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SITE ID 249: SOLVENTS & PETROLEUM SERVICE, INC.

SITE SUMMARY REPORT
REVISION 2

Onondaga Lake Project
Task 5: 104(e) Review

Site No. 734030-002
Work Assignment Number D003060-9

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1.0 SITE DESCRIPTION

In general, the information referenced in this report was obtained from the 104(e) responses of Solvents & Petroleum Service, Inc. (SPS, Company ID 2016). SPS's initial response to the joint request for information was dated April 21, 1995 (see TAMS' Completeness Review A dated October 10, 1995). NYSDEC and USEPA submitted a request for additional information to SPS on January 4, 1996. SPS provided a supplemental response dated February 2, 1996. NYSDEC solicited additional responses from SPS during a telephone conversation on June 26, 1996. The content of this conversation was documented in a letter to SPS also dated June 26, 1996. A Completeness Review B was prepared by TAMS dated August 29, 1996. A second telephone conversation between SPS and NYSDEC on September 25, 1996 clarified several questions identified in the Completeness Review B Report. A copy of a groundwater summary report and work plan for the groundwater investigation was obtained from the NYSDEC Region 7 Syracuse Office.

1.1 Location

The SPS facility is located at 1405 Brewerton Road, in the Town of Salina, Onondaga County, New York. The location of the SPS facility in relation to Onondaga Lake is shown in Figure 1. A detailed site map is included as Figure 2. This map was included as Attachment 2 in the SPS Supplemental Response dated February 2, 1996 (p. 000277) and has been updated by NYSDEC personnel to indicate the final locations and designations of the four monitoring wells.

1.2 Geology

The surficial geology of the Syracuse area was strongly influenced by the most recent glacial advance (Wisconsin age, 12,000 to 14,500 years ago). Syracuse occupies a region that was

covered by Lake Iroquois, a large glacial lake situated in front of the ice margin. The broad flat-lying plains situated from Syracuse north to Lake Ontario were formed beneath Lake Iroquois and are characterized by lacustrine fine sand and silt deposits. Additional glacial features which are common to the region are moraines, drumlins, U-shaped valleys and meltwater channels. The last of these features is important in understanding the geology at the SPS site. Onondaga Lake and all its major tributaries lie within glacial meltwater channels. These features originally formed as a conduit to carry meltwater away from the glacier. They typically transmitted large volumes of water at high velocities. Sediment types characteristically found in meltwater channels are sands and gravels. In the Syracuse region, these relict features form important water bearing and transmitting units which lie in an irregularly branching, net-like pattern throughout the area.

The bedrock geology of the greater Syracuse area includes Lower to Middle Paleozoic age sedimentary rocks predominated by carbonate (dolostone and limestone) and shale and containing some sandstone, siltstone and evaporites. Bedrock directly beneath the SPS site in Syracuse (as well as underneath Onondaga Lake) is the Silurian Vernon Shale (Rickard and Fischer, 1970) which has low permeability, but does possess secondary porosity due to fractures.

1.3 Hydrogeology

As shown in the topographic map provided by SPS (p. 000278), surface elevations at the site range from approximately 371 ft to 377 ft NGVD. No boring logs were provided by SPS for their site. In the absence of site-specific information, the site is expected to be underlain by either glacio-lacustrine sediment and glacial till or outwash sand and gravel deposits associated with glacial meltwater channels. The presence of fill material at this site is unknown. The generally fine-grained nature of glacio-lacustrine sediment and glacial till

suggests a low hydraulic conductivity while the sand and gravel deposits would be expected to possess a higher hydraulic conductivity.

An O'Brien & Gere groundwater contour map dated July 11, 1996, based on measurements for June 13, 1996, was included in the NYSDEC September 30, 1996 correspondence to TAMS (p.000293). The contour map indicated that groundwater flow at the site is to the north towards an abandoned tributary of Ley Creek (see Section 1.4 for a description of this abandoned tributary). The hydraulic gradient was calculated at 0.035. As shown on the groundwater contour map, groundwater is 4 ft to 5 ft below ground surface at the site.

1.4 Surface Water Hydrology

Stormwater at the site is managed through the use of paved areas and dikes. The entire site is paved with 8-inch thick reinforced concrete. Low areas are bermed. All tank areas and waste storage areas are self-contained to prevent stormwater run-on as are the loading/unloading areas. Stormwater will collect in the low areas of the site. Valves in these areas remain closed at all times but can be opened to discharge uncontaminated stormwater. Following collection of precipitation, the area is inspected for spills or releases. Stormwater that collects in the diked area is visually inspected by SPS personnel for solvent floating on the surface or settled at the bottom of the water column. If stormwater quality is deemed acceptable (visually clear and odor free), the stormwater valves are opened and collected rainwater is released (p. 000046). Site drawings indicate that the lowest area at the site is adjacent to the dike along the northern property boundary which abuts an abandoned tributary of Ley Creek. According to SPS, the portion of Ley Creek near the site was "channeled" in the 1960s (p. 000275). As a result of the channelization in Ley Creek, this unnamed tributary lost its flow. This abandoned tributary currently functions as a drainage ditch which connects to Ley Creek northwest of the site. The actual course of the abandoned tributary is unknown. Ley Creek is approximately 600 ft northwest of the site. A telephone

conversation between NYSDEC and SPS on September 25, 1996 confirmed that SPS uses the ditch for management of stormwater.

