# *GROUNDWATER INVESTIGATION SUMMARY REPORT*

*for*

## *SYRACUSA SAND AND GRAVEL, INC.*

*Prepared by:*
*Leader Professional Services, Inc.*
*640 Kreag Road Suite 300*
*Pittsford, New York*

*November 2002*

*314.001*

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# 1. PURPOSE AND OBJECTIVES

The purpose of this study was to gather basic hydrogeologic and groundwater quality data from various locations on and around the Syracusa Sand & Gravel ("SS&G") property. Leader used the data to evaluate groundwater conditions beneath the SS&G property, to compare the groundwater quality to New York State Department of Environmental Conservation ("NYSDEC") groundwater quality standards and guidance values and compare the groundwater quality to the groundwater sample results from the NYSDEC's Modock Springs investigation.

# 2. APPROACH

Prior to recommending the installation of any monitoring wells on the SS&G property, Leader reviewed the NYSDEC Region 8 (Avon, NY) file on the Modock Springs investigation completed by NYSDEC, to evaluate the available background information and to determine where in the groundwater zone NYSDEC had collected groundwater samples. The findings from the file review led Leader to understand that the groundwater contamination had first been noticed approximately 10 years ago north of the SS&G property at a location near Modock Springs Road. During the investigation, NYSDEC found that the uppermost groundwater zone north of the SS&G property contained the highest concentrations of volatile organic compounds ("VOCs").

As a result of Leader's review, a groundwater investigation focusing on the uppermost groundwater zone was recommended to SS&G. Monitoring well locations were selected to further define the contaminant migration trend developed by NYSDEC and to identify potential off-site source areas. The investigation did not attempt to determine the impact SS&G and the nearby Hanson Aggregates, PLC ("Hanson") mining operations has had on groundwater flow because the historical data needed for such an assessment is not readily available. This impact could be significant, because both SS&G and Hanson's operations have altered the area's topography, surface water runoff flow patterns, and have pumped groundwater for their sand washing operations. Sand and gravel mining has occurred in the SS&G and Hanson pit areas since the 1930's.

During the planning and completion of the monitoring wells, special consideration was given to keeping the zone of monitoring consistent between monitoring wells. As monitoring well locations moved southward, this concern grew as ground surface elevations changed and the possible existence of perched groundwater zones increased. Surface wet spots and collections of surface water were found on the SS&G property also suggesting perched water areas. However, when the monitoring wells were installed, no perched water-bearing zones were identified in the soil. As geologic and hydrogeologic data was obtained and compared, a perched groundwater zone was identified in the vicinity of monitoring well SS&G MW-1, SS&G MW-5 and SS&G MW-7 areas.

The monitoring well installation approach used split spoon sampling and hollow stem augering drilling methods for soil evaluation purposes and monitoring well installation. Each soil sample was visually examined for grain size and soil characteristics. Leader screened each sample using a portable organic vapor analyzer ("OVA") with a photoionization detector. Soil samples were collected at 5-foot intervals until at least 10 feet of saturated soil was encountered. The OVA was used to identify possible soil samples for chemical analysis and the location of monitoring well screens. None of the soil samples contained debris, stains, odors or vapors suggesting the presence of contaminants. Sampling and drilling tools were steam cleaned between monitoring well locations. Sampling tools were also cleaned with Alconox detergent between samples.

Following Leader's recommendations, at the completion of drilling activities a 2-inch PVC monitoring well with at least 10-feet of monitoring well screen was installed. The screened interval was backfilled with clean sand until the sand reached an elevation of approximately 2-feet above the monitoring well screen. The sand pack was then capped with at least 2-feet of Bentonite that was placed in pellet form and hydrated with potable water. The annulus of the borehole was then allowed to collapse and the augers were retracted. Each monitoring well was capped with an expandable, waterproof cap and a locking steel protective casing, which was found in a mixture of concrete or a cement Bentonite mixture.

Following monitoring well installation, each monitoring well was developed with a bailer until a clear sample was obtained. Approximately two weeks following completion of monitoring well construction and development, DW Environmental ("DW") measured water levels and collected groundwater in each monitoring well. Prior to sampling, DW purged each monitoring well of three volumes of groundwater, then allowed the well to recover to near static groundwater conditions, and then sampled for VOCs using a dedicated bailer. Each sample was analyzed for VOCs using USEPA Method 8260. Paradigm Environmental Services' laboratory (New York State Department of Health Environmental Laboratory Approval Program Certification Number 10958) analyzed the groundwater samples.

With the exception of monitoring wells SS&G MW-10 and SS&G MW-11, Robert Owen, a New York State licensed surveyor, surveyed the monitoring well locations to determine the location and elevation of each monitoring well. The monitoring wells SS&G MW-10 and SS&G MW-11 were located on a map of the site using aerial photographs.

# 3. FINDINGS

## 3.1 Regional Surficial Geology

Glacial features and their eroded remnants dominate the surficial geology of the region. The area where SS&G and Hanson have developed their operations is composed of kamic deposits, lacustrine sediments, and possibly outwash sand and gravel. Both operations have been situated on a hill that is identified as glacial deltaic deposit on the Surficial Geology Map of New York, Finger Lakes Sheet (1986). The deposit has an east to west axis over 9,000 feet long and is approximately 2,000 feet wide at the SS&G pit. The average topographical relief is about 200 feet.

In cross-section, from north to south, a classic example of the former lake delta is exhibited in the sidewalls of the SS&G and Hanson pits. Figure 1 shows an idealized geologic cross-section of a delta. At the SS&G and Hanson pits, bottomset, foreset, and topset beds of stratified sand and gravel units can be seen. Bottomset beds are well stratified fine to coarse silty sand, interbedded with fine sandy silt and thin laminae of clay. Occasional beds of silty sand, silt and clay are also common. The bottomset beds have a gentle dip that is typically less than 10 degrees. Examples of silt and clay beds, are found on the west side of the SS&G pit. Some of the beds also show evidence of distortion and rotation of the beds suggesting the occurrence of density underflows, also known as turbidity flows. Turbidity flows are caused from the overloading of sediment on the face or foreset beds of the delta. Eventually the mass of sediment exceeds the angle of repose of the delta face and the mass slides to the bottom of the slope. The force of the flowing sediment hitting the finer, softer sediment at the bottom of the lake is capable of picking up semi-consolidated sediment and folding or rolling the sediment in a mass along the bottom of the lake. It is not uncommon to have large gravel and cobbles suspended in a matrix of silt and clay within these turbidity flow deposits. The turbidity flow deposits can extend out into the adjacent lake bottom covering the bottomset beds. Bottomset beds are found at the foot of the foreset beds.

Foreset beds, which can dip at 10 to 45 degrees, are orientated such that the beds dip away from the direction of water flow. In the SS&G pit area, the foreset beds dip primarily to the south, implying a north to south flow of water. On the east side of the SS&G pit, southwest-dipping beds can also be found. Foreset beds are generally composed of coarser sediment than bottomset beds and in the SS&G pit, sandy gravel interbedded with sand is found. Gravel in these beds is well rounded and large. Cobble-sized rocks, 4 to 12 inches in diameter, can also be found. Topset and foreset beds have a similar composition, but topset beds are horizontally bedded. Examples of topset beds are located on the west and east sides of the pit. Within the topset beds, channels are formed by the flowing water entering the delta. Depending on the volume and velocity of water flowing through the delta, different grain sized sediment can be deposited. In general, sand and gravel are deposited in the deepest part of the channel while sand, silt

and clay are deposited on the flanks of the channel. Examples of these lenticular channel deposits are suggested on the south and west sides of the SS&G pit.

As melting of the glacial ice continued the retreat to the north, sediment grain size decreases with a trend of finer grain sizes being deposited south of the delta. Over time, the sequence of deposition shows that grains size becomes finer with increasing depth into the delta deposit. The progression of the delta to the north forms a southward dipping wedge that is well stratified. The bed stratification causes distinct boundaries between beds, which will cause infiltrating water to deflect along the bed surfaces before reaching the water table. This phenomenon will also affect the migration of contaminants, particularly if their migration is density driven.

## 3.2 Site Geology

In general, the soil types encountered below the SS&G property consist of gravel and sand with varying amounts of silt. Some vertical and horizontal soil grain size variation was noticed during the split spoon sampling, which seemed to indicate a fining of the soil grain size with depth. Within sand and gravel sequences, silt layers were found, but insufficient data is available to determine if the silt is a continuous layer across the pit area. Where monitoring wells are most frequent, running parallel with the main access road of the SS&G pit (see Figure 2), a silt layer appears to form a channel or basin shape from east to west. The silt layer rises in elevation from +799 feet above mean sea level ("MSL") at monitoring well SS&G MW-7 to an elevation of approximately +851 above MSL at monitoring well SS&G MW-4. The lowest point of the silt is in the area of monitoring well SS&G MW-5, where the bottom of the well is in silty sand, which may indicate the beginning of a silt layer. The silt in monitoring well SS&G MW-5 is indicated at an elevation of +769 feet above MSL. Above the silt layer, the soil moisture ranged from dry to wet. Where soil moisture conditions did not indicate a reasonable chance of installing a monitoring well that could produce enough water for sampling, the silt zone was penetrated and a monitoring well placed at a deeper interval. No VOCs found by the OVA above or below the silt layer.

Below the silt layer, fine to coarse sand was encountered and this sequence was consistent to the bottom of each boring where silt was found with the exception of monitoring well SS&G MW-5. In general, sampling and drilling were terminated when at least 10 feet of groundwater was encountered. In some specific cases, sampling and drilling were continued in order to learn more about the geology of the groundwater zone.

## 3.3 Groundwater Flow

Groundwater levels were collected on several dates in order to construct a groundwater contour map for the SS&G property. Figure 2 shows Leader's interpretation of the groundwater surface contours and direction of groundwater flow. The contours shown on Figure 2 suggest that a hydraulic divide separates the property into two hydraulic areas.

The divide appears to trend in an east to west direction and is located on the south side of the property near the SS&G pit's south rim and sand sorting operation. This divide probably migrates slightly with different groundwater flow conditions. North of the divide groundwater appears to flow to the north and similarly, groundwater appears to flow to the south, south of the divide.

Figure 2 includes data from monitoring wells that may be representative of perched groundwater conditions, because the data and the resulting contours appear to fit with our interpretation of the contoured groundwater surface. Added to Figure 2 is a pond that resulted from the removal of sand and gravel from the monitoring well SS&G MW-1 area. The elevation of the groundwater in this new pond is approximately 783.82 feet above MSL. It should be noted that the water level of the new pond was measured shortly after it was excavated and it is unknown if the pond will be a seasonal feature. The split spoon soil from monitoring well SS&G MW-1 showed a sequence of wet, dry and saturated soil in the vicinity of the pond bottom suggesting that groundwater levels will fluctuate and a dropping water table could potentially dry up this pond.

Although the new pond's water level is higher than the former water level in monitoring well SS&G MW-1 (762.52 feet above MSL), it is consistent with the position of a silt layer, and our interpretation of the contoured groundwater surface from monitoring wells SS&G MW-6 and SS&G MW-7, and an interpreted mound around the settling ponds. This association between the settling ponds, a silt layer, and groundwater mound suggests that the settling ponds may be a source of groundwater for the perched water level. The leakage rate from the settling ponds has not been calculated. Based on the interpretation of the geology and groundwater, the silt layer pinches out in the vicinity of monitoring well SS&G MW-2 and groundwater commingles with the deeper groundwater. On the west side of the property, between monitoring wells SS&G MW-4 and SS&G MW-5 the groundwater ceases to collect above the silt layer. To the east, the groundwater-silt layer association may continue beyond monitoring well SS&G MW-8.

As the topography of the sand and gravel pit changes and the use of groundwater changes, the groundwater flow patterns currently observed will also change just as it has changed since the sand and gravel pits began operating.

## 3.4 Settling Ponds

The source of water for the settling ponds is a high volume production well located southeast of the settling ponds. The current production well is located in a lower groundwater zone. The total depth of the production well is approximately 288 feet below ground surface with a static water level of 170 feet below ground surface. The pumping water level is approximately 205 feet below ground surface and is capable of pumping at over 175 gallons per minute. From the production well, water flows into the lowest (elevation) pond where it is then pumped to the sorting and washing operation.

Some of the wash water is lost during the sorting and washing operation and is carried into the piles of washed sand and gravel. Water running from the piles is a common occurrence. Water reclaimed from the sorting and washing operation is returned to one of the settling ponds where fine sediment is allowed to fall out of suspension. Clarified water flows from a pipe down to the lower pond where the water cycle begins again. When the sand and gravel pit is operating during the construction season, the production pump operates 5 to 6 days per week.

## 3.5 Pump Test Results

During the course of the investigation, a test was completed to determine the effect of the production pump on the water levels. Table 1 shows the deflection in the water table after the pump was operated for six, 24-hour periods. The data shows that the pump created a drawdown in all of the monitoring wells installed at the time (monitoring wells SS&G MW-1 through SS&G MW-5). On June 3rd and June 4th, approximately 0.22-inches of rain fell over the area and caused a slight rise in the groundwater levels in the monitoring wells between 72 and 120 hours after pumping started. Changes in water level ranged from 0.02 feet in monitoring well SS&G MW-5 to 0.09 feet in monitoring well SS&G MW-2.

Making some assumptions of subsurface conditions and the pumping rate of the production well during the pump test, it can be shown the radius of influence of the production well is over 2,000 feet. Calculations using a well radius of 4-inches, a pumping rate of 175 gallons per minute, a hydraulic conductivity of 100 gallons per day per foot of aquifer, and the pumping levels mentioned in Section 3.4, yields a groundwater radius of influence of 2,000 feet. Calculations are shown as Table 2. The approximate distance between the production well and monitoring well SS&G MW-3 is 1,950 feet. Using these approximations and calculations helps confirm the measured pump test results.

## 3.6 Groundwater Analyses

As previously mentioned, each monitoring well sample was analyzed for VOCs using USEPA Method 8260. This analytical method was used so the SS&G groundwater results would be comparable to those from NYSDEC. A summary table of groundwater sample results is shown on Table 3 along with the NYSDEC GA Groundwater Standards and guidance values. The sample results are also shown on Figure 3 along side each monitoring well or sample location.

Sample results for NYSDEC monitoring wells, resident owned wells, and surface waters obtained as part of the NYSDEC's Modock Springs study are included in Figure 4. It should be noted that Figure 4 does not present all of the NYSDEC's data. This additional information is presented as a reference. Unfortunately, not all of the sample locations are located on the map accompanying the reference.

When compared to the NYSDEC sample results, the largest chemical concentrations are still found off-site and north of the SS&G property. In NYSDEC monitoring wells MW-13 and MW-14, the contaminant levels, as measured as the total of all volatile organic compounds ("TVOCs"), are one to two orders of magnitude greater than any of the results found on the SS&G property, with the exception of Geoprobe sample S-2 at a concentration of 4,900 parts per billion. Although the level of TVOCs found in Geoprobe sample S-2 is significant, it is still approximately 1/3 times less than the concentration of TVOCs in NYSDEC monitoring well MW-14 that is north of the SS&G property. Further north of the SS&G pit, between Dryer Road and Modock Springs Road, the concentration of TVOCs are similar or greater than those measured on the SS&G property. TVOCs concentrations were greater than most of the SS&G monitoring wells in the following samples: NYSDEC monitoring wells MW-1, MW4, MW6 and MW-7; resident well Turner and resident well Barry; and in the "Spring" sample.

In samples collected north of the SS&G property, a significant number of samples (7 of 14 samples from Figure 4) contain higher TVOC concentrations than in most monitoring well samples analyzed on the SS&G property (5 of 16 samples). This pattern of contamination supports a spill area north of the SS&G property, where surficial and subsurface geology, natural groundwater flow, and stress applied to the groundwater system by pumping wells are attenuating the contaminant concentrations to the north and south of the release area.

It is interesting that the only contaminants found include Trichloroethene ("TCE"), 1,1,1-Trichlorothane ("TCA"), and 1,1-Dichloroethene ("DCE"). DCE, which can be a product or a breakdown product of both TCE and TCA, is the only potential breakdown product found and its concentration outside of the area of NYSDEC monitoring wells MW-13 and MW-14 remains low. Higher concentrations of breakdown products are typically associated with the area where the release is the oldest, where the release originated. In this case, the presence of DCE indicates that the area containing NYSDEC monitoring wells MW13 and MW-14 is the source area.

## 3.7 Contamination Migration and Fate

### 3.7.1 Contaminant Migration

The contaminants of concern TCE, TCA and DCE are chemicals that do not naturally occur in the soil or groundwater. Collectively, these compounds are known as chlorinated hydrocarbons. Their physical and chemical properties are such that they are denser than water and relatively insoluble. For example, a gallon of TCE weights approximately 12.18 pounds and has solubility in water of approximately 1,100 milligrams per liter. A gallon of water weighs approximately 8.34 pounds. Because of their density and non-water like characteristics, these are referred to as Dense Non-Aqueous Phase Liquids ("DNAPLs").

