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Occidental Chemical Corporation

PRELIMINARY SITE ASSESSMENT FINAL REPORT

Former Diamond Shamrock Site
Lockport, New York
NYSDEC Site No. 932071

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MARCH 1995

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EXECUTIVE SUMMARY

The former Diamond Shamrock Site (Site) is located on Ohio Street in Lockport, New York. Occidental Chemical Corporation (OxyChem) acquired the Site in 1986 from Diamond Shamrock Corporation. Portions of the original Site were sold by both Diamond Shamrock Corporation and OxyChem. Two areas of the Site were used for the disposal of coal ash and cinders and alkaline (high pH) sodium silicate tank bottoms. The Site has been listed by the New York State Department of Environmental Conservation (NYSDEC) in New York State's Registry of Inactive Hazardous Waste Disposal Sites as Site Number 932071. The NYSDEC has given the Site a "2a" classification which is a temporary classification indicating that there is insufficient information to document hazardous waste disposal and/or to assess the significance of potential risks to public health or the environment.

OxyChem voluntarily agreed to perform a Preliminary Site Assessment (PSA) to gather data to enable the characterization of hazardous wastes, if any, which may be present at the Site and to determine whether such wastes constitute a significant threat to public health or the environment. The PSA was performed in accordance with the approved PSA Work Plan, dated April 15, 1994, and with the terms and conditions specified in an Order on Consent (Index B9-0443-93-11) executed by OxyChem and the NYSDEC. Implementation of the PSA Work Plan began in June 1994, and field activities were completed in January 1995.

The PSA field investigation activities were conducted in several phases beginning in June 1994 and included the following tasks:

i) preparation of a comprehensive Site Plan which delineates the Site topography, Site features, property boundaries and ownership;

ii) waste characterization sampling including the sampling of boreholes and test pits installed/excavated within the suspected sodium silicate tank bottom disposal/fill area and the coal ash/cinder disposal area;

iii) installation and monitoring of seven groundwater monitoring wells;

iv) the collection and analyses of soil samples from the seven monitoring well locations;

v) collection and analyses of surface soil samples from six locations; and

vi) collection and analysis of surface water and sediment samples from four locations in the Site stormwater sewer and drainage swales.

Soil and fill material samples collected as part of the waste characterization sampling were analyzed for the Target Compound List (TCL) parameters, the Target Analyte List (TAL) parameters, ignitability, corrosivity, and reactivity. Based on the results of the waste characterization samples a Site-Specific Parameter List (SSPL) was developed. The NYSDEC approved SSPL consisted of several polyaromatic hydrocarbons (PAHs), arsenic, beryllium, cadmium, chromium, cobalt, copper, iron, manganese, mercury, nickel and zinc.

Soil, surface water and sediment samples collected during the subsequent PSA sampling activities were analyzed for the SSPL. Groundwater samples were analyzed for TCL and TAL parameters.

The overburden at the Site is thin, ranging in thickness from one to five feet and is not considered a waterbearing unit. At some locations on the Site, fill material consisting of sandy crushed stone with some slag, refractory brick, wood and suspected ash was encountered. No distinct hazardous waste-like material was observed. Samples of the fill material did not exhibit any of the Resource Conservation and Recovery Act (RCRA) hazardous waste characteristics.

The bedrock beneath the Site consists of a highly fractured and permeable dolostone. Groundwater in the upper bedrock flows in an easterly direction towards the Erie Canal.

Based on the analytical results of the soil, sediment, surface water and groundwater, the following findings and conclusions are made:

i) Site Soils

Six semi-volatiles consisting of PAHs were found in the soil fill samples collected at the Site at concentrations (15J to 4800 µg/kg or ppb) marginally above the respective NYSDEC cleanup levels. However, the detected PAH concentrations were well below the NYSDEC maximum cleanup level of 500 ppm for total semi-volatiles and 50 ppm for individual semi-volatiles in soils. Arsenic, chromium and mercury were detected marginally above the respective NYSDEC cleanup levels and are not of concern. Cadmium, nickel, and zinc were detected in the Site soil/fill at concentrations above the respective NYSDEC cleanup levels but essentially similar to published background metal concentrations in various soils within the United States.

The presence of some PAHs and metals in the Site soils above the NYSDEC cleanup levels is not of environmental significance and does not warrant further action.

ii) Site Surface Water and Sediment

PAHs and metals were present in sediment samples collected from the Site stormwater sewers and swales at concentrations similar to those found in the soil samples. The presence of these constituents in the sediment has not adversely impacted the surface water quality at the Site. None of the SSPL constituents were present in the surface water samples at concentrations above the New York State (NYS) surface water quality standards or guidance values. The pH (7.25 to 8.20) of the Site surface water was well within water quality standards.

iii) Groundwater

Groundwater samples were collected from four building sumps, seven groundwater monitoring wells and an existing groundwater extraction well/sump.

Groundwater samples in the Site building sumps contained bis(2-ethylhexyl)phthalate, arsenic, antimony, lead, and zinc at levels marginally above the NYS Class GA potable groundwater standards. Iron and sodium concentrations in the sump water were one to three orders of magnitude above the groundwater standard; however, iron and sodium are low in toxicity and have minimal environmental significance. The pH of the sump water samples ranged from 9.13 to 9.77. The presence of the identified metals and bis(2-ethylhexyl)phthalate in the sump water is not of environmental concern and does not warrant further action.

Two volatiles, 1,1,1-trichloroethane (TCA) and benzene, were detected in wells MW3-94 and MW7-94 at concentrations (13 μg/L and 18 μg/L, respectively) marginally above the groundwater standards of 5 μg/L and 0.7 μg/L, respectively. The presence of these volatiles is attributable to off-Site sources since these wells are hydraulically upgradient or cross-gradient from the Site. Phenols, delta-BHC and heptachlor epoxide were detected at estimated concentrations (3J μg/L, 0.04J μg/L and 0.02J μg/L, respectively) marginally above the groundwater standards. However, the presence of phenol, the two pesticides, TCA, and benzene in the Site groundwater are not attributable to Site operations, since these constituents were not used at the Site by OxyChem. Arsenic, cadmium, lead, manganese, and zinc marginally exceeded the NYS groundwater standards in two samples. Iron, sodium, and/or magnesium exceeded the NYS groundwater standards by one to three orders of magnitude in all of the wells. The elevated concentrations of sodium may be attributable to the production of sodium silicate at the Site; however, the detected concentrations of iron, sodium and magnesium are typical for

groundwater in the regional carbonate bedrock aquifer. The pH in the groundwater samples varied from 7.09 to 10.51.

The presence of constituents found in the Site groundwater above the NYS groundwater standard is not of environmental concern at the Site and does not warrant further action.

Based on the results of the PSA the following recommendations are made:

i) No further investigation sampling is recommended. The data generated from the PSA activities have adequately characterized the soil and water at the plant Site.

ii) Continue operation of the present groundwater pH adjustment system to prevent off-Site migration of elevated pH water and control the discharge to the POTW. The pH of the groundwater should be routinely monitored and evaluated in order to determine when it would be appropriate to discontinue the groundwater pumping and operation of the pH adjustment system.

iii) The Site should be reclassified to a no action site (Classification 5) or delisted from the State's Registry of Inactive Hazardous Waste Disposal Sites as there is no evidence of on-Site disposal of hazardous wastes.

1.0 INTRODUCTION

The former Diamond Shamrock Site (Site) is located on Ohio Street in Lockport, New York. Occidental Chemical Corporation (OxyChem) acquired the Site in 1986 from Diamond Shamrock Corporation. Portions of the original Site were sold by both Diamond Shamrock Corporation and OxyChem. The Site has been listed by the New York State Department of Environmental Conservation (NYSDEC) in New York State's Registry of Inactive Hazardous Waste Disposal Sites as Site Number 932071. The NYSDEC has given the Site a "2a" classification which is a temporary classification indicating that there is insufficient information to document hazardous waste disposal and/or to assess the significance of potential risks to public health or the environment.

OxyChem voluntarily agreed to perform a Preliminary Site Assessment (PSA) to gather data to enable the characterization of hazardous wastes, if any, which may be present at the Site and to determine whether such wastes constitute a significant threat to public health or the environment. The PSA was performed in accordance with the approved PSA Work Plan, dated April 15, 1994, and with the terms and conditions specified in an Order on Consent (Index B9-0443-93-11) executed by OxyChem and the NYSDEC. Implementation of the PSA Work Plan began in June 1994, and field activities were completed in January 1995.

This final PSA report presents all data and information generated as part of the PSA, evaluates the environmental condition of the Site based on the collected data, and presents conclusions and recommendations.

2.0 BACKGROUND

2.1 SITE DESCRIPTION

2.1.1 Site Location

The former Diamond Shamrock Site is located at 500 Ohio Street in Lockport, New York (Niagara County). Figure 2.1 illustrates the location of the Site on a portion of a United States Geological Survey (USGS) topographic map, and Figure 2.2 illustrates the general Site layout. Plan 1 presents a comprehensive Site plan developed by a licensed surveyor which illustrates the Site features, property ownership, topography and the Site boundaries.

The Site is located on the Tonawanda Plain in the Niagara Frontier, between the Niagara and Onondaga Escarpments. The Site's elevation is approximately 600 feet above sea level. The Erie Canal is approximately 500 feet southeast of the Site and flows east through the City of Lockport. Approximately 17 miles to the west is the Niagara River. A stone quarry is located approximately 4,000 feet southwest of the Site.

2.1.2 Site Security

The only active operation currently at the Site is the operation of the pH adjustment system. OxyChem personnel routinely visit the Site three times per week to verify the functioning of the pH adjustment system and to inspect the Site. The Site is partially fenced and Site buildings are always locked when OxyChem personnel are not present. A security alarm system has been installed and is monitored by a security firm.

2.2 HISTORICAL SITE OPERATIONS AND OWNERSHIP

Technical Memorandum (TM) #1, Description of Site History, Former Diamond Shamrock Site, Lockport, New York, NYSDEC Site

No. 932071", dated June 17, 1994, was submitted to the NYSDEC to describe the Site historical operations, ownership and waste handling activities, and was prepared to satisfy the requirements outlined in Section 3.2 of the approved PSA Work Plan. A summary of the information provided in Technical Memorandum #1 is provided in Section 2.0 of the PSA Report.

Standard Silicate, former owners of the Diamond Shamrock facility, produced liquid sodium silicate from 1923 until 1928, when Diamond Shamrock bought the facility. Diamond Shamrock continued liquid sodium silicate production up to 1986 and introduced sodium silicate insulation production in 1980 until about 1985. In 1985, Diamond Shamrock discontinued silicate production at the Site and used the facility as a silicate transfer terminal. OxyChem continued these operations after purchasing the facility in 1986 until 1992 after which time industrial operations were discontinued at the Site. The pH adjustment system has been maintained in operation.

The original area of the Site encompassed approximately 6.4 acres of land which was owned by Diamond Shamrock Company. Portions of the original Site were sold by Diamond Shamrock Company and OxyChem after its acquisition of Diamond Shamrock in September 1986.

Approximately 1.8 acres of the northern end of the Site was sold to Domtar Gypsum, Inc. (Parcel III, see Figure 2.2) by Diamond Shamrock Company prior to OxyChem's acquisition of the Diamond Shamrock Company. This parcel was purchased by Buffalo Paper Board Corporation in September 1992 and then combined with other properties of the present owner, Upson Company, in December 1992. This area of the Site encompasses the suspected coal ash/cinders disposal area.

In 1989, Lightweight Environmental purchased a 2.5 acre parcel from OxyChem (Parcel II, see Figure 2.2 or Plan 1). In 1992 Lightweight Environmental sold the parcel to Eastern Ohio Paving, Inc., now known as Hazorb, Inc.

Parcels IV and V (see Figure 2.2; Parcel V is not entirely shown) were conveyed to the Niagara County Industrial Development Agency (NCIDA) in 1985 prior to OxyChem's acquisition of Diamond Shamrock. These parcels have been leased to Diversified Manufacturing, Inc. since 1985.

OxyChem owns 2.1 acres of the former Diamond Shamrock Site (Parcel I, see Figure 2.2). The OxyChem property consists of an office building, a production building, 18 inside and outside aboveground tanks, rail spurs, gravel parking lots, and loading areas (see Figure 2.2 or Plan 1).

The facility, though not presently in operation, is locked and partially fenced and is visited three times per week by OxyChem personnel to verify the operation and maintenance of the pH adjustment system.

A list of current and previous Site owners (see Figure 2.2 for property boundaries) is as follows.

Current Owners:

Occidental Chemical Corporation
360 Rainbow Boulevard South
Niagara Falls, New York 14302

Hazorb Inc.
c/o Tri-State Group
44 16th Street
Wheeling, West Virginia 20003

Upson Company
(Address Unknown)

Niagara County Industrial Development Agency
2055 Niagara Falls Boulevard, Suite One
Niagara Falls, New York 14304

Previous Owners: Domtar Gypsum, Inc.
(Address Unknown)

Lightweight Environmental, Inc.
(Address Unknown)

Buffalo Paper Board Corporation
470 Ohio Street
Lockport, New York 14094

A chain of title for Diamond Shamrock Chemical Compnay as submitted by Niagara Boundary and Mapping Services, is included as Appendix H.

2.3 DESCRIPTION OF WASTE GENERATION, STORAGE AND DISPOSAL

It was reported that coal, ash and cinders were disposed of on the northern section of the Diamond Shamrock Site from the 1920s to the late 1940s. The disposal of the coal, ash and cinders occurred under the ownership of Standard Silicate and/or by Diamond Shamrock. The actual size of the disposal area, the quantities, and characteristics of the wastes are unknown.

Silicate tank bottoms containing alkalinity were buried in an isolated area of the southern section of the Site (currently OxyChem property) over previous years of operation. The disposal of the silicate tank bottoms occurred under the ownership of Diamond Shamrock. The quantities, physical state, disposal dates, and methods are not known.

No hazardous wastes are currently known to be present at the Site, and no hazardous waste are being generated since the facility is no longer in operation. After OxyChem acquired the Site in 1986, the facility was only used as a silicate transfer/storage terminal. There has been no active manufacturing or generation of any hazardous wastes at the Site since 1986.

2.4 PAST ENVIRONMENTAL STUDIES

In June 1987, Ecology and Environment Engineering, P.C. (E&E) inspected the Site under contract with the NYSDEC. No positive evidence of previous disposal on the Site was found; however, traces of ash and cinders were visible in the northern section of the Site. The results of these findings are reported in the document entitled "Phase I Investigations, Diamond Shamrock, Site Number 932071, City of Lockport, Niagara County", dated January 1990 and prepared by E&E for the NYSDEC.

In May 1988, the Niagara County Health Department (NCHD) investigated the Site and found pH readings as high as 12.0 in stormwater originating on OxyChem property. OxyChem initiated remediation efforts after being contacted by NCHD in May 1988. These efforts included pH adjustment of the ponded stormwater with sodium bicarbonate (which acted as a buffering agent) and regrading to minimize future stormwater ponding as interim measures. Permanent remediation consisted of construction of upgradient and downgradient clay barrier walls from ground surface to bedrock to encapsulate the alkaline silicate impacted area; excavation of the city storm sewer through the area and repairing the sewer joints to prevent infiltration and exfiltration in the landfill area; installation of a groundwater pumping station within the barrier walls; capping the entire area with asphalt; and construction and operation of a pH adjustment system to neutralize the plant discharge to the City sanitary sewer. Appendix A presents the Site process sewer pH control system Site Plan (Drawing A-3) which identifies the location of the clay barrier wall. Groundwater from the groundwater pumping station and building sumps is currently pumped to a storage tank and the collected water is neutralized with hydrochloric acid and discharged to the City sanitary sewer in batches. Since completion of the remedial projects, both the City storm sewer discharge and the discharge to the City sanitary sewer have been in the pH range of 6 to 9.