2.0 SITE HISTORY

2.1 Owners/Operators

In the 1940s, the site was occupied by a gas station, car repair and car wash which occupied Building 2. In 1954, M.V. Whitaker relocated to the site and constructed Building 1. M.V. Whitaker delivered virgin solvents to local clients. These two companies coexisted at the site until the early 1970s, at which time the gas station closed and the underground storage tanks (USTs) were removed. M.V. Whitaker expanded their operation to include Building 2 for solvent storage. SPS was incorporated in New York State as a virgin solvents distributor in 1977. In 1980, SPS applied for status as a Treatment, Storage and Disposal Facility (TSDF) and transporter of hazardous waste (pp. 000028 and 000275).

2.2 Site Operations

SPS is a distributor of organic and chlorinated solvents to industries in the Central New York region. Solvents are stored in above-ground steel or stainless steel tanks. In 1979, operations were expanded to include the collection and storage of drummed spent solvents from existing customers. SPS is strictly a storage facility for hazardous wastes with no on-site processing or disposal of hazardous wastes. SPS has a NYS Waste Haulers Permit.

In 1981, SPS applied for and received a Permit to Operate a Solid Waste Management Facility from NYSDEC. SPS also has a USEPA RCRA Part B Permit, identification number NYD013277-454.

2.3 Generation and Disposal of Wastes

SPS operates as a distributor of virgin solvents and as a TSDF. SPS services many companies in upstate New York over a wide geographic area. Included in the SPS response was a copy of their 6NYCRR Part 373 Permit Application dated June 1991 prepared by O'Brien & Gere. A table in this document listed the companies, by name and city, utilizing the SPS hazardous waste handling service. The table appears to be a current client list as of 1991. However, the list may not include all the companies in the Onondaga Lake basin that have manifested hazardous waste to SPS during the period the company has operated as a TSDF (1980 through the present). The list includes the following 104(e) companies:

- Anaren Microwave (Company ID 2030);
- Anoplate Corporation (Company ID 2031);
- Pass & Seymour (Company ID 2042);
- R.E. Dietz (Company ID 2043); and,
- Smith Corona (Company ID 2044). Waste shipped from the Cortland, NY facility, which is out of the basin.

For information on the type(s) of hazardous waste shipped to SPS by the above companies, please refer to the individual companies' 104(e) responses.

Hazardous wastes are temporarily stored on-site prior to off-site disposal. Hazardous wastes are stored in three areas: a storage area for non-ignitable containerized wastes (Building 2), a storage area for ignitable containerized wastes (Building 1), and four 5,000 gallon transfer tanks. The four 5,000 gallon tanks are used to store the following hazardous wastes: flammable waste liquid, waste trichloroethene (TCE), waste 1,1,1-trichloroethane, and the fourth tank is held in reserve for emergencies. The non-ignitable storage area has a capacity of 40 55-gallon drums. The ignitable storage area (Building 1) has a capacity of 20 55-

gallon drums. All wastes are received by SPS in drums. SPS personnel manually transfer liquids from the drums to the four 5,000 gallon waste storage tanks (pp. 000036 - 000063). SPS has specific written procedures which are used when commingling wastes from various clients.

When sufficient quantities of waste have accumulated, the material is shipped via a registered waste hauler to a USEPA and NYSDEC permitted recycler (p. 000072). At this point SPS becomes a hazardous waste generator.

All wastes shipped off-site are sent to reclamation facilities or fuel blending operations. SPS listed six facilities that receive hazardous waste shipments from their facility (p. 000113). These include:

- Safety-Kleen Corporation, Hebron, Ohio;
- Safety-Kleen Corporation (McKesson Envirosystems Co.), New Castle, Kentucky;
- General Chemical Corporation, Framingham, Massachusetts;
- Norlite Corporation, Cohoes, New York;
- Frontier Chemical Waste Process, Inc., Niagara Falls, New York; and,
- Marine Shale Processors, St. Rose, Louisiana.

SPS stated in a June 26, 1996 telephone conversation with NYSDEC that the following primary companies were used in the past to transport hazardous wastes:

- General Chemical (transported to Framingham, MA);
- J.B. Hunt (transported to Ameile, LA); and,
- Frank's Vacuum Service (transported to Niagara Falls, NY).

In addition, several other small carriers were used, all of whom transported material out of state (p.000279).

3.0 POTENTIAL PATHWAYS FOR RELEASE OF HAZARDOUS SUBSTANCES TO THE LAKE SYSTEM

3.1 Soil

Analytical soil data was not included by SPS in their response to the Joint Request for Information. The USTs associated with the former gasoline station which occupied the southern portion of the site from the 1940s to the early 1970s were reportedly removed when the station was closed. The exact locations of the former USTs are unknown. It is unlikely that post-excavation soil samples were collected at the time of UST closure.

In 1994, during the excavation of a trench on SPS property by personnel from Niagara Mohawk Power Corporation, workers noted gasoline contaminated soil in the vicinity of the former gas station USTs (p. 000288).

3.2 Surface Water

The nearest surface water to the site is Ley Creek, located approximately 600 ft northwest of the site. A former tributary of Ley Creek borders the northern property line near the dike. SPS reported that in the 1960s, Ley Creek was "channeled". As a result of the channeling, the tributary adjacent to the SPS site lost its flow (p. 000275). Currently, the former tributary acts as a drainage ditch which conveys stormwater runoff from the SPS site to Ley Creek northwest of the site. SPS reported that on occasion, Ley Creek backs up into the ditch (September 25, 1996 NYSDEC telephone conversation with SPS).

