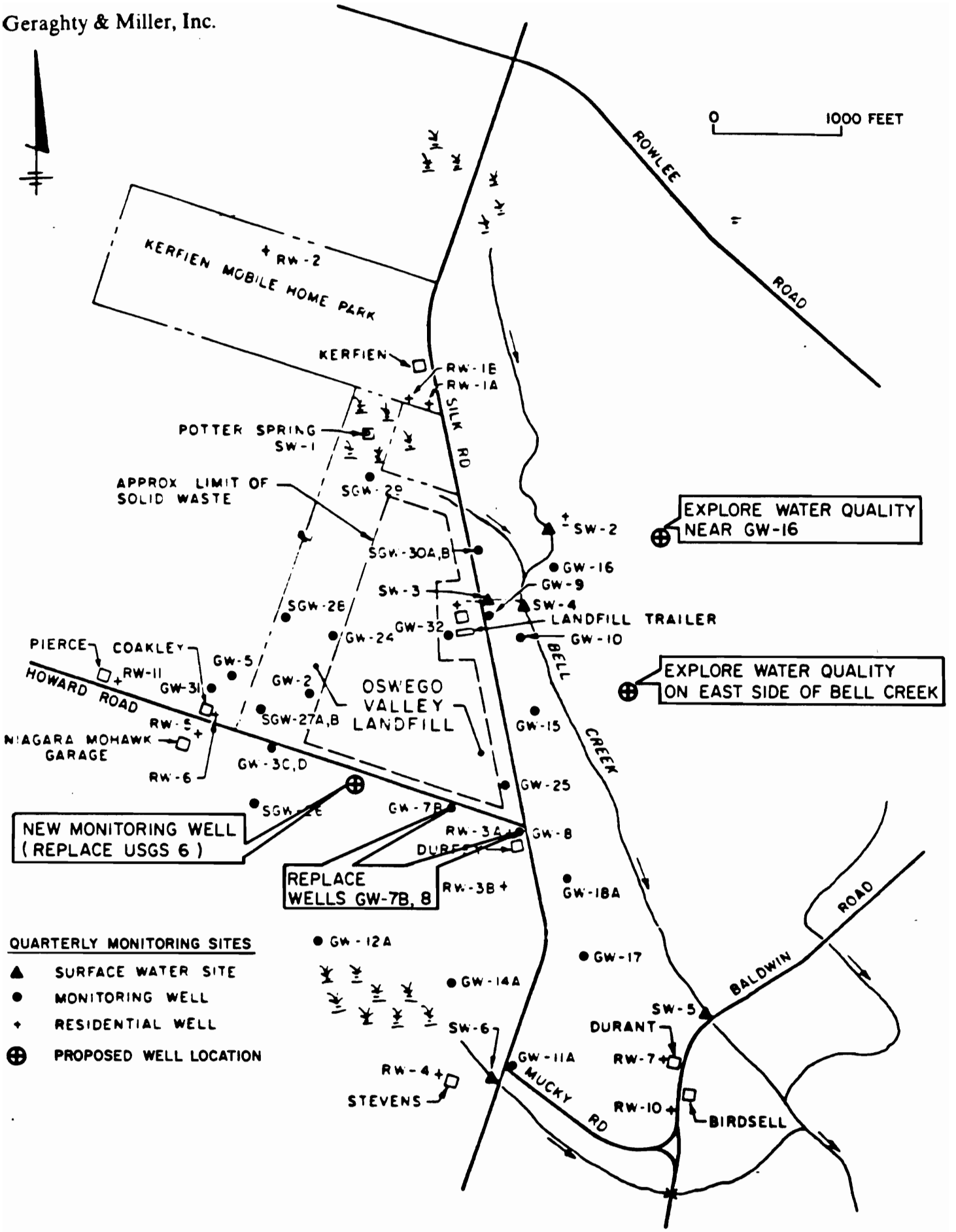
July 18, 1985



RECOMMENDED MONITORING AND EXPLORATION AT THE OSWEGO VALLEY LANDFILL, VOLNEY, NEW YORK

Figure 18

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APPENDIX A

Field Investigation

FIELD INVESTIGATION

The hydrogeologic field investigation of the Oswego Valley Landfill, Volney, New York, site was carried out in a series of related tasks (Task 1, 2 and 3) which began in December 1984. Task 1 involved the inspection and restoration of existing (USGS) landfill monitoring wells; Task 2 involved the installation of new monitoring wells designed to supplement the existing monitoring network (SGW wells); Task 3 involved collecting water samples and water-levels from monitoring wells, residential wells, leachate collection systems and streams. This section summarizes activities performed during each task.

Task 1. Inspection and Restoration of Existing Landfill Monitoring Wells

To insure ground-water samples and levels collected from existing USGS landfill monitoring wells are representative of conditions within the formation, it was necessary to inspect the integrity of the wells and undertake remedial measures when appropriate.

Inspection of the wells involved comparing the actual well depth with the reported depth (from well logs). Actual depth was determined by sounding the bottom of the well with a weighted tape. If the depths did not correspond, for reason of silt accummulation inside the well, the silt was then removed by bailing (bottom-filling bailer) and pumping (centrifugal pump) until the bottom of the well was cleared.

To insure that there was good hydraulic connection between the well screens and the formation, attempts were made to develop wells by removing

at least 3 to as much as 10 casing volumes of ground-water from the wells. In most cases it was not possible to remove water from wells at a continuous rate. In these instances at least one casing volume of water was removed. Recovery rates of water flowing into the wells after they were pumped or bailed dry were measured to determine progress of the development process. With few exceptions, recovery rates were very slow due to the low-permeability of the unconsolidated deposits and the relatively short screen lengths used in most of the USGS wells.

None of the existing USGS wells were constructed with cement (or clay) seals at land surface to prevent surface runnoff from moving down the annular space between the well casing and borehole wall, nor did they have protective steel casings with locking caps to prevent damage to the wells. Such protective equipment was installed on all wells deemed suitable for the January 1985 sampling program and future monitoring. For steel wells with threaded casing, only locking caps were installed.

In cases where two USGS wells, of equal dimensions and depth, but different construction material (galvanized steel vs PVC), existed at a single location, the PVC well was selected for restoration (except for PVC Well USGS 18B which could not be located). PVC wells are more resistant to chemical decomposition that could effect the chemistry ground-water samples, and are consistent with the PVC construction of new, supplemental wells that were later installed during Task 2.

Well casings that were damaged above ground or finished at ground surface, where they could be inundated by flooding, were replaced or ex-

tended so that approximately two feet of well casing extend above land surface. Because Wells USGS-6 and TW-9 were irreparably damaged below grade, and the construction of GW-7B (USGS-7B) was questionable (installed too shallow), these wells were not restored. Well construction details at existing (USGS) landfill monitoring wells are included in Geraghty & Miller, Inc.'s August 1984 report: Evaluation of Hydrogeologic Conditions and Preparation of a Proposed Ground-Water Monitoring Program, Oswego Valley Landfill, Oswego County, New York.

Task 2. Installation of Supplemental Monitoring Wells and Surface-Water Monitoring Stations

Monitoring wells, designated as SGW wells, were installed at five locations, (Figure 1) to supplement the existing monitoring network at the Oswego Valley Landfill. These wells are designed to provide ground-water quality and water-level data in areas Geraghty & Miller, Inc. believed needed further investigation as a result of an initial evaluation of hydrogeologic data at the site (August 1984). The Task 2 program also established permanent water-level measuring and sampling stations at Potter Spring, Bell Creek and its tributaries (Figure 1).

Well installation was carried out from December 3 to 7, 1985, by Parratt-Wolff, Inc., East Syracuse, New York. An eight-inch diameter borehole was advanced to the lodgement till at each well location using hollow-stem auger equipment. Soil samples (cores) were collected at five-foot intervals from land surface to the top of the till (including several feet into the till) using a split barrel sampler and were retained

in jars for geologic interpretation. No drilling fluids were used during well drilling or installation so as not to affect the chemistry of water in the wells. Equipment used to collect soil samples and drill wells was cleaned with steam at each site before moving to the next well location. Driller's logs are included in Appendix B.

Clean, two-inch diameter PVC well casing and screen were installed inside the hollow auger flytes to the bottom of each borehole. Internally threaded well casing and screen were used to avoid glue (PVC cement) which could leach contaminants into the water inside the well. A graded sand pack was placed around the entire length of well screen, filling the annular space between the well screen and borehole wall. As sand was poured through the hollow auger flytes (between the hollow-stem and well casing) the flytes were slowly removed to make certain the hole did not collapse and the entire space surrounding the screen was filled with the sand pack. The sand pack was placed at least three feet above the top of the screen at all wells.

To prevent surface runoff from moving into the well, the annular space above the sand pack was sealed first with bentonite clay pellets (approximately three feet thick) then a bentonite-cement slurry. The slurry was installed through a tremie pipe so that the space was filled from the bottom of the hole up to several feet below land surface. The remaining space was filled with cement, and a protective steel casing with a locking cap was installed. Well construction logs are given in Appendix C.

To insure the wells were functioning properly and that silt and clay were cleared from the well screens, each well was developed with a centrifugal pump until the discharged water became clear.

Measuring point elevations were surveyed to 0.01 foot relative to mean sea level at the top of each supplemental well by a licensed New York State engineering firm. Measuring point elevations were resurveyed on all existing (USGS) monitoring wells that were restored and used during this investigation. Elevations of several residential wells and surface water monitoring sites SW-1, 4, 5 and 6 were also surveyed. Elevations are given in Appendix D.

Surface water monitoring stations were established at locations shown on Figure 1. SW-1, 4, 5 and 6 were established by Geraghty & Miller, Inc. to monitor surface-water quality and levels at these locations, and are marked with a staff guage (2-inch diameter galvanized steel pipe). SW-2 and 3 were established by the County of Oswego and have been monitored for surface-water quality during previous studies as well as the January 1985 sampling program.

Task 3. Collection of Surface- and Ground-Water Samples.

Surface- and ground-water samples were collected by Geraghty & Miller, Inc. at the locations shown on Figure 1 (except for GW-7R, GW-25 and SW-3 which were dry and could not be sampled). In addition, three leachate samples were collected from the Oswego Valley Landfill leachate collection system. Sampling took place from January 21 to 28, 1985.

The sampling protocol for all landfill monitoring wells was as follows:

- The volume of water in each well was determined prior to sampling by multiplying the length of the water column (total well depth minus depth to water) by a constant value, in gallons per foot, for the given diameter of the well.

- When possible, at least three casing volumes of water were removed from the wells (ten volumes from the "SGW" wells). In most cases, however, wells were pumped or bailed dry because of the fairly low permeability of the formation. Therefore, only one casing volume could be removed prior to sample collection, which took place as soon as water refilled the wells.

- Ground-water was evacuated and sampled from wells using dedicated PVC (3/4-inch diameter) bailers and disposible nylon bailer line. Precaution was taken not to allow the bailer line come into contact the ground during well evacuation and sampling so as not to contaminate samples. Bailer lines were disposed of after use. Bailers, which are dedicated to individual wells to prevent cross-contamination, are labeled and stored at the Calocerinos and Spina laboratory.

- Ground water samples were collected with bailers and poured directly from the bailer into the appropriate containers.

Details of sampling procedures used for each well are included in log form in Appendix E.

To be consistent with the sampling locations and procedures used for residential well and leachate sampling prior to Geraghty & Miller, Inc.'s investigation, the following locations and protocols developed by the County and Barton and Loguidice P.C. were used during the January 1985 sampling program:

I. RESIDENTIAL SITES

A. Sampling Locations

D. Kerfien (dug well)	- kitchen sink
D. Kerfien (drilled well)	- kitchen sink
Kerfien Mobile Home Park Well	- raw water from pump house (test for chlorine)
S. Durfey (dug well)	- basement tap
S. Durfey (drilled well)	- basement tap
J. Stevens	- kitchen sink
Niagara Mohawk Well	- feeder pipe
J. Coakley (dug well)	- to be determined in field
J. Coakley (drilled well)	- well
H. Durant	- kitchen sink
G. Birdsell	- kitchen sink
Landfill Trailer	- submersible pump discharge

B. Protocol

1. Remove screen from spigot, if present.
2. Run water for 5 minutes.
3. Fill sample vials from running stream of water.
4. Replace screen, if appropriate.

II. LEACHATE SITES

A. Sampling Locations (sample identification)

Landfill sump	(OVL-1)
Leachate tank	(OVL-2)
Pump Station	(OVL-3)

B. Protocol

1. Cut top off clean 1/2 gallon plastic sample container. Attach string to handle.
2. Lower container to sampling point (immerse in the standing water for the tank and pump station; sample the running water in the sump via the string. Remove container when full.
3. Fill sample bottles.
4. Repeat 1 through 3 as necessary until all sample bottles are full.

The dug well used for potable water supply at the Coakley residence was unavailable for sample collection during the January 1985 sampling program (residents out-of-town).

Surface water samples were collected by immersing clean sample containers directly into the stream. Stream samples were collected from approximately the middle of the streams where flow is usually the greatest.

All surface-water, ground-water and leachate samples were analyzed for selected organic and inorganic compounds (described in the water quality section of this report). Samples were collected and preserved in accordance with current and soon to be promulgated USEPA sampling procedures (USEPA, Guidelines Establishing Test Procedures for the Analyses of Pollutants under the Clean-Water Act: Federal Register Volume 49, Number 209, October 28, 1984).

Some of these procedures include filtering samples for metals' analyses through a 0.45-micron filter; containing samples for volatile organic analyses in 40-milliliter septum vials, free of air space; measuring specific conductance, temperature and pH in the field; properly storing of samples (cooling); and chain-of-custody documentation. All equipment coming into contact with water samples was thoroughly cleaned and rinsed before being re-used in the following way:

- o wash with tap water and Micro detergent solution
- o rinse with tap water
- o rinse with distilled water
- o final rinse with distilled water

Two rounds of water-level measurements were completed during Task 2, the first preliminary round on January 21, 1985 (before sampling) and the second, more complete round, on January 28, 1985 (after sampling). The water-level survey included all monitoring wells, surface-water stations SW-1, 4, 5 and 6, and residential wells, except RW-2 and RW-10 which were inaccessible for water-level measurements. Measurements were taken using a chalked tape which is lowered into the well or along side of the staff guage until it reaches the water. The tape is held at that point, then removed. The distance of the wet mark left on the chalked tape is sub-

tracted from the total length of tape from the point it was held to give the depth to water (in feet). The depth to water in turn is subtracted from the measuring point elevation for that well to give the water-level elevation relative to mean sea level. All water-level measuring equipment was rinsed between wells to prevent cross contamination.

APPENDIX B

Drillers Logs

parratt wolff inc
FISHER RD., EAST SYRACUSE, N.Y. 13057
TELEPHONE AREA CODE 315/437-1429

June 18, 1985

Geraghty and Miller, Inc.
Consulting Ground-Water Geologists
and Hydrologists
North Shore Atrium
6800 Jericho Turnpike
Syosset, New York 11791

Attention: Mr. Tom Lobasso

Re: 84190
Monitoring Wells
Silk Road Landfill
Oswego County, New York

Gentlemen:

In accordance with your request, we are forwarding herewith copies of logs of test borings and observation wells completed by us for the above project.

Very truly yours,

PARRATT - WOLFF, INC.

Steffen Wolff
SW/lc
encs:
cc: Barton and Loguidice
P.O. Box 3107
Syracuse, New York 13220
Attention: Mr. William Jones

TEST BORINGS AND MONITORING WELL INSTALLATIONS

SILK ROAD LANDFILL

OSWEGO COUNTY

parratt wolff inc
FISHER RD. EAST SYRACUSE, N.Y. 13057
TELEPHONE AREA CODE 315/437-1429

December 27, 1984

Mr. John J. Tierney, Purchasing Agent
Oswego County Purchasing Department
County Office Building
Oswego, New York 13126

Re: 84190
Monitoring Wells
Silk Road Landfill
Oswego County

Gentlemen:

Enclosed are the logs of eight test borings and seven monitoring wells installed for you for the above project.

Samples from these borings will be delivered to your office under separate cover.

The wells were placed at points located in the field by a representative of Geraghty and Miller and all work was done in accordance with his instructions.

In addition to the above work, we installed locking covers on two existing wells at the site, placed concrete seals around two other existing wells and furnished and placed 2" X 6.0' stakes at all existing and newly installed wells. This additional work was also done at the direction of and under the supervision of the Geraghty and Miller representative.

Thank you for this opportunity to work with you.

Very truly yours,

PARRATT - WOLFF, INC.