E&E personnel, on behalf of NYSDEC, inspected the Site again in April 1991. This inspection revealed minor quantities of cinders, scrap wood, and brick on the ground surface in a wooded area on property currently owned by Domtar Gypsum, Inc. No other waste was observed,

stored or landfilled on Site. The results of these findings are reported in the document entitled, "Preliminary Site Assessment, Task 1, Diamond Shamrock Site, Site Number 932071, City of Lockport, Niagara County", dated October 1991 and prepared by E&E for the NYSDEC.

In 1992, a buried #6 fuel oil 20,000 gallon tank was decommissioned and removed from the Site. The tank was contained within a concrete vault and there was no evidence of any leakage when the tank was removed.

3.0 FIELD ACTIVITIES

3.1 OVERVIEW

The PSA field investigation activities were conducted in several phases beginning in June 1994 and included the following tasks:

i) Site mapping;

ii) waste characterization sampling including the sampling of boreholes and test pits installed/excavated within the suspected sodium silicate tank bottom disposal/fill area and the coal ash/cinder disposal area;

iii) installation and monitoring of seven groundwater monitoring wells;

iv) collection of surface soil samples from six locations; and

v) collection and analysis of surface water and sediment samples from four locations.

All field sampling activities were conducted as required in the approved PSA Work Plan except as noted in the sections which follow.

3.2 SITE MAPPING

Niagara Boundary and Mapping Service prepared a comprehensive Site Plan (see Plan 1) which delineates the Site topography, Site features, property boundaries and ownership. In addition, all monitoring wells and sampling locations were surveyed and noted on the Site Plan.

3.3 WASTE CHARACTERIZATION SAMPLING

3.3.1 General

The waste characterization phase included the installation/excavation of boreholes and test pits within the former sodium silicate tank bottom disposal/fill area and the coal ash/cinder disposal area. Samples of the fill, undisturbed native soils, and wastes, where present, were collected for analyses of the TCL, TAL and/or for the RCRA Hazardous Waste Characteristics of ignitability, corrosivity and reactivity. Based on the analytical results obtained from the waste characterization samples, a SSPL was developed.

The results of the waste characterization sampling program were presented in "Technical Memorandum #2, Site-Specific Parameter List Report, Former Diamond Shamrock Site, Lockport, New York, NYSDEC Site No. 932071", dated August 1994.

3.3.2 Sample Collection Activities

On June 21, 1994 soil samples were collected from the two former disposal areas located within the limits of the former Diamond Shamrock Plant Site. Buffalo Drilling Company performed the excavation and drilling work with oversight from Conestoga-Rovers & Associates' (CRA's) geologist. A NYSDEC field representative was also present during the sampling activities.

Four test pits (TP#1, TP#2, TP#3, and TP#4) were excavated into the former Diamond Shamrock disposal area, and four soil borings were advanced into the former silicate tank bottoms disposal area. Figure 3.1 illustrates the approximate test pit locations and boring locations.

One sample of the native soil and one sample of the fill materials were collected from test pit TP#4. Only one sample of the fill material was collected from TP#2 since little or no native soil was

encountered. No samples were collected from TP#1 and TP#3. Appendix B presents the test pit logs. Locations of the test pits and selection of soil intervals to be sampled were determined with the concurrence of the NYSDEC field representative.

Due to the large sample volumes required for analyses, the soil samples taken from the soil borings were collected by compositing similar soil and fill horizons from four clustered borings advanced in the former silicate tank bottoms disposal area. The distance between each of the four borings was approximately three to five feet. One sample of the fill interval and one sample of the underlying native soil were submitted for analyses. The locations of the soil borings and the intervals collected for analyses were also selected with concurrence of the NYSDEC field representative. Appendix B presents the stratigraphic logs for the borings.

Table 3.1 presents a sample identification key. All of the soil samples were analyzed for the TCL and TAL parameters. One sample of the fill material collected from the borings advanced into the former silicate tank bottoms disposal area was analyzed for the RCRA Hazardous Waste Characteristics of corrosivity, reactivity and ignitability. No sample was collected from the test pits for analysis of the RCRA Hazardous Waste Characteristics because no distinct waste-like materials were identified.

The soil samples were collected in accordance with the Standard Operating Procedures outlined in the approved PSA Work Plan. The samples were packed with ice and delivered to IEA Laboratories in Monroe, Connecticut by overnight delivery. The analytical results and the development of the SSPL are described in Section 5.1.

3.4 MONITORING WELL INSTALLATION

Seven shallow bedrock monitoring wells (MW1-94, MW2-94, MW3-94, MW4-94, MW5-94, MW6-94, and MW7-94) were installed at the Site in early November 1994. Figure 3.1 identifies the well locations. All drilling was performed by Buffalo Drilling Company with oversight from

CRA. A NYSDEC field representative was present during all drilling activities. The well locations were selected with concurrence of the NYSDEC field representative.

The wells were constructed and installed as specified in Standard Operating Procedure (SOP) #2, Well Installation and Maintenance Protocols, contained in the approved PSA Work Plan, except that the wells were completed as cased wells instead of open borehole wells. With the concurrence of the NYSDEC Field Representative, the bedrock monitoring wells were installed with a 2-inch diameter PVC well casing and screen to prevent the caving of fractured rock into the open borehole. Appendix C presents the stratigraphic and instrumentation logs for the monitoring wells. Table 3.2 presents a summary of the monitoring well instrumentation.

The newly installed monitoring wells were developed as specified in SOP #2. Appendix D presents the well development and stabilization forms. All of the monitoring wells were developed and purged by removing 10 well volumes.

During installation of each monitoring well, samples of the fill soils/materials and underlying native soil, where present, were collected for analyses of the SSPL. All soil samples were collected in accordance with SOP #6, Borehole Installation and Sampling Procedures, contained in the approved PSA Work Plan. Both fill and undisturbed native soils were present at locations MW6-94 and MW7-94. Only fill material/soil was present at locations MW3-94, MW4-94 and MW5-94. Only undisturbed native soils were encountered at locations MW1-94 and MW2-94. No evidence of ash or cinders was noted near location MW1-94.

Table 3.3 presents a sample summary key for the PSA samples collected in November 1994.

In situ response tests were performed as follows:

i) a static water level was measured and recorded;

ii) a pressure transducer was lowered into the monitoring well, and the attached data logger was programmed to record data at one-second intervals;

iii) the water level in the well was observed and allowed to return to static conditions;

iv) once the water level returned to a static condition, a solid plastic cylinder (slug) was quickly lowered into the well to displace the groundwater, the falling groundwater level was simultaneously recorded by the data logger;

v) once the groundwater level was observed to return to static condition, the test was repeated and the results were compared for consistency; and

vi) the data logger was downloaded, decontaminated, and prepared for the next test.

The results of the in situ response tests were used to determine the hydraulic conductivity of the upper bedrock monitored by the wells. Appendix E presents the in situ response test data and the calculation of the hydraulic conductivities. Table 3.4 summarizes the hydraulic conductivities calculated for the monitoring wells.

3.5 GROUNDWATER MONITORING

3.5.1 Groundwater Sampling

After development/purging, groundwater samples were collected from each of the seven monitoring wells in accordance with SOP #3, Groundwater Sampling Protocols, contained in the approved PSA Work Plan. All groundwater samples were analyzed for the full TCL and TAL parameters. Table 3.3 presents a sample summary key. No equipment rinse

blanks were collected since well dedicated disposable teflon bailers were used for well development/purging and groundwater sample collection.

In addition, the groundwater in the existing extraction well/sump (Extraction Well #1) located within the former sodium silicate fill area, an electrical sump and three basement sumps (Sump #1 through 4) within OxyChem's building (see Figure 3.1) were also sampled by using either a peristaltic pump with new teflon tubing and a new disposable teflon bailer (for the collection of VOC samples), or by using a new disposable teflon bailer only.

Sumps 1 and 2 are large (8 x 10 feet, approximately 8 feet deep) concrete sumps formerly used during the production of the Sodium Silicate product. Sumps 3 and 4 are small (2 x 2 feet, approximately 3 feet deep) concrete sumps used to dewater flood-prone interior areas and electrical utility areas.

All sumps are equipped with submersible sump pumps and float-type on/off switches. Water collected in the sumps is pumped to the on-Site pH adjustment system for treatment before discharge to the City of Lockport sanitary sewer.

The extraction well operates using a sump pump type float assembly to control the on/off cycle of the pump. The extraction well was manually switched on to purge the water from the sump prior to sampling. Sampling was performed with a peristaltic pump with new tubing and a new disposable teflon bailer. Water levels in the extraction well/sump were measured relative to the sump manhole cover and surveyed in for elevation determinations.

Table 3.5 summarizes the field measurements recorded for the collected groundwater samples.

3.5.2 Hydraulic Monitoring

Water levels in the newly installed wells and in the existing extraction well were measured monthly for three consecutive months to determine the groundwater flow beneath the Site. In addition, the water level in the Erie Canal was also noted at the time of groundwater level measurements.

Table 3.6 summarizes the water level data collected.

3.6 SURFACE SOIL SAMPLING

Surface soil samples were collected from six locations (SS-1, SS-2, SS-3, SS-4, SS-5, and SS-6) shown on Figure 3.1 for the 0 to 1 foot depth interval. All of the sample locations were selected with concurrence of the NYSDEC field representative.

The soil samples were collected by using a drill rig to drive a two-inch diameter split spoon sampler in accordance with SOP #8, Surficial Soil Sampling Protocols, contained in the approved PSA Work Plan. An equipment rinse blank (sample RB-5515-028) was collected after cleaning the split spoon sampler used to collect sample SS-5515-027 (see Table 3.3).

3.7 SURFACE WATER AND SEDIMENT SAMPLING

The PSA Work Plan stated that surface water and sediment samples would be collected from seven locations consisting of:

i) SW/SED-1 - manhole behind OxyChem's pH adjustment building;
ii) SW/SED-2 - manhole northeast of the sodium silicate disposal/fill area;
iii) SW/SED-3 - the open stormwater ditch in the back of OxyChem's plant;
iv) SW/SED-4 - the manhole near OxyChem's plant entrance; and

v) SW/SED-5, SW/SED-6, SW/SED-7 - three locations within the drainage ditch behind the plant building.

During the November 1994 sampling event, surface water and sediment samples were only collected from locations SW/SED-2, SW/SED-3, SW/SED-4, and SW/SED-5. Table 3.3 presents a sample summary key. Figure 3.1 illustrates the surface water and sediment sample locations. No samples were collected from location SW/SED-1 because the manhole at this location was for the sanitary sewer and not a storm sewer. SW/SED-6 and SW/SED-7 were not collected since there was sufficient sampling volume within the area of SW/SED-5. Samples SW/SED-1, SW/SED-6 and SW/SED-7 were not collected with concurrence of the NYSDEC Field Representative.

3.8 SAMPLE ANALYSES

The samples collected during the June 1994 sampling event were analyzed by IEA Laboratories in Monroe, Connecticut. The samples collected during the November 1994 sampling event were analyzed by Galson Laboratories (Galson) in Syracuse, New York. All of the PSA samples were analyzed in accordance with the Quality Assurance Project Plan contained in the approved PSA Work Plan.

The data validation report for the June 1994 samples is presented in Appendix F and the data validation report for the November 1994 samples is presented in Appendix G. All analytical data collected as part of the PSA are acceptable for use except as noted in the data validation reports and the analytical tables contained in this report.

4.0 SITE GEOLOGY/HYDROGEOLOGY

4.1 GENERAL

Data from the eleven boreholes and four test pits sampled as part of the PSA were used to characterize the geology and hydrogeology at the Former Diamond Shamrock plant Site. Figure 3.1 presents the boring and test pit locations, and Table 4.1 presents a stratigraphic summary table for the soils encountered at the Site.

4.2 OVERBURDEN

Overburden consisting of both native and fill material was encountered at thicknesses ranging from 1.0 to 5.0 feet.

The fill material ranged from 0 to 4.2 feet in thickness and was primarily composed of a sandy crushed stone subbase. Slag was also observed in some of the unpaved areas. Refractory brick, wood and suspected ash were encountered in test pit TP#4 and boring BH-1 (see Figure 3.1 for test pit and boring locations).

The native overburden materials are primarily glaciolacustrine in origin, composed of silt with varying amounts of clay. A thin silty glacial till layer (0.5 feet thick) was observed on top of bedrock in borings MW6-94 and MW7-94.

No organic vapors were detected from any soils examined from the test pits or borings, and no sodium silicate product was observed.

4.3 BEDROCK

The uppermost bedrock beneath the Site is the Oak Orchard member of the Lockport Group. The Oak Orchard is a medium gray,

moderately hard dolostone which was observed to be heavily horizontally and vertically fractured over the entire interval cored (approximately 10 feet). Appendix C contains the borehole logs.

The waterbearing properties of the Lockport Group have been extensively studied. These studies have shown that the soil/bedrock contact is often a weathered zone of moderate hydraulic conductivity. Below the weathered zone (if present), groundwater flow within the bedrock occurs primarily within dissolution channels which have developed along near-horizontal bedding planes and through vertical fractures.

Groundwater in the vicinity of the plant Site flows generally east to southeast towards the Erie Canal, with an average hydraulic gradient of approximately 0.008. Figures 4.1 through 4.3 present groundwater hydraulic head contour maps which depict groundwater flow directions.

Extraction well #1, which pumps elevated pH water out of the former silicate tank bottoms disposal area, depresses the groundwater table approximately 1.0 feet within the vicinity of the well.

Hydraulic conductivity values were estimated for an equivalent porous media using slug tests. Equivalent porous media hydraulic conductivity estimates ranged from 1.1×10^{-1} to 9.0×10^{-3} cm/sec, with a geometric mean of 2.1×10^{-2} cm/sec. The variability in estimated hydraulic conductivity is due primarily to the heterogeneity of the fractured rock. Slug test results are presented in Appendix E.

5.0 ANALYTICAL RESULTS

5.1 WASTE CHARACTERIZATION AND SSPL SUMMARY

5.1.1 Field Identification Of Waste

Field activities involving the visual characterization and field screening for organic vapors with a photoionization detector (PID) were performed on soils from the test pits and the borehole locations. No organic vapors were detected in any of the fill material identified in either the test pits or the boreholes.

The fill material identified in the test pits excavated into the former Diamond Shamrock disposal area was composed of dark brown soil mixed with gravel, slag, brick, and wood fragments, with traces of ash. No distinct waste-like material or ash layer was encountered in any of the test pits.

Fill material encountered in the borings advanced into the former silicate tank bottoms disposal area identified primarily refractory brick mixed in a sandy matrix. No silicate tank bottoms, which resembles clear glass, were identified in the fill material from this area.