3.3 Groundwater

SPS reported that after USEPA and NYSDEC Facility Assessments were conducted in 1991 and 1992, the company voluntarily initiated a "Groundwater Demonstration Project". The project consisted of the installation of four shallow groundwater monitoring wells. The locations of the monitoring wells are depicted on Figure 2 and the drainage ditch is located north of northern property line near monitoring well MW-4S and the dike. Groundwater level measurements indicate that shallow groundwater flow is to the north, towards the drainage ditch, with MW-1S located in the most upgradient position and MW-4S in the most downgradient position.

Groundwater samples were collected for chemical analysis in 1993, 1994, 1995, and 1996. A copy of an O'Brien & Gere analytical summary data table is included as Table 1 (p. 000293). Groundwater samples were analyzed only for volatile organic compounds (VOCs) and petroleum hydrocarbons including gasoline, lubricating oil, and diesel fuel. The analytical results for each of the four sampling years report similar analytes and concentration levels. Analytical results for monitoring well MW-1S reported benzene, toluene, ethylbenzene and xylenes (hereafter referred to as BTEX) at concentrations significantly above NY State groundwater standards. The primary petroleum hydrocarbon component identified was gasoline. Minor exceedances of several VOCs including benzene, vinyl chloride, 1,2-dichloroethene (1,2-DCE), and 1,1-dichloroethane (1,1-DCA) were reported in monitoring wells MW-2S and MW-3S. Exceedances of vinyl chloride, chloroethane and 1,2-DCE, which O'Brien & Gere classified as degradation products, were reported in monitoring well MW-4S. O'Brien & Gere concluded that some biodegradation and dispersion of compounds was occurring and recommended further groundwater monitoring and the initiation of a groundwater remediation demonstration project (p.000290). It should be noted that semi-volatile organic compounds, metals and PCBs were not analyzed in the groundwater samples.

Another potential source of groundwater contamination at the SPS site is the leach field associated with the septic tank. The system was recently upgraded in 1987, when a new concrete 1,000 gallon septic tank was installed along with a new leach field. The septic tank is currently connected to Building 1. SPS did not include analytical soil or groundwater data in the vicinity of the leach field.

There is no mention of how sanitary wastes were handled at the former gasoline station which occupied Building 2 from the 1940s to the early 1970s. Building 2 is the older of the two structures at the site and was constructed in the 1940s. It was originally occupied by the gasoline station and later by M.V. Whitaker. Building 1 was constructed by M.V. Whitaker in 1954. It is unlikely that these two buildings shared the same septic system given that the current septic tank is over 150 ft from Building 2. The location of the cesspool or septic tank associated with Building 2 is unknown.

Additionally, site diagrams for Building 2 indicate a former floor drain. This floor drain was sealed by SPS in 1990. The outfall of this floor drain is unknown. It most likely was connected to either the cesspool/septic tank associated with Building 2 or a dry well. It is possible that prior to sealing the floor drain in Building 2 that petroleum waste products from the service station, or solvent spills from M.V. Whitaker and/or SPS entered this floor drain and eventually reached the groundwater.

3.4 Air

Solvents at the SPS facility are stored in unpressurized above-ground storage tanks. All transfer of liquid material is also performed in the open air. These practices allow for the vaporization of both virgin and spent solvents during storage at the site. The primary concern for air emissions from the SPS site would be the formation of carbon dioxide, carbon monoxide, hydrochloric acid and carboxylic acid in the atmosphere. However, the

contribution to atmospheric contamination of these compounds from SPS would most likely be insignificant. Air emissions do not appear to be a significant pathway for contamination.

3.5 County Sewer System

SPS is not connected to the municipal sanitary sewer system. The site utilizes a septic tank and leach field for disposal of sanitary wastes.

4.0 LIKELIHOOD OF RELEASE OF HAZARDOUS SUBSTANCES TO THE LAKE SYSTEM

4.1 Documented Releases

Historical Releases

According to SPS, there were no historic releases of contaminants to the environment during the years that SPS operated in the Syracuse area (1977 to present). All regulated hazardous wastes were properly manifested for off-site reclamation or fuel blending. All sanitary wastes were disposed through the septic tank and leach field.

Since 1985, two minor spills have been reported at the site. Both spills involved less than 100 gallons of solvents and were reported to NYSDEC. The spills were contained and cleanups were performed by SPS.

There is no information on the operation of M.V. Whitaker concerning spills or leaks (p. 000280).

Similarly, SPS did not provide any information on spills or releases from the former gasoline station at Building 2. It is evident from the levels of contamination reported in the groundwater samples collected from monitoring well MW-1S that the former USTs either leaked or a significant spill(s) occurred in connection with the former gasoline tanks.

Ongoing Releases

Soil contamination associated with the former gasoline service station USTs continues to impact groundwater quality beneath the site. Annual groundwater monitoring reports from

the past four years indicate that contaminant levels have remained relatively constant (MW-1S, Table 1). In a letter to NYSDEC dated August 30, 1996, O'Brien & Gere (pp. 000288 to 000293) recommended that SPS proceed with a groundwater remedial demonstration project to address the source of gasoline contamination reported in groundwater at MW-1S.

The presence of vinyl chloride, chloroethane and 1,2-DCE in monitoring well MW-4S indicates that a second unidentified groundwater contaminant source may be present in the central portion of the site. These three compounds were not detected in monitoring well MW-1S.

Data on additional potential parameters of concern, including semi-volatile organic compounds, metals and PCBs were not provided.