Steffen Wolff
SW/lc
encs:

parratt wolff inc

TEST BORING LOG

FISHER ROAD
EAST SYRACUSE, N.Y. 13057

PROJECT: Monitoring Wells
LOCATION: Silk Road Landfill, Oswego, New York
DATE STARTED: 12/4/84 DATE COMPLETED: 12/4/84

HOLE NO. MW-1
SURF. EL. 500.00 ±
JOB NO. 84190

GROUND WATER DEPTH
WHILE DRILLING 2.0'
BEFORE CASING REMOVED 2.0'
AFTER CASING REMOVED 2.0'

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING 30" — ASTM D-1586, STANDARD PENETRATION TEST

C — NO. OF BLOWS TO DRIVE CASING 12" W/ # HAMMER FALLING
"/OR — % CORE RECOVERY

CASING TYPE - HOLLOW STEM AUGER

SHEET 1 OF 1

DEPTH	SAMPLE DEPTH	SAMPLE NUMBER	C	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGE DEPTH
	0.0'-	1		Auger		TOPSOIL and COBBLES	
WL ▼	2.0'			Sample			2.0'
	2.0'-	2		9/18		Gray moist dense to medium dense fine SAND, trace silt	
	4.0'			22/20	40		
5.0	4.0'-	3		8/14			
	6.0'			15/16	29		
	6.0'-	4		9/12			
	8.0'			15/18	27		
	8.0'-	5		3/18			8.5'
10.0	10.0'			20/25	38	Gray wet dense fine to coarse SAND and fine to coarse GRAVEL	
	10.0'-	6		9/29			11.5'
	12.0'			39/22	68	Gray wet very dense coarse to fine SAND and fine to medium GRAVEL, little silt	
	12.0'-	7		4/2			12.5'
	14.0'			4/8	6	Brown wet loose fine to coarse SAND, trace silt, trace fine to medium gravel	14.0'
15.0	14.0'-	8		4/5		Gray wet medium dense to very loose fine to coarse SAND, some silt, some fine to coarse gravel	19.0'
	16.0'			6/8	11		
	16.0'-	9		2/2			
	18.0'			2/1	4		
	18.0'-	10		1/2			
20.0	20.0'			1/4	3		
	20.0'-	11		4/5		Brown wet medium dense fine to coarse SAND and SILT, some fine to coarse gravel	
	22.0'			6/9	11		23.0'
	22.0'-	12		9/11		Brown moist very dense fine to coarse SAND, some silt, some fine to coarse gravel	
	24.0'			24/26	35		
25.0	24.0'-	13		41/75			
	25.0'					Bottom of Boring	25.0'

Note: Installed 2" P.V.C. observation well to 25.0', 20.0' screen and locking top.

parratt wolff inc

TEST BORING LOG

FISHER ROAD
EAST SYRACUSE, N.Y. 13057

PROJECT Monitoring Wells
LOCATION Silk Road Landfill
Oswego, New York
DATE STARTED 12/5/84 DATE COMPLETED 12/5/84

HOLE NO. MW-2A
SURF. EL. Same as A
JOB NO. 84190
GROUND WATER DEPTH
WHILE DRILLING
BEFORE CASING REMOVED
AFTER CASING REMOVED

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING 30" — ASTM D-1586, STANDARD PENETRATION TEST

C — NO. OF BLOWS TO DRIVE CASING 12" W/ # HAMMER FALLING
"/OR — % CORE RECOVERY

CASING TYPE - HOLLOW STEM AUGER

SHEET 1 OF 1

DEPTH	SAMPLE DEPTH	SAMPLE NUMBER	C	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGE DEPTH
5.0						Drilled to 20.0' without sampling Boring MW2-A is 5.0' west of MW-2	
10.0							
15.0							
20.0							
						Bottom of Boring Note: Installed 2" P.V.C. observation well to 20.0', 15.0' screen and locking top.	20.0'

parratt wolff inc

TEST BORING LOG

FISHER ROAD
EAST SYRACUSE, N.Y. 13057

PROJECT Monitoring Wells
LOCATION Silk Road Landfill
Oswego, New York
DATE STARTED 12/4/84 DATE COMPLETED 12/4/84

HOLE NO. MW-1
SURF. EL. [illegible]
JOB NO. 84190

GROUND WATER DEPTH
WHILE DRILLING 2.0'
BEFORE CASING REMOVED 2.0'
AFTER CASING REMOVED 2.0'

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING 30" — ASTM D-1586, STANDARD PENETRATION TEST

C — NO. OF BLOWS TO DRIVE CASING 12" W/ # HAMMER FALLING
"/OR — % CORE RECOVERY

CASING TYPE - HOLLOW STEM AUGER

SHEET 1 OF 1

DEPTH	SAMPLE DEPTH	SAMPLE NUMBER	C	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGE DEPTH
	0.0'-	1		Auger		TOPSOIL and COBBLES	
WL ▼	2.0'			Sample			2.0'
	2.0'-	2		9/18		Gray moist dense to medium dense fine SAND, trace silt	
	4.0'			22/20	40		
5.0	4.0'-	3		8/14			
	6.0'			15/16	29		
	6.0'-	4		9/12			
	8.0'			15/18	27		
	8.0'-	5		3/18			8.5'
10.0	10.0'			20/25	38	Gray wet dense fine to coarse SAND and fine to coarse GRAVEL	
	10.0'-	6		9/29			11.5'
	12.0'			39/22	68	Gray wet very dense coarse to fine SAND and fine to medium GRAVEL, little silt	
	12.0'-	7		4/2			12.5'
	14.0'			4/8	6	Brown wet loose fine to coarse SAND, trace silt, trace fine to medium gravel	14.0'
15.0	14.0'-	8		4/5		Gray wet medium dense to very loose fine to coarse SAND, some silt, some fine to coarse gravel	19.0'
	16.0'			6/8	11	Brown wet medium dense fine to coarse SAND and SILT, some fine to coarse gravel	23.0'
	16.0'-	9		2/2		Brown moist very dense fine to coarse SAND, some silt, some fine to coarse gravel	
	18.0'			2/1	4	Bottom of Boring	25.0'
	18.0'-	10		1/2			
20.0	20.0'			1/4	3	Note: Installed 2" P.V.C. observation well to 25.0', 20.0' screen and locking top.	
	20.0'-	11		4/5			
	22.0'			6/9	11		
	22.0'-	12		9/11			
	24.0'			24/26	35		
25.0	24.0'-	13		41/75			
	25.0'						

parratt wolff inc

TEST BORING LOG

FISHER ROAD
EAST SYRACUSE, N.Y. 13057

PROJECT: Monitoring Wells
LOCATION: Silk Road Landfill, Oswego, New York
DATE STARTED: 12/5/84 DATE COMPLETED: 12/5/84

HOLE NO. MW-2B
SURF. EL. [redacted]
JOB NO. 84190

GROUND WATER DEPTH
WHILE DRILLING 3.0'
BEFORE CASING REMOVED 6.0'
AFTER CASING REMOVED 3.0'

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING 30" — ASTM D-1586, STANDARD PENETRATION TEST

C — NO. OF BLOWS TO DRIVE CASING 12" W/ # HAMMER FALLING
"/OR — % CORE RECOVERY

CASING TYPE - HOLLOW STEM AUGER

SHEET 1 OF 1

DEPTH	SAMPLE DEPTH	SAMPLE NUMBER	C	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGE DEPTH
	0.0'-	1		2/2		TOPSOIL	1.0'
	2.0'			2/4	4	Brown moist loose fine to coarse SAND and fine to coarse GRAVEL, trace silt	3.0'
WL ▼						Brown wet loose fine to medium SAND	
5.0							
	5.0'-	2		2/2			
	6.5'			3	5		
10.0							
	10.0'-	3		2/2			
	11.5'			3	5		
15.0						Note: Installed 2" P.V.C. Observation well to 35.0', 15.0' screen and locking top.	
	15.0'-	4		2/4			
	16.5'			5	9		
20.0							20.0'
	20.0'-	5		13/14		Gray wet medium dense fine SAND and SILT	
	21.5'			16	30		
25.0							25.5'
	25.0'-	6		11/12		Brown wet medium dense fine SAND	
	26.5'			15	27		
30.0							30.0'
	30.0'-	7		8/10		Brown wet medium dense fine to coarse SAND, some fine to coarse gravel	
	31.5'			10	20		
35.0							35.0'
	35.0'-	8		6/7		Brown wet dense fine to coarse SAND, some fine to coarse gravel, little silt	
	36.5'			12	19		
	37.0'	9		22/22			
	38.5'			18	40		
40.0						Bottom of Boring	38.5'

parratt wolff inc

TEST BORING LOG

FISHER ROAD
EAST SYRACUSE, N.Y. 13057

PROJECT Monitoring Wells
LOCATION Silk Road Landfill
Oswego, New York
DATE STARTED 12/6/84 DATE COMPLETED 12/6/84

HOLE NO. MW- 3
SURF. EL.
JOB NO. 84190

GROUND WATER DEPTH
WHILE DRILLING 3.0'
BEFORE CASING REMOVED 3.0'
AFTER CASING REMOVED 3.0'

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING 30" — ASTM D-1586, STANDARD PENETRATION TEST

C — NO. OF BLOWS TO DRIVE CASING 12" W/ # HAMMER FALLING
"/OR — % CORE RECOVERY

CASING TYPE - HOLLOW STEM AUGER

SHEET 1 OF 1

DEPTH	SAMPLE DEPTH	SAMPLE NUMBER	C	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGE DEPTH
						Brown wet medium dense fine to medium SAND, trace silt	
WL ▼							
5.0							
	5.0'-	1		7/7			
	6.5'			6	13		
							9.0'
10.0						Brown wet medium dense fine SAND, some silt	
	10.0'-	2		15/17			
	11.5'			8	25		
							13.0'
15.0						Brown wet dense fine to coarse SAND and fine to coarse GRAVEL, little silt	
	15.0'-	3		60/31			
	16.5'			12	43		
20.0							
	20.0'-	4	No	50-.2'			
	20.2'		Rec				
25.0							
	25.0'-	5		50-.2'		Brown moist very dense fine to coarse SAND and fine to medium GRAVEL, trace silt	
	25.2'						
						Bottom of Boring	25.2'
30.0							

Note: Installed 2" P.V.C. observation well to 22.0', 15.0' screen and locking top.

parratt wolff inc

TEST BORING LOG

FISHER ROAD
EAST SYRACUSE, N.Y. 13057

PROJECT: Monitoring Wells
LOCATION: Silk Road Landfill, Oswego, New York
DATE STARTED: 12/6/84 DATE COMPLETED: 12/7/84

HOLE NO. MW-4A
SURF. EL.
JOB NO. 84190
GROUND WATER DEPTH
WHILE DRILLING
BEFORE CASING REMOVED
AFTER CASING REMOVED

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING 30" — ASTM D-1586, STANDARD PENETRATION TEST

C — NO. OF BLOWS TO DRIVE CASING 12" W/ # HAMMER FALLING
"/OR — % CORE RECOVERY

CASING TYPE - HOLLOW STEM AUGER

SHEET 1 OF 1

DEPTH	SAMPLE DEPTH	SAMPLE NUMBER	C	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGE DEPTH
						Brown moist dense fine to coarse SAND and fine to coarse GRAVEL, little silt	
5.0							
	5.0'- 6.5'	1		31/26 17	43		8.0'
10.0						Red-brown moist very dense fine to coarse SAND and fien to coarse GRAVEL, some silt	
	10.0'- 10.4'	2		75-.4'		Refusal	12.5'
15.0						Bottom of Boring	12.5'

parratt wolff inc

TEST BORING LOG

FISHER ROAD
EAST SYRACUSE, N.Y. 13057

PROJECT: Monitoring Wells
LOCATION: Silk Road Landfill, Oswego, New York
DATE STARTED: 12/7/84 DATE COMPLETED: 12/7/84

HOLE NO. MW-4B
SURF. EL. Sec-2-1
JOB NO. 84190

GROUND WATER DEPTH
WHILE DRILLING 3.0'
BEFORE CASING REMOVED 3.0'
AFTER CASING REMOVED 3.0'

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING 30" — ASTM D-1586, STANDARD PENETRATION TEST

C — NO. OF BLOWS TO DRIVE CASING 12" W/ # HAMMER FALLING
"/OR — % CORE RECOVERY

CASING TYPE - HOLLOW STEM AUGER

SHEET 1 OF 1

DEPTH	SAMPLE DEPTH	SAMPLE NUMBER	C	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGE DEPTH
						TOPSOIL	1.5'
WL ▼						Brown wet loose to medium dense fine to coarse SAND and fine to coarse GRAVEL, trace silt	
5.0							
	5.0'-	1		5/3			
	6.5'			2	5		
10.0							
	10.0'-	2		8/10			
	11.5'			9	19		
							13.0'
15.0						Brown wet medium dense fine to coarse SAND, little silt	
	15.0'-	3		14/8			
	16.5'			9	17		
							18.0'
20.0						Red-brown moist very dense fine to coarse SAND and fine to coarse GRAVEL, little silt	
	20.0'-	4		21/24			
	21.5'			30	54		
						Bottom of Boring	21.5'
25.0						Note: Installed 2" P.V.C. well to 21.0', 15.0' screen and locking top.	

parratt wolff inc

TEST BORING LOG

FISHER ROAD
EAST SYRACUSE, N.Y. 13057

PROJECT: Monitoring Wells
LOCATION: Silk Road Landfill, Oswego, New York
DATE STARTED: 12/4/84 DATE COMPLETED: 12/4/84

HOLE NO. MW-5A
SURF. EL.
JOB NO. 84190

GROUND WATER DEPTH
WHILE DRILLING
BEFORE CASING REMOVED
AFTER CASING REMOVED

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING 30" — ASTM D-1586, STANDARD PENETRATION TEST

C — NO. OF BLOWS TO DRIVE CASING 12" W/ # HAMMER FALLING
"/OR — % CORE RECOVERY

CASING TYPE - HOLLOW STEM AUGER

SHEET 1 OF 1

DEPTH	SAMPLE DEPTH	SAMPLE NUMBER	C	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGE DEPTH
						Drilled to 20.0' without sampling	
5.0							
10.0							
15.0							
20.0							
						Bottom of Boring	20.0'
						Note: Installed 2" P.V.C. observation well to 20.0', 15.0' screen and locking top.	

parratt wolff inc

TEST BORING LOG

FISHER ROAD
EAST SYRACUSE, N.Y. 13057

PROJECT: Monitoring Wells
LOCATION: Silk Road Landfill, Oswego, New York
DATE STARTED: 12/3/84 DATE COMPLETED: 12/4/84

HOLE NO. MW-5B
SURF. EL. [illegible]
JOB NO. 84190

GROUND WATER DEPTH
WHILE DRILLING 3.0'
BEFORE CASING REMOVED 15.0'
AFTER CASING REMOVED 3.0'

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING 30" — ASTM D-1586, STANDARD PENETRATION TEST

C — NO. OF BLOWS TO DRIVE CASING 12" W/ # HAMMER FALLING
"/OR — % CORE RECOVERY

CASING TYPE - HOLLOW STEM AUGER

SHEET 1 OF 1

DEPTH	SAMPLE DEPTH	SAMPLE NUMBER	C	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGE DEPTH
	0.0'-	1		Auger		Brown moist fine to coarse SAND, some fine to medium gravel, little silt	
	2.0'			Sample			2.5'
WL ▼	2.0'-	2		9/8		Brown moist medium dense fine to [illegible] medium SAND	
	4.0'			13/16	21		3.0'
5.0	4.0'-	3		6/7		Brown wet medium dense fine SAND, some silt	
	6.0'			7/8	14		6.0'
	6.0'-	4		6/5		Brown wet medium dense fine to medium SAND, trace silt	
	8.0'			5/3	10		
	8.0'-	5		2/3			
10.0	10.0'			4/3	7		
	10.0'-	6		1/2			
	12.0'			9/3	11		12.0'
	12.0'-	7		3/4		Gray wet medium stiff to very soft SILT, some fine sand	
	14.0'			4/4	8		
15.0	14.0'-	8		2/4			
	16.0'			4/4	8		
	16.0'-	9		3/3			
	18.0'			3/3	6		
	18.0'-	10		WH/1			
20.0	20.0'			3/2	4		
	20.0'-	11		2/2			
	22.0'			3/3	5		22.0'
	22.0'-	12		22/22		Brown wet dense fine to coarse GRAVEL and COBBLES, some fine to coarse sand, little silt	
	24.0'			24/15	46		24.5'
25.0	24.0'-	13		22/9		Brown wet medium dense fine to medium SAND, little silt, little fine gravel	27.0'
	26.0'			10/16	19	Brown moist very dense fine to coarse SAND, SILT, fine to coarse GRAVEL, COBBLES and BOULDERS	
	26.0'-	14		15/33			
	28.0'			39/50	72		
	28.0'-	15		50			
30.0	28.5'						

[illegible] 16 10[illegible]

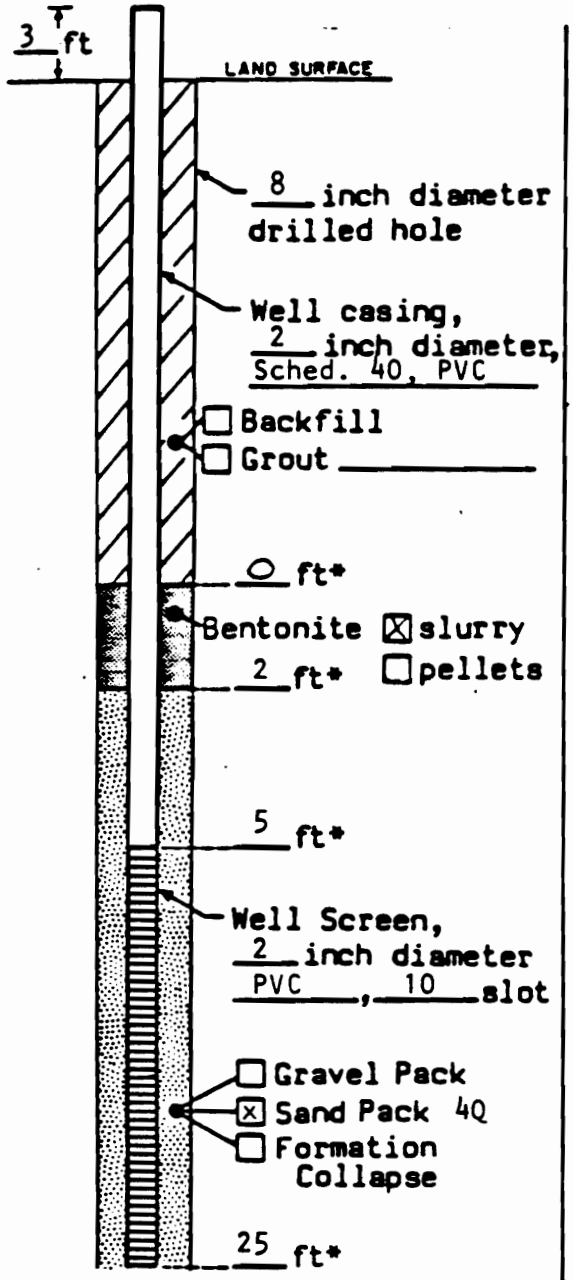
[illegible]ng
[illegible]2" P.V [illegible] observatio[illegible]
[illegible], 2[illegible] n and

APPENDIX C

Well Construction Logs

Geraghty & Miller, Inc.

WELL CONSTRUCTION LOG



Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project N7760C3 Well SGW-26

Town/City Volney

County Oswego State New York

Permit No. _____

Land-Surface Elevation and Datum 467.24 feet mean sea level ☒ surveyed ☐ estimated

Installation Date(s) 12-4-84

Drilling Method Auger

Drilling Contractor Parratt Wolff

Drilling Fluid None

Development Technique(s) and Date(s) 12-4-84

centrifugal pump and bailing

Fluid Lost During Drilling _____ gallons

Water Removed During Development _____ gallons

Static Depth to Water _____ feet below M.P.

Pumping Depth to Water _____ feet below M.P.