5.1.2 Waste Characterization Results

Six samples were collected from fill materials and/or the underlying native soils in the two former disposal areas at the Site and were analyzed for the compounds on the TCL and TAL parameter lists (volatiles, semi-volatiles, pesticides, polychlorinated biphenyls (PCBs), and metals). Table 5.1 presents the validated analytical results. Appendix F presents the analytical data validation report. The analytical data summary forms for the waste characterization samples were presented in TM #2. None or very low levels (near the detection limit) of the TCL volatile organic compounds (VOCs) and TCL pesticides/PCBs were detected. Acetone, 2-butanone, dieldrin, DDT, gamma-chlordane, and aroclor-1254 were detected at low

levels well below the NYSDEC recommended soil cleanup objectives.[1] The majority of the TCL semi-volatiles were not detected or were detected at low concentrations near the detection limits. Only benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, and dibenzo(a,b)anthracene were detected above the NYSDEC recommended soil cleanup objectives. The TAL metals were detected at low levels below or near the NYSDEC recommended soil cleanup objectives or published background concentrations, except for minor exceedances of cadmium, chromium, cobalt, copper, nickel and zinc.

The sample of fill material taken from the former silicate tank bottoms disposal area and submitted for analysis of the RCRA Hazardous Waste Characteristics indicated that the fill material is not a corrosive, ignitable, or reactive hazardous waste. The RCRA toxicity characteristic hazardous waste constituents were not detected or were detected at low levels in the soil samples (see Table 5.2). The maximum possible TCLP contaminant concentrations were conservatively calculated by dividing the total soil concentration by 20, which assumes that the entire mass of contaminant present in the soil will leach out. This is a very conservative method typically used to compare total soil concentrations to the respective hazardous waste regulatory limit for leachate. Table 5.2 presents the calculated maximum TCLP leachate concentration for the highest detected constituent concentration.

The calculated maximum TCLP leachate concentrations for the TCLP constituents detected in the soil samples are all well below the TCLP regulatory limits, except for chromium and lead which are slightly below the respective regulatory limits. However, it is expected that the actual TCLP lead and chromium concentration would be significantly lower than the calculated values since they are naturally bound to the soil matrix and are detected at levels similar to background levels found in typical soils.

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1 Recommended Soil Cleanup Objectives as provided in NYSDEC (TAGM) 4046: Determination of Soil Cleanup Objectives and Cleanup Levels, dated January 24, 1994.

5.1.3 Site-Specific Parameter List Development

Data from the six samples collected from the known disposal areas were used for the development of an SSPL for the Site since the highest contaminant levels are expected to be found within the disposal areas. The proposed SSPL was developed based on the concentrations of the detected constituents, the frequency of detection and toxicity of the constituents.

If a TCL/TAL compound was not detected in any of the samples, the compound was not considered as a Site-specific parameter. Table 5.3 summarizes the results for the detected TCL/TAL compounds and the criteria for omitting the compound from the SSPL.

The detected constituent concentrations were considered "low" if the detected concentrations were near or below the Practical Quantitation Limit (PQL) and/or the Contract Required Detection Limit (CRDL), or if the detected concentrations were below the NYSDEC recommended cleanup objective or published background metal concentrations (see Table 5.4) in all of the samples. Constituents detected at "low" concentrations were not considered Site-specific parameters.

By letter dated October 7, 1994, the NYSDEC approved TM #2, the SSPL Report, with the addition of arsenic, beryllium, cobalt, iron, lead, manganese and mercury. Table 5.5 presents the approved SSPL which was used for the analyses of subsequent soil, sediment, and surface water samples collected at the Site.

5.2 SITE SOIL SAMPLE RESULTS

Samples of the native and fill ports were collected from the Site for analyses of the SSPL parameters. Table 5.6 presents the analytical results. These results were compared to the NYSDEC's recommended soil cleanup levels and to published metal concentrations for background soils in New York.

Semi-volatiles detected above the NYSDEC cleanup levels are as follows:

	NYSDEC Cleanup Objective (µg/kg)	*Detected Range Concentrations (µg/kg)*	*Mean* (µg/kg)*	*Frequency of Exceedances*
Benzo(a)anthracene	224	95J - 2900J	610	9/17
Chrysene	400	110J - 3000	700	9/17
Benzo(b)fluoroanthene	1100	140J - 3100J	710	3/17
Benzo(k)fluoroanthene	1100	140J - 2300	620	4/17
Benzo(a)pyrene	61	86J - 2200	520	12/17
Dibenzo(a,h)anthracene	14	120J - 820	270	9/17

Notes:
J Associated value is estimated.
* Calculated by using half of the reported detection limit for non-detects and an average of the duplicate sample results.

The above concentrations for the above semi-volatiles marginally exceeded the respective cleanup objectives and/or were estimated concentrations below the associated practical quantitation limits. Total detected semi-volatile concentrations for the soil samples were less than 500 ppm[2] and no individual semi-volatile compound was detected above 50 ppm[3] in the soil samples.

Metals detected in the soil samples above the NYSDEC recommended cleanup level and the maximum published metal concentration for background soils in NYS consist of the following:

---

2 Represents the maximum recommended New York State soil cleanup objective for semi-volatiles per TAGM 4046.

	Concentration (mg/kg)			
	NYSDEC Cleanup Objective	*Range of Detection*	*Mean***	*Frequency of Exceedances*
Arsenic	7.5 (12)*	2.6J - 15J	5	1/17
Cadmium	1 (1)*	0.40J - 14J	3	10/17
Chromium	10 (40)*	1.5J - 96	48	8/17
Mercury	0.1 (0.2)*	0.08 - 0.16	0.06	2/17
Nickel	13 (25)*	11 - 390	130	12/17
Zinc	20 (50)*	47J - 2200J	57	16/17

Notes:
( )* Upper range of the NYSDEC published background metal concentrations in soils in New York State (see Table 5.4).
J Associated value is estimated.
** Calculated by using half of the reported detection limit and an average of the duplicate sample results.

Given the low frequency of exceedances of the NYSDEC recommended cleanup levels and the published background metal concentrations, arsenic, mercury and chromium are not of any concern in the Site soils.

Mean cadmium, nickel and zinc concentrations in the Site soil exceeded the NYSDEC cleanup levels and published soil background metal concentrations. However, since the detected concentrations of the metals are similar to other published metal concentrations in background soils of the United States, and the toxicity of these metals are low, these metals are not of concern in the Site soils.

5.3 SURFACE WATER AND SEDIMENT SAMPLES

5.3.1 Surface Water

Surface water samples were collected from four locations (SW-2, SW-3, SW-4 and SW-5) and submitted for analyses of the SSPL parameters. Table 5.7 presents the surface water data.

Analyses of the surface water samples yielded no detections of SSPL semi-volatiles or metals above water quality standards or guidance value for surface waters. The pH of the surface water samples ranged from 7.25 to 8.20 (see Table 3.5) which is also well within applicable surface water quality standards.

5.3.2 Sediments

Sediment samples (SED-2, SED-3, SED-4 and SED-5) were collected at the same locations as the surface water samples. Table 5.6 presents the sediment sample data.

Analyses of the sediment samples yielded detections of up to ten SSPL semi-volatile compounds at concentrations above NYS recommended soil cleanup objectives. The highest concentrations were detected at both up and downgradient sample locations (SED-4 and SED-2, respectively) within the storm sewer. The presence of semi-volatile compounds in the storm sewer/swales sampling locations is likely attributable to the runoff from the asphalt roads and parking lot at the Site and the sealing of the Site pavement.

SSPL metals analyses of the sediment samples yielded detections of cadmium, chromium, nickel and zinc at levels similar to those found in the Site soils. Since the mobility of the SSPL semi-volatiles and SSPL metals is low and since the presence of these compounds in the sediment has not adversely impacted the surface water quality, the presence of moderately elevated levels of the SSPL semi-volatiles, cadmium, chromium, nickel and zinc in the sediment at the Site is not of concern.

5.4 SUMPS

Water samples were collected from four building sumps (Sump #1, Sump #2, Sump #3 and Sump #4) at the plant Site and analyzed

for the full TCL and TAL parameter list. Table 5.8 presents the analytical results for these samples.

Table 5.4 compares the data to NYS Class GA (for potable water) groundwater standards and guidance values for parameters detected in groundwater.

No volatile organic compounds were detected at concentrations above NYS groundwater standards.

Bis(2-ethylhexyl)phthalate (a common laboratory contaminant) was the only semi-volatile compound detected at concentrations above NYS drinking water standards. However, the presence of bis(2-ethylhexyl)phthalate may be associated with the PVC drainage pipes in the sumps.

No pesticides or PCBs were detected in the sump water.

Arsenic, antimony, iron, lead, sodium and zinc were detected above the groundwater standards from water samples taken from sumps. The elevated sodium concentrations are attributable to the use of sodium silicate at the Site.

The pH in the sump water varied from 9.13 to 9.77 (see Table 3.5).

5.5 GROUNDWATER

Seven newly installed monitoring wells (MW1-94 through MW7-94) and the previously installed extraction well (EX-1) were sampled for the full TCL/TAL parameter list. Table 5.8 presents the analytical results and Table 5.9 presents a comparison of the data to NYS groundwater standards and guidance values.

The only VOCs detected in the groundwater above the groundwater standards were 1,1,1-trichloroethane (TCA) in MW3-94 (13 μg/L) and benzene in MW7-94 (18 μg/L). However, well MW3-94 is hydraulically upgradient from the Site and well MW7-94 is hydraulically cross-gradient with groundwater flow from the Site. As such, the presence of these VOCs in these wells is attributable to off-Site sources.

Phenol was the only semi-volatile compound detected in the monitoring wells above the standards in the groundwater. However, the phenol concentrations (2J and 3J μg/L) were detected below the practical quantitation limit and are qualified as estimated values.

No pesticides or PCBs, except for delta-BHC and heptachlor epoxide, were detected above the standards in the groundwater (see Table 5.9). Both delta-BHC and heptachlor epoxide were detected at estimated concentrations (0.04J and 0.02J μg/L, respectively) below the associated practical quantitation limit of 0.05 μg/L.

Total metals which exceeded the NYSDEC Class GA groundwater standards for potable water in the monitoring wells and extraction well are as follows:

	Class GA Standard (µg/L)	*Range of Detected Concentrations (µg/L)*	*Mean* Concentration (µg/L)*	*Frequency of Exceedances*
Arsenic	25	2.8 - 170	31	2/9
Cadmium	10	5 - 28	6	1/9
Iron	300	470 - 2600	666	5/9
Lead	25	2.8J - 210J	33	2/9
Magnesium	35,000	3,600 - 53,000	25,944	3/9
Manganese	300	29 - 1,300	269	2/9
Sodium	20,000	23,000 - 950,000	247,625	9/9
Zinc	300	15 - 11,100	177	1/9

Notes:
J Associated value is estimated.
* Calculated by using half of the reported detection limit and an average of the duplicate sample results.

The pH in the groundwater samples varied from 7.09 to 10.51 (see Table 3.5). Extraction well #1 had a pH of 9.78 and the pH in monitoring wells MW4-94 and MW7-94 were 10.05 and 10.51, respectively.

6.0 CONCLUSIONS

Based on the analyses of the data generated from the soil, sediment, surface water and groundwater sampling, as well as other Site assessment activities, the following findings and conclusions are made:

i) The overburden at the Site is thin, ranging in thickness from 1.0 to 5.0 feet, and is not considered to be a waterbearing unit.

ii) Fill material encountered at the Site was primarily composed of sandy crushed stone with some slag, refractory brick, wood and ash. No distinct hazardous waste-like material was encountered. In addition, fill material samples did not exhibit any of the RCRA hazardous waste characteristics.

iii) The upper bedrock beneath the Site consists of a highly fractured and permeable dolostone. Groundwater in the upper bedrock flows in an easterly direction towards the Erie Canal. The mean hydraulic conductivity in the upper bedrock is 2.3×10^{-2} cm/sec.

iv) Six semi-volatiles consisting of polyaromatic hydrocarbons (PAHs) were present in the soil/fill samples collected at the Site at concentrations (ranging from 15J to 4800J µg/kg or ppb) marginally above the respective NYSDEC cleanup levels. The detected semi-volatile concentrations were well below the NYSDEC maximum cleanup level of 500 ppm for total semi-volatiles and 50 ppm for individual semi-volatiles in soil. Mean metals concentrations in the Site soils were below the NYSDEC recommended cleanup objectives except for cadmium, nickel and zinc. However, the detected concentrations of cadmium, nickel and zinc are within the range of other published U.S. background metal concentrations, and therefore, are not of concern.

v) The presence of some PAHs and metals in the Site soils above the NYSDEC cleanup objectives is not of concern and does not warrant further action.

vi) PAHs and metals were present in the sediment samples at concentrations similar to those found in the soil samples. The presence of these constituents in the sediment has not adversely impacted the surface water quality at the Site. None of the SSPL constituents were present in the surface water samples at concentrations above the NYS surface water quality standards or guidance values. Moreover, pH (7.25 to 8.20) of the Site surface water was well within the water quality standards.

vii) Groundwater samples in the Site building sumps only contained bis(2-ethylhexyl)phthalate, arsenic, antimony, lead, and zinc at levels marginally above the NYS Class GA potable groundwater standards. Iron and sodium concentrations in the sump water were one to three orders of magnitude above the groundwater standard; however, iron and sodium are low in toxicity and are typically found in the regional carbonate bedrock aquifer. The pH of the sump water samples ranged from 9.13 to 9.77. The presence of identified metals and bis(2-ethylhexyl)phthalate in the sump water is not of environmental concern and does not warrant further action. Furthermore, the sump water is routinely pumped, treated at the on-Site pH adjustment system and discharged to the City of Lockport sanitary sewer.

viii) TCA (13 μg/L) and benzene (18 μg/L) were detected in wells MW3-94 and MW7-94 at levels marginally above the groundwater standards of 5 μg/L and 0.7 μg/L, respectively. The presence of these volatiles is attributable to off-Site sources since these wells are hydraulically upgradient or cross-gradient from the Site. Phenol, delta-BHC and heptachlor epoxide were detected at concentrations (3J μg/L, 0.04 mg/L and 0.02J μg/L, respectively) marginally above the groundwater standards of 1 μg/L for phenol and non-detects for the pesticides. Arsenic, cadmium, lead, manganese, and zinc marginally exceeded the NYS groundwater standards in two samples. Iron, sodium, and/or magnesium exceeded by one to three orders of magnitude the NYS groundwater standards in all of the wells. The elevated concentrations of sodium may be attributable to the handling of sodium silicate at the

Site; however, the detected concentrations of sodium, iron, and magnesium are typical for groundwater in the regional carbonate bedrock aquifer. The pH in the groundwater samples varied from 7.09 to 10.51.

ix) The presence of constituents found in the Site groundwater above the NYS groundwater standard is not of environmental concern at the Site and does not warrant further action.

7.0 RECOMMENDATIONS

No further investigation sampling is recommended. The data generated from the PSA activities have adequately characterized the condition of soil and water in the vicinity of the plant Site.

Continue operation of the present groundwater pH adjustment system to control the off-Site migration of elevated pH water. The pH of the groundwater should be routinely monitored and evaluated in order to determine when it would be appropriate to discontinue the groundwater pumping and operation of the pH adjustment system.

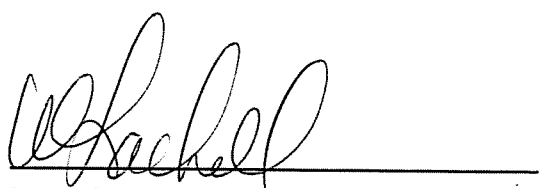
The Site should be reclassified to a no action site (Classification 5) or delisted from the State's Registry of Inactive Hazardous Waste Disposal Sites since there is no evidence of on-Site disposal of hazardous wastes.