4.2 Threat of Release to the Lake System

4.2.1 Extent of Site Contamination

The extent of subsurface soil contamination cannot be evaluated at this time as there are no soil data to review. Groundwater analytical data are only available for a limited number of parameters in four monitoring wells. There are insufficient data points to contour the extent of contamination. The extent of groundwater contamination can only be discussed in general terms in that BTEX contamination appears to be localized in the vicinity of the former gasoline service station USTs (near MW-1S). Contaminant levels at monitoring wells MW-2S and MW-3S reported minor exceedances.

Groundwater contaminant levels are increasing in downgradient monitoring well MW-4S, as evidenced by the concentrations of vinyl chloride and 1,2-DCE during the 1995 and 1996 sampling events (Table 1). O'Brien & Gere has attributed this to biodegradation and

dispersion but did not identify the source or location of the parent chlorinated compounds (p. 000290). Gasoline fuels and motor oils typically do not contain chlorinated compounds and chlorinated compounds were not reported in groundwater samples collected from monitoring well MW-1S, near the location of the former gasoline station USTs. If the vinyl chloride and 1,2-DCE reported at MW-4S are degradation products, the parent source of these chlorinated compounds does not appear to be related to the former gasoline station contamination. It is possible that the source is located between MW-1S and MW-4S.

4.2.2 Migration Potential of Contaminants

The primary contaminants reported in groundwater at the site are volatile organics, mainly BTEX and several chlorinated compounds such as vinyl chloride, chloroethane and 1,2-DCE. Petroleum hydrocarbon scans reveal that gasoline is the primary source of volatile organic contamination noted at monitoring well MW-1S. These compounds have a very high dispersion potential. Monitoring well MW-4S appears to be immediately adjacent to the drainage ditch which is connected to Ley Creek. As groundwater is very shallow at the site, between 3 ft and 5 ft below ground surface, groundwater could be expected to enter the ditch during high groundwater events, such as rain or seasonal high water table. Once in the drainage ditch, the contaminants will enter the surface water and move quickly into Ley Creek which is approximately 600 ft northwest of the site. From the confluence of the drainage ditch with Ley Creek, Onondaga Lake is approximately 8,000 ft to 9,000 ft downstream.

As the former gasoline station is the likely source of the BTEX groundwater contamination reported at monitoring well MW-1S, tetraethyl lead is also a potential contaminant of concern. All automotive gasoline sold in the United States prior to mid-1970s contained tetraethyl lead. However, the quantity of tetraethyl lead in the groundwater cannot be

evaluated as it was not included in the list of parameters analyzed during groundwater sampling events.

5.0 POTENTIAL FOR ADVERSE IMPACTS TO LAKE SYSTEM DUE TO A RELEASE OR THREAT OF A RELEASE

The potential for groundwater contamination to have reached the Lake system is difficult to evaluate based on the limited monitoring well data collected to date. There are insufficient data points to contour the current groundwater contamination throughout the site. In addition, there is no analytical data from the abandoned tributary to evaluate sediment quality and potential off-site impacts from historic releases. Given that the gasoline service station has been closed since the 1970s, the initial spill/release from the USTs is at least twenty years old. It is possible that dissolved contaminants from the initial spill/release migrated off-site and entered the abandoned tributary north of the site which drains into Ley Creek. Although contaminant levels are significantly above NY State groundwater standards in upgradient monitoring well MW-1S, any recent off-site migration of gasoline-related contaminants appears to be low as exhibited in the groundwater analytical data for the perimeter monitoring wells including MW-4S which is adjacent to the drainage ditch.

5.1 Hazardous Substance Characteristics

The primary contaminants of concern are BTEX compounds based on elevated concentrations reported in groundwater samples collected from monitoring well MW-1S. Minor exceedances of the NY State groundwater standards were reported for other VOCs including vinyl chloride, chloroethane, 1,2-DCE, 1,1-DCA, and TCE. Vinyl chloride and 1,2-DCE appear to be increasing in concentration at downgradient monitoring well MW-4S with time.

Virgin organic and chlorinated solvents have been handled at the site since 1954, first by M.V. Whitaker, and since 1977 by SPS. Since 1980, SPS has also handled spent solvents. With the exception of the groundwater investigation related to the former gasoline service

station USTs, there has been no significant chemical characterization of the soil or groundwater to evaluate potential impact from historic site operations related to either virgin or spent solvents. Virgin solvents currently stored at the facility include: painter's naphtha, stoddard solvent, tetrachloroethene, chloroethene, TCE, charcoal lighter, and paint thinner (p. 000160). Waste solvents are commingled at the site and stored in above ground tanks or drums. It is possible that these solvents have spilled and/or leaked into the soil and groundwater during the tenure of these two occupants. Chlorinated hydrocarbons have been reported in monitoring wells MW-2S, MW-3S, MW-4S, but a source area has not been established.

Mobility

Volatile organics rapidly volatilize into the atmosphere where photooxidation produces hydrochloric acid, carbon monoxide, carbon dioxide and carboxylic acid. In surface waters, dissolved VOCs will rapidly volatilize into the atmosphere where photooxidation will occur. In soil, BTEX compounds are considered very mobile under most subsurface conditions and will readily leach into groundwater. Solubilities for benzene, ethylbenzene, toluene and xylene are relatively high, giving these compounds a high mobility in groundwater.