Pumping Duration _____ hours

Yield _____ gpm Date _____

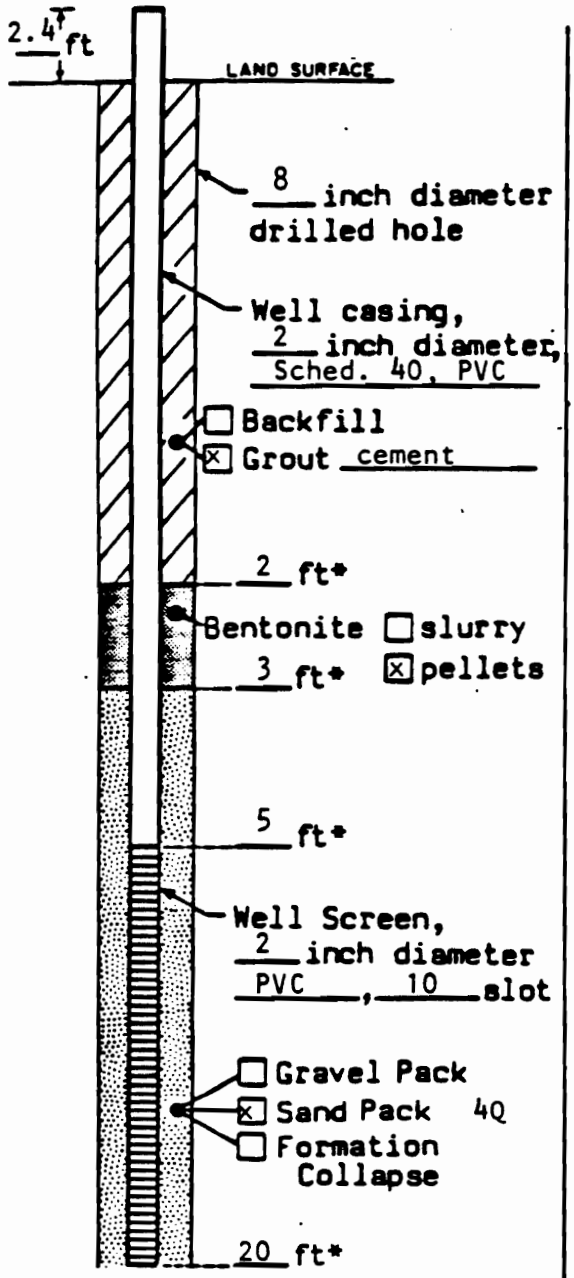
Specific Capacity _____ gpm/ft

Well Purpose _____

Remarks pumped dry twice

Prepared by Joseph T. Gurrieri

WELL CONSTRUCTION LOG



Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project N7760C3 Well SGW-27A

Town/City Volney

County Oswego State New York

Permit No.

Land-Surface Elevation and Datum 473.04 feet mean sea level ☒ surveyed ☐ estimated

Installation Date(s) 1-5-84

Drilling Method Auger

Drilling Contractor Parratt Wolff

Drilling Fluid None

Development Technique(s) and Date(s) 12-6-84 centrifugal pump and bailing

Fluid Lost During Drilling _____ gallons

Water Removed During Development _____ gallons

Static Depth to Water _____ feet below M.P.

Pumping Depth to Water _____ feet below M.P.

Pumping Duration _____ hours

Yield _____ gpm Date _____

Specific Capacity _____ gpm/ft

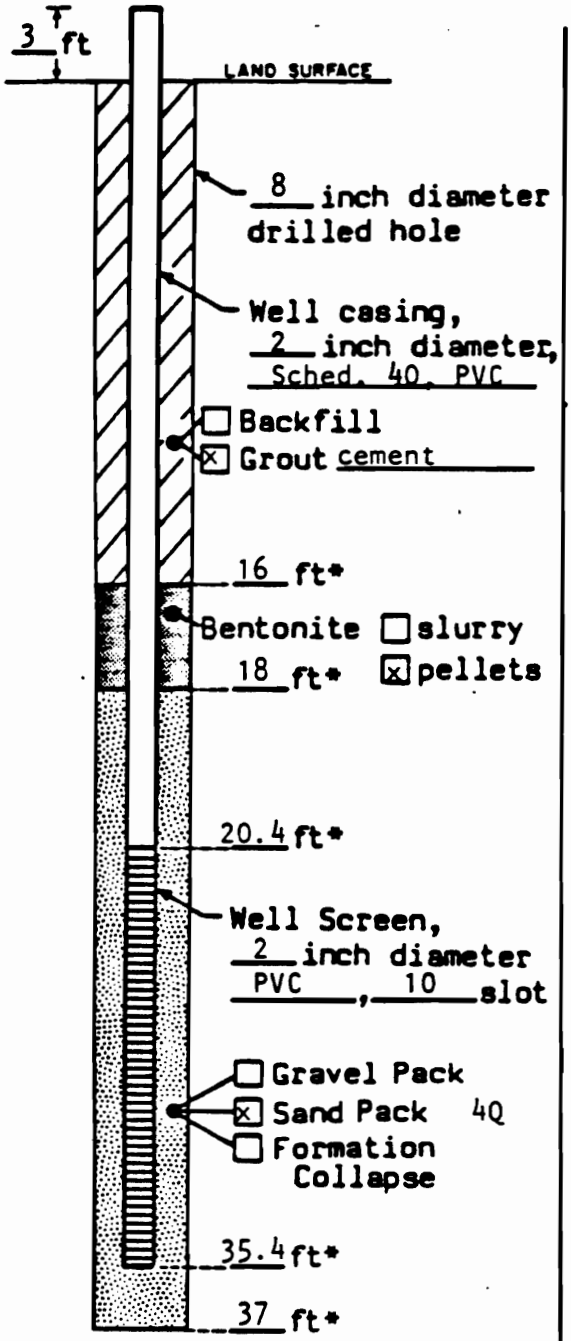
Well Purpose

Remarks water was clear after developing. Well never pumped dry.

Prepared by Joseph T. Gurrieri

Geraghty & Miller, Inc.

WELL CONSTRUCTION LOG



Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project N7760C3 Well SGW-27B

Town/City Volney

County Oswego State New York

Permit No. _____

Land-Surface Elevation and Datum 472.50 feet mean sea level ☒ surveyed ☐ estimated

Installation Date(s) 12-5-84

Drilling Method Auger

Drilling Contractor Parratt Wolff

Drilling Fluid None

Development Technique(s) and Date(s)
12-5-84
centrifugal pump and bailing

Fluid Lost During Drilling _____ gallons

Water Removed During Development _____ gallons

Static Depth to Water _____ feet below M.P.

Pumping Depth to Water _____ feet below M.P.

Pumping Duration _____ hours

Yield _____ gpm Date _____

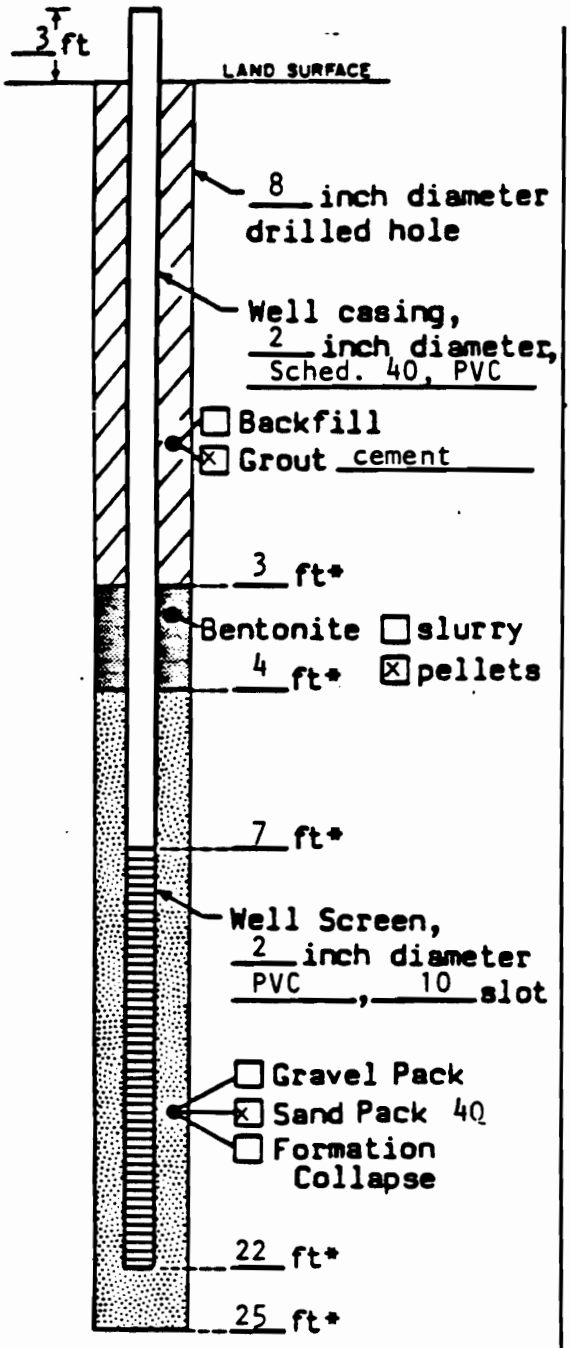
Specific Capacity _____ gpm/ft

Well Purpose _____

Remarks water was clear after developing. Well never pumped dry.

Prepared by Joseph T. Gurrieri

WELL CONSTRUCTION LOG



Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project N7760C3 Well SGW-28

Town/City Volney

County Oswego State New York

Permit No.

Land-Surface Elevation and Datum 476.99 feet mean sea level ☒ surveyed ☐ estimated

Installation Date(s) 12-[illegible]-84

Drilling Method Auger

Drilling Contractor Parratt Wolff

Drilling Fluid None

Development Technique(s) and Date(s)
12-6-84
centrifugal pump and bailing

Fluid Lost During Drilling _____ gallons

Water Removed During Development _____ gallons

Static Depth to Water _____ feet below M.P.

Pumping Depth to Water _____ feet below M.P.

Pumping Duration _____ hours

Yield _____ gpm Date _____

Specific Capacity _____ gpm/ft

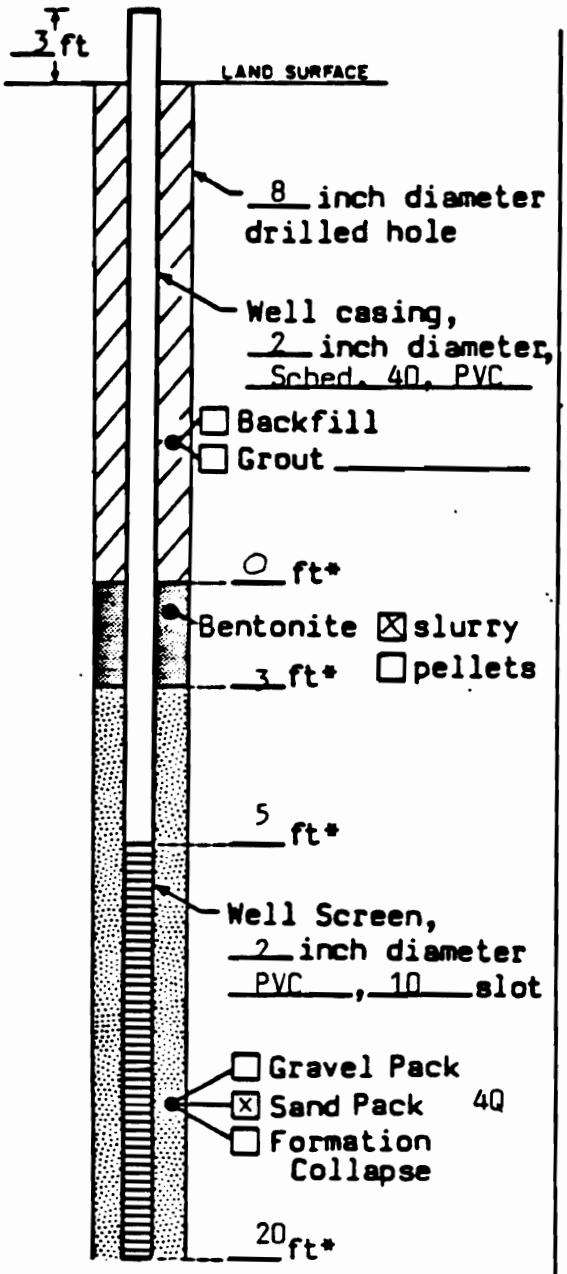
Well Purpose

Remarks

Prepared by Joseph T. Gurrieri

Geraghty & Miller, Inc.

WELL CONSTRUCTION LOG



Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project N7760C3 Well SGW-29

Town/City Volney

County Oswego State New York

Permit No. _____

Land-Surface Elevation and Datum 455.42 feet mean sea level ☒ surveyed ☐ estimated

Installation Date(s) 12-7-84

Drilling Method Auger

Drilling Contractor Parratt Wolff

Drilling Fluid None

Development Technique(s) and Date(s)

Fluid Lost During Drilling _____ gallons

Water Removed During Development _____ gallons

Static Depth to Water _____ feet below M.P.

Pumping Depth to Water _____ feet below M.P.

Pumping Duration _____ hours

Yield _____ gpm Date _____

Specific Capacity _____ gpm/ft

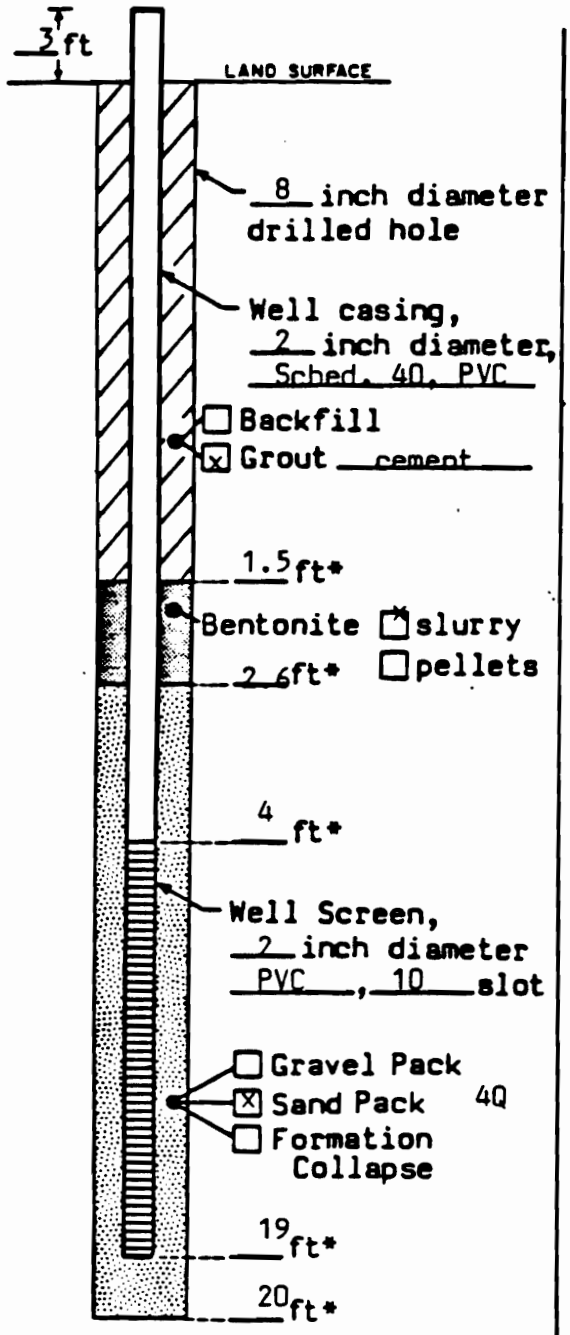
Well Purpose _____

Remarks _____

Prepared by Joseph T. Gurrieri

Geraghty & Miller, Inc.

WELL CONSTRUCTION LOG



Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project N7760C3 Well SGW-30A

Town/City Volney

County Oswego State New York

Permit No. _____

Land-Surface Elevation and Datum 454.13 feet mean sea level ☒ surveyed ☐ estimated

Installation Date(s) 12-7-84

Drilling Method Auger

Drilling Contractor Parratt Wolff

Drilling Fluid None

Development Technique(s) and Date(s)

Fluid Lost During Drilling _____ gallons

Water Removed During Development _____ gallons

Static Depth to Water _____ feet below M.P.

Pumping Depth to Water _____ feet below M.P.

Pumping Duration _____ hours

Yield _____ gpm Date _____

Specific Capacity _____ gpm/ft

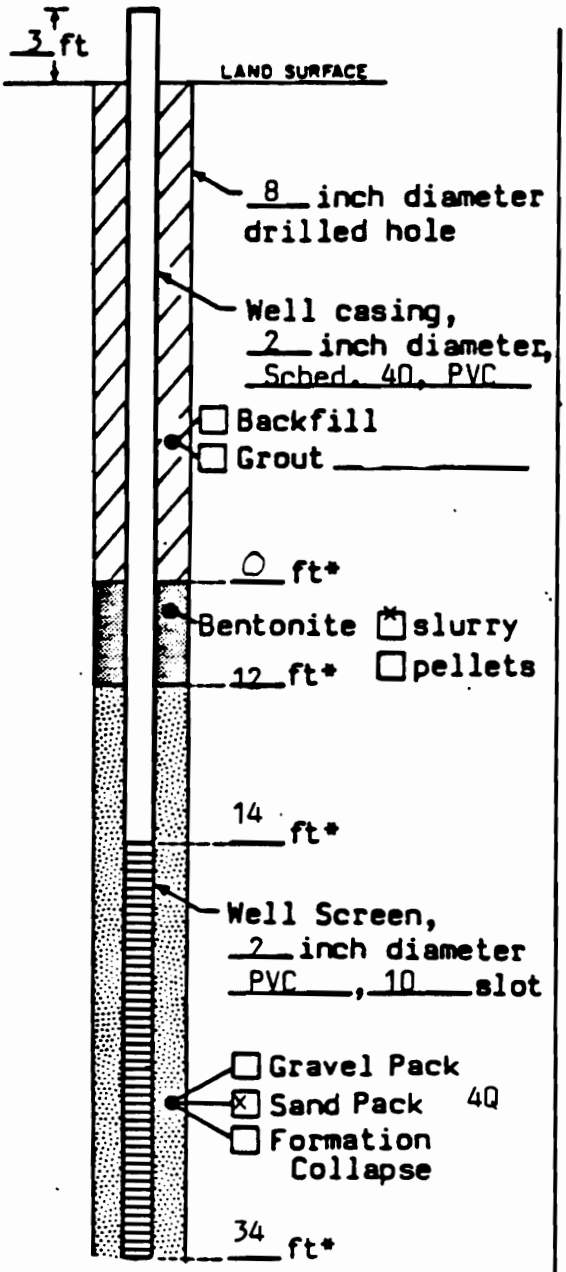
Well Purpose _____

Remarks _____

Prepared by Joseph T. Gurrieri

Geraghty & Miller, Inc.

WELL CONSTRUCTION LOG



Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project N7760C3 Well SGW-30B

Town/City Volney

County Oswego State New York

Permit No. _____

Land-Surface Elevation and Datum 453.37 feet mean sea level ☒ surveyed ☐ estimated

Installation Date(s) 12-3-84

Drilling Method Auger

Drilling Contractor Parratt Wolff

Drilling Fluid None

Development Technique(s) and Date(s) 12-4-84

centrifugal pump and bailing

Fluid Lost During Drilling _____ gallons

Water Removed During Development _____ gallons

Static Depth to Water _____ feet below M.P.