Because of the DNAPL density, their migration through the unsaturated zone is often rapid. The flowing DNAPL can occupy the air-filled pore spaces by driving out the air into the surrounding pores. Above the groundwater zone, however, the migration of DNAPL can be redirected by changes in grain size. Much like groundwater encountering a clay layer, DNAPL will migrate laterally along the finer grained layer until it can penetrate the pore spaces. When DNAPL encounters a fine grain material like silt or clay, or the groundwater surface, much more downward force is needed to enter the pore space and continue its downward migration. Before it can migrate, the DNAPL must wet the grain surface and displace the air or water in the pore spaces. Water is much more difficult for DNAPL to migrate through because water cannot be compressed. The spreading of the DNAPL on top of the groundwater zone or silt layer is a common phenomenon when the DNAPL cannot immediately penetrate the zone. The DNAPL will continue to spread out until DNAPL pool accumulates to a thickness where enough force is generated, at the bottom of the pool, enabling the DNAPL to force the groundwater out of the pore spaces. As a result of this migration mechanism, the rate of migration is dependent on the availability of additional DNAPL to keep the driving forces greater than the pressure on the pore spaces.

Problematic to remediation of DNAPL is finding the pool or source area, due to its persistence in the groundwater, its low solubility, and its long half-life (TCE has a half-life of 321 to 1653 days in groundwater). With these characteristics, a small immobile pool of DNAPL can produce a widespread groundwater plume of dissolved chlorinated hydrocarbons. The dissolved chlorinated hydrocarbons, in solution with groundwater, can migrate more readily within the groundwater zone and be influenced by groundwater stresses caused by pumping and seasonal water level fluctuations.

The pattern and extent of contamination seen in the SS&G and Modock Springs area is a near classic example of the spread of a DNAPL source and dissolved chlorinated hydrocarbons. In the source area, where DNAPLs exist, higher groundwater contaminant concentrations are found. Surrounding the source are lower concentrations, which more readily migrate in response to groundwater flow and the stress placed upon the groundwater. Stresses placed on the groundwater and the characteristics of the groundwater zone (for example from groundwater pumping, groundwater flow velocity, and organic carbon content) direct and shape the migrating plume. As might be expected in the SS&G and Modock Springs' sand and gravel groundwater zone, there is a narrow plume that has migrated in two directions in response to changes in geology, changes in groundwater pumping needs, the change in land use, and the expansion of the sand and gravel operations.

### 3.7.2 Contaminant Fate

When exposed in the environment, TCE, TCA, and DCE will readily evaporate; but once in the soil and groundwater their ability to change or break down into other forms (i.e.

vapor or breakdown products) slows. The ability to break down is typically measured as a half-life. TCE, which has the longest half-life, has a half-life in soil from 180 to 360 days and in groundwater the half-life ranges from 321 to 1653 days. DCE is the least persistent of the three compounds with a half-life ranging from 28 to 180 days in soil and 56 to 132 days in groundwater. The rate these compounds break down is dependent on the conditions in the soil or groundwater. For example, in a sand and gravel aquifer where there is little organic matter or nutrients, the rate of break down from biological processes will be slower than in a silty clay groundwater matrix. Silt and clays can provide other nutrients and organic matter beneficial to microbe growth. Abiotic processes are similarly slowed where the soil and groundwater conditions are at a constant temperature, constant pH, and neutral oxidation and reduction potential.

During chemical break down, chemicals transform preferentially into other chemical forms depending on the break down process. In general, break down occurs as an abiotic process or biological process in anaerobic or aerobic conditions. TCA can abiotically and anaerobically break down into DCE, cis 1,2-Dichloroethene ("cis"), 1,1-Dichloroethane ("DCA"), and Acetic acid. From DCE and cis, a second-generation breakdown product is Vinyl Chloride ("VC"), which eventually forms Ethanol, Carbon Dioxide and water. The break down of DCA is slightly different, breaking down into Chloroethane ("CA") and eventually to Ethanol, Carbon Dioxide and water.

The most common break down product of TCA is DCA and cis under anaerobic conditions. TCE has some common breakdown products with TCA. The first generation break down products from TCE includes cis, trans-1,2-Dichloroethene ("trans") and DCE. From trans and DCE the second-generation breakdown product is VC. Cis can also breakdown into VC, but also CA. The most common breakdown product of TCE is cis.

Assuming that some level of chemical break down is occurring, the break down would occur where the spill or the contamination is the oldest. It is interesting that only DCE is present and found at higher concentrations in the vicinity of NYSDEC monitoring wells MW-13 and MW-14. However, given that it is not a commonly found breakdown product, it may be one of the chemicals that were originally spilled. DCE is also known as Vinylidene Chloride and is produced for the manufacture of flexible plastics and fire retardant coatings. DCE is slightly less dense than TCE and TCA and has a low affinity to absorb onto organic matter; therefore, DCE may migrate along a slightly differently pathway from the source area. Still, DCE is more commonly found in the groundwater north of the SS&G pit suggesting that this area is the source area of the original spill.

It should be added that DCE, TCE and TCA are specialized chemicals with uses in manufacturing and industry, and not in the operation of the sand and gravel mining businesses.

# 4. CONCLUSIONS

The data assembled by SS&G and NYSDEC suggests that the most significant groundwater contamination is north of the SS&G pit and flowing northward as a result of the apparent direction of groundwater flow. The contaminant levels in the vicinity of NYDEC monitoring wells MW-13 and MW-14 and Geoprobe boring S-2 suggest the source of contamination is unrelated to SS&G's operation or property. The presence of contaminants in the groundwater beneath the SS&G property suggests a complex contaminant migration mechanism. The conceptual model for contaminant migration is summarized below:

- A spill of TCE, TCA, and DCE occurs in the vicinity of monitoring wells MW-13 and 14 and flows downward until it encounters a fine grain size material (see Figure 5). This bed of fine-grained material may be part of a deltaic foreset, bottomset or stream channel.
- The slope of the deltaic deposit is to the south toward the SS&G property and operation.
- Once the contamination encountering the groundwater zone on the SS&G property, the pumping from the SS&G supply wells draw and spread the contamination further onto the SS&G property impacting the groundwater sampled from the monitoring wells and used in the SS&G operation.

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# 6. SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

Below are the signatures of the Environmental Assessors who completed this Groundwater Summary Investigation Report.

Peter von Schondorf
Senior Project Manager

Michael P. Rumrill
Principal

**TABLE 1**

**GROUNDWATER ELEVATION CHANGES DURING PUMPING**

**SYRACUSA SAND AND GRAVEL, INC.**

| May 29, 2001 Monitoring Well | Time | Casing Elevation (Ft. Above MSL) | Groundwater Depth (Ft. Below Casing) | Well Depth (Ft. Below Casing) | Bottom Well Elevation (Ft. Above MSL) | Groundwater Elevation (Ft. Above MSL) | Change in Water Level (Ft.) | Notes |
|---|---|---|---|---|---|---|---|---|
| SS&G MW-1 | 8:30 | 793.9 | 30.61 | 42.82 | 751.08 | 763.29 | N/A | Prepumping water level |
| SS&G MW-2 | 8:26 | 810.8 | 38.1 | 50.82 | 759.98 | 772.7 | N/A | |
| SS&G MW-3 | 8:20 | 804 | 71.81 | 77.1 | 726.9 | 732.19 | N/A | |
| SS&G MW-4 | 8:34 | 857.1 | 74.58 | 79.89 | 777.21 | 782.52 | N/A | |
| SS&G MW-5 | 8:15 | 798.3 | 14.45 | 27.2 | 771.1 | 783.85 | N/A | |
| June 1, 2001 Monitoring Well | Time | Casing Elevation (Ft. Above MSL) | Groundwater Depth (Ft. Below Casing) | Well Depth (Ft. Below Casing) | Bottom Well Elevation (Ft. Above MSL) | Groundwater Elevation (Ft. Above MSL) | Change in Water Level (Ft.) | Notes |
| SS&G MW-1 | 16:53 | 793.9 | 30.67 | 42.82 | 751.08 | 763.23 | -0.06 | Meas. approx. 8 hrs. after pumping started. |
| SS&G MW-2 | 16:49 | 810.8 | 38.14 | 50.82 | 759.98 | 772.66 | -0.04 | |
| SS&G MW-3 | 16:40 | 804 | 71.81 | 77.1 | 726.9 | 732.19 | 0 | |
| SS&G MW-4 | 16:57 | 857.1 | 74.6 | 79.89 | 777.21 | 782.5 | -0.02 | |
| SS&G MW-5 | 16:38 | 798.3 | 14.46 | 27.2 | 771.1 | 783.84 | -0.01 | |
| June 2, 2001 Monitoring Well | Time | Casing Elevation (Ft. Above MSL) | Groundwater Depth (Ft. Below Casing) | Well Depth (Ft. Below Casing) | Bottom Well Elevation (Ft. Above MSL) | Groundwater Elevation (Ft. Above MSL) | Change in Water Level (Ft.) | Notes |
| SS&G MW-1 | AM | 793.9 | 31.05 | 42.82 | 751.08 | 762.85 | -0.44 | Meas. approx. 24 hrs. after pumping started. |
| SS&G MW-2 | AM | 810.8 | 38.2 | 50.82 | 759.98 | 772.6 | -0.1 | |
| SS&G MW-3 | AM | 804 | 71.93 | 77.1 | 726.9 | 732.07 | -0.12 | |
| SS&G MW-4 | AM | 857.1 | 74.79 | 79.89 | 777.21 | 782.31 | -0.21 | |
| SS&G MW-5 | AM | 798.3 | 14.6 | 27.2 | 771.1 | 783.7 | -0.15 | |
| June 4, 2001 Monitoring Well | Time | Casing Elevation (Ft. Above MSL) | Groundwater Depth (Ft. Below Casing) | Well Depth (Ft. Below Casing) | Bottom Well Elevation (Ft. Above MSL) | Groundwater Elevation (Ft. Above MSL) | Change in Water Level (Ft.) | Notes |
| SS&G MW-1 | AM | 793.9 | 31.3 | 42.82 | 751.08 | 762.6 | -0.69 | Meas. approx. 72 hrs after pumping started. |
| SS&G MW-2 | AM | 810.8 | 38.44 | 50.82 | 759.98 | 772.36 | -0.34 | |
| SS&G MW-3 | AM | 804 | 72.07 | 77.1 | 726.9 | 731.93 | -0.26 | |
| SS&G MW-4 | AM | 857.1 | 74.95 | 79.89 | 777.21 | 782.15 | -0.37 | |
| SS&G MW-5 | AM | 798.3 | 14.7 | 27.2 | 771.1 | 783.6 | -0.25 | |

**TABLE 1**

**GROUNDWATER ELEVATION CHANGES DURING PUMPING**

**SYRACUSA SAND AND GRAVEL, INC.**

| June 5, 2001 Monitoring Well | Time | Casing Elevation (Ft. Above MSL) | Groundwater Depth (Ft. Below Casing) | Well Depth (Ft. Below Casing) | Bottom Well Elevation (Ft. Above MSL) | Groundwater Elevation (Ft. Above MSL) | Change in Water Level (Ft.) | Notes |
|---|---|---|---|---|---|---|---|---|
| SS&G MW-1 | AM | 793.9 | 31.49 | 42.82 | 751.08 | 762.41 | -0.88 | Meas. approx. 96 hrs after pumping started. |
| SS&G MW-2 | AM | 810.8 | 38.42 | 50.82 | 759.98 | 772.38 | -0.32 | |
| SS&G MW-3 | AM | 804 | 72.04 | 77.1 | 726.9 | 731.96 | -0.23 | |
| SS&G MW-4 | AM | 857.1 | 74.92 | 79.89 | 777.21 | 782.18 | -0.34 | |
| SS&G MW-5 | AM | 798.3 | 14.71 | 27.2 | 771.1 | 783.59 | -0.26 | |
| June 6, 2001 Monitoring Well | Time | Casing Elevation (Ft. Above MSL) | Groundwater Depth (Ft. Below Casing) | Well Depth (Ft. Below Casing) | Bottom Well Elevation (Ft. Above MSL) | Groundwater Elevation (Ft. Above MSL) | Change in Water Level (Ft.) | Notes |
| SS&G MW-1 | AM | 793.9 | 31.45 | 42.82 | 751.08 | 762.45 | -0.84 | Meas. approx. 120 hrs after pumping started. |
| SS&G MW-2 | AM | 810.8 | 38.35 | 50.82 | 759.98 | 772.45 | -0.25 | |
| SS&G MW-3 | AM | 804 | 71.99 | 77.1 | 726.9 | 732.01 | -0.18 | |
| SS&G MW-4 | AM | 857.1 | 74.87 | 79.89 | 777.21 | 782.23 | -0.29 | |
| SS&G MW-5 | AM | 798.3 | 14.69 | 27.2 | 771.1 | 783.61 | -0.24 | |

**TABLE 2**
**RADIUS OF INFLUENCE CALCULATIONS**
**SYRACUSA SAND & GRAVEL, INC.**

Total depth of production well = 288 ft.
Static water level = 170 ft.
Pumping water level = 205 ft.

Thickness of the static water package (H), 288 ft. –170 ft. = 118 ft.
Thickness of the pumping water package at the center of the production well (h), 288 ft. –205 ft. = 83 ft.
Well radius ( r ), 4 inches
Radius of influence ( R ) = 2,000 ft.
Hydraulic conductivity (k) 100 gallons per day per foot
Estimated pumping rate (Q) =

$Q = k(H^2 - h^2)/ 1055 \text{ Log } (R/r)$ from Theim, 1906 for unconfined aquifers

$Q = 100(118^2 - 83^2)/ 1055 \text{ Log } (2,000/.3)$

$Q = 100(13,924 - 6,889)/ 1055 \text{ Log } (6,666.6)$

$Q = 100(7035)/ 1055 (3.8)$

$Q = 703,500)/ 4009$

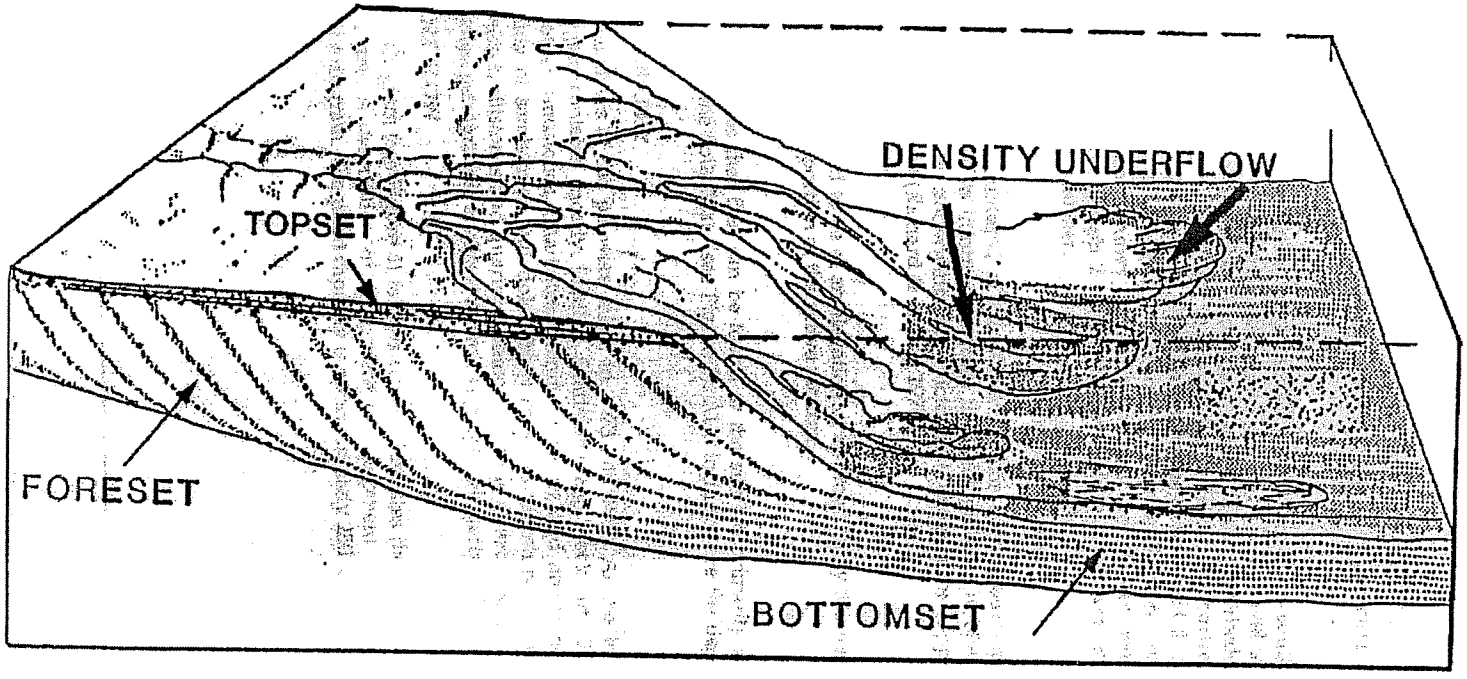
$Q = 175.4$ gallons per minute

# TABLE 3

## GROUNDWATER SAMPLE RESULTS FROM SYRACUSA SAND & GRAVEL, INC PROPERTY AND NYSDEC'S MODOCK SPRINGS PROJECT

(All concentrations shown in parts per billion)