Toxicity

Epidemiological studies have linked benzene with lukemias, and it is classified as a suspected human carcinogen. Chronic exposure to benzene primarily effects the blood-forming tissues, resulting in increased blood counts, followed by aplastic anemia. Prolonged exposure to chlorobenzenes may cause liver and kidney damage. Dichloroethane is classified as a suspected human carcinogen. Chronic exposure to dichloroethane may result in effects on the kidney, liver, and adrenal glands. Ethylbenzene has been shown to be teratogenic in laboratory animals. Toluene is not classified as a carcinogen in humans or

animals. Chronic exposures to toluene can result in effects on the liver, kidneys, and central nervous system. No carcinogenic effects have been documented for xylenes; possible teratogenic effects have been observed. Chronic exposure to xylenes can result in effects on the liver, kidneys, and central nervous system. Vinyl chloride is a human liver and a brain carcinogen. Tumors have been reported in other organs such as the lung, kidneys and lymphatic and nervous systems.

A discussion of aquatic toxicity to fish and wildlife is not provided herein since no sediment or surface water data were provided for the drainage ditch or Ley Creek.

Persistence

In surface waters and near-surface soils, VOCs will predominantly volatilize into the atmosphere where they rapidly degrade. In subsurface soils where volatilization does not readily occur, VOCs are much more persistent. VOCs will also leach from soils into groundwater. Once in groundwater, VOCs will not readily volatilize and are relatively persistent.

Bioaccumulation

The potential for bioaccumulation of benzene, xylenes and other VOCs has been found to be low. Toluene has not been found to bioaccumulate (USEPA, December 1979).

5.2 Quantity of Substance

The quantity of VOCs from groundwater at the SPS site entering the waters of Onondaga Lake is difficult to quantify as the initial spill/leak from the former gasoline station USTs went undetected for nearly two decades. Current groundwater chemical data is insufficient

to contour an accurate map of subsurface contamination; therefore, an estimate of the total amount of contaminants in the groundwater cannot be made. It is unknown as to whether the release from the USTs was a slow minor leak over an extended time frame, possibly several years, or a larger, more instantaneous release. This would affect the initial concentrations of contaminants in groundwater and the migration potentials for individual compounds. A slower, minor leak over an extended period of time would allow dispersion and biodegradation to reduce the total concentrations of contaminants in groundwater, whereas a more instantaneous release would increase the initial concentrations of contaminants in the groundwater.

5.3 Levels of Contaminants

In 1992, SPS implemented a Groundwater Demonstration Project to investigate potential impacts to groundwater as a result of historic operations at the site. Groundwater samples have been collected at the site on an annual basis since 1993. The SPS submission included the analytical results from each groundwater sampling event from 1993 through 1996. These data indicate that the highest levels of contaminants are present at monitoring well MW-1S. MW-1S is located in the vicinity of the former gasoline station USTs. Benzene has been reported at concentrations ranging from 1,800 micrograms per liter (µg/L) to 2,700 µg/L. Toluene has been reported at concentrations ranging from 140 µg/L to 350 µg/L. Ethylbenzene has been reported at concentrations ranging from <100 µg/L to 780 µg/L. Xylenes have been reported at concentrations ranging from 1,300 µg/L to 3,800 µg/L. The NY State groundwater standards for each of these parameters are 5 µg/L or less. Chlorinated compounds (vinyl chloride, 1,2-DCE, 1,1-DCA, and TCE) were not detected at this monitoring well from July 1993 to June 1996.

The analytical results from monitoring well MW-2S reported minor exceedances of VOCs, which for the most part appear to be decreasing in concentration. Benzene has been reported

at concentrations of <1 μg/L to 10 μg/L (0.7 μg/L standard). Vinyl chloride has been reported at concentrations ranging from <1 μg/L to 20 μg/L (2 μg/L standard), and appears to be decreasing in concentration with time. 1,2-DCE and 1,1-DCA were reported slightly above the NY State groundwater standards (5 μg/L) in 1993 and 1994 but were reported below the standards in 1995 and 1996.

Analytical results from monitoring well MW-3S reported VOCs below the method detection limits for groundwater samples collected during 1993. The 1994 analytical results reported a minor exceedance of benzene. Results from 1995 groundwater samples reported trace amounts of 1,2-DCE. The 1996 analytical results reported a minor exceedance of benzene and a significant increase in the concentration of 1,2-DCE, which O'Brien & Gere believes is indicative of natural biodegradation (p. 000290).

Monitoring well MW-4S is located in the most downgradient position of the four monitoring wells. Analytical results reported minor exceedances of benzene, xylene, chloroethane and trichloroethene. During the four year monitoring period, the concentrations of vinyl chloride and 1,2-DCE have increased significantly.

O'Brien and Gere have attributed the presence of chlorinated compounds such as vinyl chloride, 1,2-DCE and 1,1-DCA reported in monitoring wells MW-2S, MW-3S and MW-4S to biodegradation and dispersion processes. However, they do not specify the source or location of these contaminants. It is significant to note that these chlorinated compounds were not detected in monitoring well MW-1S. Therefore, it is unlikely that the former USTs are the source of these chlorinated compounds. It appears that the source of these chlorinated compounds is from a location downgradient of MW-1S that would allow it to disperse to the other three monitoring wells. A likely source of these chlorinated compounds would be leaks and/or spills of the virgin and spent solvents that have been historically

handled at the site. However, soil and groundwater samples have not been collected from the central portions of the site to evaluate the potential impacts from historic site operations.

5.4 Impacts on Special Status Areas

The nearest wetland is approximately 4,000 ft northwest of the site along Beartrap Creek. However, Beartrap Creek flows into Ley Creek downstream of the SPS site, so that any contamination in Ley Creek from the SPS site would continue to flow towards Onondaga Lake and not upstream into the wetlands along Beartrap Creek. The nearest downstream wetland area is approximately 5,000 ft southwest of the site along Ley Creek. There are no New York State "Natural Heritage Sensitive Elements" near the site.