Pumping Depth to Water _____ feet below M.P.

Pumping Duration _____ hours

Yield _____ gpm Date _____

Specific Capacity _____ gpm/ft

Well Purpose _____

Remarks steady yield during development

Prepared by Joseph T. Gurrieri

APPENDIX D

Elevations

Calocerinos & Spina
CONSULTING ENGINEERS
1020 Seventh North Street, Liverpool, NY 13088 · (315) 457-6711

January 14, 1985

Mr. Robert Walsh
Deputy Superintendent
Solid Waste Division
Oswego County Department of
Public Works
46 Bridge Street
Oswego, New York 13126

Re: Oswego Landfill Ground Water
Monitoring Program

File: 180.134

Dear Bob:

Following are the wells and monitoring station elevations, related to mean sea level datum (USC&GS).

Existing Wells and Monitoring Points

Station	Elevation
USGS-2	484.67 (well casing only)
USGS-3C	476.94
USGS-3D	476.88
USGS-5	473.40 (well casing only)
USGS-7B	498.93
USGS-8	497.09
USGS-9	473.48
USGS-10	458.63 (well casing only)
USGS-11A	471.66
USGS-12A	472.53
USGS-14A	474.85
USGS-15	451.57
USGS-16	469.94
USGS-17	466.49
USGS-18A	466.94
Landfill Sump	470.68

New Monitor Wells

Station	Elevation
MW-1	470.24
MW-2A	475.44
MW-2B	475.50
MW-3	479.99
MW-4	458.42
MW-5A	457.13
MW-5B	456.37

Surface-Water Stations

Station	Elevation
SW-1	454.54
SW-2	No well
SW-3	No well
SW-4	447.37
MAP SW-5(SW3 field)	428.15
MAP SW-6(SW4 field)	463.62

& LOGUIDICE, P.C.
CONSULTING ENGINEERS & LAND SURVEYORS
290 ELWOOD DAVIS RD. • LIVERPOOL, NY 13038

315 457-5200

Memo

Oswego Co. Land Fill

	Test Well		Elevations		
BM	2.56	479.62			477.06
			8.05	471.57	
	3.99	475.56			
			6.64	468.92	
	4.69	473.61			
RW#11			4.67	468.94	
	5.30	474.24			
			3.62	470.62	
	7.77	478.39			
BM			1.35	477.04	477.06

11/24/(84)

182.134 ft

EL. Hill (103)

230± Wall ft

Top of CAP CMET #1-3 for Well 456S #361 See p. 13 this BK.

See above.

APPENDIX E

Water Sampling Logs

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. GW-2 Coded/ Replicate No. Date: 1-25-85

Weather 20°F Time Sampling Began 8:40 Time Sampling Completed 9:30

Description of Measuring Point (MP) Top of 2" steel casing

Height of MP Above/Below Land Surface 1.67 MP Elevation 484.67

Total Sounded Depth of Well Below MP 14.40 Water-Level Elevation 471.92

Held 14.00 Depth to Water Below MP 12.75 Diameter of Casing 2"

Wet 1.25 Water Column in Well 0.65 Gallons Pumped/Bailed Prior to Sampling 0.5 gal

Gallons per Foot 0.16

Gallons in Well 0.1 Sampling Pump Intake Setting (feet below land surface) N/A

Evacuation Method 3/4" PVC Bailer - removed 1/2 gallon

Color Black Odor Yes Appearance Silty Temperature 9 °F/°C

Other (specific ion; OVA; HNU; etc.)

Specific Conductance, umhos/cm - pH -

Sampling Method and Material PVC Bailer

Constituents Sampled	Container Description From Lab x or G&M	Preservative
4 VOA	40 ml Vial	Sodium Thiosulfate

Remarks 10 bailers to fill 4 VOA - poor recovery, silty - black, (won't recover)

Sampling Personnel Not enough H_2O to get a reasonable sample.

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. GW-3C Coded/ Replicate No. - Date: 1-22-85

Weather 20°F Time Sampling Began 16:30 Time Sampling Completed 16:45

Description of Measuring Point (MP) PVC

Height of MP Above/Below Land Surface 2.39 MP Elevation 476.94

Total Sounded Depth of Well Below MP 36.95 Water-Level Elevation 468.76

Held 10.00 Depth to Water Below MP 8.18 Diameter of Casing 2"

Wet 1.82 Water Column in Well 28.77 Gallons Pumped/Bailed Prior to Sampling 10 gal

Gallons per Foot 0.16

Gallons in Well 4.6 Samoling Pump Intake Setting (feet below land surface) N/A

Evacuation Method PVC Bailer

Color Clear Odor None Appearance Sl. turbid Temperature 9 °F/°C

Other (specific ion; OVA; HNU; etc.) -

Specific Conductance, umhos/cm 1140,1140,1140,1140 pH 7.25,7.25,7.25,7.25

Sampling Method and Material PVC Bailer - dedicated

Constituents Sampled	Container Description From Lab X or G&M	Preservative
metals	250 ml p.	HNO_3
Nitrogen	500 ml p.	H_2SO_4
VOA	40 ml vial	Sodium Thiosulfate
Inorganics	1/2 gal.	None

Remarks

Sampling Personnel Schantz/Swedborg

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. GW-3D Coded/ Replicate No. - Date: 1-22-85

Weather 15°F Time Sampling Began 16:40 Time Sampling Completed 17:00

Description of Measuring Point (MP) PVC

Height of MP Above/Below Land Surface 2.36 MP Elevation 476.88

Total Sounded Depth of Well Below MP 12.58 Water-Level Elevation 468.69

Held 10.0 Depth to Water Below MP 8.19 Diameter of Casing 2"

Wet 1.81 Water Column in Well 4.39 Gallons Pumped/Bailed Prior to Sampling 1 gal

Gallons per Foot 0.16

Gallons in Well 0.702 Sampling Pump Intake Setting (feet below land surface) -

Evacuation Method Evacuated dry w/bailer

Color lt. brown Odor None Appearance Sl. turbid Temperature 9 °F/°C

Other (specific ion; OVA; HNU; etc.) -

Specific Conductance, umhos/cm 750,750,750,750 pH 6.75,6.75,6.75,6.75

Sampling Method and Material PVC Bailer - dedicated

Constituents Sampled	Container Description From Lab X or G&M ___	Preservative
Metals	250 ml pl.	HNO_3
Nitrogen	250 ml p.	H_2SO_4
Inorganics	1/2 gal p.	None
VOA	40 ml vial	Sodium Thiosulfate

Remarks

Sampling Personnel Schantz/Swedborg

WELL CASING VOLUMES

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. GW-5 Coded/ Replicate No. - Date: 1-25-85

Weather 10°F Snow Time Sampling Began 09:00 Time Sampling Completed 09:30

Description of Measuring Point (MP) Top of 2" casing

Height of MP Above/Below Land Surface 1.65 MP Elevation 473.40

Total Sounded Depth of Well Below MP 8.02 Water-Level Elevation 470.95

Held 4.00 Depth to Water Below MP 2.45 Diameter of Casing 2" - 1-1/4"

Wet 1.55 / 2.45 Water Column in Well 5.57 Gallons Pumped/Bailed Prior to Sampling 2.2 gal

Gallons per Foot 0.08

Gallons in Well 0.44 Sampling Pump Intake Setting (feet below land surface)

Evacuation Method Bailed 1.5 liters with 3/4 PVC Bailer

Color Brown Odor None Appearance Turbid Temperature 7 °F/°C

Other (specific ion; OVA; HNU; etc.) Collected 4 VOA, metals and nitrogen 10-10-3

1-25-85

Specific Conductance, umhos/cm 260 pH 7.55

Sampling Method and Material 3/4 PVC Bailer

Constituents Sampled	Container Description From Lab X or G&M	Preservative
VOA	4 40 ml vials	Sodium Thiosulfate
Metal	250 ml pl.	HNO_3
Nitrogen	50 ml pl.	H_2SO_4

Remarks

Sampling Personnel Schantz/Swedborg

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. GW-8 Coded/ Replicate No. - Date: 1-22-85

Weather 20°F Windy Time Sampling Began 15:30 Time Sampling Completed 16:30

Description of Measuring Point (MP) Top of casing

Height of MP Above/Below Land Surface 3.39 MP Elevation 497.09

Total Sounded Depth of Well Below MP 28.75 Water-Level Elevation 470.20

Held 28.75 Depth to Water Below MP 26.89 Diameter of Casing 2"

Wet 1.86 Water Column in Well 1.86 Gallons Pumped/Bailed Prior to Sampling 0.50

Gallons per Foot 0.16

Gallons in Well 0.35 Sampling Pump Intake Setting (feet below land surface)

Evacuation Method PVC Bailer

Color lt. brown Odor None Appearance Turbid Temperature 8 °F/°C

Other (specific ion; OVA; HNU; etc.)

Specific Conductance, umhos/cm 1000,1000,1000,1000 pH 6.65,6.65,6.65,6.65

Sampling Method and Material PVC Bailer

Constituents Sampled	Container Description From Lab X or G&M	Preservative
Metals	50 ml pl.	HNO_3
VOA	40 ml vials	Sodium Thiosulfate
Inorganics	1/2 gal. pl.	None
Nitrogen	250 ml pl.	H_2SO_4

Remarks very low yield

Sampling Personnel Schantz/Swedborg

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. GW-9 Coded/ Replicate No. - Date: 1-22-85

Weather 20°F Snow Time Sampling Began 12:10 Time Sampling Completed 12:30

Description of Measuring Point (MP) Top of 2" casing

Height of MP Above/Below Land Surface 2.48 MP Elevation 473.48

Total Sounded Depth of Well Below MP 38.70 Water-Level Elevation 448.82

Held 26.00 Depth to Water Below MP 24.66 Diameter of Casing 2"

Wet 1.34 Water Column in Well 14.04 Gallons Pumped/Bailed Prior to Sampling 11.23

Gallons per Foot 0.16

Gallons in Well 2.24 Sampling Pump Intake Setting (feet below land surface)

Evacuation Method Bailed well with PVC 1-1/4" bailers supplied by C&S

Color brown/gray Odor None Appearance V. Silty Temperature 6.0 °F/°C

Other (specific ion; OVA; HNU; etc.)

Specific Conductance, umhos/cm 1025,1000,1025,1025 pH 7.3,7.3,7.3,7.3

Sampling Method and Material PVC Bailer (Dedicated)

Constituents Sampled	Container Description From Lab x or G&M	Preservative
4 VOA	40 ml VOA	Sodium Thiosulfate
Metals	250 ml plastic	H_2O_3
Nitrogen/NO_3	500 ml plastic	H_2SO_4
Inorganics	1/2 gal plastic	None

Remarks

Sampling Personnel D. Schants, R. Swedborg

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. GW-10 Coded/ Replicate No. - Date: 1-23-85

Weather 20°F Snow Time Sampling Began 10:15 Time Sampling Completed 10:25

Description of Measuring Point (MP) Top of 2" steel

Height of MP Above/Below Land Surface 4.2 MP Elevation 458.63

Total Sounded Depth of Well Below MP 22.40 Water-Level Elevation 444.41

Held 16.00 Depth to Water Below MP 14.22 Diameter of Casing 4"

Wet 1.78 Water Column in Well 8.18 Gallons Pumped/Bailed Prior to Sampling 26 gal.

Gallons per Foot 0.65

Gallons in Well 5.2 Sampling Pump Intake Setting (feet below land surface) 20'

Evacuation Method Evacuated with centrifugal, yield .3 gpm

Color brown/grey Odor Yes Appearance sheen Temperature 7 °F/°C

Other (specific ion; OVA; HNU; etc.) Slightly turbid

Specific Conductance, umhos/cm 1350,1350,1350,1350 pH 6.55,6.55,6.55,6.55

Sampling Method and Material PVC Bailer

Constituents Sampled	Container Description From Lab x or G&M	Preservative
Metals	250 ml plastic	HNO_3
Nitrogen	500 ml plastic	H_2SO_4
VOA	40 ml vials	Sodium Thiosulfate
Inorganics	1/2 gal	None

Remarks well is trimmed from 4" to 2"

Sampling Personnel D. Schantz, R. Swedborg

GERAGHTY & MILLER, INC.
Ground-Water Consultants

WATER SAMPLING LOG

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. GW-11A Coded/ Replicate No. ---- Date 1-21-85

Weather 20°F Windy Time Sampling Began 16:00 Time Sampling Completed 16:20

EVACUATION DATA

Description of Measuring Point (MP) PVC coupling

Height of MP Above/Below Land Surface 2.39 MP Elevation 471.66

Total Sounded Depth of Well Below MP 19.50 Water-Level Elevation 461.59

Held _____ Depth to Water Below MP 10.07 Diameter of Casing 2"

Wet _____ Water Column in Well 9.43 Gallons Pumped/Bailed Prior to Sampling _____

Gallons per Foot 0.16

Gallons in Well 1.5 Sampling Pump Intake Setting (feet below land surface) 1.5 gal

Evacuation Method PVC bailer dry after 1.5 gal

SAMPLING DATA/FIELD PARAMETERS

Color brown Odor None Appearance turbid Temperature 9 °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 420, 420, 420, 420 pH 7.45, 7.45, 7.45, 7.45

Sampling Method and Material PVC bailer

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
2 VOA	40 ml vials	Sodium Thiosulfate
Metals	1 250 ml plastic	HNO_3
Nitrogen	500 ml plastic	H_2NO_4
Inorganics	1/2 gal plastic	None

Remarks ~~well is trimmed from 4" to 2"~~

Sampling Personnel D. Schantz, R. Swedborg

WELL CASING VOLUMES

GAL/FT 1-¼" = 0.077 2" = 0.16 3" = 0.37 4" = 0.65

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. GW-12A Coded/ Replicate No. - Date: 1-24-85

Weather 25°F Snow Time Sampling Began 9:30 Time Sampling Completed 9:40

Description of Measuring Point (MP) Top of 2" PVC Casing

Height of MP Above/Below Land Surface 2.62 MP Elevation 472.53

Total Sounded Depth of Well Below MP 16.07 Water-Level Elevation 463.31

Held 12.00 Depth to Water Below MP 9.22 Diameter of Casing 2"

Wet 2.78 Water Column in Well 6.85 Gallons Pumped/Bailed Prior to Sampling 1.5*

Gallons per Foot 0.16

Gallons in Well 1.09 Sampling Pump Intake Setting (feet below land surface)

Evacuation Method PVC Bailer

Color lt. brown Odor None Appearance turbid Temperature 8 °F/°C

Other (specific ion; OVA; HNU; etc.)

Specific Conductance, umhos/cm 750, 750, 750, 750 pH 6.90,6.90,6.90,6.95

Sampling Method and Material PVC Bailer

Constituents Sampled	Container Description From Lab x or G&M	Preservative
VOA	40 ml vials	Sodium Thiosulfate
Metals	250 ml plastic	HNO_3 Filtered
Nitrogen	250 ml plastic	H_2SO_4
Inorganics	1/2 gal plastic	None

Remarks * Well dry after evacuation of 1.5 gal.

Sampling Personnel D. Schantz, R. Swedborg

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. GW-14A Coded/ Replicate No. - Date: 1-24-85

Weather 25°F Snow Time Sampling Began 9:20 Time Sampling Completed 9:30

Description of Measuring Point (MP) Top of 2" PVC Casing

Height of MP Above/Below Land Surface 2.33 MP Elevation 474.85

Total Sounded Depth of Well Below MP 19.62 Water-Level Elevation 462.63

Held 15.00 Depth to Water Below MP 12.22 Diameter of Casing 2"

Wet 2.78 Water Column in Well 7.40 Gallons Pumped/Bailed Prior to Sampling 1.5*

Gallons per Foot 0.16

Gallons in Well 1.18 Sampling Pump Intake Setting (feet below land surface)

Evacuation Method PVC Bailer

Color Clear Odor None Appearance Sl. grey Temperature 8.0 °F/°C

Other (specific ion; OVA; HNU; etc.) Filters easily

Specific Conductance, umhos/cm 450, 460, 460, 450 pH 7.30,7.25,7.25,7.30

Sampling Method and Material PVC Bailer

Constituents Sampled	Container Description From Lab x or G&M	Preservative
VOA	40 ml vials	Sodium Thiosulfate
Metals	250 ml plastic	HNO_3/Filtered
Nitrogen	250 ml plastic	H_2SO_4
Inorganics	1/2 gal plastic	None

Remarks *Well dry after evacation of 1.5 gal.

Sampling Personnel D. Schantz, R. Swedborg

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. GW-15 Coded/ Replicate No. - Date: 1-23-85

Weather 20°F Snow Time Sampling Began 10:30 Time Sampling Completed 10:40

Description of Measuring Point (MP) 2" PVC Casing

Height of MP Above/Below Land Surface 2.98 MP Elevation 451.57

Total Sounded Depth of Well Below MP 20.10 Water-Level Elevation 440.25

Held 13.00 Depth to Water Below MP 11.32 Diameter of Casing 2"

Wet 1.68 Water Column in Well 8.78 Gallons Pumped/Bailed Prior to Sampling 2.0*

Gallons per Foot 0.16

Gallons in Well 1.44 Sampling Pump Intake Setting (feet below land surface) N/A

Evacuation Method PVC Bailer

Color Brown Odor None Appearance v. turbid Temperature 7.0 °F/°C

Other (specific ion; OVA; HNU; etc.) Silty sand

Specific Conductance, umhos/cm 650, 650, 650, 650 pH 6.8, 6.8, 6.8, 6.8

Sampling Method and Material PVC Bailer

Constituents Sampled	Container Description From Lab x or G&M	Preservative
Metals	250 ml plastic	HNO_3
Nitrogen	500 ml plastic	H_2SO_4
Inorganics	1/2 gal container	None
VOC	2 vials	Sodium Thiosulfate

Remarks *Well dry after evacuation of 2.0 gal.

Sampling Personnel D. Schantz, R. Swedborg

GERAGHTY & MILLER, INC.
Ground-Water Consultants

WATER SAMPLING LOG

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. GW-16 Coded/ Replicate No. ----- Date 1-23-85

Weather 20°F Snow Time Sampling Began 11:20 Time Sampling Completed 11:50

EVACUATION DATA

Description of Measuring Point (MP) Top of 2" PVC Casing

Height of MP Above/Below Land Surface 2.71 MP Elevation 469.94

Total Sounded Depth of Well Below MP 21.40 Water-Level Elevation 458.68

Held 14.00 Depth to Water Below MP 11.26 Diameter of Casing 2"

Wet 2.74 Water Column in Well 10.14 Gallons Pumped/Bailed Prior to Sampling 2.0

Gallons per Foot 0.16

Gallons in Well 1.6 Sampling Pump Intake Setting (feet below land surface)

Evacuation Method PVC Bailer

SAMPLING DATA/FIELD PARAMETERS

Color Lt. Brown Odor None Appearance sl. turbid Temperature 7.0 °F/°C

Other (specific ion; OVA; HNU; etc.)