8.0 CERTIFICATION

All activities conducted as part of the Preliminary Site Assessment (PSA) for the former Diamond Shamrock Site (NYSDEC Site No. 932071) in Lockport, New York were performed in accordance with the NYSDEC approved document entitled, "Preliminary Site Assessment Work Plan, Former Diamond Shamrock Site, Lockport, New York, NYSDEC Site No. 932071", dated April 1994. Due to field conditions encountered, some modifications to the program were made with approval of the NYSDEC and are described in this PSA Report.

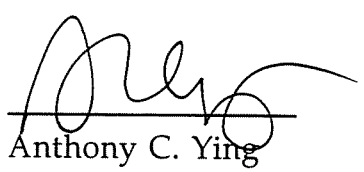
All of Which is Respectfully Submitted,

CONESTOGA-ROVERS & ASSOCIATES



Wai Chin Lachell

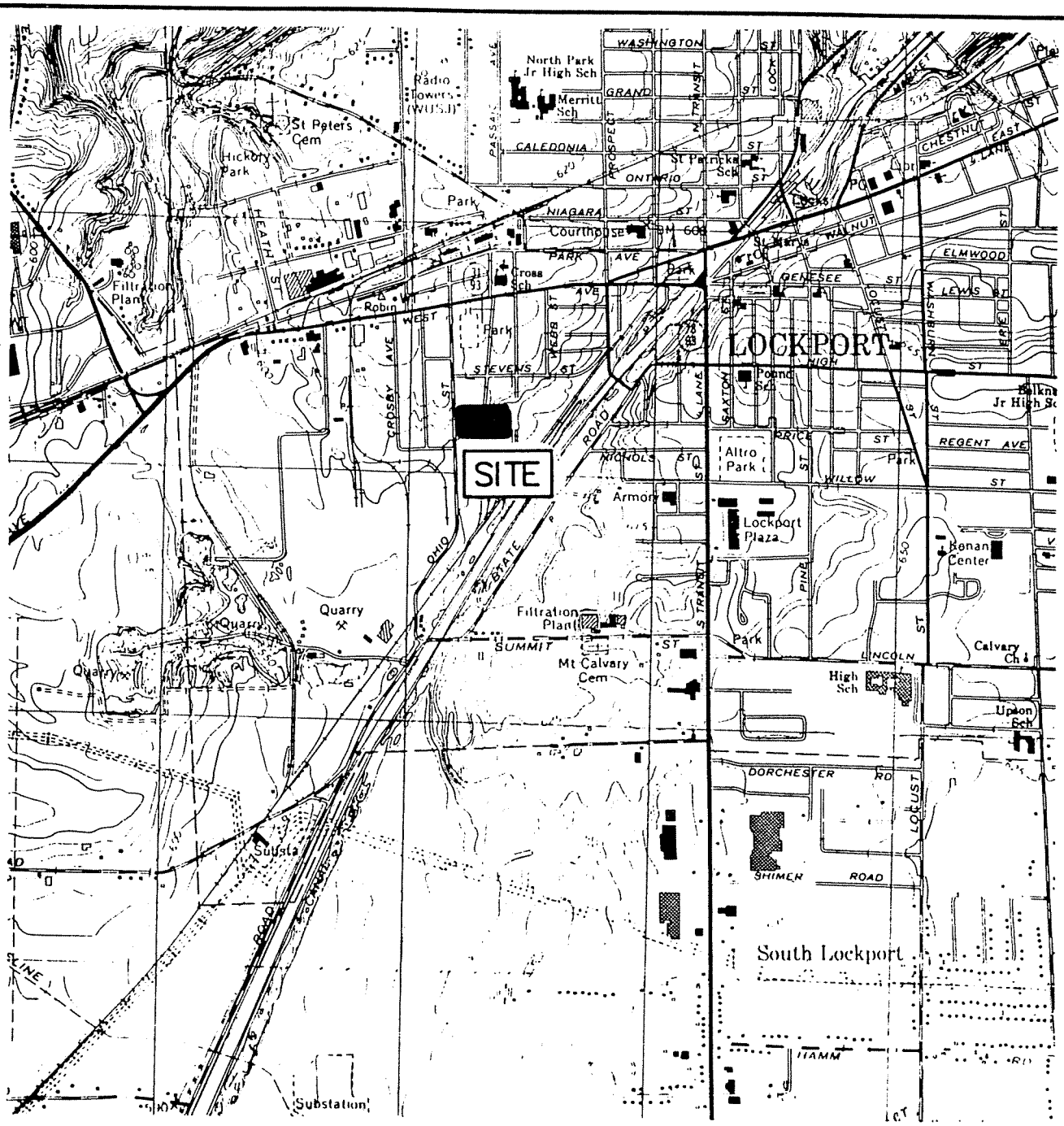
TREATEK-CRA COMPANY



Anthony C. Ying

FIGURES

FIGURES



SOURCE: USGS LOCKPORT, NEW YORK QUADRANGLE

figure 2.1

SITE LOCATION
FORMER DIAMOND SHAMROCK SITE
Lockport, New York

CRA

5515 (4) FEB 21/95(NF) REV.0

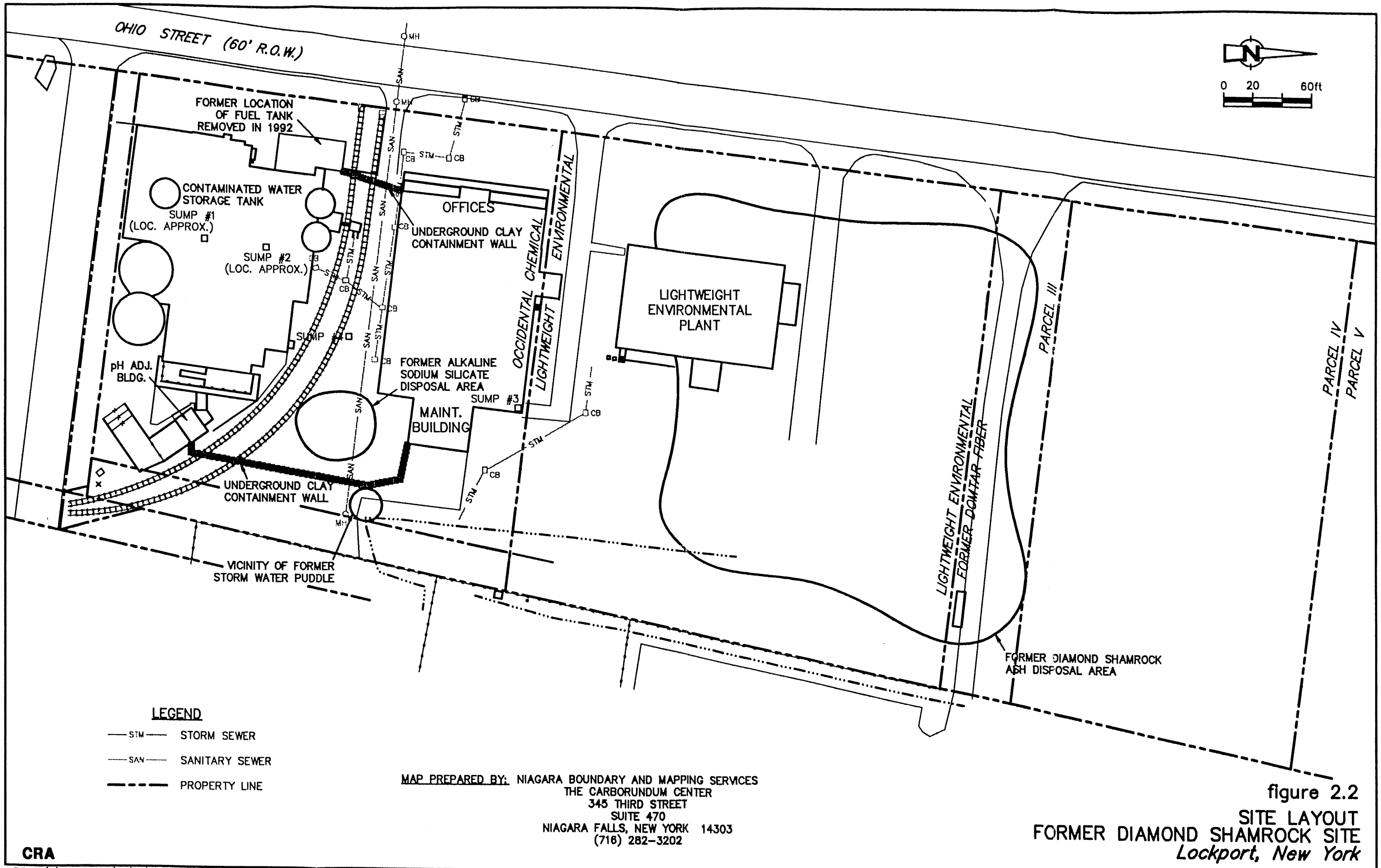


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figure 2.2
SITE LAYOUT
FORMER DIAMOND SHAMROCK SITE
Lockport, New York

CRA

5515 (4) MAR 22/95(NF) REV.1 (P-08)

OHIO STREET (60' R.O.W.)

N

0 20 60ft

MW6-94

FORMER LOCATION OF FUEL TANK REMOVED IN 1992

CONTAMINATED WATER STORAGE TANK

SUMP #1 (LOC. APPROX.)

SUMP #2 (LOC. APPROX.)

MW7-94

SUMP #4

pH ADJ. BLDG.

SW/SED-4

OFFICES

UNDERGROUND CLAY CONTAINMENT WALL

SW/SED-2

FORMER ALKALINE SODIUM SILICATE DISPOSAL AREA

SUMP #3

MAINT. BUILDING

BH-1C

BH-1D

BH-1A

BH-1B

EXISTING EXTRACTION WELL

UNDERGROUND CLAY CONTAINMENT WALL

MW5-94

SW/SED-5

SW/SED-3

VICINITY OF FORMER STORM WATER PUDDLE

OCCIDENTAL CHEMICAL

LIGHTWEIGHT ENVIRONMENTAL

MW4-94

SS-6

MW3-94

LIGHTWEIGHT ENVIRONMENTAL PLANT

SS-5

SS-2

TP-4

TP-1

MW1-94

SS-3

TP-2

SS-4

TP-3

MW2-94

LIGHTWEIGHT ENVIRONMENTAL FORMER DOMTAR-FIBER

SS-1

FORMER DIAMOND SHAMROCK ASH DISPOSAL AREA

LEGEND

- ▲ EXISTING MONITORING WELL LOCATION
- Ⓐ EXISTING BOREHOLE LOCATION
- ● INSTALLED MONITORING WELL LOCATION – 1994
- ◪ SURFACE WATER/SEDIMENT SAMPLE LOCATION – 1994
- ■ SURFACE SOIL SAMPLE LOCATION – 1994
- ▣ TEST PIT LOCATION – 1994
- —STM— STORM SEWER
- —SAN— SANITARY SEWER
- PROPERTY LINE

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figure 3.1

SAMPLING LOCATIONS
FORMER DIAMOND SHAMROCK SITE
Lockport, New York

CRA

5515 (4) MAR 06/95(NF) REV.0 (P-09)

OHIO STREET (60' R.O.W.)

(595.35) MW6-94

FORMER LOCATION OF FUEL TANK REMOVED IN 1992

CONTAMINATED WATER STORAGE TANK

SUMP #1 (LOC. APPROX.)

SUMP #2 (LOC. APPROX.)

(594.27) MW7-94

SUMP

pH ADJ. BLDG.

OFFICES

UNDERGROUND CLAY CONTAINMENT WALL

OCCIDENTAL CHEMICAL LIGHTWEIGHT ENVIRONMENTAL

FORMER ALKALINE SODIUM SILICATE DISPOSAL AREA

SUMP #3

MAINT. BUILDING

(595.27) MW4-94

EXISTING EXTRACTION (592.62)

UNDERGROUND CLAY CONTAINMENT WALL

(593.45) MW5-94

VICINITY OF FORMER STORM WATER PUDDLE

(595.30) MW3-94

LIGHTWEIGHT ENVIRONMENTAL PLANT

(598.27) MW1-94

LIGHTWEIGHT ENVIRONMENTAL FORMER COAL TAR PITCH

(594.27) MW2-94

FORMER DIAMOND SHAMROCK ASH DISPOSAL AREA

595 596 597 598 594 593

0 20 60ft

LEGEND

- ▲ EXISTING MONITORING WELL LOCATION
- ● INSTALLED MONITORING WELL LOCATION – 1994
- —STM— STORM SEWER
- —SAN— SANITARY SEWER
- (594.27) GROUNDWATER ELEVATION (ft AMSL)
- GROUNDWATER CONTOUR
- GROUNDWATER FLOW DIRECTION

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figure 4.1

NOVEMBER 1994 GROUNDWATER CONTOURS
FORMER DIAMOND SHAMROCK SITE
Lockport, New York

CRA

OHIO STREET (60' R.O.W.)

(595.26) MW6-94

FORMER LOCATION OF FUEL TANK REMOVED IN 1992

CONTAMINATED WATER STORAGE TANK

SUMP #1 (LOC. APPROX.)

SUMP #2 (LOC. APPROX.)

(595.19) MW7-94

OFFICES

UNDERGROUND CLAY CONTAINMENT WALL

OCCIDENTAL CHEMICAL

LIGHTWEIGHT ENVIRONMENTAL

LIGHTWEIGHT ENVIRONMENTAL PLANT

(595.16) MW3-94

pH ADJ. BLDG.

FORMER ALKALINE SODIUM SILICATE DISPOSAL AREA

SUMP #3

MAINT. BUILDING

(595.23) MW4-94

EXISTING EXTRACTION (592.60)

UNDERGROUND CLAY CONTAINMENT WALL

(592.94) MW5-94

VICINITY OF FORMER STORM WATER PUDDLE

(594.47) MW2-94

LIGHTWEIGHT ENVIRONMENTAL FORMER DOMTAR FIBER

(598.00) MW1-94

FORMER DIAMOND SHAMROCK ASH DISPOSAL AREA

595 594 593 596 597 598

0 20 60ft

LEGEND

- ▲ EXISTING MONITORING WELL LOCATION
- ● INSTALLED MONITORING WELL LOCATION – 1994
- —STM— STORM SEWER
- —SAN— SANITARY SEWER
- (594.27) GROUNDWATER ELEVATION (ft AMSL)
- GROUNDWATER CONTOUR
- GROUNDWATER FLOW DIRECTION

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figure 4.2

DECEMBER 1994 GROUNDWATER CONTOURS
FORMER DIAMOND SHAMROCK SITE
Lockport, New York

CRA

OHIO STREET (60' R.O.W.)

(595.59) MW6-94

FORMER LOCATION OF FUEL TANK REMOVED IN 1992

CONTAMINATED WATER STORAGE TANK

SUMP #1 (LOC. APPROX.)

SUMP #2 (LOC. APPROX.)

(595.39) MW7-94

OFFICES

UNDERGROUND CLAY CONTAINMENT WALL

OCCIDENTAL CHEMICAL LIGHTWEIGHT ENVIRONMENTAL

LIGHTWEIGHT ENVIRONMENTAL PLANT

(595.72) MW3-94

pH ADJ. BLDG.