Ley Creek, from Onondaga Lake upstream to the confluence with Beartrap Creek is a Class C waterbody. Ley Creek upstream of the confluence with Beartrap Creek is a Class B waterbody and is thus considered a protected stream in New York State. The abandoned tributary adjacent to the SPS site connects with the Class B portion of Ley Creek approximately 2,000 ft to 3,000 ft upstream of the confluence with Beartrap Creek. Current surface water maps do not indicate the exact location of the former tributary. SPS stated that the tributary connected with Ley Creek northwest of the site (p. 000281). No analytical sediment data from the adjacent abandoned tributary was included in the SPS submissions. Therefore, the potential impact from contaminated sediments, if present, on the Class B portion of Ley Creek cannot be evaluated.

6.0 SUMMARY OF CONCERNS

The O'Brien & Gere groundwater monitoring reports state that compounds such as vinyl chloride, 1,2-DCE and chloroethane are degradation products (pp. 000284 and 000290). What is not stipulated in these reports is the location or source of these chlorinated compounds. The contamination reported at monitoring well MW-1S contains mostly BTEX compounds and is consistent with the type of contaminants that would be expected from leaking gasoline service station USTs. What is not present in the contaminated groundwater at monitoring well MW-1S is a source of chlorinated compounds, such as tetrachloroethene or TCE, which could biodegrade to vinyl chloride, 1,2-DCE and chloroethane and migrate towards monitoring well MW-4S.

M.V. Whitaker occupied Building 1 from 1954 to 1976 and used the northeastern portion of the property to store virgin solvents. SPS currently uses Building 1 for storage of ignitable containerized hazardous waste. The SPS virgin materials tanks are located immediately west of Building 1 in the central portion of the site. According to groundwater contour data included in the SPS submissions, monitoring well MW-4S is downgradient of these two areas. If chlorinated solvents were present in the soils and groundwater beneath Building 1 or the virgin materials tanks, groundwater flow would carry this contamination towards monitoring well MW-4S. The increasing contaminant concentrations reported for vinyl chloride and 1,2-DCE reported in monitoring well MW-4S could indicate the leading edge of a chlorinated solvent plume emanating from the central portion of the site which is undergoing biodegradation on its leading edge. Thus, the specific source and location of these contaminants is still unknown.

There is very little information concerning the operations of M.V. Whitaker which occupied this property prior to 1977. This operation may have had a more pronounced impact on Ley Creek when the former tributary was flowing prior to the 1960s. Hazardous chemical

storage and handling practices were not as stringent during the tenure of M.V. Whitaker as is currently required for SPS. In response to RCRA, SPS paved the entire site, covered all tanks and loading areas, diked all tanks and loading/unloading pads, and bermed low-lying areas to contain any spills. Without the paved work areas, dikes and secondary containment systems installed by SPS, any spills and/or leaks that may have occurred during the tenure of M.V. Whitaker could have impacted the soils and groundwater at the site and possibly the tributary flowing to Ley Creek.

The soils beneath the former septic tank leach field adjacent to Building 1 have not been investigated. If soil contamination is present in this area, it could pose a further ongoing source of groundwater contamination.

Similarly, there is very little information concerning the operations of the former gasoline station that occupied the southern portion of the site. The gasoline station was in operation from the 1940s until the early 1970s. Groundwater analytical data clearly indicate that the former USTs leaked. However, it is unknown when the leak began. This contamination has had over twenty years to dissipate through off-site migration and biodegradation since the station was closed in the early 1970s. The channelization of Ley Creek and the subsequent termination of flow in the former tributary of Ley Creek adjacent to the site most likely had a significant impact on the hydrologic regime at the site. The alteration of the groundwater flow regime could have affected the migration potential of dissolved contaminants that leaked from the former USTs.

Site drawings depicted a floor drain in Building 2. SPS stated that this drain was sealed in 1990. What is still unanswered in regards to this floor drain is the location of the outfall. Building 2 has been used by the former gasoline station, M.V. Whitaker and SPS. If this drain was connected to a cesspool or septic system at the site, it could have been a potential pathway for contaminants to enter the groundwater. Another possibility is that the floor

drain was connected to a dry well, which would also provide a potential pathway for contaminants to enter the groundwater. A third possibility is that the drain discharged directly into the former tributary of Ley Creek, providing a direct pathway for contaminants to enter surface water and flow into Onondaga Lake. However, this third possibility is rather unlikely as the distance from the floor drain in Building 2 to the tributary is at least 200 ft.

The potential for contaminants to have entered the former tributary adjacent to the site is significant. However, there is no analytical data to evaluate the sediment in the former tributary. If these sediments are contaminated, they could pose a continuing source of surface water contamination as this abandoned tributary still acts as a drainage ditch during precipitation events.