Specific Conductance, umhos/cm 525, 525, 525, 525 pH 7.25, 7.25, 7.25, 7.25

Sampling Method and Material PVC 1-1/4" Bailer

Constituents Sampled	Container Description From Lab X or G&M	Preservative
VOA	40 ml vials	Sodium Thiosulfate
Metals	500 ml plastic	HNO_3 - Filtered
Nitrogen	500 ml plastic	H_2SO_4
Inorganics	1/2 gal plastic	None

Remarks

Sampling Personnel D. Schantz, R. Swedborg

WELL CASING VOLUMES

GAL./FT				
	1-¼" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.10	2-½" = 0.24	3-½" = 0.50	6" = 1.46

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. GW-17 Coded/ Replicate No. - Date: 1-23-85

Weather 20°F, Snow Time Sampling Began 15:15 Time Sampling Completed 15.25

Description of Measuring Point (MP) 2" Steel Casing

Height of MP Above/Below Land Surface 2.90 MP Elevation 466.49

Total Sounded Depth of Well Below MP 33.30 Water-Level Elevation 450.89

Held 19.00 Depth to Water Below MP 15.60 Diameter of Casing 2"

Wet 3.40 Water Column in Well 17.70 Gallons Pumped/Bailed Prior to Sampling 14

Gallons per Foot 0.16

Gallons in Well 2.8 Sampling Pump Intake Setting (feet below land surface)

Evacuation Method PVC Bailer

Color Greyish Odor None Appearance v. turbid Temperature 8 °F/°C

Other (specific ion; OVA; HNU; etc.)

Specific Conductance, umhos/cm 275, 275, 275, 275 pH 7.75,7.75,7.75,7.75

Sampling Method and Material PVC Bailer

Constituents Sampled	Container Description From Lab x or G&M	Preservative
Metals	250 mil	HNO_3
Nitrogen	500 ml plastic	H_2SO_4
Inorganics	1/2 gal	None
VOA	40 ml vials	Sodium Thiosulfate

Remarks

Sampling Personnel D. Schantz, R. Swedborg

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. GW-18A Coded/ Replicate No. - Date: 1-22-85

Weather Windy 20°F Time Sampling Began 14:00 Time Sampling Completed 14.30

Description of Measuring Point (MP) 2" PVC

Height of MP Above/Below Land Surface 2.50 MP Elevation 466.94

Total Sounded Depth of Well Below MP 21.6 Water-Level Elevation 455.04

Held 16.00 Depth to Water Below MP 11.90 Diameter of Casing 2"

Wet 4.10 Water Column in Well 9.70 Gallons Pumped/Bailed Prior to Sampling 7.5

Gallons per Foot 0.16

Gallons in Well 1.5 Sampling Pump Intake Setting (feet below land surface)

Evacuation Method PVC Bailer

Color Brown Odor None Appearance v. turbid Temperature 7 °F/°C

Other (specific ion; OVA; HNU; etc.)

Specific Conductance, umhos/cm 350, 350, 350, 350 pH 7.45,7.45,7.45,7.45

Sampling Method and Material PVC Bailer

Constituents Sampled	Container Description From Lab x or G&M	Preservative
Metals	250 ml	HNO_3
Nitrogen	500 ml plastic	H_2SO_4
VOA	40 ml vials	Sodium Thiosulfate
Inorganics	1/2 gal plastic	None

Remarks

Sampling Personnel D. Schantz, R. Swedborg

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. GW-24 Coded/ Replicate No. _____ Date: 1-25-85

Weather 20°F Clear - Snow Time Sampling Began 12.00 Time Sampling Completed 12.30

Description of Measuring Point (MP) 1-1/2" PVC

Height of MP Above/Below Land Surface 1.48 MP Elevation 483.20

Total Sounded Depth of Well Below MP 15.7 Water-Level Elevation 480.30

Held _____ Depth to Water Below MP 2.90 Diameter of Casing 1-1/2"

Wet _____ Water Column in Well 12.8 Gallons Pumped/Bailed Prior to Sampling Evac. dry

Gallons per Foot 0.1

Gallons in Well 1.28 Sampling Pump Intake Setting (feet below land surface) _____

Evacuation Method _____

Color Brown Odor Yes Appearance Turbid Temperature 7.0 °F/°C

Other (specific ion; OVA; HNU; etc.) Very Silty

Specific Conductance, umhos/cm 550, 550, 550, 550 pH 7.50,7.50,7.50,7.50

Sampling Method and Material 3/4" PVC Bailer

Constituents Sampled	Container Description From Lab x or G&M ___	Preservative
VOA	40 ml vials	Sodium Thiosulfate
Metals	250 plastic	HNO_3 - Filtered
Nitrogen	250 plastic	H_2SO_4
Inorganics		

Remarks _____

Sampling Personnel D. Schantz, R. Swedborg

See on back of sheet

NOT SAMPLED

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. GW-25 Coded/ Replicate No. _____ Date: 1-24-85

Weather 25°F Snow Time Sampling Began _____ Time Sampling Completed _____

Description of Measuring Point (MP) Top of 3/4" PVC

Height of MP Above/Below Land Surface 3.58 MP Elevation 495.60

Total Sounded Depth of Well Below MP 23.95 Water-Level Elevation 477.12

Held 23.95 Depth to Water Below MP 23.48 Diameter of Casing 3/4"

Wet 0.47 Water Column in Well 0.47 Gallons Pumped/Bailed Prior to Sampling _____

Gallons per Foot 0.053

Gallons in Well 0.025 Sampling Pump Intake Setting (feet below land surface) _____

Evacuation Method Not enough H_2O to collect a sample

Color _____ Odor _____ Appearance _____ Temperature _____ °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm _____ pH _____

Sampling Method and Material _____

Constituents Sampled	Container Description From Lab ___ or G&M ___	Preservative

Remarks _____

Sampling Personnel _____

WELL SAMPLING LOG

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. SGW-26 Coded/ Replicate No. Date: 1-23-85

Weather Snowy, 20°F Time Sampling Began 16:30 Time Sampling Completed 16:45

EVACUATION DATA

Description of Measuring Point (MP) Top of 2" PVC

Height of MP Above/Below Land Surface 2.23 MP Elevation 470.24

Total Sounded Depth of Well Below MP 27.2 Water-Level Elevation 465.78

Held 6.00 Depth to Water Below MP 4.46 Diameter of Casing 2"

Wet 1.53 Water Column in Well 22.74 Gallons Pumped/Bailed Prior to Sampling 18.1

Gallons per Foot 0.16

Gallons in Well 3.63 Sampling Pump Intake Setting (feet below land surface)

Evacuation Method PVC Bailer

SAMPLING DATA/FIELD PARAMETERS

Color Gray-brown Odor None Appearance Turbid Temperature 8 °F/°C

Other (specific ion; OVA; HNU; etc.) -

Specific Conductance, umhos/cm 340, 340, 340, 340 pH 7.75, 7.75, 7.75, 7.75

Sampling Method and Material PVC Bailer

Constituents Sampled	Container Description From Lab x or G&M	Preservative
Metals	250 ml plastic	HNO_3
Nitrogen	500 ml plastic	H_2SO_4
VOA	40 ml Vials	Sodium Thiosulfate
Inorganics	1/2 gal	None

Remarks

Sampling Personnel Dave Schantz, Rich Swedborg

WELL SAMPLING LOG

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. SGW-27A Coded/ Replicate No. Date: 1-24-85

Weather 30°F Snow Time Sampling Began 14:00 Time Sampling Completed 14:30

EVACUATION DATA

Description of Measuring Point (MP) Top of 2" PVC Casing

Height of MP Above/Below Land Surface 2.30 MP Elevation 475.44

Total Sounded Depth of Well Below MP 22.15 Water-Level Elevation 470.23

Held 8.00 Depth to Water Below MP 5.21 Diameter of Casing 2" Casing

Wet 2.79 Water Column in Well 16.94 Gallons Pumped/Bailed Prior to Sampling 13.55

Gallons per Foot 0.16

Gallons in Well 2.71 Sampling Pump Intake Setting (feet below land surface)

Evacuation Method Bailed 16 gal w/dedicated bailer. Good recharge - Couldn't bail below static

SAMPLING DATA/FIELD PARAMETERS

Color Brown Odor None Appearance Turbid Temperature 8 °F/°C

Other (specific ion; OVA; HNU; etc.) -

Specific Conductance, umhos/cm 95, 105, 100, 105 pH 7.10, 6.85, 6.85, 6.85

Sampling Method and Material PVC Bailer

Constituents Sampled	Container Description From Lab x or G&M	Preservative
Metals	250 ml plastic	HNO_3
Nitrogen	500 ml plastic	H_2SO_4
Inorganics	1/2 gal	None
VOA	40 ml vials	Sodium Thiosulfate

Remarks

Sampling Personnel Dave Schantz, Rich Swedborg

WELL SAMPLING LOG

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. SGW-27B Coded/ Replicate No. Date: 1-24-85

Weather 30°F Snow Time Sampling Began 14:30 Time Sampling Completed 15:00

EVACUATION DATA

Description of Measuring Point (MP) Top of 2" PVC Casing

Height of MP Above/Below Land Surface 3.68 MP Elevation 475.50

Total Sounded Depth of Well Below MP 37.90 Water-Level Elevation 470.08

Held 9.00 Depth to Water Below MP 5.42 Diameter of Casing 2"

Wet 3.58 Water Column in Well 32.48 Gallons Pumped/Bailed Prior to Sampling 25.9

Gallons per Foot 0.16

Gallons in Well 5.19 Sampling Pump Intake Setting (feet below land surface)

Evacuation Method Bailed 14 gal w/dedicated bailer. Good recharge - Couldn't bail below static

SAMPLING DATA/FIELD PARAMETERS

Color Brown Odor None Appearance Sl. Turbid Temperature 7.0 °F/°C

Other (specific ion; OVA; HNU; etc.) -

Specific Conductance, umhos/cm 380, 380, 380, 380 pH 7.30, 7.25, 7.25, 7.25

Sampling Method and Material PVC Bailer

Constituents Sampled	Container Description From Lab x or G&M	Preservative
Nitrogen	500 ml plastic	H_2SO_4
Metals	500 ml plastic	HNO_3
Inorganics	1/2 gal	None
VOA	40 ml vials	Sodium Thiosulfate

Remarks

Sampling Personnel Dave Schantz, Rich Swedborg

WELL SAMPLING LOG

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. SGW-28 Coded/ Replicate No. _____ Date: 1-24-85

Weather 30°F Clear Time Sampling Began 15:20 Time Sampling Completed 15:40

EVACUATION DATA

Description of Measuring Point (MP) Top of 2" Steel Casing

Height of MP Above/Below Land Surface 2.71 MP Elevation 479.99

Total Sounded Depth of Well Below MP 24.85 Water-Level Elevation 472.93

Held 10.00 Depth to Water Below MP 7.06 Diameter of Casing 2"

Wet 2.94 Water Column in Well 17.79 Gallons Pumped/Bailed Prior to Sampling 14.5

Gallons per Foot 0.16

Gallons in Well 2.8 Sampling Pump Intake Setting (feet below land surface) _____

Evacuation Method Bailed 8 gal. dry w/dedicated PVC Bailer.

SAMPLING DATA/FIELD PARAMETERS

Color Red-Tan Odor None Appearance Sl. Turbid Temperature 7.0 °F/°C

Other (specific ion; OVA; HNU; etc.) -

Specific Conductance, umhos/cm 600, 600, 600, 625 pH 7.35, 7.40, 7.40, 7.40

Sampling Method and Material PVC Bailer

Constituents Sampled	Container Description From Lab x or G&M ___	Preservative
VOA	40 ml vials	Sodium Thiosulfate
Metals	250 plastic	HNO_3
Nitorgen	500 ml plastic	H_2SO_4
Inorganics	1/2 gal plastic	None

Remarks

Sampling Personnel Dave Schantz, Rich Swedborg

WELL SAMPLING LOG

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. SGW-29 Coded/ Replicate No. Date: 1-25-85

Weather 10°F Clear Time Sampling Began 9:45 Time Sampling Completed 9:50

EVACUATION DATA

Description of Measuring Point (MP) Top of 2" Casing

Height of MP Above/Below Land Surface 2.13 MP Elevation 458.42

Total Sounded Depth of Well Below MP 22.20 Water-Level Elevation 452.90

Held _____ Depth to Water Below MP 5.52 Diameter of Casing 2"

Wet _____ Water Column in Well 16.68 Gallons Pumped/Bailed Prior to Sampling 13.3

Gallons per Foot 0.16

Gallons in Well 2.66 Sampling Pump Intake Setting (feet below land surface) A

Evacuation Method Bailed w/dedicated PVC Bailer - 13.5 gal.

SAMPLING DATA/FIELD PARAMETERS

Color Brown Odor None Appearance Turbid Temperature 7.0 °F/°C

Other (specific ion; OVA; HNU; etc.) -

Specific Conductance, umhos/cm 220, 230, 220, 235 pH 7.35, 7.40, 7.40, 7.45

Sampling Method and Material PVC Bailer

Constituents Sampled	Container Description From Lab x or G&M ___	Preservative
VOA	40 ml vials	Sodium Thiosulfate
Metals	250 plastic	HNO_3
Nitrogen	250 plastic	H_2SO_4
Inorganics	1/2 gal plastic	None

Remarks

Sampling Personnel Dave Schantz

WELL SAMPLING LOG

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. SGW-30A Coded/ Replicate No. Date: 1-22-85

Weather 20°F Snow Time Sampling Began 13:50 Time Sampling Completed 14:30

EVACUATION DATA

Description of Measuring Point (MP) Top of 2" PVC Casing

Height of MP Above/Below Land Surface 2.68 MP Elevation 457.13

Total Sounded Depth of Well Below MP 21.15 Water-Level Elevation 450.08

Held 9.00 Depth to Water Below MP 7.05 Diameter of Casing 2"

Wet 1.95 Water Column in Well 14.10 Gallons Pumped/Bailed Prior to Sampling 11.28

Gallons per Foot 0.16 Centrifugal - Dry at 3 gal

Gallons in Well 2.66 Sampling Pump Intake Setting (feet below land surface) Bottom

Evacuation Method Pumped 3 gal - Dry with Centrifugal

SAMPLING DATA/FIELD PARAMETERS

Color Brown Odor None Appearance v. Turbid Temperature 7.0 °F/°C

Other (specific ion; OVA; HNU; etc.) Fine Silt

Specific Conductance, umhos/cm 600, 600, 600, 600 pH 6.90, 6.9, 6.9, .6.9

Sampling Method and Material PVC Bailer

Constituents Sampled	Container Description From Lab x or G&M ___	Preservative
VOA	40 ml vials	Sodium Thiosulfate
Metals	250 plastic	HNO_3
Nitrogen	500 ml plastic	H_2SO_4
Inorganics	1/2 gal plastic	None

Remarks

Sampling Personnel Dave Schantz, Rich Swedborg

WELL SAMPLING LOG

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. SGW-30B Coded/ Replicate No. Date: 1-22-85

Weather 20°F Snow Time Sampling Began 13:50 Time Sampling Completed 14:30

EVACUATION DATA

Description of Measuring Point (MP) Top of 2" PVC Casing

Height of MP Above/Below Land Surface 2.32 MP Elevation 456.37

Total Sounded Depth of Well Below MP 35.85 Water-Level Elevation 450.51

Held 8.00 Depth to Water Below MP 5.86 Diameter of Casing 2"

Wet 2.14 Water Column in Well 39.99 Gallons Pumped/Bailed Prior to Sampling 23.99

Gallons per Foot 0.16

Gallons in Well 4.79 Sampling Pump Intake Setting (feet below land surface) 20.0'

Evacuation Method Evacuated 4 gal w/Centrigal - Bailed w/PVC Bailer 12 gal - dry - Total 16 gal.

SAMPLING DATA/FIELD PARAMETERS

Color Clear Odor None Appearance Clear Temperature 7.0 °F/°C

Other (specific ion; OVA; HNU; etc.) -

Specific Conductance, umhos/cm 300, 300, 300, 300 pH 8.70, 8.75, 8.75, 8.80

Sampling Method and Material PVC Bailer 1-1/4"

Constituents Sampled	Container Description From Lab x or G&M ___	Preservative
VOA	40 ml vials	Sodium Thiosulfate
Metals	250 plastic	HNO_3
Nitrogen	500 ml plastic	H_2SO_4
Inorganics	1/2 gal plastic	None

Remarks

Sampling Personnel Dave Schantz, Rich Swedborg

NOTE: Check Calibration 4 + 7 okay

WELL SAMPLING LOG

Project/No. N7760C3

Site Location Oswego Valley Landfill

Site/Well No. GW-31 (Coakley drilled) | Coded/ Replicate No. _____ | Date: 1-25-85

Weather 20°F Snow | Time Sampling Began 13:50 | Time Sampling Completed 14:30

EVACUATION DATA

Description of Measuring Point (MP) Top of 6" Casing

Height of MP Above/Below Land Surface 2.00 | MP Elevation 472.60

Total Sounded Depth of Well Below MP 99.70 | Water-Level Elevation 470.75

Held 4.00 | Depth to Water Below MP 1.85 | Diameter of Casing 6"

Wet .15 | Water Column in Well 97.85 | Gallons Pumped/Bailed Prior to Sampling 73 gal

Gallons per Foot 1.5

Gallons in Well 1.46 | Sampling Pump Intake Setting (feet below land surface) _____

Evacuation Method See reverse side

SAMPLING DATA/FIELD PARAMETERS

Color Slate gray Odor None Appearance Turbid Temperature 7.0 °F/°C

Other (specific ion; OVA; HNU; etc.) - -

Specific Conductance, umhos/cm 450, 450, 450, 450 pH 8.05, 8.10, 8.05, 8.05

Sampling Method and Material PVC Bailer

Constituents Sampled	Container Description From Lab x or G&M ___	Preservative
Metals	250 ml plastic	HNO_3
Nitrogen	500 ml plastic	H_2SO_4
Inorganics	1/2 gal	None
VOA	40 ml vials	Sodium Thiosulfate

Remarks See back of sheet.