FORMER ALKALINE SODIUM SILICATE DISPOSAL AREA

SUMP #3

MAINT. BUILDING

(595.49) MW4-94

EXISTING EXTRACTION (592.79)

UNDERGROUND CLAY CONTAINMENT WALL

(593.18) MW5-94

VICINITY OF FORMER STORM WATER PUDDLE

(594.95) MW2-94

(598.03) MW1-94

LIGHTWEIGHT ENVIRONMENTAL FORMER DOMTAR-FIBER

FORMER DIAMOND SHAMROCK ASH DISPOSAL AREA

595 594 593 596 597 598

0 20 60ft

LEGEND

- ▲ EXISTING MONITORING WELL LOCATION
- ● INSTALLED MONITORING WELL LOCATION – 1994
- —STM— STORM SEWER
- —SAN— SANITARY SEWER
- (594.27) GROUNDWATER ELEVATION (ft AMSL)
- GROUNDWATER CONTOUR
- GROUNDWATER FLOW DIRECTION

MAP PREPARED BY: NIAGARA BOUNDARY AND MAPPING SERVICES
THE CARBORUNDUM CENTER
345 THIRD STREET
SUITE 470
NIAGARA FALLS, NEW YORK 14303
(716) 282-3202

figure 4.3

JANUARY 1995 GROUNDWATER CONTOURS
FORMER DIAMOND SHAMROCK SITE
Lockport, New York

CRA

TABLES

TABLES

TABLE 3.1

WASTE CHARACTERIZATION SAMPLE SUMMARY KEY
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
JUNE 1994

Sample ID	*Source/Sample Location*	*Sample Interval (feet)*	*Date*	*Time*	*Matrix*	*Analysis*	*Comments*
S-5515-001	Test Pit #4 North of lightweight environmental building near driveway.	0.0 - 2.5	06/21/94	1100	Soil	TCL & TAL	Sample taken of soil fill material.
S-5515-002	Test Pit #4 North of lightweight environmental building near driveway.	2.5 - 4.0	06/21/94	1130	Soil	TCL & TAL	MS/MSD, sample taken from native soil below fill.
S-5515-003	Test Pit #2 Northeast of lightweight environmental building.	0.0 - 1.0	06/21/94	1200	Soil	TCL & TAL	
S-5515-004	Taken from four clustered borings advanced into the former sodium hydroxide/silicate disposal area.	0.5 - 3.0	06/21/94	1400	Soil	RCRA Hazardous Waste Characterization, TCL & TAL (1)	
S-5515-005	Taken from four clustered borings advanced into the former sodium hydroxide/silicate disposal area.	0.5 - 3.0	06/21/94	1430	Soil	TCL & TAL	Duplicate of S-5515-004
S-5515-006	Taken from four clustered borings advanced into the former sodium hydroxide/silicate disposal area.	3.0 - 4.5	06/21/94	1500	Soil	TCL & TAL	Sample taken of native soil below fill material.
Field Blank			06/21/94	1230	Water	TCL & TAL	Rinse blank of sample collection equipment after collection of S-5515-003.

Notes:
TCL Target Compound List
TAL Target Analyte List
(1) RCRA Hazardous Waste Characteristics of ignitability, corrosivity, and reactivity.

TABLE 3.2

MONITORING WELL INSTRUMENTATION SUMMARY
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK

Well Number	*Ground Elevation (ft. AMSL)*	*Top of Casing Elevation (ft. AMSL)*	*Sandpack Interval (ft. BGS)*	*Sandpack Interval (ft. AMSL)*	*Well Screen Interval (ft. BGS)*	*Well Screen Interval (ft. AMSL)*
MW1-94	599.04	598.82	4.50 to 14.2	594.54 to 584.84	5.51 to 13.51	593.53 to 585.53
MW2-94	596.05	597.99	4.60 to 14.6	591.45 to 581.45	6.6 to 14.60	589.45 to 581.45
MW3-94	598.87	598.40	5.00 to 14.5	593.87 to 584.37	6.08 to 14.08	592.79 to 584.79
MW4-94	597.10	596.71	5.60 to 14.9	591.50 to 582.20	6.58 to 14.58	590.52 to 582.52
MW5-94	595.85	595.59	4.50 to 15.0	591.35 to 580.85	5.88 to 13.88	589.97 to 581.97
MW6-94	597.07	596.65	5.40 to 15.1	591.67 to 581.97	6.44 to 14.44	590.63 to 582.63
MW7-94	596.66	596.41	7.30 to 16.3	589.36 to 580.36	8.08 to 16.08	588.58 to 580.58

Notes:
Ft. AMSL Feet Above Mean Sea Level
Ft. BGS Feet Below Ground Surface

TABLE 3.3

NOVEMBER 1994 SAMPLE SUMMARY KEY
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK FACILITY
NOVEMBER 1994

Sample Identification	*Source/ Sample Location*	*Date Sampled*	*Time Sampled*	*Matrix*	*Interval Sampled (feet)*	*Analyses Parameters*	*Comments*
S-5515-001	MW2-94	11/03/94	0830	Soil	0-2.0	SSPL	Native soil, no fill encountered
S-5515-002	MW4-94	11/03/94	0930	Soil	0-2.3	SSPL	Fill material, no native soil encountered
S-5515-003	MW3-94	11/03/94	1000	Soil	0-4.1	SSPL	Fill material, no native soil encountered
S-5515-004	MW1-94	11/03/94	1030	Soil	0-1.0	SSPL	Native soil, no fill encountered, MS/MSD also
S-5515-005	MW6-94	11/03/94	1100	Soil	0-3.5	SSPL	Fill material
S-5515-006	MW6-94	11/03/94	1115	Soil	3.5-3.9	SSPL	Native soil
S-5515-007	MW7-94	11/03/94	1130	Soil	0-3.0	SSPL	Fill material
S-5515-008	MW7-94	11/03/94	1130	Soil	0-3.0	SSPL	Fill material, Dup. of S-5515-007
S-5515-009	MW7-94	11/03/94	1200	Soil	3.0-4.9	SSPL	Native soil
S-5515-010	MW5-94	11/03/94	1230	Soil	0-4.2	SSPL	Fill material, no native soil encountered
SS-5515-011	SS-3	11/08/94	1030	Soil	0-1.0	SSPL	Native soil
SS-5515-012	SS-2	11/08/94	1100	Soil	0-1.0	SSPL	Native soil
SS-5515-013	SS-1	11/08/94	1115	Soil	0-1.0	SSPL	Native soil
SS-5515-014	SS-5	11/08/94	1130	Soil	0-1.0	SSPL	Native soil
SS-5515-015	SS-6	11/08/94	1145	Soil	0-1.0	SSPL	Fill material
SW-5515-016	SW-2	11/08/94	1330	Surface Water	-	SSPL	
SW-5515-017	SW-3	11/08/94	1300	Surface Water	-	SSPL	
SW-5515-018	SW-4	11/08/94	1400	Surface Water	-	SSPL	MS/MSD
SW-5515-019	SW-5	11/10/94	1400	Surface Water	-	SSPL	
SED-5515-020	SED-2	11/08/94	1330	Sediment	0-0.5	SSPL	
SED-5515-021	SED-3	11/08/94	1315	Sediment	0-0.5	SSPL	
SED-5515-022	SED-4	11/08/94	1400	Sediment	0-0.5	SSPL	MS/MSD
SED-5515-023	SED-5	11/10/94	1400	Sediment	0-0.5	SSPL	
SW-5515-024	SW-3	11/08/94	1315	Surface Water	-	SSPL	Dup. of SW-5515-017
SED-5515-025	SED-3	11/08/94	1315	Sediment	0-0.5	SSPL	Dup. of SED-5515-021
SS-5515-026	SS-4	11/09/94	1200	Soil	0-1.0	SSPL	Native soil
SS-5515-027	SS-4	11/09/94	1200	Soil	0-1.0	SSPL	Dup. of SS-5515-026
RB-5515-028	-	11/09/94	1230	Rinse Water	-	SSPL	Rinse blank taken after Sample SS-5515-027
GW-5515-029	MW2-94	11/09/94	1300	Groundwater	-	TCL, TAL	
GW-5515-030	MW4-94	11/09/94	1330	Groundwater	-	TCL, TAL	
GW-5515-031	MW3-94	11/09/94	1430	Groundwater	-	TCL, TAL	
GW-5515-032	MW1-94	11/09/94	1530	Groundwater	-	TCL, TAL	MS/MSD

TABLE 3.3

NOVEMBER 1994 SAMPLE SUMMARY KEY
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK FACILITY
NOVEMBER 1994

Sample Identification	*Source/ Sample Location*	*Date Sampled*	*Time Sampled*	*Matrix*	*Interval Sampled (feet)*	*Analyses Parameters*	*Comments*
GW-5515-033	MW6-94	11/10/94	0830	Groundwater	-	TCL, TAL	
GW-5515-034	MW5-94	11/10/94	0930	Groundwater	-	TCL, TAL	
GW-5515-035	MW7-94	11/10/94	1030	Groundwater	-	TCL, TAL	
GW-5515-036	MW7-94	11/10/94	1030	Groundwater	-	TCL, TAL	Dup. of Sample GW-5515-035
SU-5515-037	Sump #3	11/10/94	1100	Water	-	TCL, TAL	
GW-5515-038	Extraction Well #1	11/10/94	1115	Groundwater	-	TCL, TAL	
SU-5515-039	Sump #4	11/10/94	1130	Water	-	TCL, TAL	
SU-5515-040	Sump #2	11/10/94	1300	Water	-	TCL, TAL	
SU-5515-041	Sump #1	11/10/94	1330	Water	-	TCL, TAL	
RB-5515-042	-	11/10/94	1430	Rinse Water	-	SSPL	Rinse blank taken after Sample SED-5515-023

Notes:
MS Matrix Spike
MSD Matrix Spike Duplicate
Dup. Duplicate Sample
SSPL Site Specific Parameter List
TCL Target Compound List
TAL Target Analyte List

TABLE 3.4

SUMMARY OF CALCULATED HYDRAULIC CONDUCTIVITIES
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK

Well Number	*Date of Test*	*Type of Test*	*Screened Material*	*Calculated Hydraulic Conductivity (cm./sec.)* (1)
MW1-94	02/03/95	Slug Test	Fractured Dolostone Bedrock	9.00 x 10-3
MW2-94	02/03/95	Slug Test	Fractured Dolostone Bedrock	1.10 x 10-1
MW3-94	02/03/95	Slug Test	Fractured Dolostone Bedrock	1.76 x 10-1
MW4-94	02/03/95	Slug Test	Fractured Dolostone Bedrock	5.5 x 10-2
MW5-94	02/03/95	Slug Test	Fractured Dolostone Bedrock	2.89 x 10-3
MW6-94	02/03/95	Slug Test	Fractured Dolostone Bedrock	9.00 x 10-3
MW7-94	02/03/95	Slug Test	Fractured Dolostone Bedrock	7.27 x 10-3
			Geometric Mean:	**2.10 x 10-2**

Notes:

(1) Hydraulic conductivity calculated using Cooper-Bredehoeft-Papadopulos (confined slug test) method.

TABLE 3.5

GROUNDWATER SAMPLE FIELD MEASUREMENTS
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK

Sample Source	*Date Measured*	*pH (S.U.)*	*Temperature (°F)*	*Conductivity (μmhos/cm3)*	*Turbidity (NTU)*
MW1-94	11/9/94	7.09	54	980	3.27
MW2-94	11/9/94	7.11	51	1210	1.83
MW3-94	11/9/94	7.23	55	850	1.33
MW4-94	11/9/94	10.05	50	2020	48
MW5-94	11/10/94	7.18	55	1050	7.32
MW6-94	11/10/94	7.24	54	1160	25
MW7-94	11/10/94	10.51	56	3710	39
Extraction Well #1	11/10/94	9.78	52	970	47
Sump #1	11/10/94	9.13	50	2050	46
Sump #2	11/10/94	9.14	50	1390	5.3
Sump #3	11/10/94	9.77	54	1310	47
Sump #4	11/10/94	9.42	52	1030	11.7
SW-2	11/8/94	8.20	52	110	6.1
SW-3	11/8/94	7.42	54	100	3.3
SW-4	11/8/94	8.20	50	1400	4.8
SW-5	11/8/94	7.25	50	920	9.7

TABLE 3.6

GROUNDWATER LEVEL MEASUREMENT
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK

Sample Source	*Reference Elevation (1) (ft. AMSL)*	*Water Level Elevation (ft. AMSL)*		
		11/10/94	*12/07/94*	*1/18/95*
MW1-94	598.82	598.27	598.00	598.03
MW2-94	597.99	594.57	594.47	594.95
MW3-94	598.40	595.30	595.16	595.72
MW4-94	596.71	595.27	595.28	595.49
MW5-94	595.51	593.45	592.94	593.18
MW6-94	596.65	595.35	595.26	595.59
MW7-94	596.41	594.27	595.19	595.39
Extraction Well #1	596.84	592.62	592.50	592.79
Erie Canal (3)		(3)	(4)	(4)

Notes:
Ft. AMSL - Feet Above Mean Sea Level
(1) Top of Casing
(2) Data was provided by New York State Thruway Authority
(3) The average canal elevation is maintained between 565.5 and 570.0 feet AMSL during the navigation season.
(4) The canal is drained for the winter starting the first week of November, the low water elevation is maintained between 554 and 556 feet AMSL during this period.