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SOLVENTS & PETROLEUM SERVICES, INC.
TABLE 1 - ANALYTICAL COMPARISON

		MW-1S					MW-2S					MW-3S					MW-4S				
Analyte	Reg. Limit*	7/1/93	5/26/94	8/2/94	7/12/95	6/13/96	7/1/93	5/26/94	8/2/94	7/12/95	6/13/96	7/1/93	5/26/94	8/2/94	7/12/95	6/13/96	7/1/93	5/26/94	8/2/94	7/12/95	6/13/96
Benzene	0.7	2500	2300	not analyzed	1800	2700	8	3.5	NS	<1	10	<1	1.7	not analyzed	<1	1	<1	2	not analyzed	<10	4
Toluene	5.0	350	300	not analyzed	140	220	4	<1	NS	<1	<1	<1	<1	not analyzed	<1	<1	<1	<1	not analyzed	<10	<10
Ethlybenzene	5.0	730	630	not analyzed	<100	780	<1	<1	NS	<1	<1	<1	<1	not analyzed	<1	<1	<1	<1	not analyzed	<10	<10
Xylenes	5.0	3800	1300	not analyzed	1500	1900	<3	<2	NS	<3	<3	<3	<2	not analyzed	<3	<3	4	<2	not analyzed	<30	2
Vinyl Chloride	2.0	<100	<5	not analyzed	<100	<100	20	7.3	NS	<1	2	<1	<5	not analyzed	<1	1	13	2.4	not analyzed	78**	210
Chloroethane	5.0	<100	<5	not analyzed	<100	<100	3	1.8	NS	2	<1	<1	<1	not analyzed	<1	<1	15	<1	not analyzed	<10	19
1,2-DCE	5.0	<100	<5	not analyzed	<100	<100	12	6.4	NS	<1	<1	<1	<1	not analyzed	4	45	89	15	not analyzed	110	180
1,1-DCA	5.0	<100	<5	not analyzed	<100	<100	18	9.4	NS	2	3	<1	<1	not analyzed	<1	<1	3	1.2	not analyzed	<10	<10
TCE	5.0	<100	<5	not analyzed	<100	<100	<1	<1	NS	<1	<1	<1	<1	not analyzed	<1	2	8	3.3	not analyzed	<10	<10
Gasoline	NA	33000	4000	6300	22000	30000	<100	<100	NS	<100	<100	<100	<100	ND	<100	<100	<100	NS	ND	<100	<100
Lubricating Oil	NA	not analyzed	390	ND	not analyzed		not analyzed	<200	NS	not analyzed		not analyzed	620	ND	not analyzed		not analyze	NS	1500	not analyzed	
Diesel	NA	not analyzed	<100	ND	not analyzed		not analyzed	<100	NS	not analyzed		not analyzed	<100	560	not analyzed		not analyze	ND	ND	not analyzed	

Results in ppb (ug/l)

* New York State ground water/drinking water standards

** The value reported for vinyl chloride in Sample MW-4S may represent vinyl chloride, dichlorodifluoromethane, or any combination of the two compounds.