Sampling Personnel Dave Schantz, Rich Swedborg

WELL CASING VOLUMES

WELL SAMPLING LOG

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. GW-32 Coded/ Replicate No. _____ Date: 1-27-85

Weather _____ Time Sampling Began 9:00 Time Sampling Completed 10:30

EVACUATION DATA

Description of Measuring Point (MP) Top of Well Casing

Height of MP Above/Below Land Surface 0.35 MP Elevation 469.90

Total Sounded Depth of Well Below MP _____ Water-Level Elevation 451.28

Held 29.00 Depth to Water Below MP 18.62 Diameter of Casing _____

Wet 10.38 Water Column in Well _____ Gallons Pumped/Bailed Prior to Sampling _____

Gallons per Foot _____ Sampling Pump Intake Setting (feet below land surface) _____

Gallons in Well _____

Evacuation Method Ran tap for 1-1/2 hours

SAMPLING DATA/FIELD PARAMETERS

Color Clear Odor None Appearance Clear Temperature 8.0 °F/°C

Other (specific ion; OVA; HNU; etc.) -

Specific Conductance, umhos/cm 1400, 1400 1400 1400 pH 7.05, 7.15, 7.20, 7.20

Sampling Method and Material Sampled from top inside at inlet

Constituents Sampled	Container Description From Lab X or G&M ___	Preservative
Metals	250 ml plastic	HNO_3
Nitrogen	250 ml plastic	H_2SO_4
Inorganics	1/2 gal. plastic	None
VOA	40 ml vials	Sodium Thiosulfate

Remarks Landfill trailer

Sampling Personnel Dave Schantz

WELL SAMPLING LOG

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. KFRO RW - 1A Coded/ Replicate No. _____ Date: 1-26-85

Weather _____ Time Sampling Began 11:20 Time Sampling Completed 11:30

EVACUATION DATA

Description of Measuring Point (MP) Top of well

Height of MP Above/Below Land Surface _____ MP Elevation 475.90

Total Sounded Depth of Well Below MP _____ Water-Level Elevation _____

Held _____ Depth to Water Below MP _____ Diameter of Casing _____

Wet _____ Water Column in Well _____ Gallons Pumped/Bailed Prior to Sampling _____

Gallons per Foot _____

Gallons in Well . _____ Sampling Pump Intake Setting (feet below land surface) _____

Evacuation Method Ran tap 10 minutes.

SAMPLING DATA/FIELD PARAMETERS

Color Clear Odor None Appearance Clear Temperature 8.0 °F/°C

Other (specific ion; OVA; HNU; etc.) - -

Specific Conductance, umhos/cm 190, 190, 190, 190 pH 7.10, 7.10, 7.10, 7.10

Sampling Method and Material Sampled from tap in kitchen.

Constituents Sampled	Container Description From Lab X or G&M ___	Preservative
Metals	250 ml plastic	HNO_3
Nitrogen	250 ml plastic	H_2SO_4
Inorganics	1/2 gal. plastic	None
VOA	40 ml vials	Sodium Thiosulfate
E. Coli	150 ml plastic	None

Remarks _____

Sampling Personnel Dave Schantz

GERAGHTY & MILLER, INC.
Ground-Water Consultants

WATER SAMPLING LOG

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. KFRN RW - 1B Coded/ Replicate No. _____ Date 1-26-85

Weather _____ Time Sampling Began 11:00 Time Sampling Completed 11:10

EVACUATION DATA

Description of Measuring Point (MP) Top of Casing

Height of MP Above/Below Land Surface _____ MP Elevation 479.1

Total Sounded Depth of Well Below MP 73.20 Water-Level Elevation 453.95

Held 29.00 Depth to Water Below MP 25.15 Diameter of Casing _____

Wet 3.85 Water Column in Well _____ Gallons Pumped/Bailed Prior to Sampling _____

Gallons per Foot _____

Gallons in Well _____ Sampling Pump Intake Setting (feet below land surface) _____

Evacuation Method Ran tap 10 minutes.

SAMPLING DATA/FIELD PARAMETERS

Color Clear Odor None Appearance Clear Temperature 5.0 °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 300, 300, 300, 300 pH 7.30, 7.30, 7.30, 7.25

Sampling Method and Material Sampled from tap.

Constituents Sampled	Container Description From Lab X or G&M	Preservative
Metals	250 ml plastic	HNO_3
Nitrogen	250 ml plastic	H_2SO_4
Inorganics	1/2 gal. plastic	None
VOA	40 ml vial	Sodium Thiosulfate
E. Coli	150 ml plastic	None

Remarks Sampled from tap in kitchen

Sampling Personnel Dave Schantz

WELL CASING VOLUMES

GAL./FT				
	1-¼" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.10	2-½" = 0.24	3-½" = 0.50	6" = 1.46

WELL SAMPLING LOG

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. DRFO RW-3A Coded/ Replicate No. _____ Date: 1-26-85

Weather _____ Time Sampling Began 13:00 Time Sampling Completed 13.10

EVACUATION DATA

Description of Measuring Point (MP) Top of well casing, even with mark on wall

Height of MP Above/Below Land Surface _____ MP Elevation 472.70

Total Sounded Depth of Well Below MP 8.20 Water-Level Elevation 471.75

Held 3.00 Depth to Water Below MP 0.95 Diameter of Casing _____

Wet 2.05 Water Column in Well _____ Gallons Pumped/Bailed Prior to Sampling _____

Gallons per Foot _____

Gallons in Well _____ Sampling Pump Intake Setting (feet below land surface) _____

Evacuation Method Ran tap 10 minutes..

SAMPLING DATA/FIELD PARAMETERS

Color Clear Odor None Appearance Clear Temperature 8.0 °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 400, 400, 400, 400 pH 6.50, 6.50, 6.60, 6.95

Sampling Method and Material from tap in basement

Constituents Sampled	Container Description From Lab X or G&M ___	Preservative
Metals	250 ml plastic	HNO_3
Nitrogen	250 ml plastic	H_2SO_4
Inorganics	1/2 gal. plastic	None
VOA	40 ml vial	Sodium Thiosulfate
E. Coli	150 ml plastic	None

Remarks _____

Sampling Personnel Dave Schantz

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WATER SAMPLING LOG

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. DRFN RW-3B Coded/ Replicate No. _____ Date 1-26-85

Weather _____ Time Sampling Began 12:50 Time Sampling Completed 13:00

EVACUATION DATA

Description of Measuring Point (MP) Top of well casing

Height of MP Above/Below Land Surface _____ MP Elevation 496.8

Total Sounded Depth of Well Below MP 110.00 Water-Level Elevation 469.02

Held 31.00 Depth to Water Below MP 27.78 Diameter of Casing _____

Wet 3.22 Water Column in Well _____ Gallons Pumped/Bailed Prior to Sampling _____

Gallons per Foot _____

Gallons in Well _____ Sampling Pump Intake Setting (feet below land surface) _____

Evacuation Method Ran tap 10 minutes

SAMPLING DATA/FIELD PARAMETERS

Color Clear Odor yes Appearance v. sl. Turbid Temperature 8.0 °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance umhos/cm 300, 300, 300, 300 pH 7.95, 7.95, 7.90, 7.80

Sampling Method and Material from tap in basement

Constituents Sampled	Container Description From Lab X or G&M	Preservative
Metals	250 ml plastic	HNO_3
Nitrogen	250 ml plastic	H_2SO_4
Inorganics	1/2 gal. plastic	None
VOA	40 ml vials	Sodium Thiosulfate
E. Coli	150 ml plastic	None

Remarks Slightly turbid, but cleared up

Sampling Personnel Dave Schantz

WELL CASING VOLUMES

GAL./FT				
	1-¼" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.10	2-½" = 0.24	3-½" = 0.50	6" = 1.46

WELL SAMPLING LOG

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. STEV RW-4 Coded/ Replicate No. _____ Date: 1-26-85

Weather _____ Time Sampling Began 15.30 Time Sampling Completed 15:45

EVACUATION DATA

Description of Measuring Point (MP) Top of well casing

Height of MP Above/Below Land Surface _____ MP Elevation 472.5

Total Sounded Depth of Well Below MP 14.0 Water-Level Elevation 463.04

Held 12.0 Depth to Water Below MP 9.46 Diameter of Casing _____

Wet 2.54 Water Column in Well _____ Gallons Pumped/Bailed Prior to Sampling _____

Gallons per Foot _____ Sampling Pump Intake Setting (feet below land surface) _____

Gallons in Well _____

Evacuation Method Ran tap.

SAMPLING DATA/FIELD PARAMETERS

Color Clear Odor None Appearance Clear Temperature 8.0 °F/°C

Other (specific ion; OVA; HNU; etc.) -

Specific Conductance, umhos/cm 200, 200, 200, 200 pH 8.00, 8.05, 8.00, 8.05

Sampling Method and Material from kitchen tap

Constituents Sampled	Container Description From Lab X or G&M ___	Preservative
Metals	250 ml plastic	HNO_3
Nitrogen	250 ml plastic	H_2SO_4
Inorganics	1/2 gal. plastic	None
VOA	40 ml vial	Sodium Thiosulfate
E. Coli	150 ml plastic	None

Remarks _____

Sampling Personnel Dave Schantz

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WATER SAMPLING LOG

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. NIMO RW-5 Coded/ Replicate No. _____ Date 1-28-85

Weather Sunny 25°F Time Sampling Began 10:00 Time Sampling Completed 10:30

EVACUATION DATA

Description of Measuring Point (MP) Top of well casing

Height of MP Above/Below Land Surface _____ MP Elevation 467.9

Total Sounded Depth of Well Below MP 91.60 Water-Level Elevation 465.4

Held 5.00 Depth to Water Below MP 2.50 Diameter of Casing _____

Wet 2.50 Water Column in Well _____ Gallons Pumped/Bailed Prior to Sampling _____

Gallons per Foot _____

Gallons in Well _____ Sampling Pump Intake Setting (feet below land surface) _____

Evacuation Method Ran tap inside building, by side entrance door.

SAMPLING DATA/FIELD PARAMETERS

Color Clear Odor None Appearance _____ Temperature 7.0 °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 400, 400, 400, 400 pH 7.35, 7.35, 7.30, 7.35

Sampling Method and Material Sampled from tap

Constituents Sampled	Container Description From Lab X or G&M	Preservative
Metals	250 ml plastic	HNO_3
Nitrogen	250 ml plastic	H_2SO_4
Inorganics	1/2 gal. plastic	None
VOA	40 ml vials	Sodium Thiosulfate
E. Coli	150 ml plastic	None

Remarks _____

Sampling Personnel Dave Schantz

WELL CASING VOLUMES

GAL./FT				
	1-¼" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.10	2-½" = 0.24	3-½" = 0.50	6" = 1.46

WELL SAMPLING LOG

Project/No. N7760C3

Site Location Oswego Valley Landfill

Site/Well No. DURA RW-7 Coded/ Replicate No. _____ Date: 1-27-85

Weather _____ Time Sampling Began 10.20 Time Sampling Completed 10:30

EVACUATION DATA

Description of Measuring Point (MP) _____

Height of MP Above/Below Land Surface _____ MP Elevation 436.4

Total Sounded Depth of Well Below MP _____ Water-Level Elevation _____

Held _____ _____ Diameter of Casing _____

Wet _____ Water Column in Well _____ Gallons Pumped/Bailed Prior to Sampling _____

Gallons per Foot _____

Gallons in Well _____ Sampling Pump Intake Setting (feet below land surface) _____

Evacuation Method Ran tap for 10 minutes.

SAMPLING DATA/FIELD PARAMETERS

Color Clear Odor None Appearance Clear Temperature 8.0 °F/°C

Other (specific ion; OVA; HNU; etc.) -

Specific Conductance, umhos/cm 400, 400, 400, 400 pH 7.40, 7.45, 7.45, 7.40

Sampling Method and Material Sampled from tap in kitchen

Constituents Sampled	Container Description From Lab X or G&M ___	Preservative
Metals	250 ml plastic	HNO_3
Nitrogen	250 ml plastic	H_2SO_4
Inorganics	1/2 gal. plastic	None
VOA	40 ml vials	Sodium Thiosulfate
E. Coli	150 ml plastic	None

Remarks _____

Sampling Personnel Dave Schantz

WELL SAMPLING LOG

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. BIRD RW-10 Coded/ Replicate No. _____ Date: 1-27-85

Weather _____ Time Sampling Began 10.00 Time Sampling Completed 10:10

EVACUATION DATA

Description of Measuring Point (MP) _____

Height of MP Above/Below Land Surface _____ MP Elevation _____

Total Sounded Depth of Well Below MP _____ Water-Level Elevation _____

Held _____ Depth to Water Below MP _____ Diameter of Casing _____

Wet _____ Water Column in Well _____ Gallons Pumped/Bailed Prior to Sampling _____

Gallons per Foot _____

Gallons in Well _____ Sampling Pump Intake Setting (feet below land surface) _____

Evacuation Method Ran tap 10 minutes.

SAMPLING DATA/FIELD PARAMETERS

Color Clear Odor None Appearance Clear Temperature 8.0 °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 200, 200, 200, 200 pH 7.35, 7.35, 7.25, 7.30

Sampling Method and Material Sampled from tap in kitchen

Constituents Sampled	Container Description From Lab X or G&M ___	Preservative
Metals	250 ml plastic	HNO_3
Nitrogen	250 ml plastic	H_2SO_4
Inorganics	1/2 gal. plastic	None
VOA	40 ml vials	Sodium Thiosulfate
E. Coli	150 ml plastic	None

Remarks _____

Sampling Personnel Dave Schantz

*FL: CASING VOLUMES

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WATER SAMPLING LOG

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. PIER RW-11 Coded/ Replicate No. _____ Date 1-26-85

Weather _____ Time Sampling Began 16:00 Time Sampling Completed 16:10

EVACUATION DATA

Description of Measuring Point (MP) Top of well - at concrete

Height of MP Above/Below Land Surface _____ MP Elevation 468.94

Total Sounded Depth of Well Below MP 16.55 Water-Level Elevation 463.78

Held 8.00 Depth to Water Below MP 5.66 Diameter of Casing 3'

Wet 2.34 Water Column in Well 11.09 Gallons Pumped/Bailed Prior to Sampling _____

Gallons per Foot _____

Gallons in Well _____ Sampling Pump Intake Setting (feet below land surface) _____

Evacuation Method Ran tap 10 minutes outside rear.

SAMPLING DATA/FIELD PARAMETERS

Color Clear Odor None Appearance Clear Temperature 6.0 °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 450, 450, 450, 450 pH 7.35, 7.35, 7.35, 7.35

Sampling Method and Material Sampled from outside - rear tap.

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
Metals	250 ml plastic	HNO_3
Nitrogen	250 ml plastic	H_2SO_4
Inorganics	1/2 gal. plastic	None
VOA	40 ml vials	Sodium thiosulfate
E. Coli	150 ml plastic	None

Remarks _____

Sampling Personnel Dave Schantz

WELL CASING VOLUMES

GAL./FT				
	1-¼" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.10	2-½" = 0.24	3-½" = 0.50	6" = 1.46

WELL SAMPLING LOG

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. SW-1 Coded/ Replicate No. Date: 1-26-85

Weather 0°F Snow Time Sampling Began 2:50 Time Sampling Completed 2:55

EVACUATION DATA

Description of Measuring Point (MP) Top of Staff Gauge

Height of MP Above/Below Land Surface MP Elevation 454.54

Total Sounded Depth of Well Below MP 2.45 Water-Level Elevation

Held Diameter of Casing

Wet Water Column in Well Gallons Pumped/Bailed Prior to Sampling

Gallons per Foot

Gallons in Well Sampling Pump Intake Setting (feet below land surface)

Evacuation Method

SAMPLING DATA/FIELD PARAMETERS

Color Clear Odor None Appearance Clear Temperature 8.0 °F/°C

Other (specific ion; OVA; HNU; etc.) -

Specific Conductance, umhos/cm 225, 225, 225, 225 pH 7.10, 7.15, 7.15, 7.15

Sampling Method and Material Grab sample at Culvert Entrance

Constituents Sampled	Container Description From Lab X or G&M	Preservative
Metals	250 ml plastic	HNO_3
Nitrogen	250 ml plastic	H_2SO_4
Inorganics	1/2 gal. plastic	None
VOA	40 ml vials	Sodium Thiosulfate
E. Coli	150 ml plastic	None

Remarks

Sampling Personnel Dave Schantz

WELL SAMPLING LOG

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. SW-2 Coded/ Replicate No. Date: 1-26-85

Weather 0°F Snow Time Sampling Began 12:50 Time Sampling Completed 1:00

EVACUATION DATA

Description of Measuring Point (MP) None - 200 yds. upstream of GW-16

Height of MP Above/Below Land Surface MP Elevation

Total Sounded Depth of Well Below MP Water-Level Elevation

Held Diameter of Casing

Wet Water Column in Well Gallons Pumped/Bailed Prior to Sampling

Gallons per Foot

Gallons in Well Sampling Pump Intake Setting (feet below land surface)

Evacuation Method Grab sample

SAMPLING DATA/FIELD PARAMETERS

Color Clear Odor None Appearance Clear Temperature 0.0 °F/°C

Other (specific ion; OVA; HNU; etc.)