TABLE 4.1

STRATIGRAPHIC SUMMARY TABLE
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK

Location	*Ground Surface Elevation*	*Fill Thickness*	*Native Soil Thickness*	*Depth to Top of Bedrock*	*Top of Bedrock Elevation*
TP-1	596.45	0	1.0	1.0	595.45
TP-2	597.64	1.0	1.1	2.1	595.54
TP-3	596.71	0	0.9	0.9	595.81
TP-4	598.71	2.5	1.5	4.0	594.71
BH-1	596.42	3.0	1.7	4.7	591.72
MW1-94	599.04	0	1.1	1.1	597.94
MW2-94	596.05	0	2.9	2.9	593.15
MW3-94	598.87	4.1	0	4.1	594.77
MW4-94	597.10	2.3	0	2.3	594.8
MW5-94	595.85	4.2	0	4.2	591.65
MW6-94	597.07	3.5	0.4	3.9	593.17
MW7-94	596.66	3.0	2.0	5.0	591.66

TABLE 5.1

WASTE CHARACTERIZATION SOIL SAMPLES DATA
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK

Sample ID:	*S-5515-001*	*S-5515-002*	*S-5515-003*	*S-5515-004*	*S-5515-005 (Dup. of 004)*	*S-5515-006*
Collection Date:	*6/21/94*	*6/21/94*	*6/21/94*	*6/21/94*	*6/21/94*	*6/21/94*
Sample Location:	*Test Pit #4 (Fill)*	*Test Pit #4 (Native)*	*Test Pit #2 (Fill)*	*BH #1 (Fill)*	*BH #1 (Fill)*	*BH #1 (Native)*
TCL Volatiles (µg/kg)						
Chloromethane	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
Bromomethane	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
Vinyl Chloride	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
Chloroethane	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
Methylene chloride	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
Acetone	6J	8J	16J	85J	71J	35J
Carbon disulfide	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
1,1-Dichloroethene	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
1,1-Dichloroethane	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
1,2-Dichloroethene (total)	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
Chloroform	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
1,2-Dichloroethane	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
2-Butanone	ND 11	ND 13	ND 14	14	14J	ND 12
1,1,1-Trichloroethane	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
Carbon tetrachloride	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
Bromodichloromethane	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
1,2-Dichloropropane	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
cis-1,3-Dichloropropene	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
Trichloroethene	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
Dibromochloromethane	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
1,1,2-Trichloroethane	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
Benzene	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
trans-1,3-Dichloropropene	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
Bromoform	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
4-Methyl-2-pentanone	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
2-Hexanone	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
Tetrachloroethene	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
1,1,2,2-Tetrachloroethane	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
Toluene	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
Chlorobenzene	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
Ethylbenzene	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
Styrene	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
Xylene (total)	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12

TABLE 5.1

WASTE CHARACTERIZATION SOIL SAMPLES DATA
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK

Sample ID:	*S-5515-001*	*S-5515-002*	*S-5515-003*	*S-5515-004*	*S-5515-005 (Dup. of 004)*	*S-5515-006*
Collection Date:	*6/21/94*	*6/21/94*	*6/21/94*	*6/21/94*	*6/21/94*	*6/21/94*
Sample Location:	*Test Pit #4 (Fill)*	*Test Pit #4 (Native)*	*Test Pit #2 (Fill)*	*BH #1 (Fill)*	*BH #1 (Fill)*	*BH #1 (Native)*
TCL Semi-Volatiles (µg/kg)						
Phenol	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
bis(2-Chloroethyl)ether	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
2-Chlorophenol	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
1,3-Dichlorobenzene	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
1,4-Dichlorobenzene	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
1,2-Dichlorobenzene	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
o-2-Methylphenol	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
2,2'-oxybis(1-chloropropane)	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
p-4-Methylphenol	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
N-Nitroso-di-n-propylamine	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
Hexachloroethane	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
Nitrobenzene	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
Isophorone	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
2-Nitrophenol	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
2,4-Dimethylphenol	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
bis(2-Chloroethoxy)methane	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
2,4-Dichlorphenol	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
1,2,4-Trichlorobenzene	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
Naphthalene	170J	ND 430	59J	46J	26J	ND 390
4-Chloroaniline	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
Hexachlorobutadiene	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
4-Chloro-3-methylphenol	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
2-Methylnaphthalene	170J	ND 430	87J	90J	45J	ND 390
Hexachlorocyclopentadiene	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
2,4,6-Trichlorophenol	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
2,4,5-Trichlorophenol	ND 4700	ND 1100	ND 4200	ND 900	ND 960	ND 980
2-Chloronaphthalene	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
2-Nitroaniline	ND 4700	ND 1100	ND 4200	ND 900	ND 960	ND 980
Dimethylphthalate	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
Acenaphthylene	720J	ND 430	870J	ND 350	ND 380	ND 390
2,6-Dinitrotoluene	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
3-Nitroaniline	ND 4700	ND 1100	ND 4200	ND 900	ND 960	ND 980
Acenaphthene	400J	ND 430	120J	ND 350	13J	ND 390
2,4-Dinitrophenol	ND 4700	ND 1100	ND 4200	ND 900	ND 960	ND 980
4-Nitrophenol	ND 4700	ND 1100	ND 4200	ND 900	ND 960	ND 980
Dibenzofuran	390J	ND 430	200J	27J	17J	ND 390
2,4-Dinitrotoluene	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
Diethylphthalate	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
4-Chlorophenyl-phenylether	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
Fluorene	910J	ND 430	570J	14J	15J	ND 390
4-Nitroaniline	ND 4700	ND 1100	ND 4200	ND 900	ND 960	ND 980
4,6-Dinitro-2-methylphenol	ND 4700	ND 1100	ND 4200	ND 900	ND 960	ND 980
N-Nitrosodiphenylamine	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
4-Bromophenyl-phenylether	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
Hexachlorobenzene	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
Pentachlorophenol	ND 4700	ND 1100	ND 4200	ND 900	ND 960	ND 980
Phenanthrene	6600J	40J	4900	140J	160J	ND 390
Anthracene	2000J	ND 430	1400J	15J	23J	ND 390
Carbazole	910J	ND 430	500J	14J	22J	ND 390
Di-n-butylphthalate	ND 1900	ND 430	ND 1600	14J	ND 380	ND 390
Fluoranthene	11000J	91J	8900	160J	210J	ND 390

TABLE 5.1

WASTE CHARACTERIZATION SOIL SAMPLES DATA
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK

Sample ID:	*S-5515-001*	*S-5515-002*	*S-5515-003*	*S-5515-004*	*S-5515-005 (Dup. of 004)*	*S-5515-006*
Collection Date:	*6/21/94*	*6/21/94*	*6/21/94*	*6/21/94*	*6/21/94*	*6/21/94*
Sample Location:	*Test Pit #4 (Fill)*	*Test Pit #4 (Native)*	*Test Pit #2 (Fill)*	*BH #1 (Fill)*	*BH #1 (Fill)*	*BH #1 (Native)*
TCL Semi-Volatiles (µg/kg)(cont'd)						
Pyrene	7500J	68J	6300J	140J	170J	ND 390
Butylbenzylphthalate	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
3,3'-Dichlorobenzidine	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
Benzo(a)anthracene	4800J	43J	4000	83J	92J	ND 390
Chrysene	4600J	49J	3700	110J	120J	ND 390
bis(2-Ethylhexyl)phthalate	ND 1900	ND 430	ND 1600	42J	ND 380	22J
Di-n-octylphthalate	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
Benzo(b)fluoranthene	4500J	46J	3400	120J	130J	ND 390
Benzo(k)fluoranthene	4300J	46J	3200	110J	120J	ND 390
Benzo(a)pyrene	4800J	43J	3600	97J	110J	ND 390
Indeno(1,2,3-cd)pyrene	2700J	34J	2100	43J	39J	ND 390
Dibenzo(a,h)anthracene	990J	ND 430	880J	ND 350	ND 380	ND 390
Benzo(g,h,i)perylene	2200J	31J	1700	35J	ND 380	ND 390
TCL Pesticides/ PCBs (µg/kg)						
alpha-BHC	ND 1.9	ND 2.2	ND 2.1	ND 1.8	ND 2.0	ND 2.0
beta-BHC	ND 1.9	ND 2.2	ND 2.1	ND 1.8	ND 2.0	ND 2.0
delta-BHC	ND 1.9	ND 2.2	ND 2.1	ND 1.8	ND 2.0	ND 2.0
gamma-BHC (Lindane)	ND 1.9	ND 2.2	ND 2.1	ND 1.8	ND 2.0	ND 2.0
Heptachlor	ND 1.9	ND 2.2	ND 2.1	ND 1.8	ND 2.0	ND 2.0
Aldrin	ND 1.9	ND 2.2	ND 2.1	ND 1.8	ND 2.0	ND 2.0
Heptachlor epoxide	ND 1.9	ND 2.2	ND 2.1	ND 1.8	ND 2.0	ND 2.0
Endosulfan I	ND 1.9	ND 2.2	ND 2.1	ND 1.8	ND 2.0	ND 2.0
Dieldrin	8.2	1.2J	6.4	ND 3.5	ND 3.8	ND 3.9
4,4'-DDE	ND 3.8	ND 4.3	ND 4.1	ND 3.5	ND 3.8	ND 3.9
Endrin	ND 3.8	ND 4.3	ND 4.1	ND 3.5	ND 3.8	ND 3.9
Endosulfan II	ND 3.8	ND 4.3	ND 4.1	ND 3.5	ND 3.8	ND 3.9
4,4'-DDD	ND 3.8	ND 4.3	ND 4.1	ND 3.5	ND 3.8	ND 3.9
Endosulfan sulfate	ND 3.8	ND 4.3	ND 4.1	ND 3.5	ND 3.8	ND 3.9
4,4'-DDT	ND 3.8	1.7J	7.8	ND 3.5	ND 3.8	ND 3.9
Methoxychlor	ND 19	ND 22	ND 21	ND 18	ND 20	ND 20
Endrin ketone	ND 3.8	ND 4.3	ND 4.1	ND 3.5	ND 3.8	ND 3.9
Endrin aldehyde	ND 3.8	ND 4.3	ND 4.1	ND 3.5	ND 3.8	ND 3.9
alpha-chlordane	ND 1.9	ND 2.2	ND 2.1	ND 1.8	ND 2.0	ND 2.0
gamma-chlordane	ND 1.9	ND 2.2	ND 2.1	1.6J	1.4J	ND 2.0
Toxaphene	ND 190	ND 220	ND 210	ND 180	ND 200	ND 200
Aroclor-1016	ND 38	ND 43	ND 41	ND 35	ND 38	ND 39
Aroclor-1221	ND 76	ND 88	ND 84	ND 72	ND 77	ND 79
Aroclor-1232	ND 38	ND 43	ND 41	ND 35	ND 38	ND 39
Aroclor-1242	ND 38	ND 43	ND 41	ND 35	ND 38	ND 39
Aroclor-1248	ND 38	ND 43	ND 41	ND 35	ND 38	ND 39
Aroclor-1254	ND 38	ND 43	25J	200J	200	ND 39
Aroclor-1260	ND 38	ND 43	ND 41	ND 35	ND 38	ND 39

TABLE 5.1

WASTE CHARACTERIZATION SOIL SAMPLES DATA
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK

Sample ID:	*S-5515-001*	*S-5515-002*	*S-5515-003*	*S-5515-004*	*S-5515-005 (Dup. of 004)*	*S-5515-006*
Collection Date:	*6/21/94*	*6/21/94*	*6/21/94*	*6/21/94*	*6/21/94*	*6/21/94*
Sample Location:	*Test Pit #4 (Fill)*	*Test Pit #4 (Native)*	*Test Pit #2 (Fill)*	*BH #1 (Fill)*	*BH #1 (Fill)*	*BH #1 (Native)*
TAL Metals (mg/kg)						
Aluminum	8900	10000	7700	18000J	4900J	17000
Antimony	ND 8.5	ND 10	12	ND 11	ND 10	ND 10
Arsenic	6.1	4.9	7.8	7.0	4.4	4.5
Barium	70	42	70	210J	37J	120
Beryllium	0.3	0.59	ND 0.29	0.53	0.32	ND 0.25
Cadmium	1.5	2.8	2.0	3.5	0.86	0.97
Calcium	80000	120000	46000	20000	99000	47000
Chromium	19	14	92	24J	13J	21
Cobalt	13	3.0	59	13	13	9.9
Copper	28	ND 9.2	64	ND 21	ND 21	ND 16
Iron	14000J	14000J	15000J	30000J	9700J	24000J
Lead	99	39	82	40	41	21
Magnesium	23000	71000	21000	12000	43000	27000
Manganese	670	840	1100	1700	580	730
Mercury	0.11	ND 0.12	0.14	ND 0.14	ND 0.12	ND 0.11
Nickel	230	15	410	32	45	27
Potassium	1500	1800	1000	2100	930	2600
Selenium	0.40J	ND 0.25	0.49	ND 0.27	ND 0.26	ND 0.25
Silver	ND 0.64	ND 0.76	ND 0.87	ND 0.81	ND 0.78	ND 0.75
Sodium	160	230	950	3400J	540J	1700
Thallium	0.28	ND 0.25	0.38	ND 0.27	ND 0.26	ND 0.25
Vanadium	17	16	24	27	8.0	29
Zinc	280J	750J	320J	1800J	240J	1300J
Wet Chemistry (mg/kg)						
Cyanide	ND 0.56	ND 3.2	ND 0.69	1.1	ND 0.65	ND 0.61
RCRA Hazardous Waste Characteristics						
Corrosivity (S.U.)	-	-	-	9.4	-	-
Reactive Cyanide (mg/kg)	-	-	-	ND 0.50	-	-
Ignitability (°F)	-	-	-	>200	-	-
Reactive Sulfide (mg/kg)	-	-	-	ND 10	-	-

Notes:

- Not Applicable
Dup. Field duplicate
J Associated value is estimated.
ND Non-detect at associated value.
PCBs Polychlorinated Biphenyls
RCRA Resource Conservation and Recovery Act
S.U. Standard Units
TAL Target Analyte List
TCL Target Compound List

TABLE 5.2

COMPARISON OF TOTAL CONSTITUENT ANALYSES TO TCLP LIMITS
WASTE CHARACTERIZATION RESULTS
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK

	Total Constituent Concentration Range (mg/kg)	*Calculated Maximum TCLP Concentration (1) (mg/L)*	*Regulatory Limit (mg/L)*
TCLP VOCs			
Benzene	ND		0.5
Carbon tetrachloride	ND		0.5
Chlorobenzene	ND		100
Chloroform	ND		6.0
1,2-Dichloroethane	ND		0.5
1,1-Dichloroethylene	ND		0.7
Methyl ethyl ketone (2-butanone)	ND-0.014	0.0028	200
Tetrachloroethene	ND		0.7
Trichloroethene	ND		0.5
Vinyl chloride	ND		0.2
TCLP Semi-Volatiles			
o-Cresol (2-methylphenol)	ND		200
p-Cresol (4-methylphenol)	ND		200
m-Cresol	NA		200
1,4-Dichlorobenzene	ND		7.5
2,4-Dinitrotoluene	ND		0.13
Hexachlorobenzene	ND		0.13
Hexachlorobutadiene	ND		0.5
Hexachloroethane	ND		3.0
Nitrobenzene	ND		2.0
Pentachlorophenol	ND		100.0
Pyridine	NA		5.0
2,4,5-Trichlorophenol	ND		400
2,4,6-Trichlorophenol	ND		2
TCLP Pesticides/Herbicides			
Chlordane	ND - 0.00165	0.00008	0.03
2,4-D	NA		10
Endrin	ND		0.02
Heptachlor	ND		0.008
Lindane	ND		0.4
Methoxychlor	ND		10
Toxaphene	ND		0.5

TABLE 5.2

COMPARISON OF TOTAL CONSTITUENT ANALYSES TO TCLP LIMITS
WASTE CHARACTERIZATION RESULTS
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK

	Total Constituent Concentration Range (mg/kg)	*Calculated Maximum TCLP Concentration (1) (mg/L)*	*Regulatory Limit (mg/L)*
2,4,5-TP (silvex)	NA		1.0
TCLP Metals			
Arsenic	4.4 - 7.8	0.39	5
Barium	37J - 210J	10.5	100
Cadmium	0.86 - 3.5	0.175	1.0
Chromium	13J - 92	4.6 (2)	5.0
Lead	21 - 99	4.95 (2)	5.0
Mercury	ND - 0.14	0.007	0.2
Selenium	ND - 0.49	0.0245	1.0
Silver	ND		5.0

Notes:

(1) The maximum possible contaminant concentration in the TCLP extract liquid is calculated by dividing the total constituent concentration in soil by 20, which assumes that the entire mass of the constituents present in soil will leach out during the extraction process.

(2) Not expected to exceed the regulatory limit since the total concentration in soil are similar to background soil levels.