NA - Not Applicable

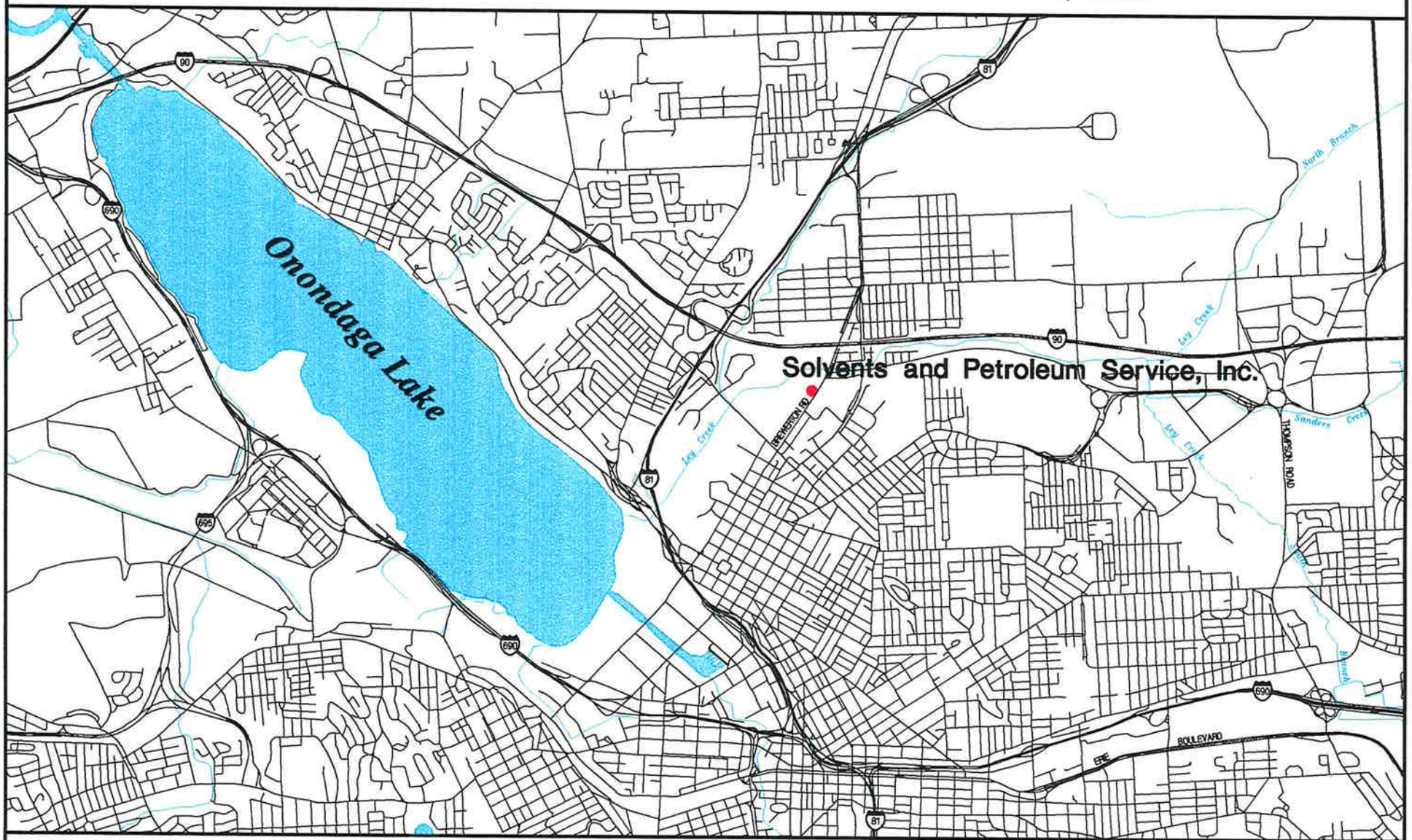
ND - Not Detected

NS - Not Sampled

I:\dbv10\proj\2338012\reports\scsgwtab.wb2

Source:
NYSDEC Region 7 Syracuse Office

Site Location: Solvents and Petroleum Service, Inc.



Site Location

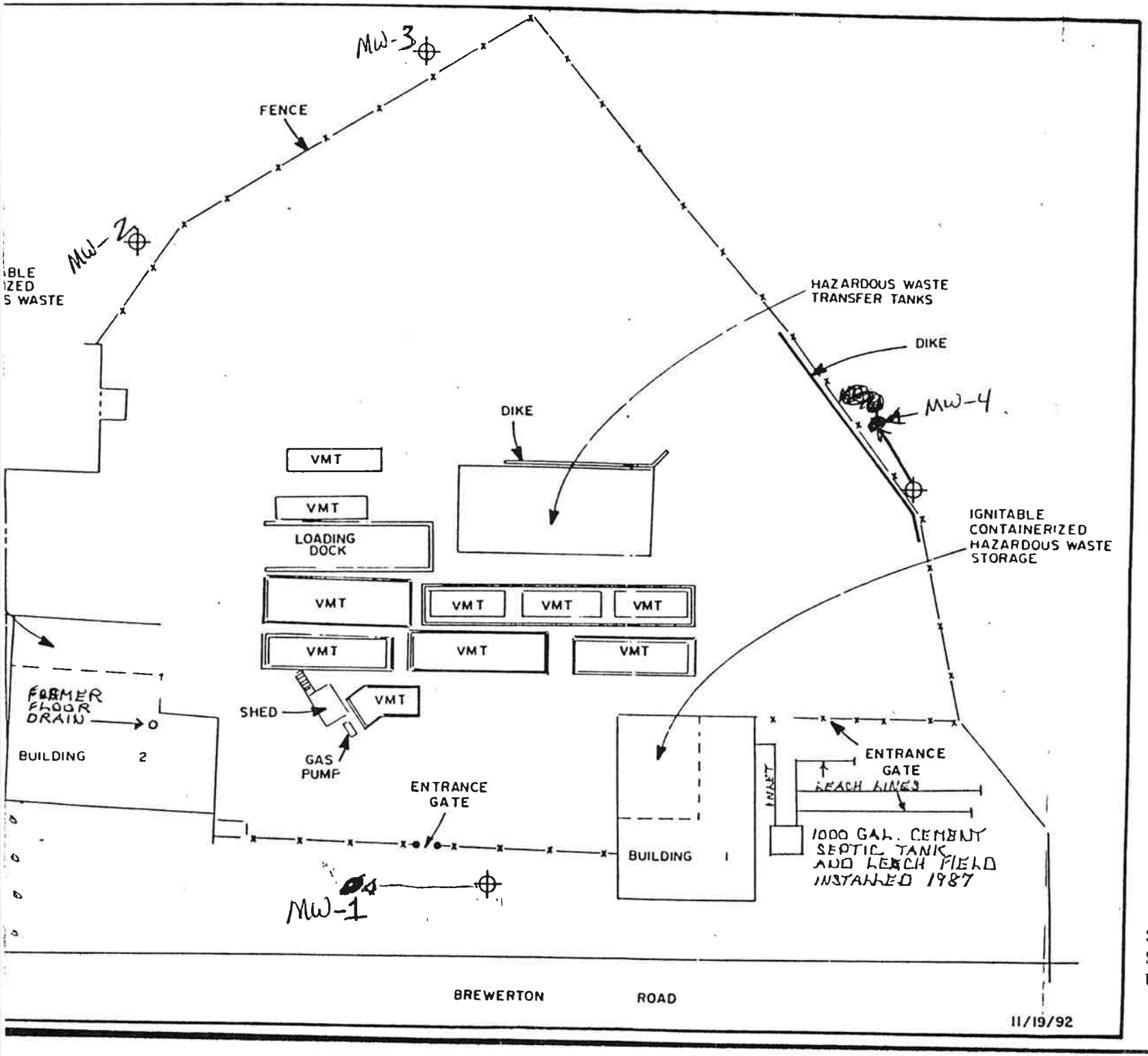
5000 0 5000
Scale In Feet

1500 0 1500
Scale In Meters

N

TAMS

Figure 1



SOLVENTS AND PETROLEUM
SERVICE INC.
SYRACUSE, N.Y.

FIGURE 2

SPS SITE INVESTIGATION
MAP

LEGEND

VMT VIRGIN MATERIAL TANKS

PROPOSED MONITORING
WELL LOCATIONS

0 23 46
SCALE IN FEET

Source:
SPS 2/2/96 Supplemental Response
Updated by NYSDEC

O'BRIEN & GERE