Specific Conductance, umhos/cm 180, 180, 180, 180 pH 7.55, 7.55, 7.55, 7.50

Sampling Method and Material Grab

Constituents Sampled	Container Description From Lab ___ or G&M ___	Preservative
VOA	40 ml vials	Sodium Thiosulfate
Metals	250 ml plastic	HNO_3
Nitrogen	500 ml plastic	H_2SO_4
Inorganics	1/2 gal. plastic	None

Remarks

Sampling Personnel R. Swedborg

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WATER SAMPLING LOG

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. SW-3 Coded/ Replicate No. _____ Date 1-26-85

Weather 0°F Snow Time Sampling Began 12:50 Time Sampling Completed 1:00

EVACUATION DATA

Description of Measuring Point (MP) No Flow

Height of MP Above/Below Land Surface _____ MP Elevation _____

Total Sounded Depth of Well Below MP _____ Water-Level Elevation _____

Held _____ Depth to Water Below MP _____ Diameter of Casing _____

Wet _____ Water Column in Well _____ Gallons Pumped/Bailed Prior to Sampling _____

Gallons per Foot _____

Gallons in Well _____ Sampling Pump Intake Setting (feet below land surface) _____

Evacuation Method _____

SAMPLING DATA/FIELD PARAMETERS

Color _____ Odor _____ Appearance _____ Temperature _____ °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm _____ pH _____

Sampling Method and Material _____

Constituents Sampled	Container Description From Lab _____ or G&M _____	Preservative

Remarks _____

Sampling Personnel _____

WELL CASING VOLUMES

GAL./FT				
	1-¼" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.10	2-½" = 0.24	3-½" = 0.50	6" = 1.46

WELL SAMPLING LOG

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. SW-4 Coded/ Replicate No. Date: 1-26-85

Weather 0°F Snow Time Sampling Began 12:28 Time Sampling Completed 12:57

EVACUATION DATA

Description of Measuring Point (MP) Top of Staff Gauge

Height of MP Above/Below Land Surface MP Elevation 447.37

Total Sounded Depth of Well Below MP Water-Level Elevation 444.92

Held Depth to Water Below MP 2.45 Diameter of Casing

Wet Water Column in Well Gallons Pumped/Bailed Prior to Sampling

Gallons per Foot

Gallons in Well Sampling Pump Intake Setting (feet below land surface)

Evacuation Method

SAMPLING DATA/FIELD PARAMETERS

Color Clear Odor None Appearance Clear Temperature 0.0 °F/°C

Other (specific ion; OVA; HNU; etc.) -

Specific Conductance, umhos/cm 700, 700, 700, 700 pH 7.40, 7.40, 7.40, 7.40

Sampling Method and Material Grab sample - Mid Channel

Constituents Sampled	Container Description From Lab x or G&M	Preservative
VOA	40 ml vials	Sodium Thiosulfate
Metals	250 plastic	HNO_3
Nitrogen	250 plastic	H_2SO_4
Inorganics	1/2 gal. plastic	None

Remarks

Sampling Personnel R. Swedborg

WELL SAMPLING LOG

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. SW-5 Coded/ Replicate No. Date: 1-26-85

Weather 0°F Snow Time Sampling Began 13:10 Time Sampling Completed 13:20

EVACUATION DATA

Description of Measuring Point (MP)

Height of MP Above/Below Land Surface MP Elevation 428.15

Total Sounded Depth of Well Below MP Water-Level Elevation 425.70

Held Depth to Water Below MP 2.45 Diameter of Casing

Wet Water Column in Well Gallons Pumped/Bailed Prior to Sampling

Gallons per Foot

Gallons in Well Sampling Pump Intake Setting (feet below land surface)

Evacuation Method Grab sample - Good flow depth 2-3 ft.

SAMPLING DATA/FIELD PARAMETERS

Color Clear Odor None Appearance Clear Temperature 0.0 °F/°C

Other (specific ion; OVA; HNU; etc.) -

Specific Conductance, umhos/cm 260, 250, 250, 260 pH 7.35, 7.40, 7.40, 7.40

Sampling Method and Material

Constituents Sampled	Container Description From Lab x or G&M	Preservative
VOA	40 ml vials	Sodium Thiosulfate
Metals	250 plastic	HNO_3
Nitrogen	250 plastic	H_2SO_4
Inorganics	1/2 gal. plastic	None

Remarks

Sampling Personnel Dave Schantz, Rich Swedborg

WELL SAMPLING LOG

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. SW-6 Coded/ Replicate No. _____ Date: 1-26-85

Weather 0°F Snow Time Sampling Began 12:00 Time Sampling Completed 12:15

EVACUATION DATA

Description of Measuring Point (MP) _____

Height of MP Above/Below Land Surface _____ MP Elevation 463.62

Total Sounded Depth of Well Below MP _____ Water-Level Elevation 461.42

Held _____ Depth to Water Below MP 2.20 Diameter of Casing _____

Wet _____ Water Column in Well _____ Gallons Pumped/Bailed Prior to Sampling _____

Gallons per Foot _____

Gallons in Well _____ Sampling Pump Intake Setting (feet below land surface) _____

Evacuation Method Grab sample - Mid Channel - Good flow depth 0-6 ft.

SAMPLING DATA/FIELD PARAMETERS

Color Clear Odor None Appearance Clear Temperature 0.0 °F/°C

Other (specific ion; OVA; HNU; etc.) -

Specific Conductance, umhos/cm 200, 200, 200, 200 pH 7.25, 7.25, 7.30, 7.30

Sampling Method and Material _____

Constituents Sampled	Container Description From Lab x or G&M ___	Preservative
VOA	40 ml vials	Sodium Thiosulfate
Metals	250 plastic	HNO_3
Nitrogen	250 plastic	H_2SO_4
Inorganics	1/2 gal. plastic	None

Remarks _____

Sampling Personnel R. Swedborg

WELL SAMPLING LOG

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. OVL-1 (Landfill Sump) Coded/ Replicate No. Date: 1-27-85

Weather Time Sampling Began 10:00 Time Sampling Completed 12:00

EVACUATION DATA

Description of Measuring Point (MP)

Height of MP Above/Below Land Surface MP Elevation -

Total Sounded Depth of Well Below MP Water-Level Elevation

Held Depth to Water Below MP 2.20 Diameter of Casing

Wet Water Column in Well Gallons Pumped/Bailed Prior to Sampling

Gallons per Foot

Gallons in Well Sampling Pump Intake Setting (feet below land surface)

Evacuation Method Grab Sample

SAMPLING DATA/FIELD PARAMETERS

Color Brown/Black Odor Yes Appearance Gassy Temperature 0 °F/°C

Other (specific ion; OVA; HNU; etc.) -

Specific Conductance, umhos/cm 14,500, 14,500, 14,500 14,500 pH 6.95, 7.00, 7.00, 7.00

Sampling Method and Material Bailer

Constituents Sampled	Container Description From Lab x or G&M	Preservative
Metals	250 ml plastic	HNO_3
Nitrogen	250 ml plastic	H_2SO_4
VOA	40 ml vials	Sodium Thiosulfate
Inorganics	1/2 gal. plastic	None

Remarks

Sampling Personnel Dave Schantz

WELL SAMPLING LOG

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. OVL-2 Coded/ Replicate No. Date: 1-27-85

Weather Time Sampling Began 12:20 Time Sampling Completed 12:30

EVACUATION DATA

Description of Measuring Point (MP)

Height of MP Above/Below Land Surface MP Elevation -

Total Sounded Depth of Well Below MP Water-Level Elevation

Held Depth to Water Below MP Diameter of Casing

Wet Water Column in Well Gallons Pumped/Bailed Prior to Sampling

Gallons per Foot Sampling Pump Intake Setting (feet below land surface)

Gallons in Well

Evacuation Method Grab Sample

SAMPLING DATA/FIELD PARAMETERS

Color Green/Brown Odor Yes Appearance Gassy, foamy Temperature 4 °F/°C

Other (specific ion; OVA; HNU; etc.) -

Specific Conductance, umhos/cm 4,000, 4,000, 4,000, 4,000 pH 7.20, 7.20, 7.20, 7.20

Sampling Method and Material Bailer

Constituents Sampled	Container Description From Lab x. or G&M	Preservative
Metals	250 ml plastic	HNO_3
Nitrogen	250 ml plastic	H_2SO_4
Inorganics	1/2 gal. plastic	None
VOA	40 ml vials	Sodium Thiosulfate

Remarks

Sampling Personnel Dave Schantz

WELL SAMPLING LOG

Project/No. N7760C3 Page 1 of 1

Site Location Oswego Valley Landfill

Site/Well No. OVL-3 Coded/ Replicate No. Date: 1-27-85

Weather Time Sampling Began 13:30 Time Sampling Completed 14:00

EVACUATION DATA

Description of Measuring Point (MP)

Height of MP Above/Below Land Surface MP Elevation -

Total Sounded Depth of Well Below MP Water-Level Elevation

Held Depth to Water Below MP Diameter of Casing

Wet Water Column in Well Gallons Pumped/Bailed Prior to Sampling

Gallons per Foot

Gallons in Well Sampling Pump Intake Setting (feet below land surface)

Evacuation Method Grab Sample

SAMPLING DATA/FIELD PARAMETERS

Color Brown/Black Odor Yes Appearance Gassy Temperature 4 °F/°C

Other (specific ion; OVA; HNU; etc.) -

Specific Conductance, umhos/cm 12,000, 12,000, 12,000, 12,000 pH 6.85, 6.85, 6.85, 6.85

Sampling Method and Material Bailer

Constituents Sampled	Container Description From Lab x or G&M	Preservative
Metals	250 ml plastic	HNO_3
Nitrogen	250 ml plastic	H_2SO_4
Inorganics	1/2 gal. plastic	None
VOA	40 ml vials	Sodium Thiosulfate

Remarks

Sampling Personnel Dave Schantz

APPENDIX F

Water Quality Data

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DATE	LOG NO	LOCATION	Fe mg/l	Mn mg/l	Zn mg/l	Ca mg/l	Mg mg/l	HARDNESS mg/l	Alk mg/l	pH units	SP COND umhos/c	CHLORIDE mg/l	SULFATE mg/l	TDS mg/l	TPO4-P mg/l	NH3-N mg/l	NITRITE mg/l	NITRATE mg/l	Coli-T Col/100ml	Coli-F Col/100ml	TOC mg/l	BOD5 mg/l
1/25/85	510	GV-2																				
1/22/85	434	GV-3C	10	30	03			670	450	7 3	1140	66	6.4	971		13		(0 04			390	
1/23/85	433	GV-3D	5 3	56	03			400	390	6 0	750	16	35	646		(0.04		.22			37	
1/25/85	511	GV-5	09	11	09			130	130	7.6	360	(2.0	6.5	160		.34		.30			14	
1/23/85	451	GV-8	0 4	16	1 1			530	340	6 6	1000	5.0	11	731		.17		3.43			30	
1/22/85	435	GV-9	240	5	130			400	530	7 3	1019	63	4.0	630		.10		(0.04			23	
1/23/85	452	GV-10	36	4	1 1			520	300	6 6	1350	270	30	936		2 54		(0 04			10	
1/22/85	430	GV-11A	360	7	65			300	142	7 4	420	13	5.1	316		(0 04		.06			14	
1/24/85	493	GV-12A	11	3	00			300	340	6 9	750	3	17	967		.33		(0.04			17	
1/24/85	494	GV-14A	07	1 5	04			312	300	7 3	455	(1.0	17	315		.10		.60			31	
1/23/85	453	GV-15	07	3	60			400	400	6 0	650	15	9.4	452		.56		(0 04			(3.0	
1/23/85	454	GV-16	04	01	30			33(	370	7 3	525	1	35	651		33		.32			13	
1/23/85	455	GV-17	03	03	04			10;	140	7 0	375	4	19	196		(0 04		.00			7	
1/23/85	456	GV-18A	30	01	14			310	170	7 5	350	6 9	11	360		(0 04		.36			6	
1/25/85	512	GV-24	10	14	21					7 5	550					.05		1.05				
1/23/85	457	SGV-26	30	03	05			100	150	7.8	340	11	31	360		(0.04		(0.04			6	
1/24/85	495	SGV-27A	06	03	04			53	33	6 9	101	3	11	113		(0.04		(0.04			9	
1/24/85	496	SGV-27B	37	46	13			170	140	7 3	300	5	13	330		(0.04		0.04			4	
1/24/85	497	SGV-28	06	16	06			350	300	7 4	606	1	42	376		0 00		0.03			(3 0	
1/25/85	513	SGV-29	04	(0 01	04			120	06	7 4	325	(1 0	14	124		(0 04		0 44			9	
1/22/85	436	SGV-30A	50	4	16			240	210	6 9	600	52	4.4	340		(0.04		0 23			10	
1/22/85	437	SGV-30B	7 9	40	00			140	100	0 0	300	75	6.0	173		(0.04		(0.04			5	
1/25/85	514	GV-31	.19	(0 01	00			36	190	0 1	450	5	11	304		.73		1 63			30	
1/27/85	529	GV-32	53	10	.04			330	130	7.3	1400	430	30	960		.60		(0.04			7	

ECO VA IOUNDV NITORI ;RAM

DATE	LOG NO	LOCATION	COD	PHENOL	CHLOROFORM	1,1,1 TRICHLOROETHANE	CARBON TETRACHLORIDE	DICHLOROBROMOMETHANE	TRICHLOROETHYLENE	CHLORODIBROMOMETHANE	BROMOFORM	TETRACHLOROETHYLENE
			mg/l	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
1/25/85	510	GW-2			<5	<5	<5	<5	<5	<5	<5	<5
1/22/85	434	GW-3C	649		<5	<5	<5	<5	<5	<5	<5	<5
1/22/85	433	GW-3D	11 4		<5	17	<5	<5	<5	<5	<5	<5
1/25/85	511	GW-5	25 3		<5	<5	<5	<5	<5	<5	<5	<5
1/23/85	451	GW-8	10		<5	<5	<5	<5	<5	<5	<5	<5
1/22/85	435	GW-9	47 3		<5	<5	<5	<5	<5	<5	<5	<5
1/23/85	452	GW-10	49		<5	69	<5	<5	<5	<5	<5	<5
1/22/85	438	GW-11A	35		<5	<5	<5	<5	<5	<5	<5	<5
1/24/85	493	GW-12A	32 3		<5	<5	<5	<5	<5	<5	<5	<5
1/24/85	494	GW-14A	41		<5	<5	<5	<5	<5	<5	<5	<5
1/23/85	453	GW-15	9 4		<5	<5	<5	<5	<5	<5	<5	<5
1/23/85	454	GW-16	3 7		<5	<5	<5	<5	<5	<5	<5	<5
1/23/85	455	GW-17	12		<5	<5	<5	<5	<5	<5	<5	<5
1/23/85	456	GW-18A	14		<5	<5	<5	<5	<5	<5	<5	<5
1/25/85	512	GW-20	303		<5	<5	<5	<5	<5	<5	<5	<5
1/23/85	457	SGW-26	30 6		<5	<5	<5	<5	<5	<5	<5	<5
1/24/85	495	SGW-27A	3 7		<5	<5	<5	<5	<5	<5	<5	<5
1/24/85	496	SGW-27B	13		<5	12	<5	<5	<5	<5	<5	<5
1/24/85	497	SGW-28	8 3		<5	<5	<5	<5	<5	<5	<5	<5
1/25/85	513	SGW-29	14 5		6	<5	<5	<5	<5	<5	<5	<5
1/22/85	436	SGW-30A	12 2		<5	<5	<5	<5	<5	<5	<5	<5
1/22/85	437	SGW-30B	8 3		<5	<5	<5	<5	<5	<5	<5	<5
1/25/85	514	GW-31	34		<5	<5	<5	<5	<5	<5	<5	<5
1/27/85	529	GW-32	6 5		<5	<5	<5	<5	<5	<5	<5	<5

...O VALL... UNDVAT TORIN AM

DATE	LOG NO	LOCATION	METHYLENE CHLORIDE	CHLOROBENZENE	1,1,2,2 TETRACHLOROETHANE	1,1 DICHLORCETHANE	1,2 DICHLOROETHANE	1,1 DICHLOROETHYLENE	TRANS-1,2-DICHLOROETHYLENE	CHLOROETHANE
			ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
1/25/85	510	GW-2	<5	<5	<5	<5	<5	<5	<5	<5
1/23/85	434	GW-3C	<5	<5	<5	<5	<5	<5	<5	<5
1/22/85	433	GW-3D	<5	<5	<5	<5	<5	<5	<5	<5
1/25/85	511	GW-5	<5	<5	<5	<5	<5	<5	<5	<5
1/23/85	451	GW-8	<5	<5	<5	<5	<5	<5	<5	<5
1/23/85	435	GW-9	<5	<5	<5	<5	<5	<5	<5	<5
1/23/85	452	GW-10	<5	<5	<5	<5	<5	<5	<5	<5
1/22/85	430	GW-11A	<5	<5	<5	<5	<5	<5	<5	<5
1/24/85	493	GW-12A	<5	<5	<5	<5	<5	<5	<5	<5
1/24/85	494	GW-14A	<5	<5	<5	<5	<5	<5	<5	<5
1/23/85	453	GW-15	<5	<5	<5	<5	<5	<5	<5	<5
1/23/85	454	GW-16	<5	<5	<5	<5	<5	<5	<5	<5
1/23/85	455	GW-17	<5	<5	<5	<5	<5	<5	<5	<5
1/23/85	456	GW-18A	<5	<5	<5	<5	<5	<5	<5	<5
1/25/85	513	GW-20	<5	<5	<5	<5	<5	<5	<5	<5
1/23/85	457	SGW-26	<5	<5	<5	<5	<5	<5	<5	<5
1/24/85	495	SGW-27A	<5	<5	<5	<5	<5	<5	<5	<5
1/24/85	496	SGW-27B	<5	<5	<5	<5	<5	<5	<5	<5
1/24/85	497	SGW-28	<5	<5	<5	<5	<5	<5	<5	<5
1/25/85	513	SGW-29	<5	<5	<5	<5	<5	<5	<5	<5
1/22/85	436	SGW-30A	<5	<5	<5	<5	<5	<5	<5	<5
1/22/85	437	SGW-30B	<5	<5	<5	<5	<5	<5	<5	<5
1/25/85	514	GW-31	<5	<5	<5	<5	<5	<5	<5	<5
1/27/85	529	GW-32	<5	<5	<5	<5	<5	<5	<5	<5

WEGO 1 GROUND MONITO OGRAM

DATE	LOG NO	LOCATION	VINYL CHLORIDE ug/l	METHYL CHLORIDE ug/l	METHYL BROMIDE ug/l	1,2 DICHLOROPROPANE ug/l	CIS-1,3-DICHLOROPROPENE ug/l	1,1,2 TRICHLOROETHANE ug/l	TRANS-1,3-DICHLOROPROPENE ug/l	2 CHLOROETHYLVINYLETHER ug/l
1/25/85	510	GW-2	<5	<5	<5	<5	<5	<5	<5	<10
1/22/85	434	GW-3C	<5	<5	<5	<5	<5	<5	<5	<10
1/22/85	433	GW-3D	<5	<5	<5	<5	<5	<5	<5	<10
1/25/85	511	GW-5	<5	<5	<5	<5	<5	<5	<5	<10
1/23/85	451	GW-8	<5	<5	<5	<5	<5	<5	<5	<10
1/22/85	435	GW-9	<5	<5	<5	<5	<5	<5	<5	<10
1/23/85	452	GW-10	<5	<5	<5	<5	<5	<5	<5	<10
1/22/85	438	GW-11A	<5	<5	<5	<5	<5	<5	<5	<10
1/24/85	493	GW-12A	<5	<5	<5	<5	<5	<5	<5	<10
1/24/85	494	GW-14A	<5	<5	<5	<5	<5	<5	<5	<10
1/23/85	453	GW-15	<5	<5	<5	<5	<5	<5	<5	<10
1/23/85	454	GW-16	<5	<5	<5	<5	<5	<5	<5	<10
1/23/85	455	GW-17	<5	<5	<5	<5	<5	<5	<5	<10
1/23/85	456	GW-18A	<5	<5	<5	<5	<5	<5	<5	<10
1/25/85	512	GW-20	<5	<5	<5	<5	<5	<5	<5	<10
1/23/85	457	SGW-36	<5	<5	<5	<5	<5	<5	<5	<10
1/24/85	495	SGW-37A	<5	<5	<5	<5	<5	<5	<5	<10
1/24/85	496	SGW-37B	<5	<5	<5	<5	<5	<5	<5	<10
1/24/85	497	SGW-38	<5	<5	<5	<5	<5	<5	<5	<10
1/25/85	513	SGW-39	<5	<5	<5	<5	<5	<5	<5	<10
1/22/85	436	SGW-38A	<5	<5	<5	<5	<5	<5	<5	<10
1/22/85	437	SGW-38B	<5	<5	<5	<5	<5	<5	<5	<10
1/25/85	514	GW-31	<5	<5	<5	<5	<5	<5	<5	<10
1/27/85	529	GW-32	<5	<5	<5	<5	<5	<5	<5	<10