TABLE 5.3

SITE-SPECIFIC PARAMETER LIST DEVELOPMENT
PRELIMINARY SITE ASSESSMENT- WASTE CHARACTERIZATION SOIL SAMPLES
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK

	Sample ID:	*S-5515-001*	*S-5515-002*	*S-5515-003*	*S-5515-004*	*S-5515-005 (Dup. of 004)*	*S-5515-006*	
	Sample Location:	*Test Pit #4 (Fill)*	*Test Pit #4 (Native)*	*Test Pit #2 (Fill)*	*BH #1 (Fill)*	*BH #1 (Fill)*	*BH #1 (Native)*	
TCL Volatiles (µg/kg)	*NYSDEC Cleanup Objective (1)*							*SSPL*
Acetone	200	6J*	8J*	16J*	85J	71J	35J	I, IV, VI
2-Butanone	300	-	-	-	14	14J	-	I, IV, VI
TCL Semi-Volatiles (µg/kg)								
Naphthalene	13000	170J	-	59J*	46J*	26J*	-	I, IV
2-Methylnaphthalene	36000	170J	-	87J*	90J*	45J*	-	I, IV
Acenaphthylene	41000	720J	-	870J	-	-	-	IV
Acenaphthene	50000	400J	-	120J*	-	13J*	-	I, II, IV
Dibenzofuran	6200	390J	-	200J*	27J*	17J*	-	I, II, IV
Fluorene	50000	910J	-	570J	14J*	15J*	-	IV
Phenanthrene	50000	6600J	-	4900	140J*	160J*	-	IV
Anthracene	50000	2000J	-	1400J	15J*	23J*	-	IV
Carbazole	NA	910J	-	500J	14J*	22J*	-	
Di-n-butylphthalate	8100	-	-	-	14J*	-	-	I, II
Fluoranthene	50000	11000J	91J*	8900	160J*	210J*	-	IV
Pyrene	50000	7500J	68J*	6300J	140J*	170J*	-	IV
Benzo(a)anthracene	**224**	**4800J**	**43J***	**4000**	**83J***	**92J***	**-**	
Chrysene	**400**	**4600J**	**49J***	**3700**	**110J***	**120J***	**-**	
bis(2-Ethylhexyl)phthalate	50000	-	-	-	42J*	-	22J*	I, IV
Benzo(b)fluoranthene	**1100**	**4500J**	**46J***	**3400**	**120J***	**130J***	**-**	
Benzo(k)fluoranthene	**1100**	**4300J**	**46J***	**3200**	**110J***	**120J***	**-**	
Benzo(a)pyrene	**61**	**4800J**	**43J***	**3600**	**97J***	**110J***	**-**	
Indeno(1,2,3-cd)pyrene	**3200**	**2700J**	**34J***	**2100**	**43J***	**39J***	**-**	**IV**
Dibenzo(a,h)anthracene	**14**	**990J**	**-**	**880J**	**-**	**-**	**-**	
Benzo(g,h,i)perylene	**50000**	**2200J**	**31J***	**1700**	**35J***	**-**	**-**	**IV**

TABLE 5.3

SITE-SPECIFIC PARAMETER LIST DEVELOPMENT
PRELIMINARY SITE ASSESSMENT- WASTE CHARACTERIZATION SOIL SAMPLES
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK

	Sample ID:	*S-5515-001*	*S-5515-002*	*S-5515-003*	*S-5515-004*	*S-5515-005 (Dup. of 004)*	*S-5515-006*	
	Sample Location:	*Test Pit #4 (Fill)*	*Test Pit #4 (Native)*	*Test Pit #2 (Fill)*	*BH #1 (Fill)*	*BH #1 (Fill)*	*BH #1 (Native)*	
TCL Pesticides/ PCBs (µg/kg)	*NYSDEC Cleanup Objective (1)*							*SSPL*
Dieldrin	44	8.2*	1.2J*	6.4*	-	-	-	I, IV
4,4'-DDT	2100	-	1.7J*	7.8*	-	-	-	I, IV
gamma-chlordane	5400	-	-	-	1.6J*	1.4J*	-	I, II, IV
Aroclor-1254	10000	-	-	25J*	200J	200	-	I, IV
TAL Metals (mg/kg)								
Aluminum	SB	8900	10000	7700	18000J	4900J	17000	V, III
Arsenic	7.5 or SB	6.1	4.9	7.8	7.0	4.4	4.5	IV, V
Barium	300 or SB	70	42	70	210J	37J	120	IV
Beryllium	0.16 or SB	0.3	0.59	-	0.53	0.32	-	V
Cadmium	**1 or SB**	**1.5**	**2.8**	**2.0**	**3.5**	**0.86**	**0.97**	
Calcium	SB	80000	120000	46000	20000	99000	47000	III
Chromium	**10 or SB**	**19**	**14**	**92**	**24J**	**13J**	**21**	
Cobalt	30 or SB	13	3.0	59	13	13	9.9	V
Copper	**25 or SB**	**28**	**-**	**64**	**-**	**-**	**-**	
Iron	2000 or SB	14000J	14000J	15000J	30000J	9700J	24000J	III, V
Lead	SB	99	39	82	40	41	21	V
Magnesium	SB	23000	71000	21000	12000	43000	27000	III
Manganese	SB	670	840	1100	1700	580	730	V
Mercury	0.1	0.11	-	0.14		-	-	V
Nickel	**13 or SB**	**230**	**15**	**410**	**32**	**45**	**27**	
Potassium	SB	1500	1800	1000	2100	930	2600	III
Selenium	2 or SB	0.40J	-	0.49	-	-	-	IV
Sodium	SB	160	230	950	3400J	540J	1700	III
Thallium	SB	0.28	-	0.38	-	-	-	V
Vanadium	150 or SB	17	16	24	27	8.0	29	IV
Zinc	**20 or SB**	**280J**	**750J**	**320J**	**1800J**	**240J**	**1300J**	

TABLE 5.3

SITE-SPECIFIC PARAMETER LIST DEVELOPMENT
PRELIMINARY SITE ASSESSMENT- WASTE CHARACTERIZATION SOIL SAMPLES
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK

	Sample ID:	*S-5515-001*	*S-5515-002*	*S-5515-003*	*S-5515-004*	*S-5515-005 (Dup. of 004)*	*S-5515-006*	
	Sample Location:	*Test Pit #4 (Fill)*	*Test Pit #4 (Native)*	*Test Pit #2 (Fill)*	*BH #1 (Fill)*	*BH #1 (Fill)*	*BH #1 (Native)*	
Wet Chemistry (mg/kg)	*NYSDEC Cleanup Objective (1)*							*SSPL*
Cyanide		-	-	-	1.1	-	-	II

Notes:

* Reported concentration is below the practical quantitation limit and/or the contract required quantitation limit.
\- Not Detected
Dup. Field duplicate
J Associated value is estimated.
PCBs Polychlorinated Biphenyls
TAL Target Analyte List
TCL Target Compound List
SB Site Background
Proposed Site-Specific Parameter
(1) As presented on NYSDEC (TAGM) 4046: Determination of Soil Cleanup Objectives and Cleanup Levels, dated January 24, 1994.
(2) SSPL Criteria:
- I Detected at levels below the Practical Quantitation Limit (PQL) and/or the Contract Required Detection Limit (CRDL).
- II Detected only one sample location at a low concentration near the PQL or CRDL.
- III Low toxicity compound and soil nutrient.
- IV Detected below NYSDEC recommended cleanup objectives.
- V Detected within published range for eastern USA background soils (see Table 5.4).
- VI Probable laboratory artifact
- VII Not a product or chemical handled on site.

TABLE 5.4

PUBLISHED BACKGROUND METAL CONCENTRATIONS IN SOILS
PRELIMINARY SITE ASSESSMENT-WASTE CHARACTERIZATION SOIL SAMPLES
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK

Chemical Parameter	*Published Concentrations (1) (2)*		*NYSDEC (3) (4) Published Concentrations*	
	Range	*Mean*	*Range*	*Mean*
Silver	NR	NR	NR	NR
Aluminum	4,500-100,000	NR	1,000-25,000	33,000
Arsenic	<1.0-93.2	7.0	3-12	NR
Barium	>0-3,000	560	15-600	NR
Beryllium	<1-5	1.6	0-1.75	NR
Calcium	NR	NR	130-35,000	NR
Cadmium	0.4-1.1	0.5	0.1-1	NR
Cobalt	3-50	10.5	2.5-60	NR
Chromium	7-1500	50	1.5-40	NR
Copper	3-300	26	1-50	NR
Iron	0.5-5%	NR	2,000-550,000	NR
Mercury	0.02-1.5	0.17	0.001-0.2	NR
Potassium	NR	NR	8,500-43,000	NR
Magnesium	NR	NR	100-5,000	NR
Manganese	20-3,000	490	50-5,000	NR
Sodium	NR	NR	6,000-8,000	NR
Nickel	<5-150	18.5	0.5-25	NR
Lead	<10-70	26	(5)	NR
Antimony	0.25-0.6	NR	NR	NR
Selenium	<0.1-4.0	0.31	0.1-3.9	NR
Thallium	0.02-2.8	NR	NR	NR
Vanadium	0.7-98	NR	1-300	NR
Zinc	13-300	73.5	9-50	NR

Notes:

(1) Data are reported in "Trace Elements in Soils and Plants", Kabata Pendias, Alina and Itenryk Pendias, CRC Press, Inc., Boca Raton, Florida, 1985.

(2) Data are reported for various types of surface soils in the United States.

(3) Data reported in "Background Concentrations of 20 Elements in Soils with Special Regard to New York State", E. Carol McGovern, NYSDEC and in NYSDEC TAGM 4046: Determination of Soil Cleanup Objectives and Cleanup Levels, dated January 24, 1994.

(4) Data reported for uncontaminated soils in New York State or eastern United States.

(5) 4-61 ppm for rural areas and 200-500 ppm in suburban areas.

NR Not Reported.

TABLE 5.5

SITE-SPECIFIC PARAMETER LIST
PRELIMINARY SITE ASSESSMENT-WASTE CHARACTERIZATION SOIL SAMPLES
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK

TCL Semi-Volatiles

Acenapththylene
Fluorene
Phenanthrene
Anthracene
Carbazole
Fluoranthene
Pyrene
Benzo(a)anthracene
Chrysene
Benzo(b)fluoranthene
Benzo(k)fluoranthene
Benzo(a)pyrene
Indeno(1,2,3-cd)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

Metals

Arsenic (1)
Beryllium (1)
Cadmium
Chromium
Cobalt (1)
Copper
Iron (1)
Lead (1)
Manganese (1)
Mercury (1)
Nickel
Zinc

Notes:
(1) Added at the request of the New York State Department of Environmental Conservation.

TABLE 5.6

NOVEMBER 1994 SOIL/SEDIMENT SAMPLE DATA
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK

	Source:	*MW-2*	*MW-4*	*MW-3*	*MW-1*	*MW-6*	*MW-6*	*MW-7*	*MW-7*	*MW-7*	*MW-5*	*SS-3*
	Sample ID:	*S-5515-001*	*S-5515-002*	*S-5515-003*	*S-5515-004*	*S-5515-005*	*S-5515-006*	*S-5515-007*	*S-5515-008 Dup of 007*	*S-5515-009*	*S-5515-010*	*SS-5515-011*
	Sample Date:	*11/03/94*	*11/03/94*	*11/03/94*	*11/03/94*	*11/03/94*	*11/03/94*	*11/03/94*	*11/03/94*	*11/03/94*	*11/03/94*	*11/08/94*
		(Native)	*(Fill)*	*(Fill)*	*(Native)*	*(Fill)*	*(Native)*	*(Fill)*	*(Fill)*	*(Native)*	*(Fill)*	*(Fill)*
	Interval Sampled (ft.):	*0-2*	*0-2.3*	*0-4.1*	*0-1*	*0-3.5*	*3.5-3.9*	*0-3.0*	*0-3.0*	*3.0-4.9*	*0-4.2*	*0-1.0*
SSPL Semi-Volatiles (µg/kg)	*NYSDEC Cleanup Objectives (1)*											
Acenaphthylene	41000	ND 450	ND 370	ND 280	ND 380	ND 310	ND 370	ND 320	ND 320	ND 330	ND 340	ND 400
Fluorene	50000	ND 540	ND 450	ND 340	ND 450	ND 370	ND 440	83J	ND 380	ND 400	ND 400	ND 480
Phenanthrene	50000	450	540	69J	130J	300	ND 300	920	400	ND 270	100J	130J
Anthracene	50000	110J	95J	ND 240	ND 320	ND 260	ND 320	200J	ND 270	ND 280	ND 290	ND 340
Fluoranthene	50000	1300	1100	96J	250J	710	ND 280	1200	580	ND 250	74J	230J
Pyrene	50000	820	740	66J	170J	490	ND 360	1300	680	ND 320	72J	200J
Benzo (a) anthracene	224	**650**	**440**	ND 280	100J	**320**	ND 370	**560**	**300J**	ND 330	ND 340	110J
Chrysene	400	**580**	**530**	58J	120J	**420**	ND 330	**760**	**430**	ND 300	ND 300	130J
Benzo (b) fluoranthene	1100	470J	430J	ND 350	ND 460	400	ND 450	600	380J	ND 410	ND 410	ND 490
Benzo (k) fluoranthene	1100	**1400**	450J	ND 350	ND 460	330J	ND 450	560	320J	ND 410	ND 410	ND 490
Benzo (a) pyrene	61	**490**	**410**	ND 240	**97J**	**330**	ND 320	**530**	**310**	ND 280	ND 290	**86J**
Indeno (1,2,3-cd) pyrene	3200	370J	330J	ND 350	ND 460	240J	ND 450	460	280J	ND 410	ND 410	ND 490
Dibenzo (a,h) anthracene	14	**160J**	**170J**	ND 290	ND 390	**120J**	ND 380	**220J**	**150J**	ND 340	ND 350	ND 410
Benzo (g,h,i) perylene	50000	310J	330J	ND 290	ND 380	240J	ND 370	510	310J	ND 340	ND 340	ND 410
Carbazole	NA	ND 350	ND 290	ND 220	ND 300	ND 240	ND 290	110J	ND 250	ND 260	ND 260	ND 310
SSPL Metals (mg/kg)												
Arsenic	7.5 (12)*	3.4J	3.7J	2.6J	**15J**	3.2J	3.9J	2.8J	3.1J	5.0J	5.8J	12J
Beryllium	0.16 (1.75)*	0.62	ND 0.15	0.11	0.87	0.20	0.77	0.47	0.60	0.60	0.37	0.87
Cadmium	1 (1)*	**4.5J**	0.62J	ND 0.42	**3.9J**	0.40J	**1.9J**	**1.3J**	**1.4J**	0.60J	0.98J	**11J**
Chromium	10 (40)*	30	9.7	5.7	**140**	38	23	**48**	26	20	11	**77**
Cobalt	30 (60)*	9.8J	2.2J	1.5J	29J	6.4J	9.5J	17J	10J	9.0J	4.9J	20J
Copper	25 (50)*	16J	6.0J	5.4J	49J	14J	18J	29J	25J	21J	12J	36J
Iron	2000 (530000)*	25000	8300	5500	27000	8300	25000	16000	20000	20000	11000	32000
Lead	(200-500)*	53J	25J	20J	83J	30J	19J	61J	48J	11J	36J	160J
Manganese	(5000)*	2200J	1400J	860J	2200J	780J	820J	240J	310J	540J	530J	4800J
Mercury	0.1 (0.2)*	0.08	ND 0.08	ND 0.05	0.12	ND 0.05	0.09	ND 0.06	ND 0.06	ND 0.06	ND 0.06	0.16
Nickel	13 (25)*	**52**	15	11	**390**	**140**	25	**150**	**77**	24	18	**210**
Zinc	20 (50)*	**830J**	**110J**	**52J**	**810J**	47J	**610J**	**170J**	**110J**	**65J**	**190J**	**2000J**