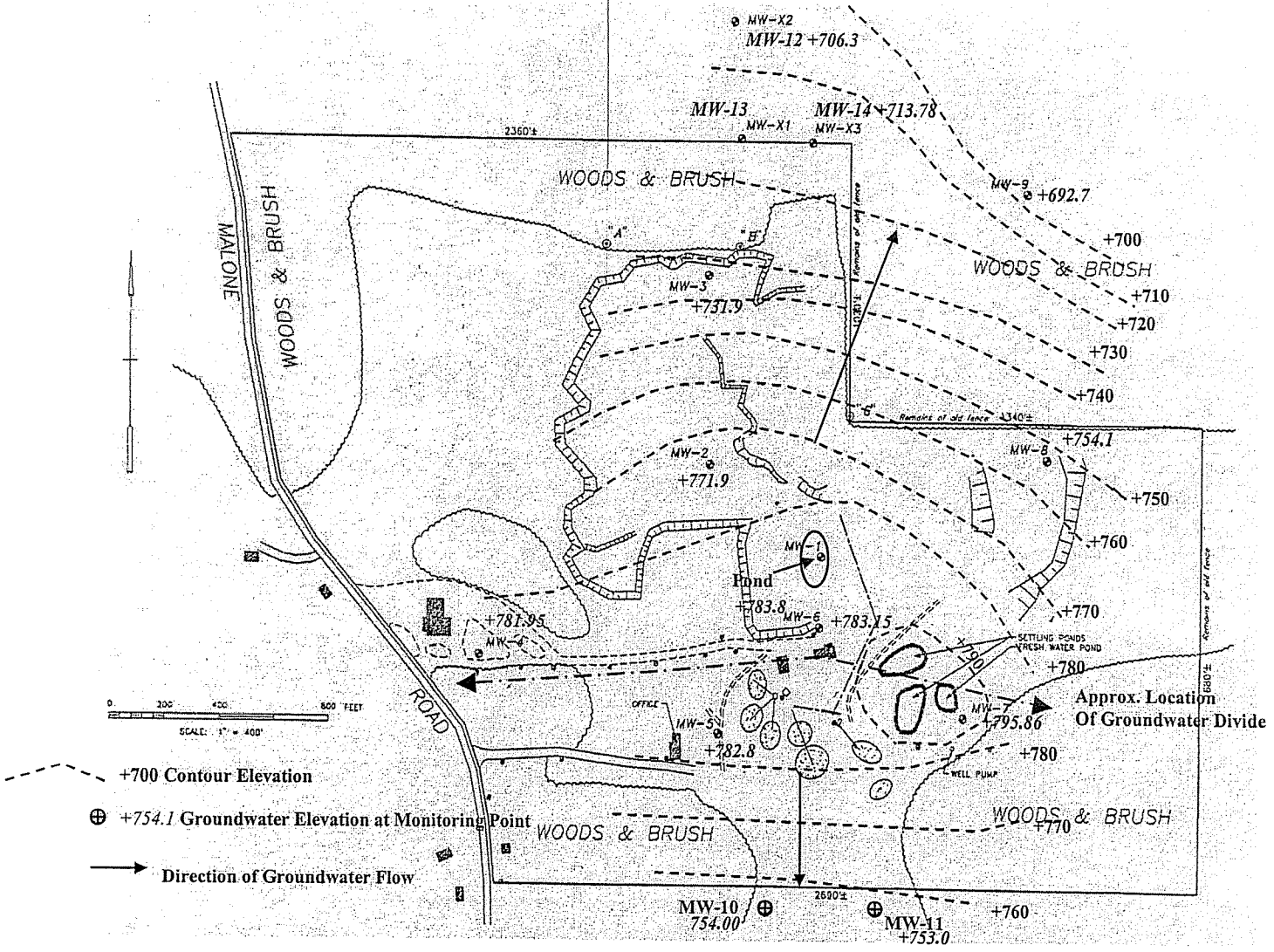
| | Date Sampled | Trichloroethene | 1,1,1-Trichloroethane | 1,1-Dichloroethene | Total Volatile Organic Compounds |
|---|---|---|---|---|---|
| *NYSDEC GA* | | 5 | 5 | 5 | Not Applicable |
| ***SS&G Monitoring Wells*** | | | | | |
| SS&G MW-1 | 4/24/01 | 135 | 33.6 | 6.62 | 175.22 |
| SS&G MW-2 | 4/24/01 | 43.3 | 4.21 | 0 | 47.51 |
| SS&G MW-3 | 4/24/01 | 327 | 224 | 52.9 | 603.90 |
| SS&G MW-4 | 4/24/01 | 0 | 0 | 0 | 0 |
| SS&G MW-5 | 4/24/01 | 741 | 0 | 0 | 741.00 |
| SS&G MW-6 | 7/18/01 | 69.5 | 4.46 | 0 | 73.96 |
| SS&G MW-7 | 7/18/01 | 0 | 0 | 0 | 0 |
| SS&G MW-8 | 7/18/01 | 0 | 0 | 0 | 0 |
| SS&G MW-9 | 7/18/01 | 0 | 0 | 0 | 0 |
| SS&G MW-10 | 10/17/01 | 0 | 0 | 0 | 0 |
| SS&G MW-11 | 10/17/01 | 0 | 0 | 0 | 0 |
| SS&G New Pond | 6/10/02 | 0 | 0 | 0 | 0 |
| SS&G Production Well | 6/10/02 | 0 | 0 | 0 | 0 |
| SS&G Water Well | 2/15/00 | 0 | 0 | 0 | 0 |
| ***NYSDEC Monitoring Wells*** | | | | | |
| DEC S-1 | Not Known | Not Known | Not Known | Not Known | 63 |
| DEC S-2 | Not Known | Not Known | Not Known | Not Known | 4,940 |
| DEC MW-1 | 4/30/98 | 200 | 110 | 12 | 322.00 |
| DEC MW-2 | 8/0796 | Not Detected | 2 | Not Detected | 2.00 |
| DEC MW-3 | 8/11/98 | Not Detected | Not Detected | Not Detected | 0 |
| DEC MW-4 | 11/09/99 | 140 | 85 | 9.7 | 234.70 |
| DEC MW-5 | 8/07/96 | 38 | 16 | Not Detected | 54 |
| DEC MW-6 | 4/30/98 | 73 | 40 | 4.8 | 117.8 |
| DEC MW-7 | 11/09/99 | 97 | 46 | 4.4 | 147.4 |
| DEC MW-8 | 11/09/99 | Not Detected | Not Detected | Not Detected | 0 |
| DEC MW-9 | 11/09/99 | Not Detected | Not Detected | Not Detected | 0 |
| DEC MW-10 | 11/09/99 | Not Detected | 3.2 | Not Detected | 3.2 |
| DEC MW-11 | 11/09/99 | Not Detected | Not Detected | Not Detected | 0 |
| DEC MW-12 | 11/10/00 | Not Detected | Not Detected | Not Detected | 0 |
| DEC MW-13 | 11/09/99 | 610 | 540 | 66 | 1,216.00 |
| DEC MW-14 | 11/09/99 | 11,000 | 4,600 | 570 | 16,170.00 |




| | |
|---|---|
| Title | Delta<br>Syracusa Sand & Gravel, Inc., Victor NY |
| Prepared For | Underberg & Kessler, LLP<br>Rochester, NY |

LEADER
Leader Professional Services, Inc
640 Kreag Road-Suite 300
Pittsford, New York 14534
(585) 248-2413
FAX (585) 248-2834

| | |
|---|---|
| Project | 314.001 |
| Date | 9-17-02 |
| Scale | NTS |
| Drawn | PVS |
| Checked | MPR |
| File Name | |
| Figure | 1 |



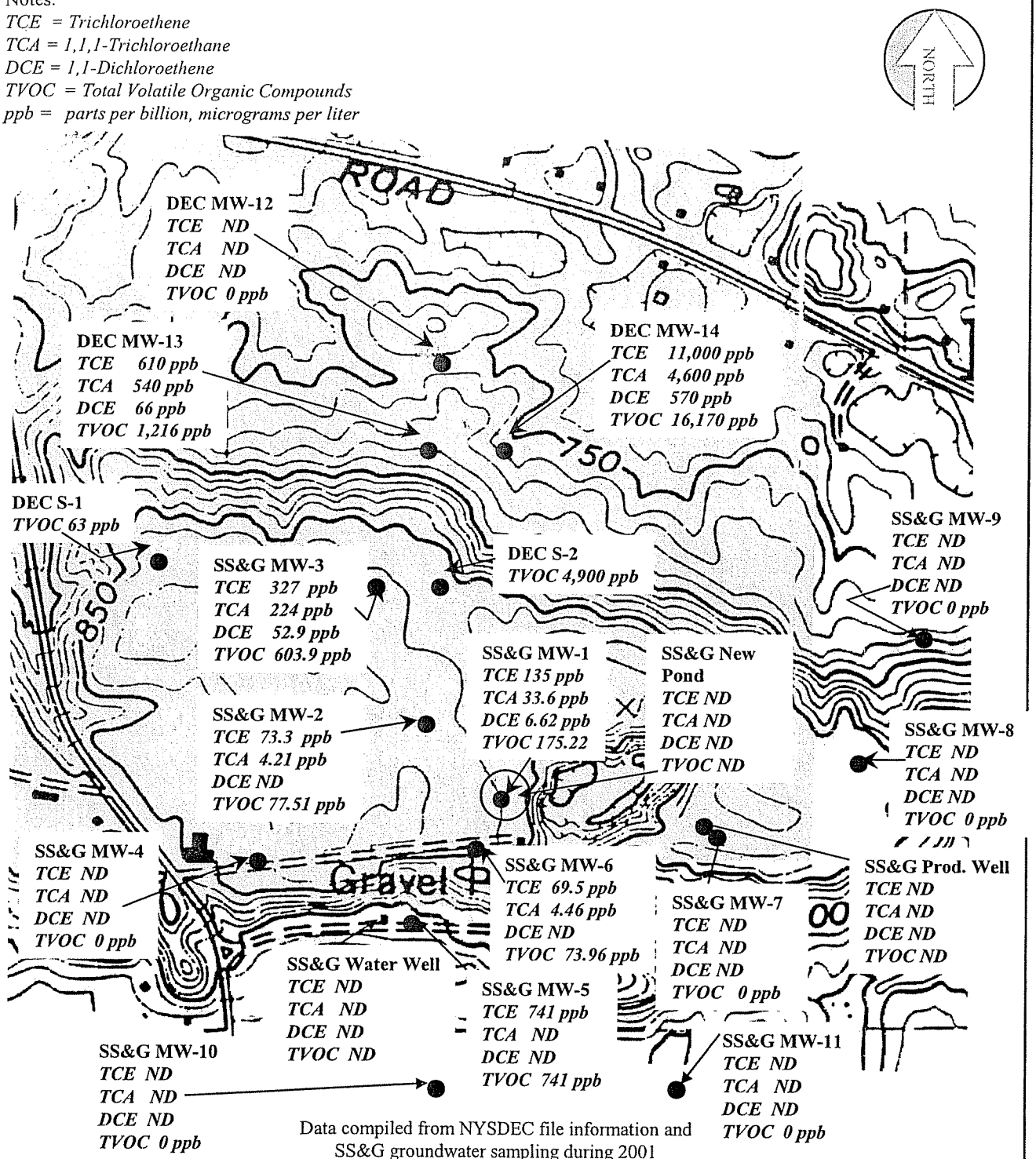

**Drawing from drawing entitled "Monitoring Well Locations Syracusa Sand & Gravel, Inc." by Robert Owen, LS. 5/02/01**

| | |
|---|---|
| Title | Groundwater Contour Map<br>Syracusa Sand & Gravel, Inc., Victor NY |
| Prepared For | Underberg & Kessler, LLP<br>Rochester, NY |


LEADER
Leader Professional Services, Inc.
640 Kreag Road-Suite 300
Pittsford, New York 14534
(716) 248-2413

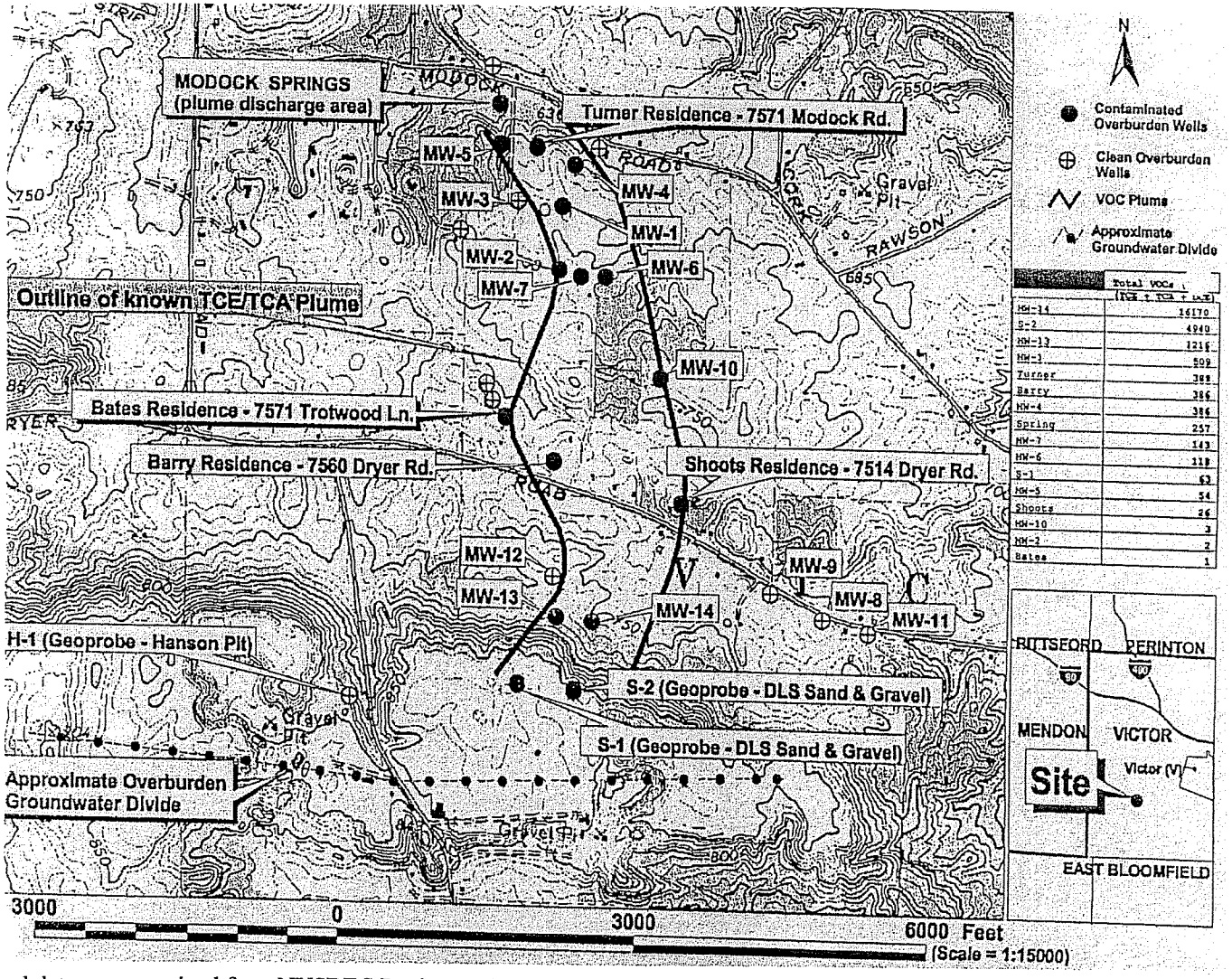

| | |
|---|---|
| Project | 314.001 |
| Date | 10-23-01 |
| Scale | 1" = 916' |
| Drawn | PVS |
| Checked | MPR |
| File Name | |
| Figure | 2 |

Notes:
*TCE = Trichloroethene*
*TCA = 1,1,1-Trichloroethane*
*DCE = 1,1-Dichloroethene*
*TVOC = Total Volatile Organic Compounds*
*ppb = parts per billion, micrograms per liter*




Data compiled from NYSDEC file information and SS&G groundwater sampling during 2001

| | | | | | |
|---|---|---|---|---|---|
| Title: 2001 Groundwater Results, Syracusa Sand & Gravel, Inc, Victor, New York | LEADER<br>Leader Professional Services, Inc<br>640 Kreag Road-Suite 300<br>Pittsford, New York 14534<br>(585) 248-2413<br>FAX (585) 248-2834 | Project: 314.001<br>Date: 9-17-02<br>Scale: 1" = 630' | Drawn: PVS<br>Checked: MPR<br>File Name: | Figure: 3 |
| Prepared For: Underberg & Kessler LLP, Rochester, New York | | | | |