:O VAL JUNOVA ITORIF TAM

DATE	LOG NO	LOCATION	BENZENE ug/l	TOLUENE ug/l	ETHYL BENZENE ug/l	XYLENES ug/l	METHYL ETHYL KETONE ug/l
1/25/85	510	GW-2	<5	<5	<5		<50
1/22/85	434	GW-3C	6	86	<5		1100
1/22/85	433	GW-3D	<5	<5	<5		<50
1/25/85	511	GW-5	<5	<5	<5		<50
1/23/85	451	GW-8	<5	<5	<5		<50
1/22/85	435	GW-9	20	10	<5		<50
1/23/85	452	GW-10	<5	<5	<5		<50
1/22/85	430	GW-11A	<5	<5	<5		<50
1/24/85	493	GW-12A	<5	<5	<5		<50
1/24/85	494	GW-14A	<5	<5	<5		<50
1/23/85	453	GW-15	<5	<5	<5		<50
1/23/85	454	GW-16	<5	<5	<5		<50
1/23/85	455	GW-17	<5	<5	<5		<50
1/23/85	456	GW-18A	<5	<5	<5		<50
1/25/85	512	GW-24	<5	<5	<5		<50
1/23/85	457	SGW-26	<5	<5	<5		<50
1/24/85	495	SGW-27A	<5	<5	<5		<50
1/24/85	496	SGW-27B	<5	<5	<5		<50
1/24/85	497	SGW-28	<5	<5	<5		<50
1/25/85	513	SGW-29	<5	<5	<5		<50
1/22/85	436	SGW-30A	<5	<5	<5		<50
1/22/85	437	SGW-30B	<5	17	<5		<50
1/25/85	514	GW-31	<5	<5	<5		<50
1/27/85	529	GW-33	<5	<5	<5		<50

...O VALL.. SURFACE ..... MONITOR.... ...GRAM

DATE	LOC NO	LOCATION	Fe mg/l	Mn mg/l	Zn mg/l	pH units	COND umhos/cm	NH3-N mg/l	BOD5 mg/l	COD mg/l	PHENOLS mg/l	Al mg/l	Cd mg/l	Cu mg/l	Mg mg/l	Ni mg/l	TSS mg/l	OIL AND GREASE mg/l	TKN mg/l	O.G. mg/l	FERRO-CYANIDE mg/l
1/26/85	515	SV-1	.04	<0.01	.10	7.1	225	<0.04		4											
1/26/85	516	SV-2	.06	<0.01	.07	7.5	180	<0.04		11											
1/26/85	517	SV-4	.11	0.18	.08	7.4	200	<0.04		8.9											
1/26/85	518	SV-5	.16	0.13	.07	7.6	255	0.12		11.3											
1/26/85	519	SV-6	.05	0.03	.05	7.3	200	<0.04		9.7											

[illegible] VALLEY SURFACE WATER MONITORING PROGRAM

DATE	LOC NO.	LOCATION	FREE-CYANIDE	TOTAL CYANIDE	ALKALINITY	CHLORIDE	HARDNESS	NITRATE	TDS	SULFATE	TEMP.	TOC	METHYL ETHYL KETONE	BENZENE	BROMODICHLOROMETHANE	BROMOFORM	BROMOMETHANE
			mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	degrees/c	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l
1/16/85	S15	SV-1			90	7.9	130	1.49	140	11	0.0	10	<50	<5	<5	<5	<5
1/16/85	S16	SV-2			70	5.0	80	.21	32	7.0	0.0	16	<50	<5	<5	<5	<5
1/16/85	S17	SV-4			90	10	110	.65	104	10	0.0	8	<50	<5	<5	<5	<5
1/16/85	S18	SV-5			120	11	140	.60	224	10	0.0	7	<50	<5	<5	<5	<5
1/16/85	S19	SV-6			13	0.9	140	.39	100	10	0.0	19	<50	<5	<5	<5	<5

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DATE	LOG NO	LOCATION	CARBON TETRACHLORIDE	CHLOROBENZENE	CHLOROETHANE	2-CHLOROETHYLVINYL ETHER	CHLOROFORM	CHLOROMETHANE	DIBROMOCHLOROMETHANE	1,1-DICHLOROETHANE	1,2-DICHLOROETHANE	1,1-DICHLOROETHENE
			ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
1/26/85	515	SV-1	<5	<5	<5	<10	<5	<5	<5	<5	<5	<5
1/26/85	516	SV-2	<5	<5	<5	<10	<5	<5	<5	<5	<5	<5
1/26/85	517	SV-4	<5	<5	<5	<10	<5	<5	<5	<5	<5	<5
1/26/85	518	SV-5	<5	<5	<5	<10	<5	<5	<5	<5	<5	<5
1/26/85	519	SV-6	<5	<5	<5	<10	<5	<5	<5	<5	<5	<5

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DATE	LOG NO.	LOCATION	TRANS-1,3-DICHLOROETHENE	1,3-DICHLOROPROPANE	CIS-1,3-DICHLOROPROPENE	TRANS-1,3-DICHLOROPROPENE	ETHYL BENZENE	METHYLENE CHLORIDE	1,1,2,2-TETRACHLOROETHANE	TETRACHLOROETHYLENE
			ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
1/26/85	515	SV-1	<5	<5	<5	<5	<5	<5	<5	<5
1/26/85	516	SV-2	<5	<5	<5	<5	<5	<5	<5	<5
1/26/85	517	SV-4	<5	<5	<5	<5	<5	<5	<5	<5
1/26/85	518	SV-5	<5	<5	<5	<5	<5	<5	<5	<5
1/26/85	519	SV-6	<5	<5	<5	<5	<5	9	<5	<5

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DATE	LOG NO.	LOCATION	TOLUENE	1,1,1-TRICHLOROETHANE	1,1,2-TRICHLOROETHANE	TRICHLOROETHYLENE	VINYL CHLORIDE
			ug/l	ug/l	ug/l	ug/l	ug/l
1/26/85	515	SW-1	<5	<5	<5	<5	<5
1/26/85	516	SW-2	<5	<5	<5	<5	<5
1/26/85	517	SW-4	<5	<5	<5	<5	<5
1/26/85	518	SW-5	<5	<5	<5	<5	<5
1/26/85	519	SW-6	<5	<5	<5	<5	<5

...) VALL INDUSTRI TORINC AM

RESIDENTIAL WELL PROGRAM

DATE	LOG NO	LOCATION	Fe	Mn	Zn	Ca	Mg	HARDNESS	Alk	pH	SP COND	CHLORIDE	SULFATE	TDS	TPO4-P	NH3-N	NITRITE	NITRATE	Coli-T	Coli-F	TOC	BODS
			mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	units	umhos/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	Col/100ml	Col/100ml	mg/l	mg/l
1/31/85	534	MHP-RV-2	04	.01	07			100	140	7.5	400	23	23	300		(0.04		.41	(1	(1	3.0	
1/26/85	535	STEV-RV-4	06	(0.01	10			96	82	8.0	200	(1.0	10	176		(0.04		.64	3	(1	9	
1/26/85	535	NIMO-RV-5	42	24	08			220	170	7.3	400	10	29.0	330		.05		(0.04	(1	(1	(1.0	
1/27/85	532	DURA-RV-7	.13	.03	.05			190	160	7.4	400	29	37	320		.10		(0.04	(1	(1	4	
1/27/85	530	GERD-RV-10	.03	.01	.11			92	30	7.3	200	4	10	160		.05		3.35	(1	(1	4	
1/26/85	531	KFRO-RV-1A	00	03	17			100	56	7.1	170	27	0.3	152		(0.04		.47	25	POSITIVE	(1.0	
1/26/85	533	KRFN-RV-1B	(0.01	(0.01	09			140	120	7.3	300	20	10	244		(0.04		1.45	(1	(1	(1.0	
1/26/85	536	DRFO-RV-3A	(0.01	(0.01	49			320	200	6.6	400	4	7	296		(0.04		.05	(1	(1	9	
1/26/85	538	DRFN-RV-3B	04	04	10			160	140	7.7	300	10	6.5	236		.12		(0.04	(1	(1	7	
1/26/85	532	PIER-RV-11	(0.01	(0.01	.11			370	250	7.4	450	1	32	360		.05		.60	3	3	19	

VECO [illegible] GROUNDWATER MONITORING PROGRAM
RESIDENTIAL WELL PROGRAM

DATE	LOC NO	LOCATION	COD	PHENOL	CHLOROFORM	1,1,1 TRICHLOROETHANE	CARBON TETRACHLORIDE	DICHLOROBROMOMETHANE	TRICHLOROETHYLENE	CHLORODIBROMOMETHANE	BROMOFORM	TETRACHLOROETHYLENE
			mg/l	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
1/24/85	524	MHP-RV-1	1 2		<5	<5	<5	<5	<5	<5	<5	<5
1/16/85	525	STEV-RV-6	0 1		<5	<5	<5	<5	<5	<5	<5	<5
1/28/85	535	NIMO-RV-5	11 0		<5	<5	<5	<5	<5	<5	<5	<5
1/27/85	532	DURA-RV-7	1 6		<5	<5	<5	<5	<5	<5	<5	<5
1/27/85	530	BIRD-RV-10	0 1		<5	<5	<5	<5	<5	<5	<5	<5
1/24/85	531	KFRO-RV-1A	2		<5	<5	<5	<5	<5	<5	<5	<5
1/24/85	523	KRFN-RV-1B	3 7		<5	<5	<5	<5	<5	<5	<5	<5
1/24/85	526	DRFO-RV-3A	7 0		<5	<5	<5	<5	<5	<5	<5	<5
1/24/85	528	DRFN-RV-3B	5 7		<5	<5	<5	<5	<5	<5	<5	<5
1/24/85	533	PIEB-RV-11	0 6		<5	<5	<5	<5	<5	<5	<5	<5

VALLEY NOVATI FORING IN
RESIDENTIAL WELL PROGRAM

DATE	LOG NO	LOCATION	METHYLENE CHLORIDE	CHLOROBENZENE	1,1,2,2 TETRACHLOROETHANE	1,1 DICHLOROETHANE	1,2 DICHLOROETHANE	1,1 DICHLOROETHYLENE	TRANS-1,2-DICHLOROETHYLENE	CHLOROETHANE
			ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
1/26/85	524	MHP-RV-2	<5	<5	<5	<5	<5	<5	<5	<5
1/26/85	525	STEV-RV-4	<5	<5	<5	<5	<5	<5	<5	<5
1/28/85	535	NIMO-RV-5	<5	<5	<5	<5	<5	<5	<5	<5
1/27/85	532	DURA-RV-7	<5	<5	<5	<5	<5	<5	<5	<5
1/27/85	530	BIRD-RV-10	<5	<5	<5	<5	<5	<5	<5	<5
1/26/85	521	KFRO-RV-1A	<5	<5	<5	<5	<5	<5	<5	<5
1/26/85	523	KRFN-RV-1B	<5	<5	<5	<5	<5	<5	<5	<5
1/26/85	526	DRFO-RV-3A	<5	<5	<5	<5	<5	<5	<5	<5
1/26/85	528	DRFN-RV-3B	<5	<5	<5	<5	<5	<5	<5	<5
1/26/85	522	PIER-RV-11	6	<5	<5	<5	<5	<5	<5	<5

VALLEY WATER MONITORING

DATE	LOG NO	LOCATION	VINYL CHLORIDE	METHYL CHLORIDE	METHYL BROMIDE	1,2 DICHLOROPROPANE	CIS-1,3-DICHLOROPROPENE	1,1,2 TRICHLOROETHANE	TRANS-1,3-DICHLOROPROPENE	2 CHLOROETHYLVINYLETHER
			ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
1/25/85	524	MHP-MW-2	<5	<5	<5	<5	<5	<5	<5	<10
1/24/85	525	STEV-MW-4	<5	<5	<5	<5	<5	<5	<5	<10
1/29/85	535	NIMO-MW-5	<5	<5	<5	<5	<5	<5	<5	<10
1/27/85	532	DUNA-MW-7	<5	<5	<5	<5	<5	<5	<5	<10
1/27/85	528	BIRD-MW-10	<5	<5	<5	<5	<5	<5	<5	<10
1/24/85	521	KFRO-MW-1A	<5	<5	<5	<5	<5	<5	<5	<10
1/24/85	523	KRFN-MW-1B	<5	<5	<5	<5	<5	<5	<5	<10
1/24/85	526	ORFO-MW-3A	<5	<5	<5	<5	<5	<5	<5	<10
1/24/85	528	ORFN-MW-3B	<5	<5	<5	<5	<5	<5	<5	<10
1/24/85	522	PIER-MW-11	<5	<5	<5	<5	<5	<5	<5	<10

DATE	LOG NO	LOCATION	BENZENE ug/l	TOLUENE ug/l	ETHYL BENZENE ug/l	XYLENES ug/l	METHYL ETHYL KETONE ug/l
1/26/85	524	MNP-RV-2	<5	<5	<5		<50
1/26/85	525	STEV-RV-4	<5	<5	<5		<50
1/28/85	535	NIMO-RV-5	<5	<5	<5		<50
1/27/85	532	DURA-RV-7	<5	<5	<5		<50
1/27/85	528	BIRD-RV-10	<5	<5	<5		<50
1/26/85	521	KFRO-RV-1A	<5	<5	<5		<50
1/26/85	523	KRFN-RV-1B	<5	<5	<5		<50
1/26/85	526	DRFO-RV-3A	<5	<5	<5		<50
1/26/85	528	DRFN-RV-3B	<5	<5	<5		<50
1/26/85	533	PIER-RV-11	<5	<5	<5		<50

VALL. 'NOVAT. TORING 'H
LEACHATE PROGRAM

DATE	LOG NO.	LOCATION	Fe	Mn	Zn	Ca	Mg	HARDNESS	Alk	pH	SP COND	CHLORIDE	SULFATE	TDS	TPO4-P	NH3-N	NITRITE	NITRATE	Coli-T	Coli-F	TOC	BODS
			mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	units	umhos/c	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	Col/100ml	Col/100ml	mg/l	mg/l
1/27/85	531	OVL-1	6.7	.13	.30			5000	6000	7.0	14500	1000	67	8024		833		.07			1100	
1/27/85	527	OVL-2	45	7	.15			1900	2900	7.3	4000	610	6.5	5244		390		(0.04			140	
1/27/85	530	OVL-3	140	25	37			2000	5300	6.9	13000	130	6.5	10753		713		.07			3100	

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LEACHATE PROGRAM

DATE	LOG NO	LOCATION	COD	PHENOL	CHLOROFORM	1,1,1 TRICHLOROETHANE	CARBON TETRACHLORIDE	DICHLOROBROMOMETHANE	TRICHLOROETHYLENE	CHLORODIBROMOMETHANE	BROMOFORM	TETRACHLOROETHYLENE
			mg/l	mg/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
1/27/85	531	OVL-1	1315		<5	<5	<5	<5	<5	<5	<5	9
1/27/85	527	OVL-3	4915		<5	<5	<5	<5	<5	<5	<5	<5
1/27/85	530	OVL-2	8023		13	<5	<5	<5	11	<5	<5	<5

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DATE	LOG NO	LOCATION	METHYLENE CHLORIDE	CHLOROBENZENE	1,1,2,2 TETRACHLOROETHANE	1,1 DICHLOROETHANE	1,2 DICHLOROETHANE	1,1 DICHLOROETHYLENE	TRANS-1,2-DICHLOROETHYLENE	CHLOROETHANE
			ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
1/27/85	531	OVL-1	<5	<5	<5	31	31	<5	<5	<5
1/27/85	527	OVL-2	140	<5	<5	<5	<5	<5	<5	<5
1/27/85	530	OVL-3	530	<5	<5	<5	<5	<5	49	<5

OSWEGO VALLEY GROUNDWATER MONITORING PROGRAM
LEACHATE PROGRAM

DATE	LOG NO	LOCATION	VINYL CHLORIDE	METHYL CHLORIDE	METHYL BROMIDE	1,2 DICHLOROPROPANE	CIS-1,3-DICHLOROPROPENE	1,1,2 TRICHLOROETHANE	TRANS-1,3-DICHLOROPROPENE	2 CHLOROETHYLVINYLETHER
			ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
1/27/85	531	OVL-1	<5	<5	<5	<5	<5	<5	<5	<10
1/27/85	527	OVL-2	<5	<5	<5	<5	<5	<5	<5	<10
1/27/85	530	OVL-3	<5	<5	<5	<5	<5	8	<5	<10

ACHAT AM

DATE	LOG NO	LOCATION	BENZENE ug/l	TOLUENE ug/l	ETHYL BENZENE ug/l	XYLENES ug/l	METHYL ETHYL KETONE ug/l
1/27/85	531	OVL-1	19	1900	134		420
1/27/85	527	OVL-2	<5	100	8		3200
1/27/85	530	OVL-3	<5	660	49		12000

. VOLATILES

EXTRA PEAKS - QUALITATIVE LISTING OF PEAKS PRESENT
(GREATER THAN 10% I.S.) AS REPORTED BY CAMO LABS, INC.

Sample Identification

Peaks	#434	#435	#494	#512	#527	#528	#530	#531
Sulfur Dioxide					X	X		
Oxybismethane					X		X	X
Acetone	X				X		X	X
Isopropanol	X				X		X	
2-Butanol					X		X	
Tetrahydrofuran			X	X	X		X	X
Dichlorofluoromethane	X	X						
Chlorodifluoromethane		X						

SAMPLE #	LOCATION
#434	GW-3C
#435	GW-9
#494	GW-14A
#512	GW-24
#527	OVL-2
#528	BIRD RW-10
#530	OVL-3
#531	OVL-1

NOTE: These peaks appear on the chromatogram for the EPA 624 Scan but are not included for quantification or identification in the EPA 624 Scan as defined in the Federal Register, Monday, December 3, 1979; Method 624.