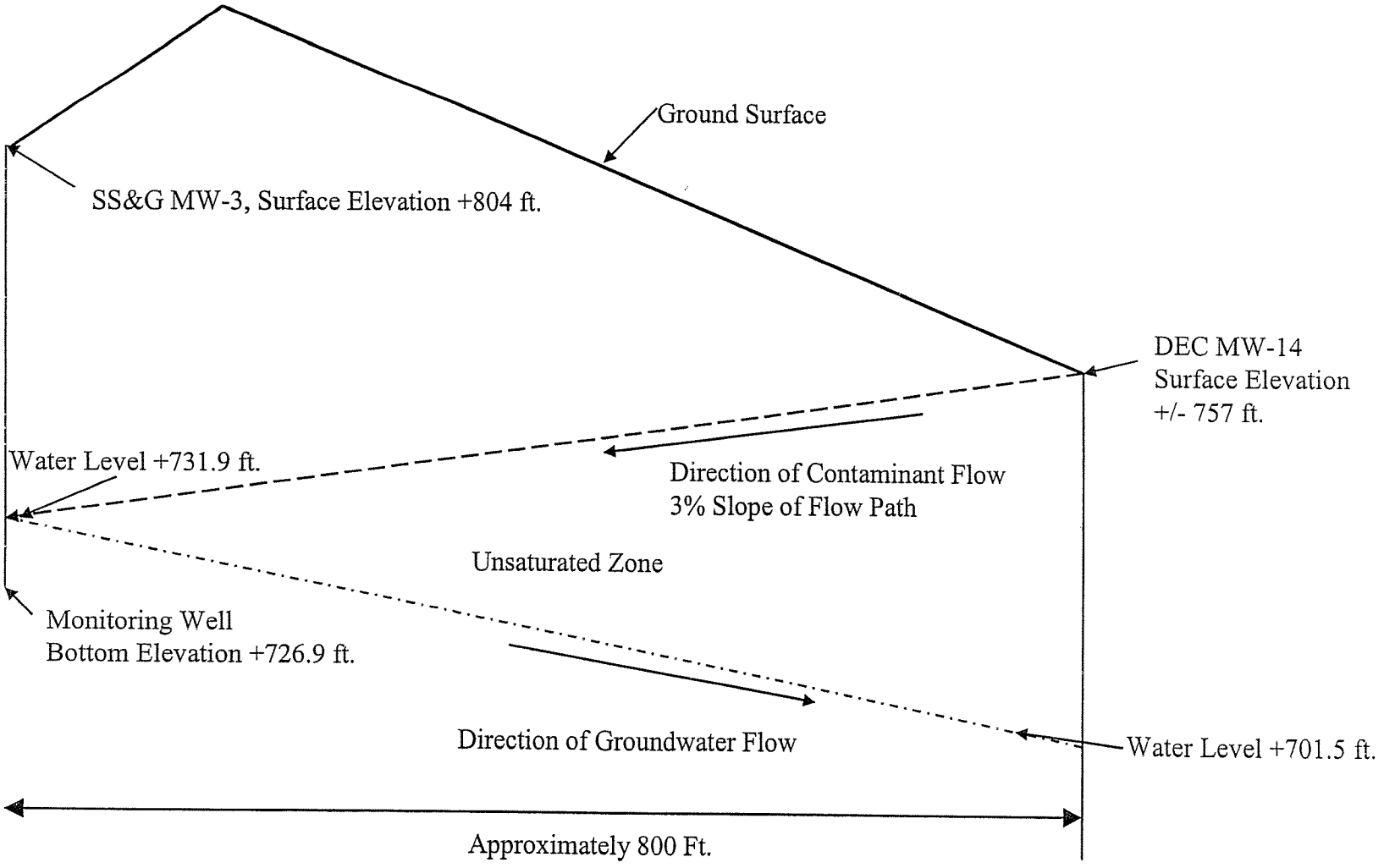



This drawing and data were received from NYSDEC Region 8 who are responsible for all of the graphical and analytical information presented.

| | |
|---|---|
| Title | NYSDEC Sample Locations and Results<br>Modock Springs Study Area, Victor NY |
| Prepared For | Underberg & Kessler, LLP<br>Rochester, NY |


LEADER
Leader Professional Services, Inc
640 Krieg Road-Suite 300
Pittsford, New York 14534
(585) 248-2413
FAX (585) 248-2834


| | |
|---|---|
| Project | 314.001 |
| Date | 10-23-02 |
| Scale | NTS |
| Drawn | PVS |
| Checked | MPR |
| File Name | |
| Figure | 4 |



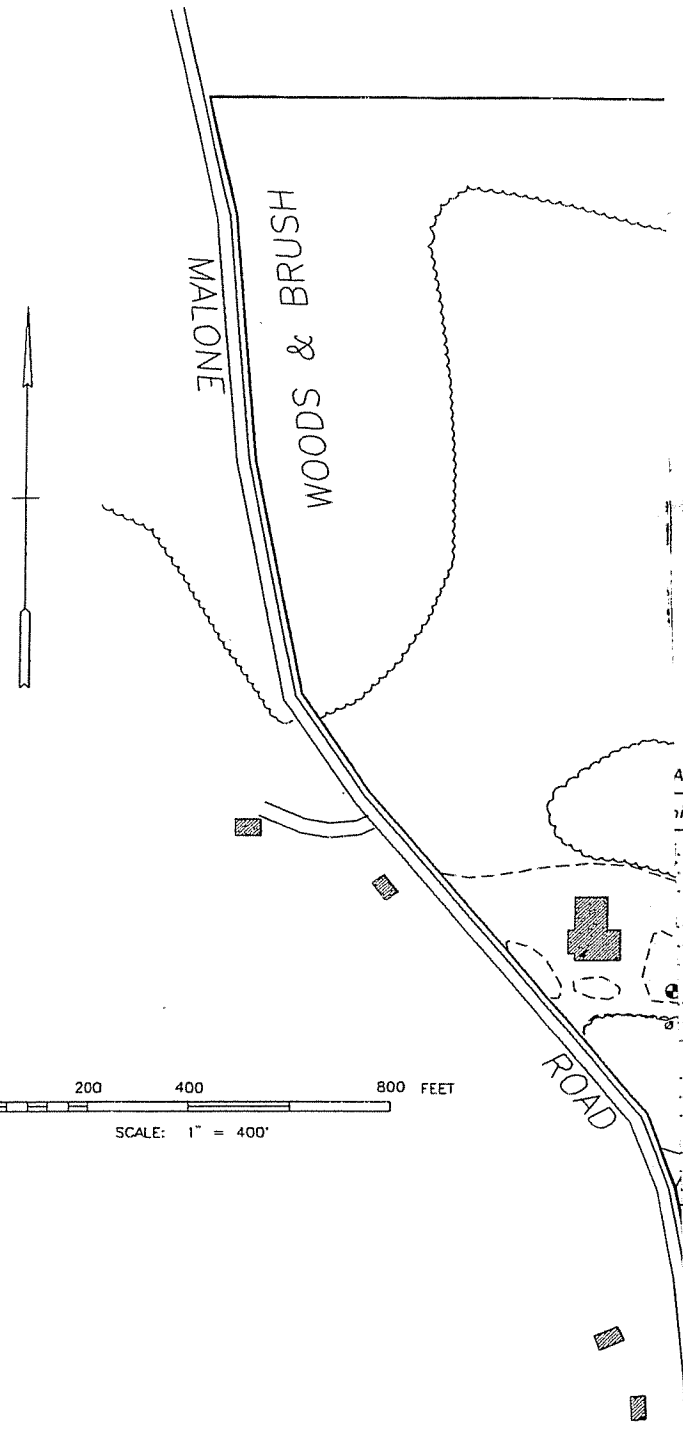

| | |
|---|---|
| Title | Idealized Cross-Section of Syracusa Sand & Gravel Pit<br>Syracusa Sand & Gravel, Inc., Victor NY |
| Prepared For | Underberg & Kessler, LLP<br>Rochester, NY |

LEADER
Leader Professional Services, Inc
640 Krueg Road-Suite 300
Pittsford, New York 14534
(585) 248-2413
FAX (585) 248-2834

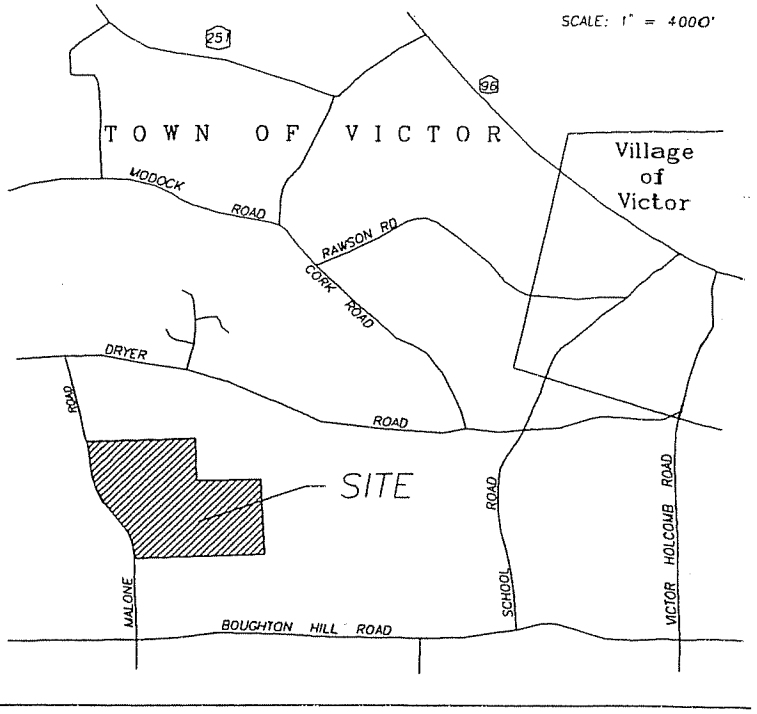
| | |
|---|---|
| Project | 314.001 |
| Date | 9-17-02 |
| Scale | NTS |
| Drawn | PVS |
| Checked | MPR |
| File Name | |
| Figure | 5 |

# Attachment 1

## Survey Map of Monitoring Well Locations
## Syracusa Sand & Gravel, Inc.




# LOCATION MAP




ABLE

| ing | Easting | Elevation | Remarks |
|---|---|---|---|
| .63 | 1957.12 | 858.8 | 60d nail in 16" DBH white oak root |
| .12 | 2462.48 | 841.5 | 60d nail in 14" DBH white oak root |
| .89 | 2887.67 | 872.0 | 60d nail in root of black cherry w/posted sign |
| .34 | 2782.90 | 793.9 | South rim of casing |
| .57 | 2354.59 | 810.8 | Rim of casing above lock hasp |
| .91 | 2345.52 | 804.0 | Rim of casing above lock hasp |
| .37 | 1486.16 | 857.1 | Rim of casing above lock hasp |
| .98 | 2393.84 | 798.3 | Rim of casing above lock hasp |
| .29 | 2778.96 | 856.6 | Rim of casing above lock hasp |
| .28 | 3329.64 | 813.5 | Rim of casing above lock hasp |
| .71 | 3639.26 | 809.8 | Rim of casing above lock hasp |
| .54 | 3560.17 | 749.8 | Rim of casing above lock hasp |
| .66 | 2467.31 | 779.8 | Top center of well cap |
| .27 | 2439.07 | 755.2 | Top center of well cap |
| .77 | 2740.84 | 757.8 | Top center of well cap |

STATE OF NEW YORK
ROBERT L. OWEN
No. 049148
LAND SURVEYOR

I HEREBY CERTIFY THAT THIS MAP WAS PREPARED UNDER MY DIRECTION AS NOTED AND FROM NOTES OF AN INSTRUMENT SURVEY COMPLETED MAY 05, 2001.

ROBERT L. OWEN LS 49148

REFERENCES

1. Survey Map of Part ... Smith & Denluck, da...
2. Mining Plan Maps by ... dated 01/22/81 by ...
3. Mining Plan Maps by ... through 12/10/98.

G WELL LOCATIONS
AND & GRAVEL, INC.
) MALONE ROAD
WN OF VICTOR
TARIO COUNTY
NEW YORK

MAP SCALE
1" = 400'

DATUM:
AMSL FROM USGS SPOT ELEVATION ON MALONE ROAD

DRAWN: 05/02/01

FILE No: 1603

OWEN, LS
WOOD DR.
STER, NY 14626
(716) 225-9594

| DATE | BY | DESCRIPTION |
|---|---|---|
| 8/15/01 | VPC | Added seven additional well locat... |

REVISIONS

# Attachment 2

# Groundwater Elevations Used for Contouring
# Syracusa Sand & Gravel, Inc.

# GROUNDWATER ELEVATIONS USED FOR CONTOURING
# SYRACUSA SAND AND GRAVEL, INC.

| Monitoring Well | Date | Casing Elevation (Ft. Above Mean Sea Level | Groundwater Depth (Ft.) | Well Depth (Ft. Below Casing) | Bottom Well Elevation (Ft. Above Mean Sea Level) | Groundwater Elevation (Ft. Above Mean Sea Level) |
|---|---|---|---|---|---|---|
| SS&G MW-1 | 30-Aug | 793.9 | 31.38 | 42.82 | 751.08 | 762.52 |
| SS&G MW-2 | 30-Aug | 810.8 | 38.9 | 50.82 | 759.98 | 771.9 |
| SS&G MW-3 | 30-Aug | 804 | 72.1 | 77.1 | 726.9 | 731.9 |
| SS&G MW-4 | 30-Aug | 857.1 | 75.15 | 79.89 | 777.21 | 781.95 |
| SS&G MW-5 | 30-Aug | 798.3 | 15.5 | 27.2 | 771.1 | 782.8 |
| SS&G MW-6 | 30-Aug | 856.6 | 73.45 | 84.08 | 772.52 | 783.15 |
| SS&G MW-7 | 30-Aug | 813.5 | 17.64 | 26.81 | 786.69 | 795.86 |
| SS&G MW-8 | 30-Aug | 809.8 | 55.7 | 61.05 | 748.75 | 754.1 |
| SS&G MW-9 | 30-Aug | 749.8 | 57.1 | 65.82 | 683.98 | 692.7 |
| SS&G MW-10* | 4-Oct | 778.00 | 24.00 | 45.00 | 733.00 | 754.00 |
| SS&G MW-11* | 4-Oct | 778.00 | 25.00 | 47.00 | 731.00 | 753.00 |
| SS&G New Pond | 2-Jul | | | | | 783.82 |
| DEC-MW-13* | 10-Nov | 779.9 | 66.12 | | | 713.78 |
| DEC-MW-12* | 10-Nov | 755.2 | 48.81 | | | 706.39 |

* Casing elevations assumed.

# Attachment 3

# Boring Logs

# FIELD BORING LOG

BUFFALO DRILLING COMPANY, INC.
10440 Main Street
Clarence, New York 14031

PROJECT: Syr. Sand & Gravel

JOB NO: [redacted] MW 1 BORING NO: 01-133

DRILLER: Dave R / Mike G TYPE OF DRILL RIG: CME 75

SURFACE ELEVATION: SIZE & TYPE OF BIT: 4 1/4

DATE STARTED: 4-9-01 DATE COMPLETED: 4-10-01

| DEPTH (ft.) | BLOWS PER 0.5 ft. | | SAMPLE NO. | N VALUE | % REC RQD | SOIL & ROCK DESCRIPTION | NOTES |
|---|---|---|---|---|---|---|---|
| | 3 | 6 | | | | | |
| 0-2 | 8 | 8 | 1 | 14 | 75 | Sand | |
| | 7 | 12 | | | | | |
| 4-6 | 13 | 12 | 2 | 25 | 60 | Sand | |
| | 6 | 13 | | | | | |
| 9-11 | 12 | 12 | 3 | 25 | 60 | wet Sand 9 - 24' | |
| | 4 | 7 | | | | | |
| 14-16 | 10 | 11 | 4 | 17 | 100 | wet sand - Silty clay | |
| | 8 | 11 | | | | | |
| 19-21 | 13 | 13 | 5 | 24 | 100 | wet Sand - Silty | |
| | 17 | 25 | | | | | |
| 24-26 | 26 | 38 | 6 | 51 | 60 | Dry Sand | |
| | 11 | 24 | | | | | |
| 29-31 | 35 | 30 | 7 | 59 | 75 | Silty. Fine Sand. | |
| | 9 | 17 | | | | Silty. | |
| 34-36 | 30 | 28 | 8 | 47 | 100 | Fine sand - clay | |
| | 9 | 14 | | | | | |
| 39-41 | 11 | 19 | 9 | 25 | 75 | Wet Fine Sand | |
| | WR | WR | | | | | |
| 44-46 | 5 | 7 | 10 | | | | |

BOTTOM OF HOLE: 44' GROUND WATER DEPTH: AUGER REFUSAL:

**DID YOU NOTE?**
62 - TOPSOIL / ASPHALT THICKNESS
- GROUND WATER DEPTH
- AUGER REFUSAL
Yes - % RECOVERY FOR ALL SAMPLES

LAB USE → LOGGED BY: DATE LOGGED:

F-16

# FIELD BORING LOG

BUFFALO DRILLING COMPANY, INC.
10440 Main Street
Clarence, New York 14031

PROJECT: Syr. Sand & Gravel

JOB NO: 01-133 BORING NO: MW-2

DRILLER: D. Gabek / M. Co TYPE OF DRILL RIG: CME 75

SURFACE ELEVATION: _____ SIZE & TYPE OF BIT: 4¼

DATE STARTED: 4-10-01 DATE COMPLETED 4-10-01

| DEPTH (ft.) | BLOWS PER 0.5 ft. | | SAMPLE NO. | N VALUE | % REC RQD | SOIL & ROCK DESCRIPTION | NOTES |
|---|---|---|---|---|---|---|---|
| 0-2 | 6 | 9 | 1 | 26 | 75 | SAND | dry |
| | 11 | 14 | | | | | |
| 4-6 | 10 | 12 | 2 | 24 | 90 | SAND | dry |
| | 12 | 17 | | | | | |
| 9-11 | 6 | 11 | 3 | 21 | 60 | Sand | DRY |
| | 10 | 10 | | | | | DRY |
| 14-16 | 9 | 12 | 4 | 24 | 60 | Sand | DRY |
| | 12 | 12 | | | | | |
| 19-21 | 8 | 11 | 5 | 24 | 75 | sand | DRY |
| | 13 | 14 | | | | | |
| 24-26 | 8 | 8 | 6 | 17 | 75 | wet sand 24' | wet |
| | 9 | 11 | | | | | |
| 29-31 | 13 | 14 | 7 | 30 | 60 | MOIST Sand | moist |
| | 16 | 20 | | | | | |
| 34-36 | 5 | 13 | 8 | 42 | 60 | wet Sand | |
| | 19 | 17 | | | | | |
| 39-41 | 5 | 8 | 9 | 16 | 40 | wet sand - silt | |
| | 8 | 12 | | | | | |
| 44-46 | 3 | 6 | 10 | 13 | 60 | wet sand - silt | |
| | 7 | 6 | | | | | |
| 49-51 | 5 | 8 | 11 | 12 | 60 | wet Sand. | |
| | 4 | 7 | | | | | |
| 54-56 | | | 12 | | | | |
| | | | | | | | |
| 59-61 | | | 13 | | | | |

BOTTOM OF HOLE: _____ GROUND WATER DEPTH: _____ AUGER REFUSAL: _____

**DID YOU NOTE?**
- **TOPSOIL / ASPHALT THICKNESS**
- **GROUND WATER DEPTH**
- **AUGER REFUSAL**
- **% RECOVERY FOR ALL SAMPLES**

LAB USE → LOGGED BY DATE LOGGED

# FIELD BORING LOG

BUFFALO DRILLING COMPANY, INC.
10440 Main Street
Clarence, New York 14031

PROJECT: Syr. Sand & Gravel

JOB NO: 01-133 BORING NO: MW 3

DRILLER: Dan R / RG TYPE OF DRILL RIG: CME 75

SURFACE ELEVATION: SIZE & TYPE OF BIT: 4 1/4

DATE STARTED: 4-11-01 DATE COMPLETED:

| DEPTH (ft.) | BLOWS PER 0.5 ft. | SAMPLE NO. | N VALUE | % REC RQD | SOIL & ROCK DESCRIPTION | NOTES |
|---|---|---|---|---|---|---|
| 0-2 | 5 5 | 1 | 11 | 50 | Sand - Gravel | ARF |
| | 6 5 | | | | | |
| 4-6 | 5 6 | 2 | 12 | 50 | " " | |
| | 8 9 | | | | | |
| 9-11 | 9 8 | 3 | 18 | 50 | Sand | |
| | 9 11 | | | | | |
| 14-16 | 13 16 | 4 | 24 | 50 | Sand | |
| | 9 11 | | | | | |
| 19-21 | 13 15 | 5 | 24 | 50 | Sand | |
| | 11 11 | | | | | |
| 24-26 | 14 14 | 6 | 25 | 60 | Sand | PRF |
| | 9 12 | | | | | |
| 29-31 | 14 12 | 7 | 26 | 75 | Sand | |
| | 8 14 | | | | | |
| 34-36 | 16 18 | 8 | 30 | 75 | Sand | |
| | 9 16 | | | | | |
| 39-41 | 20 24 | 9 | 36 | 75 | Sand - Little Silt | |
| | 9 16 | | | | | |
| 44-46 | 20 24 | 10 | 36 | 75 | Sand | |
| | 14 16 | | | | | |
| 49-51 | 17 22 | 11 | 33 | 75 | Sand | |
| | 14 17 | | | | | |
| 54-56 | 19 21 | 12 | 36 | 75 | Sand | |
| | 14 21 | | | | | |
| 59-61 | 35 34 | 13 | 56 | 80 | Sand | |

BOTTOM OF HOLE: GROUND WATER DEPTH: AUGER REFUSAL:

DID YOU NOTE?
- TOPSOIL / ASPHALT THICKNESS
- GROUND WATER DEPTH
- AUGER REFUSAL
- % RECOVERY FOR ALL SAMPLES

LAB USE → LOGGED BY: DATE LOGGED

# FIELD BORING LOG

BUFFALO DRILLING COMPANY, INC.
10440 Main Street
Clarence, New York 14031

PROJECT: Syracuse Sand + gravel

JOB NO: 01-133 BORING NO: MW4

DRILLER: Dan

TYPE OF DRILL RIG: B61

SURFACE ELEVATION:

SIZE & TYPE OF BIT: 4¼ HSA

DATE STARTED: 4/13

DATE COMPLETED: 4/13

| DEPTH (ft.) | BLOWS PER 0.5 ft. | SAMPLE NO. | N VALUE | % REC ROD | SOIL & ROCK DESCRIPTION | NOTES |
|---|---|---|---|---|---|---|
| 0-2 | 1 2 / 2 3 | 1 | 4 | 75 | sand. | dry |
| 4-6 | 3 3 / 7 11 | 2 | 10 | 75 | silty sand | moist |
| 9-11 | 4 7 / 11 13 | 3 | 18 | 50 | sand D | Dry |
| 14-16 | 4 10 / 17 23 | 4 | 27 | 75 | Sand | Dry |
| 19-21 | 4 4 / 12 17 | 5 | 16 | 60 | sand | Dry |
| 24-26 | 6 10 / 10 12 | 6 | 20 | 50 | Sand | Dry |
| 29-31 | 11 9 / 12 14 | 7 | 21 | 60 | Sand | most |
| 34-36 | 9 12 / 14 15 | 8 | 20 | 60 | sand | most |
| 39-41 | 9 14 / 17 20 | 9 | 31 | 75 | Sand | most |
| 44-46 | 13 16 / 20 22 | 10 | 36 | 75 | sand | most |
| 49-51 | 11 10 / 12 10 | 11 | 22 | 80 | Sand | wet |
| 54-56 | 10 12 / 17 22 | 12 | 29 | 60 | Sand | most |
| 59-61 | 13 14 / 17 15 | 13 | 31 | 80 | Sand | most |

BOTTOM OF HOLE: GROUND WATER DEPTH: AUGER REFUSAL:

**DID YOU NOTE?**
- TOPSOIL / ASPHALT THICKNESS
- GROUND WATER DEPTH
- AUGER REFUSAL
- % RECOVERY FOR ALL SAMPLES

LAB USE → LOGGED BY

DATE LOGGED:

# FIELD BORING LOG

BUFFALO DRILLING COMPANY, INC.
10440 Main Street
Clarence, New York 14031

PROJECT:

JOB NO: 01-133 BORING NO: Mw 5

DRILLER: Dave TYPE OF DRILL RIG: 4½ HSA B-61

SURFACE ELEVATION: SIZE & TYPE OF BIT: 4¼ HSA

DATE STARTED 4/12/01 DATE COMPLETED:

| DEPTH (ft.) | BLOWS PER 0.5 ft. | SAMPLE NO. | N VALUE | % REC RQD | SOIL & ROCK DESCRIPTION | NOTES |
|---|---|---|---|---|---|---|
| 0-2 | 1 1 / 1 3 | 1 | 2 | 60 | Sand Dry | |
| 4-6 | 3 5 / 6 8 | 2 | 13 | 75 | Sand most | |
| 8-11 | 7 6 / 7 11 | 3 | 13 | 60 | Sand wet | |
| 14-16 | 5 7 / 11 10 | 4 | 18 | 88 | Sand wet | |
| 19-21 | 3 3 / 8 10 | 5 | 11 | 100 | Sand wet | |
| 24-26 | 2 2 / 3 2 | 6 | 5 | 90 | Sand ~~most~~ wet | |
| 29-31 | 2 1 / 2 3 | 7 | 3 | 40 | Silty Sand wet | |
| 34-36 | 7 10 / 13 15 | 8 | 23 | 75 | Fine Silty Sand wet | |
| 39-41 | 5 5 / 10 12 | 9 | 15 | 75 | silty wet sand. | |
| 44-46 | | | | | | |
| 49-51 | | | | | | |

BOTTOM OF HOLE: GROUND WATER DEPTH: AUGER REFUSAL:

wells @ 25'

**DID YOU NOTE?**
- TOPSOIL / ASPHALT THICKNESS
- GROUND WATER DEPTH
- AUGER REFUSAL
- % RECOVERY FOR ALL SAMPLES

LAB USE → LOGGED BY: DATE LOGGED:

FIELD BORING LOG

BUFFALO DRILLING COMPANY, INC.
10440 Main Street
Clarence, New York 14031

PROJECT:

JOB NO: 01-133A BORING NO: MW6

DRILLER: Ted Bisjoff & Rob P. TYPE OF DRILL RIG: CME 75

SURFACE ELEVATION: SIZE & TYPE OF BIT: 4¼ HSA

DATE STARTED: 6/27/01 DATE COMPLETED:

| DEPTH (ft.) | BLOWS PER 0.5 ft. | SAMPLE NO. | N VALUE | % REC RQD | SOIL & ROCK DESCRIPTION | NOTES |
|---|---|---|---|---|---|---|
| 0-2 | 6 8 / 15 15 | 1 | 23 | 25 | silty SAND & STONE | |
| 2-4 | 13 13 / 9 15 | 2 | 22 | 25 | Silt Sand | |
| 4-6 | 10 13 / 4 4 | 3 | 17 | 10 | SAND ROCK & BRICK | |
| 6-8 | 10 10 / 9 7 | 4 | 14 | 0 | ↑ | |
| 8-10 | 7 5 / 4 4 | 5 | 9 | 25 | same | |
| 10-12 | 3 4 / 5 5 | 6 | 9 | 25 | same | |
| 14-18 | 24 8 / 7 6 | 7 | 15 | 25 | Sand gravel Brick | |
| 19-21 | 3 3 / 5 4 | 8 | 10 | 40 | Sand gravel Brick (most?) | |
| 24-26 | 14 16 / 19 22 | 9 | 37 | 50 | sand & gravel | |
| 29-31 | 18 16 / 16 14 | 10 | 32 | 70 | Sand & gravel | |
| 34-36 | 21 22 / 24 17 | 11 | 46 | 50 | Sand & gravel | |
| -41 | 17 16 / 17 22 | 12 | 33 | 60 | Sand | |
| | 11 13 / 1 14 | 13 | 27 | 70 | sand (wet) | |
| | 18 14 | | 36 | 100 | Sand (most) | |

GROUND WATER DEPTH: AUGER REFUSAL:

**DID YOU NOTE?**
- TOPSOIL / ASPHALT THICKNESS
- GROUND WATER DEPTH
- AUGER REFUSAL
- % RECOVERY FOR ALL SAMPLES

BY: DATE LOGGED:

FIELD BORING LOG

BUFFALO DRILLING COMPANY, INC.
10440 Main Street
Clarence, New York 14031

PROJECT:

JOB NO: 01-133A BORING NO: MW6 CONT.

DRILLER: LEO B. & ROB F. TYPE OF DRILL RIG: CME 75

SURFACE ELEVATION: SIZE & TYPE OF BIT: 4 1/4 HSA

DATE STARTED: 2/27/01 DATE COMPLETED:

| DEPTH (ft.) | BLOWS PER 0.5 ft. | | SAMPLE NO. | N VALUE | % REC RQD | SOIL & ROCK DESCRIPTION | NOTES |
|---|---|---|---|---|---|---|---|
| 54-56 | 14 | 16 | 15 | 29 | 75 | Sand (most) | |
| | 14 | 14 | | | | | |
| 59-61 | 21 | 26 | 16 | 43 | 80 | Sand " | |
| | 17 | 23 | | | | | |
| 64-66 | 14 | 18 | 17 | 35 | 75 | Sand most | |
| | 17 | 29 | | | | | |
| 69-71 | 14 | 15 | 18 | 36 | 75 | Silty Sand trace of Clay | (wet) |
| | 21 | 22 | | | | | |
| 74-76 | 5 | 7 | 19 | 16 | 100 | silty sand trace of clay | wet |
| | 11 | 14 | | | | | |
| 79-81 | 7 | 8 | 20 | 20 | 100 | " " | wet |
| | 12 | 15 | | | | | |

BOTTOM OF HOLE: 81 GROUND WATER DEPTH: 3 1/2 before pulling Auger AUGER REFUSAL:

DID YOU NOTE?
- TOPSOIL / ASPHALT THICKNESS
- GROUND WATER DEPTH
- AUGER REFUSAL
- % RECOVERY FOR ALL SAMPLES

→ LOGGED BY: DATE LOGGED:

FIELD BORING LOG

BUFFALO DRILLING COMPANY, INC.
10440 Main Street
Clarence, New York 14031

PROJECT:

JOB NO: 01-133A BORING NO: MW-7

DRILLER: Ted B. Rob. F. Larry S. TYPE OF DRILL RIG: CME 75

SURFACE ELEVATION: SIZE & TYPE OF BIT: 4¼ HSA

DATE STARTED: DATE COMPLETED:

| DEPTH (ft.) | BLOWS PER 0.5 ft. | SAMPLE NO. | N VALUE | % REC RQD | SOIL & ROCK DESCRIPTION | NOTES |
|---|---|---|---|---|---|---|
| 0-2 | 6 10 / 22 27 | 1 | 32 | 70 | Silty Sand Gravel | |
| | 22 28 | 2 | 58 | 50 | Silty Sand Gravel | |
| 2-4 | 30 30 | | | | | |
| | 5 12 | 3 | ~~25~~ | 60 | Same | |
| 4-6 | 13 16 | | | | | |
| | 22 15 | 4 | 29 | 50 | silty sand | |
| 6-8 | 14 17 | | | | | |
| | 4 6 | 5 | 20 | 25 | silty sand | |
| 8-10 | 12 11 | | | | | |
| | 6 5 | 6 | 9 | 50 | Silty Sand (most) | |
| 10-12 | 4 5 | | | | | |
| | 4 6 | 7 | 15 | 70 | Silty Sand (wet) | |
| 14-16 | 9 6 | | | | | |
| | 4 5 | 8 | 10 | ~~50~~ | Same (wet) | |
| 19-21 | 5 4 | | | | | |
| | 5 6 | 9 | 12 | 100 | Same (wet) | |
| 24-26 | 6 4 | | | | | |

BOTTOM OF HOLE: 24 GROUND WATER DEPTH: 21 AUGER REFUSAL:

SET WELL AT 24'

DID YOU NOTE?
- TOPSOIL / ASPHALT THICKNESS
- GROUND WATER DEPTH
- AUGER REFUSAL
- % RECOVERY FOR ALL SAMPLES

LAB USE → LOGGED BY: DATE LOGGED:

E-11

FIELD BORING LOG

BUFFALO DRILLING COMPANY, INC.
10440 Main Street
Clarence, New York 14031

PROJECT:

JOB NO: 01-133A BORING NO: MW8

DRILLER: Ted B & Rob A. TYPE OF DRILL RIG: CME 75

SURFACE ELEVATION: SIZE & TYPE OF BIT: 4¼ HSA

DATE STARTED: 6/29/01 DATE COMPLETED: 7/2/01

| DEPTH (ft.) | BLOWS PER 0.5 ft. | | SAMPLE NO. | N VALUE | % REC RQD | SOIL & ROCK DESCRIPTION | NOTES |
|---|---|---|---|---|---|---|---|
| 0-2 | 1 | 2 | 1 | 4 | 50 | Sand, Gravel | |
| | 2 | 6 | | | | | |
| 2-4 | 00 | 4 | 2 | 20 | 50 | Sand | |
| | 9 | 10 | | | | | |
| 4-6 | 4 | 6 | 3 | 14 | 50 | Sand | |
| | 8 | 9 | | | | | |
| 6-8 | 10 | 10 | 4 | 23 | 50 | Sand | |
| | 13 | 10 | | | | | |
| 8-10 | 3 | 10 | 5 | 20 | 60 | Sand | |
| | 10 | 15 | | | | | |
| 10-12 | 15 | 14 | 6 | 29 | 70 | Sand | |
| | 15 | 16 | | | | | |
| 14-16 | 10 | 4 | 7 | 12 | 70 | Silty Clay Sand | |
| | 4 | 9 | | | | | |
| 19-21 | 6 | 8 | 8 | 20 | 80 | Silty Sand | |
| | 12 | 14 | | | | | |
| 24-26 | 9 | 8 | 9 | 20 | 90 | Sand | |
| | 12 | 12 | | | | | |
| 29-31 | 4 | 10 | 10 | 20 | 80 | Sand | |
| | 10 | 11 | | | | | |
| 34-36 | 10 | 12 | 11 | 25 | 80 | Sand | |
| | 13 | 19 | | | | | |
| 39-41 | 11 | 19 | 12 | 47 | 60 | Sand | |
| | 28 | 35 | | | | | |
| 44-46 | 10 | 11 | 13 | 34 | 90 | Sand | |
| | 23 | 26 | | | | | |
| 49-51 | 5 | 6 | 14 | 16 | 100 | Sand wet | |
| | 10 | 11 | | | | | |

BOTTOM OF HOLE: GROUND WATER DEPTH: AUGER REFUSAL:

**DID YOU NOTE?**
- **TOPSOIL / ASPHALT THICKNESS**
- **GROUND WATER DEPTH**
- **AUGER REFUSAL**
- **% RECOVERY FOR ALL SAMPLES**

LAB USE → LOGGED BY: DATE LOGGED:

FIELD BORING LOG

BUFFALO DRILLING COMPANY, INC.
10440 Main Street
Clarence, New York 14031

PROJECT: _____

JOB NO: 01-133A BORING NO: MW 85

DRILLER: Tod B. & Rob F. TYPE OF DRILL RIG: CME 75

SURFACE ELEVATION: _____ SIZE & TYPE OF BIT: 4¼ HSA

DATE STARTED: 6/29/01 DATE COMPLETED: 7/2/01

| DEPTH (ft.) | BLOWS PER 0.5 ft. | | SAMPLE NO. | N VALUE | % REC RQD | SOIL & ROCK DESCRIPTION | NOTES |
|---|---|---|---|---|---|---|---|
| 54-56 | 4 | 3 | 15 | 9 | 100 | wet Sand | |
| | 6 | 5 | | | | | |
| 59-61 | 5 | 6 | 16 | 13 | 100 | (( )) | |
| | 7 | 4 | | | | | |

BOTTOM OF HOLE: 60 GROUND WATER DEPTH: 55 AUGER REFUSAL: _____

**DID YOU NOTE?**
- **TOPSOIL / ASPHALT THICKNESS**
- **GROUND WATER DEPTH**
- **AUGER REFUSAL**
- **% RECOVERY FOR ALL SAMPLES**

LAB USE → LOGGED BY: DATE LOGGED:

F-11

FIELD BORING LOG

BUFFALO DRILLING COMPANY, INC.
10440 Main Street
Clarence, New York 14031

PROJECT:

JOB NO: 01-133B BORING NO: MW-10

DRILLER: LARRY S. & TED B. TYPE OF DRILL RIG: B-61

SURFACE ELEVATION: SIZE & TYPE OF BIT: 4¼ HSA

DATE STARTED: 10/3/01 DATE COMPLETED: 10/3/01

| DEPTH (ft.) | BLOWS PER 0.5 ft. | | SAMPLE NO. | N VALUE | % REC RQD | SOIL & ROCK DESCRIPTION | NOTES |
|---|---|---|---|---|---|---|---|
| 0-2 | 3 | 4 | 1 | 7 | 60 | SAND | |
| | 3 | 3 | | | | | |
| 4-6 | 5 | 6 | 2 | 12 | 50 | SAND & SILTY CLAY | moist |
| | 6 | 5 | | | | | |
| 9-11 | 15 | 20 | 3 | 41 | 70 | SILTY SAND & CLAY | moist-wet |
| | 21 | 20 | | | | | |
| 14-16 | 2 | 2 | 4 | 4 | 100 | SILTY SAND | moist-wet |
| | 2 | 2 | | | | | |
| 19-21 | 1 | 2 | 5 | 4 | 100 | " | wet |
| | 2 | 2 | | | | | |
| 24-26 | 4 | 3 | 6 | 6 | 100 | SILTY SAND | wet |
| | 3 | 4 | | | | | |
| 29-31 | 2 | 2 | 7 | 3 | 100 | same | wet |
| | 1 | 1 | | | | | |
| 34-36 | 1 | 2 | 8 | 4 | 100 | same | wet |
| | 2 | 1 | | | | | |
| 39-41 | 4 | 4 | 9 | 8 | 100 | same | wet |
| | 4 | 3 | | | | | |
| 44-48 | 4 | 3 | 10 | 8 | 100 | same | wet |
| | 3 | 4 | | | | | |
| 49-51 | 9 | 11 | 11 | 25 | 70 | SILTY CLAY TILL & SAND | wet-moist |
| | 14 | 15 | | | | | |

SET 2" PVC well to 46'
15' Screen
#1100 Sand from 50' to 29'
Bentonite Pellets from 29' to 22'

BOTTOM OF HOLE: GROUND WATER DEPTH: AUGER REFUSAL:

DID YOU NOTE?
- TOPSOIL / ASPHALT THICKNESS
- GROUND WATER DEPTH
- AUGER REFUSAL
- % RECOVERY FOR ALL SAMPLES

LAB USE → LOGGED BY: DATE LOGGED:

F-11a

FIELD BORING LOG

BUFFALO DRILLING COMPANY, INC.
10440 Main Street
Clarence, New York 14031

PROJECT:

JOB NO: 01-1338 BORING NO: MW-11

DRILLER: LARRY TED TYPE OF DRILL RIG: B-61

SURFACE ELEVATION: SIZE & TYPE OF BIT: 4¼ HSA

DATE STARTED: 10/4/01 DATE COMPLETED: 10/4/01

| DEPTH (ft.) | BLOWS PER 0.5 ft. | SAMPLE NO. | N VALUE | % REC RQD | SOIL & ROCK DESCRIPTION | NOTES |
|---|---|---|---|---|---|---|
| 0-2 | 3 4<br>4 6 | 1 | 8 | 60 | SAND | |
| 4-6 | 4 4<br>4 5 | 2 | 8 | 45 | SILTY SAND | moist-wet |
| 9-11 | 3 3<br>3 4 | 3 | 6 | 75 | SAME | moist-wet |
| 14-16 | 4 3<br>3 4 | 4 | 6 | 90 | SILTY SAND & CLAY | wet |
| 19-21 | 4 4<br>4 4 | 5 | 8 | 80 | SAME | moist-wet |
| 24-26 | 8 12<br>13 8 | 6 | 25 | 60 | SILTY SAND | moist-wet |
| 29-31 | 9 8<br>9 9 | 7 | 17 | 70 | SAME | wet |
| 34-36 | 7 8<br>8 9 | 8 | 16 | 80 | SAME | wet |
| 39-41 | 11 10<br>7 4 | 9 | 17 | 90 | SAME | wet |
| 44-46 | 6 7<br>7 8 | 10 | 14 | 90 | SILTY SAND THEN TRACE OF CLAY | wet |
| 49-51 | 4 4<br>4 5 | 11 | 8 | 90 | SILTY SAND | wet |

Set well to 45.5'
15' .010 Screen
#00 SAND to 29'
Bentonite chips to 29'

BOTTOM OF HOLE: 51' GROUND WATER DEPTH: 38' AUGER REFUSAL: NO

DID YOU NOTE?
- TOPSOIL / ASPHALT THICKNESS
- GROUND WATER DEPTH
- AUGER REFUSAL
- % RECOVERY FOR ALL SAMPLES

LAB USE → LOGGED BY: DATE LOGGED:

F-11a

# Attachment 4

# Groundwater Sample Results

PARADIGM
ENVIRONMENTAL
SERVICES, INC.

179 Lake Avenue Rochester, New York 14608 716-647-2530 FAX 716-647-3311

# Volatile Laboratory Analysis Report For Non-Potable Water

| | | | |
|---|---|---|---|
| **Client:** | Underberg and Kessler | **Lab Project No.:** | 01-0962 |
| **Client Job Site:** | Syracusa Sand and Gravel | **Lab Sample No.:** | 3855 |
| **Client Job No.:** | N/A | **Sample Type:** | Water |
| **Field Location:** | MW-1 | **Date Sampled:** | 04/24/01 |
| | | **Date Received:** | 04/24/01 |
| **Field ID No.:** | N/A | **Date Analyzed:** | 05/01/01 |

| VOLATILE HALOCARBONS | RESULTS (ug/L) | VOLATILE AROMATICS | RESULTS (ug/L) |
|---|---|---|---|
| Bromodichloromethane | ND< 2.00 | Benzene | ND< 2.00 |
| Bromomethane | ND< 2.00 | Chlorobenzene | ND< 2.00 |
| Bromoform | ND< 2.00 | Ethylbenzene | ND< 2.00 |
| Carbon tetrachloride | ND< 2.00 | Toluene | ND< 2.00 |
| Chloroethane | ND< 2.00 | m,p - Xylene | ND< 2.00 |
| Chloromethane | ND< 2.00 | o - Xylene | ND< 2.00 |
| 2-Chloroethyl vinyl ether | ND< 2.00 | Styrene | ND< 2.00 |
| Chloroform | ND< 2.00 | | |
| Dibromochloromethane | ND< 2.00 | | |
| 1,1-Dichloroethane | ND< 2.00 | | |
| 1,2-Dichloroethane | ND< 2.00 | | |
| 1,1-Dichloroethene | 6.62 | | |
| cis-1,2-Dichloroethene | ND< 2.00 | Ketones & Misc. | |
| trans-1,2-Dichloroethene | ND< 2.00 | Acetone | ND< 10.0 |
| 1,2-Dichloropropane | ND< 2.00 | Vinyl acetate | ND< 5.00 |
| cis-1,3-Dichloropropene | ND< 2.00 | 2-Butanone | ND< 5.00 |
| trans-1,3-Dichloropropene | ND< 2.00 | 4-Methyl-2-pentanone | ND< 5.00 |
| Methylene chloride | ND< 5.00 | 2-Hexanone | ND< 5.00 |
| 1,1,2,2-Tetrachloroethane | ND< 2.00 | Carbon disulfide | ND< 5.00 |
| Tetrachloroethene | ND< 2.00 | | |
| 1,1,1-Trichloroethane | 33.6 | | |
| 1,1,2-Trichloroethane | ND< 2.00 | | |
| Trichloroethene | 135 | | |
| Vinyl Chloride | ND< 2.00 | | |

Analytical Method: EPA 8260 ELAP ID No.: 10958

Comments: ND denotes Not Detected

Approved By _____
Laboratory Director

PARADIGM
ENVIRONMENTAL
SERVICES, INC.

179 Lake Avenue Rochester, New York 14608 716-647-2530 FAX 716-647-3311

## Volatile Laboratory Analysis Report For Non-Potable Water

| | | | |
|---|---|---|---|
| **Client:** | Underberg and Kessler | **Lab Project No.:** | 01-0962 |
| **Client Job Site:** | Syracusa Sand and Gravel | **Lab Sample No.:** | 3854 |
| **Client Job No.:** | N/A | **Sample Type:** | Water |
| **Field Location:** | MW-2 | **Date Sampled:** | 04/24/01 |
| | | **Date Received:** | 04/24/01 |
| **Field ID No.:** | N/A | **Date Analyzed:** | 05/01/01 |

| VOLATILE HALOCARBONS | RESULTS (ug/L) | VOLATILE AROMATICS | RESULTS (ug/L) |
|---|---|---|---|
| Bromodichloromethane | ND< 2.00 | Benzene | ND< 2.00 |
| Bromomethane | ND< 2.00 | Chlorobenzene | ND< 2.00 |
| Bromoform | ND< 2.00 | Ethylbenzene | ND< 2.00 |
| Carbon tetrachloride | ND< 2.00 | Toluene | ND< 2.00 |
| Chloroethane | ND< 2.00 | m,p - Xylene | ND< 2.00 |
| Chloromethane | ND< 2.00 | o - Xylene | ND< 2.00 |
| 2-Chloroethyl vinyl ether | ND< 2.00 | Styrene | ND< 2.00 |
| Chloroform | ND< 2.00 | | |
| Dibromochloromethane | ND< 2.00 | | |
| 1,1-Dichloroethane | ND< 2.00 | | |
| 1,2-Dichloroethane | ND< 2.00 | | |
| 1,1-Dichloroethene | ND< 2.00 | | |
| cis-1,2-Dichloroethene | ND< 2.00 | Ketones & Misc. | |
| trans-1,2-Dichloroethene | ND< 2.00 | Acetone | ND< 10.0 |
| 1,2-Dichloropropane | ND< 2.00 | Vinyl acetate | ND< 5.00 |
| cis-1,3-Dichloropropene | ND< 2.00 | 2-Butanone | ND< 5.00 |
| trans-1,3-Dichloropropene | ND< 2.00 | 4-Methyl-2-pentanone | ND< 5.00 |
| Methylene chloride | ND< 5.00 | 2-Hexanone | ND< 5.00 |
| 1,1,2,2-Tetrachloroethane | ND< 2.00 | Carbon disulfide | ND< 5.00 |
| Tetrachloroethene | ND< 2.00 | | |
| 1,1,1-Trichloroethane | 4.21 | | |
| 1,1,2-Trichloroethane | ND< 2.00 | | |
| Trichloroethene | 73.3 | | |
| Vinyl Chloride | ND< 2.00 | | |

Analytical Method: EPA 8260 ELAP ID No.: 10958

Comments: ND denotes Not Detected

**Approved By** _____
Laboratory Director

PARADIGM
ENVIRONMENTAL
SERVICES, INC.

179 Lake Avenue Rochester, New York 14608 716-647-2530 FAX 716-647-3311

# Volatile Laboratory Analysis Report For Non-Potable Water

| | | | |
|---|---|---|---|
| **Client:** | Underberg and Kessler | **Lab Project No.:** | 01-0962 |
| **Client Job Site:** | Syracusa Sand and Gravel | **Lab Sample No.:** | 3853 |
| **Client Job No.:** | N/A | **Sample Type:** | Water |
| **Field Location:** | MW-3 | **Date Sampled:** | 04/24/01 |
| | | **Date Received:** | 04/24/01 |
| **Field ID No.:** | N/A | **Date Analyzed:** | 05/01/01 |

| VOLATILE HALOCARBONS | RESULTS (ug/L) | VOLATILE AROMATICS | RESULTS (ug/L) |
|---|---|---|---|
| Bromodichloromethane | ND< 4.00 | Benzene | ND< 4.00 |
| Bromomethane | ND< 4.00 | Chlorobenzene | ND< 4.00 |
| Bromoform | ND< 4.00 | Ethylbenzene | ND< 4.00 |
| Carbon tetrachloride | ND< 4.00 | Toluene | ND< 4.00 |
| Chloroethane | ND< 4.00 | m,p - Xylene | ND< 4.00 |
| Chloromethane | ND< 4.00 | o - Xylene | ND< 4.00 |
| 2-Chloroethyl vinyl ether | ND< 4.00 | Styrene | ND< 4.00 |
| Chloroform | ND< 4.00 | | |
| Dibromochloromethane | ND< 4.00 | | |
| 1,1-Dichloroethane | ND< 4.00 | | |
| 1,2-Dichloroethane | ND< 4.00 | | |
| 1,1-Dichloroethene | 52.9 | | |
| cis-1,2-Dichloroethene | ND< 4.00 | Ketones & Misc. | |
| trans-1,2-Dichloroethene | ND< 4.00 | Acetone | ND< 20.0 |
| 1,2-Dichloropropane | ND< 4.00 | Vinyl acetate | ND< 10.0 |
| cis-1,3-Dichloropropene | ND< 4.00 | 2-Butanone | ND< 10.0 |
| trans-1,3-Dichloropropene | ND< 4.00 | 4-Methyl-2-pentanone | ND< 10.0 |
| Methylene chloride | ND< 10.0 | 2-Hexanone | ND< 10.0 |
| 1,1,2,2-Tetrachloroethane | ND< 4.00 | Carbon disulfide | ND< 10.0 |
| Tetrachloroethene | ND< 4.00 | | |
| 1,1,1-Trichloroethane | 224 | | |
| 1,1,2-Trichloroethane | ND< 4.00 | | |
| Trichloroethene | 327 | | |
| Vinyl Chloride | ND< 4.00 | | |

Analytical Method: EPA 8260 ELAP ID No.: 10958

Comments: ND denotes Not Detected

Approved By _____
Laboratory Director

010982V2

PARADIGM
ENVIRONMENTAL
SERVICES, INC.

179 Lake Avenue Rochester, New York 14608 716-647-2530 FAX 716-647-3311

# Volatile Laboratory Analysis Report For Non-Potable Water

| | | | |
|---|---|---|---|
| **Client:** | Underberg and Kessler | **Lab Project No.:** | 01-0962 |
| **Client Job Site:** | Syracusa Sand and Gravel | **Lab Sample No.:** | 3856 |
| **Client Job No.:** | N/A | **Sample Type:** | Water |
| **Field Location:** | MW-4 | **Date Sampled:** | 04/24/01 |
| | | **Date Received:** | 04/24/01 |
| **Field ID No.:** | N/A | **Date Analyzed:** | 05/01/01 |

| VOLATILE HALOCARBONS | RESULTS (ug/L) | VOLATILE AROMATICS | RESULTS (ug/L) |
|---|---|---|---|
| Bromodichloromethane | ND< 2.00 | Benzene | ND< 2.00 |
| Bromomethane | ND< 2.00 | Chlorobenzene | ND< 2.00 |
| Bromoform | ND< 2.00 | Ethylbenzene | ND< 2.00 |
| Carbon tetrachloride | ND< 2.00 | Toluene | ND< 2.00 |
| Chloroethane | ND< 2.00 | m,p - Xylene | ND< 2.00 |
| Chloromethane | ND< 2.00 | o - Xylene | ND< 2.00 |
| 2-Chloroethyl vinyl ether | ND< 2.00 | Styrene | ND< 2.00 |
| Chloroform | ND< 2.00 | | |
| Dibromochloromethane | ND< 2.00 | | |
| 1,1-Dichloroethane | ND< 2.00 | | |
| 1,2-Dichloroethane | ND< 2.00 | | |
| 1,1-Dichloroethene | ND< 2.00 | | |
| cis-1,2-Dichloroethene | ND< 2.00 | Ketones & Misc. | |
| trans-1,2-Dichloroethene | ND< 2.00 | Acetone | ND< 10.0 |
| 1,2-Dichloropropane | ND< 2.00 | Vinyl acetate | ND< 5.00 |
| cis-1,3-Dichloropropene | ND< 2.00 | 2-Butanone | ND< 5.00 |
| trans-1,3-Dichloropropene | ND< 2.00 | 4-Methyl-2-pentanone | ND< 5.00 |
| Methylene chloride | ND< 5.00 | 2-Hexanone | ND< 5.00 |
| 1,1,2,2-Tetrachloroethane | ND< 2.00 | Carbon disulfide | ND< 5.00 |
| Tetrachloroethene | ND< 2.00 | | |
| 1,1,1-Trichloroethane | ND< 2.00 | | |
| 1,1,2-Trichloroethane | ND< 2.00 | | |
| Trichloroethene | ND< 2.00 | | |
| Vinyl Chloride | ND< 2.00 | | |

Analytical Method: EPA 8260 ELAP ID No.: 10958

Comments: ND denotes Not Detected

**Approved By** _____
Laboratory Director

PARADIGM
ENVIRONMENTAL
SERVICES, INC.

179 Lake Avenue Rochester, New York 14608 716-647-2530 FAX 716-647-3311

# Volatile Laboratory Analysis Report For Non-Potable Water

| | | | |
|---|---|---|---|
| **Client:** | Underberg and Kessler | **Lab Project No.:** | 01-0962 |
| **Client Job Site:** | Syracusa Sand and Gravel | **Lab Sample No.:** | 3852 |
| **Client Job No.:** | N/A | **Sample Type:** | Water |
| **Field Location:** | MW-5 | **Date Sampled:** | 04/24/01 |
| | | **Date Received:** | 04/24/01 |
| **Field ID No.:** | N/A | **Date Analyzed:** | 05/01/01 |

| VOLATILE HALOCARBONS | RESULTS (ug/L) | VOLATILE AROMATICS | RESULTS (ug/L) |
|---|---|---|---|
| Bromodichloromethane | ND< 10.0 | Benzene | ND< 10.0 |
| Bromomethane | ND< 10.0 | Chlorobenzene | ND< 10.0 |
| Bromoform | ND< 10.0 | Ethylbenzene | ND< 10.0 |
| Carbon tetrachloride | ND< 10.0 | Toluene | ND< 10.0 |
| Chloroethane | ND< 10.0 | m,p - Xylene | ND< 10.0 |
| Chloromethane | ND< 10.0 | o - Xylene | ND< 10.0 |
| 2-Chloroethyl vinyl ether | ND< 10.0 | Styrene | ND< 10.0 |
| Chloroform | ND< 10.0 | | |
| Dibromochloromethane | ND< 10.0 | | |
| 1,1-Dichloroethane | ND< 10.0 | | |
| 1,2-Dichloroethane | ND< 10.0 | | |
| 1,1-Dichloroethene | ND< 10.0 | | |
| cis-1,2-Dichloroethene | ND< 10.0 | Ketones & Misc. | |
| trans-1,2-Dichloroethene | ND< 10.0 | Acetone | ND< 50.0 |
| 1,2-Dichloropropane | ND< 10.0 | Vinyl acetate | ND< 25.0 |
| cis-1,3-Dichloropropene | ND< 10.0 | 2-Butanone | ND< 25.0 |
| trans-1,3-Dichloropropene | ND< 10.0 | 4-Methyl-2-pentanone | ND< 25.0 |
| Methylene chloride | ND< 25.0 | 2-Hexanone | ND< 25.0 |
| 1,1,2,2-Tetrachloroethane | ND< 10.0 | Carbon disulfide | ND< 25.0 |
| Tetrachloroethene | ND< 10.0 | | |
| 1,1,1-Trichloroethane | ND< 10.0 | | |
| 1,1,2-Trichloroethane | ND< 10.0 | | |
| Trichloroethene | 741 | | |
| Vinyl Chloride | ND< 10.0 | | |

Analytical Method: EPA 8260 ELAP ID No.: 10958

Comments: ND denotes Not Detected

Approved By _____
Laboratory Director

# Groundwater Monitoring Well Data

| | |
|---|---|
| Date | 4-24-01 |
| Client | Underberg and Kessler LLP |
| Site Name | Syracusa Sand and Gravel |
| Sampling Technician | DW |

| Date | Well # | Depth | Water Level | Volume | 3X Volume |
|---|---|---|---|---|---|
| 4-24-01 | MW-1 | 42.82 | 30.76 | 1.97 | 5.91 |
| 4-24-01 | MW-2 | 50.82 | 38.16 | 2.07 | 6.20 |
| 4-24-01 | MW-3 | 77.10 | 71.70 | 0.88 | 2.64 |
| 4-24-01 | MW-4 | 79.89 | 74.54 | 0.87 | 2.62 |
| 4-24-01 | MW-5 | 27.20 | 14.16 | 2.13 | 6.34 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Notes All well measurements taken from North side of 2 " casing. 3X volume was purged from each well. Single use disposable bailers were used to purge and sample each well.

# PARADIGM ENVIRONMENTAL SERVICES, INC.

179 Lake Avenue
Rochester, NY 14608
(716) 647-2530 * (800) 724-1997
FAX: (716) 647-3311

258 2800 main #

## CHAIN OF CUSTODY

| REPORT TO: | | INVOICE TO: | | | |
|---|---|---|---|---|---|
| COMPANY: | Underberg and Kessler | COMPANY: | | LAB PROJECT #: 01-0962 | CLIENT PROJECT #: |
| ADDRESS: | 1800 Chase Square | ADDRESS: | | | |
| CITY: Rochester STATE: NY ZIP: 14604 | | CITY: STATE: ZIP: | | TURNAROUND TIME: (WORKING DAYS) | |
| PHONE: 258 2829 FAX: | | PHONE: FAX: | | STD ☒ 5 | OTHER ☐ |
| PROJECT NAME/SITE NAME: Syracuse Sand and Gravel | | ATTN: Terry Richmon | | ☐ 1 ☐ 2 ☐ 3 | |
| | | COMMENTS: | | | |

REQUESTED ANALYSIS

| | DATE | TIME | COMPOSITE | GRAB | SAMPLE LOCATION/FIELD ID | MATRIX | NUMBER OF CONTAINERS | 8260 | | | | | | | | | REMARKS | PARADIGM LAB SAMPLE NUMBER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4/24/01 | 1030 | | X | MW-5 | A | 2 | X | | | | | | | | | | 38552 |
| 2 | 4/24/01 | 1115 | | X | MW-3 | A | 2 | X | | | | | | | | | | 38553 |
| 3 | 4/24/01 | 1145 | | X | MW-2 | A | 2 | X | | | | | | | | | | 38554 |
| 4 | 4/24/01 | 1230 | | X | MW-1 | A | 2 | X | | | | | | | | | | 38555 |
| 5 | 4/24/01 | 1300 | | X | MW-4 | A | 2 | X | | | | | | | | | | 38556 |
| 6 | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | |

**LAB USE ONLY**

| SAMPLE CONDITION: Check box if acceptable or note deviation: | CONTAINER TYPE: ☑ | PRESERVATIONS: ☑ | HOLDING TIME: ☑ | TEMPERATURE: ☑ |
|---|---|---|---|---|

| Sampled By: | Date/Time: | Relinquished By: | Date/Time: | Total Cost: |
|---|---|---|---|---|
| Doug Weatherbee | 4/24/01 1030 | | 4/24/01 16:30 | |
| **Relinquished By:** | **Date/Time:** | **Received By:** | **Date/Time:** | |
| | 4/24/01 1400 | | | |
| **Received By:** | **Date/Time:** | **Received @ Lab By:** | **Date/Time:** | **P.I.F.** |
| | 4/24/01 1400 | | 4/24/01 17:50 | |

PARADIGM
ENVIRONMENTAL
SERVICES, INC.

179 Lake Avenue Rochester, New York 14608 716-647-2530 FAX 716-647-3311

## Volatile Laboratory Analysis Report For Non-Potable Water

| | | | |
|---|---|---|---|
| **Client:** | DW Environmental | **Lab Project No.:** | 01-1764 |
| **Client Job Site:** | Syracusa | **Lab Sample No.:** | 6385 |
| **Client Job No.:** | N/A | **Sample Type:** | Water |
| **Field Location:** | MW6 | **Date Sampled:** | 07/18/01 |
| | | **Date Received:** | 07/18/01 |
| **Field ID No.:** | N/A | **Date Analyzed:** | 07/27/01 |

| VOLATILE HALOCARBONS | RESULTS (ug/L) | VOLATILE AROMATICS | RESULTS (ug/L) |
|---|---|---|---|
| Bromodichloromethane | ND< 2.00 | Benzene | ND< 2.00 |
| Bromomethane | ND< 2.00 | Chlorobenzene | ND< 2.00 |
| Bromoform | ND< 2.00 | Ethylbenzene | ND< 2.00 |
| Carbon tetrachloride | ND< 2.00 | Toluene | ND< 2.00 |
| Chloroethane | ND< 2.00 | m,p - Xylene | ND< 2.00 |
| Chloromethane | ND< 2.00 | o - Xylene | ND< 2.00 |
| 2-Chloroethyl vinyl ether | ND< 2.00 | Styrene | ND< 2.00 |
| Chloroform | ND< 2.00 | | |
| Dibromochloromethane | ND< 2.00 | | |
| 1,1-Dichloroethane | ND< 2.00 | | |
| 1,2-Dichloroethane | ND< 2.00 | | |
| 1,1-Dichloroethene | ND< 2.00 | | |
| cis-1,2-Dichloroethene | ND< 2.00 | Ketones & Misc. | |
| trans-1,2-Dichloroethene | ND< 2.00 | Acetone | ND< 10.0 |
| 1,2-Dichloropropane | ND< 2.00 | Vinyl acetate | ND< 5.00 |
| cis-1,3-Dichloropropene | ND< 2.00 | 2-Butanone | ND< 5.00 |
| trans-1,3-Dichloropropen | ND< 2.00 | 4-Methyl-2-pentanone | ND< 5.00 |
| Methylene chloride | ND< 5.00 | 2-Hexanone | ND< 5.00 |
| 1,1,2,2-Tetrachloroethan | ND< 2.00 | Carbon disulfide | ND< 5.00 |
| Tetrachloroethene | ND< 2.00 | | |
| 1,1,1-Trichloroethane | 4.46 | | |
| 1,1,2-Trichloroethane | ND< 2.00 | | |
| Trichloroethene | 69.5 | | |
| Vinyl Chloride | ND< 2.00 | | |

Analytical Method: EPA 8260 ELAP ID No.: 10958

Comments: ND denotes Not Detected

Approved By _____
Fax: Laboratory Director

011764V1.XLS

PARADIGM
ENVIRONMENTAL
SERVICES, INC.

179 Lake Avenue Rochester, New York 14608 716-647-2530 FAX 716-647-3311

## Volatile Laboratory Analysis Report For Non-Potable Water

| | | | |
|---|---|---|---|
| Client: | DW Environmental | Lab Project No.: | 01-1764 |
| Client Job Site: | Syracusa | Lab Sample No.: | 6386 |
| Client Job No.: | N/A | Sample Type: | Water |
| Field Location: | MW7 | Date Sampled: | 07/18/01 |
| | | Date Received: | 07/18/01 |
| Field ID No.: | N/A | Date Analyzed: | 07/27/01 |

| VOLATILE HALOCARBONS | RESULTS (ug/L) | VOLATILE AROMATICS | RESULTS (ug/L) |
|---|---|---|---|
| Bromodichloromethane | ND< 2.00 | Benzene | ND< 2.00 |
| Bromomethane | ND< 2.00 | Chlorobenzene | ND< 2.00 |
| Bromoform | ND< 2.00 | Ethylbenzene | ND< 2.00 |
| Carbon tetrachloride | ND< 2.00 | Toluene | ND< 2.00 |
| Chloroethane | ND< 2.00 | m,p - Xylene | ND< 2.00 |
| Chloromethane | ND< 2.00 | o - Xylene | ND< 2.00 |
| 2-Chloroethyl vinyl ether | ND< 2.00 | Styrene | ND< 2.00 |
| Chloroform | ND< 2.00 | | |
| Dibromochloromethane | ND< 2.00 | | |
| 1,1-Dichloroethane | ND< 2.00 | | |
| 1,2-Dichloroethane | ND< 2.00 | | |
| 1,1-Dichloroethene | ND< 2.00 | | |
| cis-1,2-Dichloroethene | ND< 2.00 | Ketones & Misc. | |
| trans-1,2-Dichloroethene | ND< 2.00 | Acetone | ND< 10.0 |
| 1,2-Dichloropropane | ND< 2.00 | Vinyl acetate | ND< 5.00 |
| cis-1,3-Dichloropropene | ND< 2.00 | 2-Butanone | ND< 5.00 |
| trans-1,3-Dichloropropen | ND< 2.00 | 4-Methyl-2-pentanone | ND< 5.00 |
| Methylene chloride | ND< 5.00 | 2-Hexanone | ND< 5.00 |
| 1,1,2,2-Tetrachloroethan | ND< 2.00 | Carbon disulfide | ND< 5.00 |
| Tetrachloroethene | ND< 2.00 | | |
| 1,1,1-Trichloroethane | ND< 2.00 | | |
| 1,1,2-Trichloroethane | ND< 2.00 | | |
| Trichloroethene | ND< 2.00 | | |
| Vinyl Chloride | ND< 2.00 | | |

Analytical Method: EPA 8260 ELAP ID No.: 10958

Comments: ND denotes Not Detected

Approved By _____
Fod: Laboratory Director

011764V2.XLS

**PARADIGM**
ENVIRONMENTAL
SERVICES, INC.

179 Lake Avenue Rochester, New York 14608 716-647-2530 FAX 716-647-3311

## Volatile Laboratory Analysis Report For Non-Potable Water

| | | | |
|---|---|---|---|
| **Client:** | DW Environmental | **Lab Project No.:** | 01-1764 |
| **Client Job Site:** | Syracusa | **Lab Sample No.:** | 6387 |
| **Client Job No.:** | N/A | **Sample Type:** | Water |
| **Field Location:** | MW8 | **Date Sampled:** | 07/18/01 |
| | | **Date Received:** | 07/18/01 |
| **Field ID No.:** | N/A | **Date Analyzed:** | 07/27/01 |

| VOLATILE HALOCARBONS | RESULTS (ug/L) | VOLATILE AROMATICS | RESULTS (ug/L) |
|---|---|---|---|
| Bromodichloromethane | ND< 2.00 | Benzene | ND< 2.00 |
| Bromomethane | ND< 2.00 | Chlorobenzene | ND< 2.00 |
| Bromoform | ND< 2.00 | Ethylbenzene | ND< 2.00 |
| Carbon tetrachloride | ND< 2.00 | Toluene | ND< 2.00 |
| Chloroethane | ND< 2.00 | m,p - Xylene | ND< 2.00 |
| Chloromethane | ND< 2.00 | o - Xylene | ND< 2.00 |
| 2-Chloroethyl vinyl ether | ND< 2.00 | Styrene | ND< 2.00 |
| Chloroform | ND< 2.00 | | |
| Dibromochloromethane | ND< 2.00 | | |
| 1,1-Dichloroethane | ND< 2.00 | | |
| 1,2-Dichloroethane | ND< 2.00 | | |
| 1,1-Dichloroethene | ND< 2.00 | | |
| cis-1,2-Dichloroethene | ND< 2.00 | Ketones & Misc. | |
| trans-1,2-Dichloroethene | ND< 2.00 | Acetone | ND< 10.0 |
| 1,2-Dichloropropane | ND< 2.00 | Vinyl acetate | ND< 5.00 |
| cis-1,3-Dichloropropene | ND< 2.00 | 2-Butanone | ND< 5.00 |
| trans-1,3-Dichloropropen | ND< 2.00 | 4-Methyl-2-pentanone | ND< 5.00 |
| Methylene chloride | ND< 5.00 | 2-Hexanone | ND< 5.00 |
| 1,1,2,2-Tetrachloroethan | ND< 2.00 | Carbon disulfide | ND< 5.00 |
| Tetrachloroethene | ND< 2.00 | | |
| 1,1,1-Trichloroethane | ND< 2.00 | | |
| 1,1,2-Trichloroethane | ND< 2.00 | | |
| Trichloroethene | ND< 2.00 | | |
| Vinyl Chloride | ND< 2.00 | | |

Analytical Method: EPA 8260 ELAP ID No.: 10958

Comments: ND denotes Not Detected

Approved By _____
Fab's Laboratory Director

011764V3.XLS

**PARADIGM**
ENVIRONMENTAL
SERVICES, INC.

179 Lake Avenue Rochester, New York 14608 716-647-2530 FAX 716-647-3311

## Volatile Laboratory Analysis Report For Non-Potable Water

| | | | |
|---|---|---|---|
| **Client:** | DW Environmental | **Lab Project No.:** | 01-1764 |
| **Client Job Site:** | Syracusa | **Lab Sample No.:** | 6388 |
| **Client Job No.:** | N/A | **Sample Type:** | Water |
| **Field Location:** | MW9 | **Date Sampled:** | 07/18/01 |
| | | **Date Received:** | 07/18/01 |
| **Field ID No.:** | N/A | **Date Analyzed:** | 07/27/01 |

| VOLATILE HALOCARBONS | RESULTS (ug/L) | VOLATILE AROMATICS | RESULTS (ug/L) |
|---|---|---|---|
| Bromodichloromethane | ND< 2.00 | Benzene | ND< 2.00 |
| Bromomethane | ND< 2.00 | Chlorobenzene | ND< 2.00 |
| Bromoform | ND< 2.00 | Ethylbenzene | ND< 2.00 |
| Carbon tetrachloride | ND< 2.00 | Toluene | ND< 2.00 |
| Chloroethane | ND< 2.00 | m,p - Xylene | ND< 2.00 |
| Chloromethane | ND< 2.00 | o - Xylene | ND< 2.00 |
| 2-Chloroethyl vinyl ether | ND< 2.00 | Styrene | ND< 2.00 |
| Chloroform | ND< 2.00 | | |
| Dibromochloromethane | ND< 2.00 | | |
| 1,1-Dichloroethane | ND< 2.00 | | |
| 1,2-Dichloroethane | ND< 2.00 | | |
| 1,1-Dichloroethene | ND< 2.00 | | |
| cis-1,2-Dichloroethene | ND< 2.00 | Ketones & Misc. | |
| trans-1,2-Dichloroethene | ND< 2.00 | Acetone | ND< 10.0 |
| 1,2-Dichloropropane | ND< 2.00 | Vinyl acetate | ND< 5.00 |
| cis-1,3-Dichloropropene | ND< 2.00 | 2-Butanone | ND< 5.00 |
| trans-1,3-Dichloropropen | ND< 2.00 | 4-Methyl-2-pentanone | ND< 5.00 |
| Methylene chloride | ND< 5.00 | 2-Hexanone | ND< 5.00 |
| 1,1,2,2-Tetrachloroethan | ND< 2.00 | Carbon disulfide | ND< 5.00 |
| Tetrachloroethene | ND< 2.00 | | |
| 1,1,1-Trichloroethane | ND< 2.00 | | |
| 1,1,2-Trichloroethane | ND< 2.00 | | |
| Trichloroethene | ND< 2.00 | | |
| Vinyl Chloride | ND< 2.00 | | |

Analytical Method: EPA 8260 ELAP ID No.: 10958

Comments: ND denotes Not Detected

**Approved By** _____
Laboratory Director

011764V4.XLS

# PARADIGM ENVIRONMENTAL SERVICES, INC.

179 Lake Avenue
Rochester, NY 14608
(716) 647-2530 * (800) 724-1997
FAX: (716) 647-3311

## CHAIN OF CUSTODY

| REPORT TO: | INVOICE TO: | |
|---|---|---|
| COMPANY: DW Environmental | COMPANY: | LAB PROJECT #: 01-1764 / CLIENT PROJECT #: |
| ADDRESS: | ADDRESS: | |
| CITY: STATE: ZIP: | CITY: STATE: ZIP: | TURNAROUND TIME: (WORKING DAYS) STD / OTHER |
| PHONE: 392-2820 FAX: | PHONE: FAX: | 1 2 3 X 5 |
| ATTN: Doug | ATTN: | |
| COMMENTS: | | |

PROJECT NAME/SITE NAME: Syracusa

REQUESTED ANALYSIS...

| | DATE | TIME | COMPOSITE | GRAB | SAMPLE LOCATION/FIELD ID | MATRIX | NUMBER CONTAINERS | 8260 | REMARKS | PARADIGM LAB SAMPLE NUMBER |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7/18/01 | 10:20 | | ✓ | MW6 | | 2 | ✓ | | 6385 |
| 2 | 7/18/01 | 11:45 | | ✓ | MW7 | | 2 | ✓ | | 6386 |
| 3 | 7/18/01 | 11:00 | | ✓ | MW8 | | 2 | ✓ | | 6387 |
| 4 | 7/18/01 | 9:30 | | ✓ | MW9 | | 2 | ✓ | | 6388 |
| 5 | | | | | | | | | | |
| 6 | | | | | | | | | | |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | | | | | | | | | | |
| 10 | | | | | | | | | | |

**LAB USE ONLY**

SAMPLE CONDITION: Check box if acceptable or note deviation: CONTAINER TYPE: ✓ PRESERVATIONS: ✓ HOLDING TIME: ✓ TEMPERATURE: ✓ 23

| | | | |
|---|---|---|---|
| Sampled By: [signature] | Date/Time: 7/18/01 | Relinquished By: | Date/Time: |
| Relinquished By: [signature] | Date/Time: 7/18/01 | Received By: | Date/Time: |
| Received By: [signature] | Date/Time: 7/18/01, 14:56 | Received @ Lab By: [signature] | Date/Time: 7/18/01 @ 16:40 |

Total Cost:

P.I.F.

**PARADIGM**
ENVIRONMENTAL
SERVICES, INC.

179 Lake Avenue Rochester, New York 14608 716-647-2530 FAX 716-647-3311

## Volatile Laboratory Analysis Report For Non-Potable Water

| | | | |
|---|---|---|---|
| **Client:** | DW Environmental | **Lab Project No.:** | 01-2608 |
| **Client Job Site:** | Syracusa | **Lab Sample No.:** | 9523 |
| **Client Job No.:** | N/A | **Sample Type:** | Water |
| **Field Location:** | MW10 | **Date Sampled:** | 10/17/01 |
| | | **Date Received:** | 10/17/01 |
| **Field ID No.:** | N/A | **Date Analyzed:** | 10/19/01 |

| VOLATILE HALOCARBONS | RESULTS (ug/L) | VOLATILE AROMATICS | RESULTS (ug/L) |
|---|---|---|---|
| Bromodichloromethane | ND< 2.00 | Benzene | ND< 2.00 |
| Bromomethane | ND< 2.00 | Chlorobenzene | ND< 2.00 |
| Bromoform | ND< 2.00 | Ethylbenzene | ND< 2.00 |
| Carbon tetrachloride | ND< 2.00 | Toluene | ND< 2.00 |
| Chloroethane | ND< 2.00 | m,p - Xylene | ND< 2.00 |
| Chloromethane | ND< 2.00 | o - Xylene | ND< 2.00 |
| 2-Chloroethyl vinyl ether | ND< 2.00 | Styrene | ND< 2.00 |
| Chloroform | ND< 2.00 | | |
| Dibromochloromethane | ND< 2.00 | | |
| 1,1-Dichloroethane | ND< 2.00 | | |
| 1,2-Dichloroethane | ND< 2.00 | | |
| 1,1-Dichloroethene | ND< 2.00 | | |
| cis-1,2-Dichloroethene | ND< 2.00 | Ketones & Misc. | |
| trans-1,2-Dichloroethene | ND< 2.00 | Acetone | ND< 10.0 |
| 1,2-Dichloropropane | ND< 2.00 | Vinyl acetate | ND< 5.00 |
| cis-1,3-Dichloropropene | ND< 2.00 | 2-Butanone | ND< 5.00 |
| trans-1,3-Dichloropropen | ND< 2.00 | 4-Methyl-2-pentanone | ND< 5.00 |
| Methylene chloride | ND< 5.00 | 2-Hexanone | ND< 5.00 |
| 1,1,2,2-Tetrachloroethan | ND< 2.00 | Carbon disulfide | ND< 5.00 |
| Tetrachloroethene | ND< 2.00 | | |
| 1,1,1-Trichloroethane | ND< 2.00 | | |
| 1,1,2-Trichloroethane | ND< 2.00 | | |
| Trichloroethene | ND< 2.00 | | |
| Vinyl Chloride | ND< 2.00 | | |

Analytical Method: EPA 8260 ELAP ID No.: 10958

Comments: ND denotes Not Detected

**Approved By** _____
Laboratory Director

012608V1.XLS

**PARADIGM**
**ENVIRONMENTAL**
**SERVICES, INC.**

179 Lake Avenue Rochester, New York 14608 716-647-2530 FAX 716-647-3311

## Volatile Laboratory Analysis Report For Non-Potable Water

| | | | |
|---|---|---|---|
| **Client:** | DW Environmental | **Lab Project No.:** | 01-2608 |
| **Client Job Site:** | Syracusa | **Lab Sample No.:** | 9524 |
| **Client Job No.:** | N/A | **Sample Type:** | Water |
| **Field Location:** | MW11 | **Date Sampled:** | 10/17/01 |
| | | **Date Received:** | 10/17/01 |
| **Field ID No.:** | N/A | **Date Analyzed:** | 10/19/01 |

| VOLATILE HALOCARBONS | RESULTS (ug/L) | VOLATILE AROMATICS | RESULTS (ug/L) |
|---|---|---|---|
| Bromodichloromethane | ND< 2.00 | Benzene | ND< 2.00 |
| Bromomethane | ND< 2.00 | Chlorobenzene | ND< 2.00 |
| Bromoform | ND< 2.00 | Ethylbenzene | ND< 2.00 |
| Carbon tetrachloride | ND< 2.00 | Toluene | ND< 2.00 |
| Chloroethane | ND< 2.00 | m,p - Xylene | ND< 2.00 |
| Chloromethane | ND< 2.00 | o - Xylene | ND< 2.00 |
| 2-Chloroethyl vinyl ether | ND< 2.00 | Styrene | ND< 2.00 |
| Chloroform | ND< 2.00 | | |
| Dibromochloromethane | ND< 2.00 | | |
| 1,1-Dichloroethane | ND< 2.00 | | |
| 1,2-Dichloroethane | ND< 2.00 | | |
| 1,1-Dichloroethene | ND< 2.00 | | |
| cis-1,2-Dichloroethene | ND< 2.00 | Ketones & Misc. | |
| trans-1,2-Dichloroethene | ND< 2.00 | Acetone | ND< 10.0 |
| 1,2-Dichloropropane | ND< 2.00 | Vinyl acetate | ND< 5.00 |
| cis-1,3-Dichloropropene | ND< 2.00 | 2-Butanone | ND< 5.00 |
| trans-1,3-Dichloropropen | ND< 2.00 | 4-Methyl-2-pentanone | ND< 5.00 |
| Methylene chloride | ND< 5.00 | 2-Hexanone | ND< 5.00 |
| 1,1,2,2-Tetrachloroethan | ND< 2.00 | Carbon disulfide | ND< 5.00 |
| Tetrachloroethene | ND< 2.00 | | |
| 1,1,1-Trichloroethane | ND< 2.00 | | |
| 1,1,2-Trichloroethane | ND< 2.00 | | |
| Trichloroethene | ND< 2.00 | | |
| Vinyl Chloride | ND< 2.00 | | |

Analytical Method: EPA 8260 ELAP ID No.: 10958

Comments: ND denotes Not Detected

**Approved By** _____
Laboratory Director

012608V2.XLS

# PARADIGM ENVIRONMENTAL SERVICES, INC.

179 Lake Avenue
Rochester, NY 14608
(716) 647-2530 * (800) 724-1997
FAX: (716) 647-3311

## CHAIN OF CUSTODY

| REPORT TO: | INVOICE TO: | |
|---|---|---|
| COMPANY: DW Environmental | COMPANY: | LAB PROJECT #: 01-2608 / CLIENT PROJECT #: |
| ADDRESS: | ADDRESS: | |
| CITY: STATE: ZIP: | CITY: STATE: ZIP: | TURNAROUND TIME: (WORKING DAYS) |
| PHONE: 392-2820 FAX: | PHONE: FAX: | STD ☑ 5 / OTHER: ☐ 1 ☐ 2 ☐ 3 |
| ATTN: Doug | ATTN: | |
| COMMENTS: | | |

PROJECT NAME/SITE NAME: Syracusa sand + gravel

REQUESTED ANALYSIS: TCL 8260

| | DATE | TIME | COMPOSITE | GRAB | SAMPLE LOCATION/FIELD ID | MATRIX | NUMBER CONTAINERS | REMARKS | PARADIGM LAB SAMPLE NUMBER |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 10/17/01 | 1155 | | X | MW 10 | | 2 | | 95234 |
| 2 | 10/17/01 | 1145 | | X | MW 11 | | 2 | | 95244 |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |
| 5 | | | | | | | | | |
| 6 | | | | | | | | | |
| 7 | | | | | | | | | |
| 8 | | | | | | | | | |
| 9 | | | | | | | | | |
| 10 | | | | | | | | | |

**LAB USE ONLY**

SAMPLE CONDITION: Check box if acceptable or note deviation: CONTAINER TYPE: ☑ PRESERVATIONS: ☑ HOLDING TIME: ☑ TEMPERATURE: ☑ 19

| | | | |
|---|---|---|---|
| Sampled By: Jason Brown | Date/Time: 10/17/01 | Relinquished By: | Date/Time: |
| Relinquished By: | Date/Time: 10/17/01 1630 | Received By: | Date/Time: |
| Received By: | Date/Time: 10/17/01 16:30 | Received @ Lab By: | Date/Time: 10/17/01 @ 16:50 |

Total Cost:

P.I.F.

PARADIGM
ENVIRONMENTAL SERVICES, INC.
179 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

# Volatile Analysis Report for Non-potable Water

**Client:** Leader Professional Services

| | | | |
|---|---|---|---|
| **Client Job Site:** | Syracusa Sand & Gravel | **Lab Project Number:** | 02-1426 |
| | | **Lab Sample Number:** | 5351 |
| **Client Job Number:** | N/A | | |
| **Field Location:** | New Pond (Pond) | **Date Sampled:** | 06/10/2002 |
| **Field ID Number:** | N/A | **Date Received:** | 06/10/2002 |
| **Sample Type:** | Water | **Date Analyzed:** | 06/14/2002 |

| Halocarbons | Results in ug / L |
|---|---|
| Bromodichloromethane | ND< 2.00 |
| Bromomethane | ND< 2.00 |
| Bromoform | ND< 2.00 |
| Carbon tetrachloride | ND< 2.00 |
| Chloroethane | ND< 2.00 |
| Chloromethane | ND< 2.00 |
| 2-Chloroethyl vinyl ether | ND< 2.00 |
| Chloroform | ND< 2.00 |
| Dibromochloromethane | ND< 2.00 |
| 1,1-Dichloroethane | ND< 2.00 |
| 1,2-Dichloroethane | ND< 2.00 |
| 1,1-Dichloroethene | ND< 2.00 |
| cis-1,2-Dichloroethene | ND< 2.00 |
| trans-1,2-Dichloroethene | ND< 2.00 |
| 1,2-Dichloropropane | ND< 2.00 |
| cis-1,3-Dichloropropene | ND< 2.00 |
| trans-1,3-Dichloropropene | ND< 2.00 |
| Methylene chloride | ND< 5.00 |
| 1,1,2,2-Tetrachloroethane | ND< 2.00 |
| Tetrachloroethene | ND< 2.00 |
| 1,1,1-Trichloroethane | ND< 2.00 |
| 1,1,2-Trichloroethane | ND< 2.00 |
| Trichloroethene | ND< 2.00 |
| Trichlorofluoromethane | ND< 2.00 |
| Vinyl Chloride | ND< 2.00 |

| Aromatics | Results in ug / L |
|---|---|
| Benzene | ND< 0.700 |
| Chlorobenzene | ND< 2.00 |
| Ethylbenzene | ND< 2.00 |
| Toluene | ND< 2.00 |
| m,p - Xylene | ND< 2.00 |
| o - Xylene | ND< 2.00 |
| Styrene | ND< 2.00 |
| 1,2-Dichlorobenzene | ND< 2.00 |
| 1,3-Dichlorobenzene | ND< 2.00 |
| 1,4-Dichlorobenzene | ND< 2.00 |

| Ketones | Results in ug / L |
|---|---|
| Acetone | ND< 10.0 |
| 2-Butanone | ND< 5.00 |
| 2-Hexanone | ND< 5.00 |
| 4-Methyl-2-pentanone | ND< 5.00 |

| Miscellaneous | Results in ug / L |
|---|---|
| Carbon disulfide | ND< 5.00 |
| Vinyl acetate | ND< 5.00 |

ELAP Number 10958 Method: EPA 8260B Data File: 60173.D

Comments: ND denotes Non Detect
ug / L = microgram per Liter

Signature: _____
Bruce Hoogesteger: Technical Director

Chain of Custody provides additional sample information

File ID: 021426V1.XLS