TABLE 5.6

ANALYTICAL RESULTS SUMMARY-SOIL/SEDIMENT SAMPLES
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK

	Source:	*SS-2*	*SS-1*	*SS-5*	*SS-6*	*SED-2*	*SED-3*	*SED-3*	*SED-4*	*SED-5*	*SS-4*	*SS-4*
	Sample ID:	*SS-5515-012*	*SS-5515-013*	*SS-5515-014*	*SS-5515-015*	*SED-5515-020*	*SED-5515-021*	*SED-5515-025 Dup of -021*	*SED-5515-022*	*SED-5515-023*	*SS-5515-026*	*SS-5515-027 Dup of -026*
	Sample Date:	*11/08/94 (Native)*	*11/08/94 (Native)*	*11/08/94 (Native)*	*11/08/94 (Fill)*	*11/08/94*	*11/08/94*	*11/08/94*	*11/08/94*	*11/10/94*	*11/09/94 (Native)*	*11/09/94 (Native)*
	Interval Sampled (ft.):	*0-1.0*	*0-1.0*	*0-1.0*	*0-1.0*	*0-0.5*	*0-0.5*	*0-0.5*	*0-0.5*	*0-0.5*	*0-1.0*	*0-1.0*
SSPL Semi-Volatiles (µg/kg)	*NYSDEC Cleanup Objectives (1)*											
Acenaphthylene	41000	ND 370	ND 410	86J	ND 290	ND 1600	ND 2900	ND 2200	ND 1700J	ND 380	190J	ND 380
Fluorene	50000	ND 440	ND 490	260J	440	18000D	1600DJ	900DJ	2900DJ	400J	470J	ND 460
Phenanthrene	50000	200J	120J	2700	3800	**170000D**	22000D	14000D	23000DJ	4200	3600J	640J
Anthracene	50000	ND 320	ND 350	550	650	28000D	3000D	1800DJ	5100DJ	750	990J	140J
Fluoranthene	50000	380	210J	4400	5100	**200000D**	37000D	24000D	25000DJ	5800	5200J	1400J
Pyrene	50000	280J	160J	4200	4900	**160000D**	36000D	30000D	27000DJ	5600	4600J	1200J
Benzo (a) anthracene	224	150J	95J	**2100**	**2500**	**77000D**	**15000D**	**11000D**	**13000DJ**	**3100**	**2900J**	**740J**
Chrysene	400	190J	110J	**2400**	**3000**	**89000D**	**22000D**	**18000D**	**15000DJ**	**3700**	**2800J**	**740J**
Benzo (b) fluoranthene	1100	140J	ND 500	**2300**	**3000**	**100000D**	**32000D**	**19000D**	**15000DJ**	**5700**	**3100J**	770J
Benzo (k) fluoranthene	1100	140J	ND 500	**1600**	**2300**	**71000D**	**19000D**	**13000D**	**10000DJ**	**3300**	**1600J**	630J
Benzo (a) pyrene	61	**120J**	ND 350	**1700**	**2200**	**72000D**	**19000D**	**14000D**	**12000DJ**	**3400**	**2000**	**570J**
Indeno (1,2,3-cd) pyrene	3200	ND 450	ND 500	1200	1600	**38000D**	**16000D**	**12000D**	**8600DJ**	2000	1300J	440J
Dibenzo (a,h) anthracene	14	ND 380	ND 420	**650**	**820**	**23000D**	**7300D**	**5400D**	**4500DJ**	**920**	**770J**	**240J**
Benzo (g,h,i) perylene	50000	100J	ND 420	1200	1500	36000D	15000D	12000D	8400DJ	2000	1100J	390J
Carbazole	NA	ND 290	ND 320	300	490	24000D	3000D	1400DJ	3900DJ	590	480J	73J
SSPL Metals (mg/kg)												
Arsenic	7.5 (12)*	6.2J	6.0J	4.6J	3.5J	5.2	6.8	6.4	3.7	3.8	3.9J	4.5J
Beryllium	0.16 (1.75)*	0.66	0.61	0.36	ND 0.11	0.24	0.45	0.43	0.25	0.26	0.42	0.44
Cadmium	1 (1)*	**4.1J**	**14J**	0.49J	ND 0.42	**1.9**	**2.9**	**2.6**	**1.3**	**1.4**	**1.7J**	**1.9J**
Chromium	10 (40)*	**53**	**96**	**66**	28	**53J**	**58J**	**51J**	38J	29J	**65**	**82**
Cobalt	30 (60)*	16J	20J	18J	5.5J	6.6	9.5	8.5	4.1	4.9	26J	29J
Copper	25 (50)*	29J	37J	34J	12J	49J	**79J**	**69J**	50J	42J	32J	40J
Iron	2000 (530000)*	23000	22000	15000	6600	20000	14000	12000	15000	7400	19000	21000
Lead	(200-500)*	80J	150J	73J	28J	85J	180J	170J	140J	97J	72J	89J
Manganese	(5000)*	2000J	4900J	660J	830J	580	650	560	620	350	1100J	1100J
Mercury	0.1 (0.2)*	0.10	0.11	0.07	ND 0.05	0.13	ND 0.11	ND 0.11	ND 0.06	ND 0.07	ND 0.07	ND 0.07
Nickel	13 (25)*	**140**	**250**	**210**	**87**	**120J**	**110J**	**96J**	**58J**	**56J**	**190**	**250**
Zinc	20 (50)*	**700J**	**2200J**	**100J**	**100J**	**360J**	**640J**	**580J**	**630J**	**320J**	**550J**	**620J**

Notes:

SSPL Site-Specific Parameter List

ND Not detected at the associated value.

J Associated value is estimated.

D Dilution

Dup Field Duplicate

( )* Upper range of the NYSDEC published background metal concentration in soils in New York State (see Table 5.4).

Exceedance of NYSDEC cleanup objective and the upper range of the NYSDEC published background metal concentrations in soils (see Table 5.4).

(1) Recommended soil cleanup objective presented in the NYSDEC TAGM 4046: Determination of Soil Cleanup Objectives and Cleanup Levels, dated January 24, 1994.

TABLE 5.7

NOVEMBER 1994 SURFACE WATER SAMPLE DATA
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK

	Source:	*SW-2*	*SW-3*	*SW-3*	*SW-4*	*SW-5*
	Sample ID:	*SW-5515-016*	*SW-5515-017*	*SW-5515-024 Dup of 017*	*SW-5515-018*	*SW-5515-019*
	Sample Date:	*11/08/94*	*11/08/94*	*11/08/94*	*11/08/94*	*11/10/94*
	NYSDEC Surface Water Standard (1)					
	Class C	*Class D*				
SSPL Semi-Volatiles (µg/L)						
Acenaphthylene	-	-	ND 10	ND 12	ND 10	ND 10	ND 10
Fluorene	-	-	ND 9	ND 11	ND 9	ND 8	ND 9
Phenanthrene	-	-	ND 8	ND 9	ND 7	ND 7	ND 7
Anthracene	-	-	ND 8	ND 10	ND 8	ND 8	ND 8
Fluoranthene	-	-	4J	ND 8	ND 7	ND 6	ND 7
Pyrene	-	-	ND 10	ND 12	ND 10	ND 9	ND 9
Benzo (a) anthracene	-	-	ND 8	ND 9	ND 8	ND 7	ND 7
Chrysene	-	-	ND 8	ND 10	ND 8	ND 8	ND 8
Benzo (b) fluoranthene	-	-	ND 7	ND 8	ND 6	ND 6	ND 6
Benzo (k) fluoranthene	-	-	ND 10	ND 12	ND 10	ND 10	ND 10
Benzo (a) pyrene	0.0012*	0.0012*	ND 8	ND 9	ND 8	ND 7	ND 7
Indeno (1,2,3-cd) pyrene	-	-	ND 10	ND 12	ND 10	ND 10	ND 10
Dibenzo (a,h) anthracene	-	-	ND 6	ND 7	ND 6	ND 5	ND 6
Benzo (g,h,i) perylene	-	-	ND 8	ND 9	ND 8	ND 7	ND 7
Carbazole	-	-	ND 7	ND 9	ND 7	ND 7	ND 7
SSPL Metals (µg/L)							
Arsenic	190	360	2.0	1.5	ND 1.0	ND 1.0	ND 1.0
Beryllium	11	-	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Cadmium	-	-	ND 4.0	ND 4.0	ND 4.0	ND 4.0	ND 4.0
Chromium	-	-	9.0	ND 6.0	ND 6.0	19	ND 6.0
Cobalt	5	110*	ND 9.0	ND 9.0	ND 9.0	ND 9.0	ND 9.0
Copper	-	-	10	ND 6.0	ND 6.0	7.0	ND 6.0
Iron	300	300	210	ND 68	ND 70	ND 51	ND 49
Lead	-	-	ND 2.5	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Manganese	-	-	30	9.0	7.0	5.0	ND 2.0
Mercury	0.2*	0.2*	ND 0.10	ND 0.10	ND 0.10	ND 0.10	ND 0.10
Nickel	-	-	32	ND 10	ND 10	46	ND 10
Zinc	-	-	36	27	23	24	33

Notes:
SSPL Site-Specific Parameter List
ND Not detected at the associated value.
Dup Field Duplicate Sample
J Associated value is estimated.
- Not available
* Guidance value
(1) As presented in NYSDEC TOGS 1.1.1 - Ambient Water Quality Standards and Guidance Values, dated October 22, 1993.

TABLE 5.8

NOVEMBER 1994 GROUNDWATER SAMPLE DATA
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK

Source:	*MW2-94*	*MW4-94*	*MW3-94*	*MW1-94*	*MW6-94*	*MW5-94*	*MW7-94*
Sample ID:	*GW-5515-029*	*GW-5515-030*	*GW-5515-031*	*GW-5515-032*	*GW-5515-033*	*GW-5515-034*	*GW-5515-035*
Sample Date:	*11/09/94*	*11/09/94*	*11/09/94*	*11/09/94*	*11/10/94*	*11/10/94*	*11/10/94*
TCL Volatiles (µg/L)							
Chloromethane	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Bromomethane	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Vinyl chloride	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Chloroethane	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Methylene Chloride	2J	ND 10	2J	ND 10	ND 5	2J	2J
Acetone	26J	10J	5J	ND 10	ND 10	7J	7J
Carbon disulfide	0.4J	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
1,1-Dichloroethene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
1,1-Dichloroethane	ND 5	ND 5	2J	0.6J	ND 5	ND 5	ND 5
1,2-Dichloroethene (total)	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Chloroform	1J	ND 5	ND 5	0.8J	ND 5	ND 5	ND 5
1,2-Dichloroethane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
2-Butanone	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
1,1,1-Trichloroethane	ND 5	ND 5	13	2J	ND 5	ND 5	ND 5
Carbon tetrachloride	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Bromodichloromethane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
1,2-Dichloropropane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
cis-1,3-Dichloropropene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Trichloroethene	ND 5	ND 5	3J	ND 5	ND 5	ND 5	ND 5
Dibromochloromethane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
1,1,2-Trichloroethane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Benzene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	18
trans-1,3-Dichloropropene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Bromoform	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
4-Methyl-2-pentanone	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
2-Hexanone	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Tetrachloroethene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
1,1,2,2-Tetrachloroethane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Toluene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Chlorobenzene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Ethylbenzene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Styrene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Xylene (total)	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
TCL Semi-Volatiles (µg/L)							
Phenol	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	3J
bis-(2-Chloroethyl) ether	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
2-Chlorophenol	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
1,3-Dichlorobenzene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
1,4-Dichlorobenzene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
1,2-Dichlorobenzene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
2-Methylphenol	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
2,2'-oxybis (1-Chloropropane)	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
4-Methylphenol	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
N-Nitroso-di-n-propylamine	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Hexachloroethane	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Nitrobenzene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Isophorone	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
2-Nitrophenol	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
2,4-Dimethylphenol	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
bis (2-Chloroethoxy) methane	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
2,4-Dichlorophenol	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
1,2,4-Trichlorobenzene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Naphthalene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
4-Chloroaniline	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Hexachlorobutadiene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
4-Chloro-3-methylphenol	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
2-Methylnaphthalene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Hexachlorocyclopentadiene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
2,4,6-Trichlorophenol	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10

TABLE 5.8

NOVEMBER 1994 GROUNDWATER SAMPLE DATA
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK

Source:	*MW2-94*	*MW4-94*	*MW3-94*	*MW1-94*	*MW6-94*	*MW5-94*	*MW7-94*
Sample ID:	*GW-5515-029*	*GW-5515-030*	*GW-5515-031*	*GW-5515-032*	*GW-5515-033*	*GW-5515-034*	*GW-5515-035*
Sample Date:	*11/09/94*	*11/09/94*	*11/09/94*	*11/09/94*	*11/10/94*	*11/10/94*	*11/10/94*
TCL Semi-Volatiles (µg/L) (cont.)							
2,4,5-Trichlorophenol	ND 25	ND 24	ND 25	ND 24	ND 29	ND 24	ND 24
2-Chloronaphthalene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
2-Nitroaniline	ND 25	ND 24	ND 25	ND 24	ND 29	ND 24	ND 24
Dimethylphthalate	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Acenaphthylene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
2,6-Dinitrotoluene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
3-Nitroaniline	ND 25	ND 24	ND 25	ND 24	ND 29	ND 24	ND 24
Acenaphthene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
2,4-Dinitrophenol	ND 25	ND 24	ND 25	ND 24	ND 29	ND 24	ND 24
4-Nitrophenol	ND 25	ND 24	ND 25	ND 24	ND 29	ND 24	ND 24
Dibenzofuran	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
2,4-Dinitrotoluene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Diethylphthalate	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
4-Chlorophenyl-phenylether	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Fluorene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
4-Nitroaniline	ND 25	ND 24	ND 25	ND 24	ND 29	ND 24	ND 24
4,6-Dinitro-2-methylphenol	ND 25	ND 24	ND 25	ND 24	ND 29	ND 24	ND 24
n-Nitrosodiphenylamine	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
4-Bromophenyl-phenylether	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Hexachlorobenzene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Pentachlorophenol	ND 25	ND 24	ND 25	ND 24	ND 29	ND 24	ND 24
Phenanthrene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Anthracene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Carbazole	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Di-n-butylphthalate	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Fluoranthene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Pyrene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Butylbenzylphthalate	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
3,3'-Dichlorobenzidine	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Benzo [a] anthracene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Chrysene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
bis (2-Ethylhexyl) phthalate	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Di-n-octylphthalate	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Benzo [b] fluoranthene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Benzo [k] fluoranthene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Benzo [a] pyrene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Indeno [1,2,3-cd] pyrene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Dibenz [a,h] anthracene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Benzo [g,h,i] perylene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
TCL Pesticides (ug/L)							
alpha-BHC	R	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
beta-BHC	R	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
delta-BHC	R	ND 0.05	ND 0.05	ND 0.05	0.04J	ND 0.05	ND 0.05
gamma-BHC (Lindane)	R	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Heptachlor	R	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Aldrin	R	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Heptachlor epoxide	R	ND 0.05	ND 0.05	0.02J	0.02J	ND 0.05	ND 0.05
Endosulfan I	R	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Dieldrin	R	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1
4,4'-DDE	R	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1
Endrin	R	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1
Endosulfan II	R	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1
4,4'-DDD	R	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1
Endosulfan sulfate	R	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1
4,4'-DDT	R	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1
Methoxychlor	R	ND 0.48	ND 0.49	ND 0.48	ND 0.48	ND 0.49	ND 0.49
Endrin ketone	R	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1
Endrin aldehyde	R	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1
alpha-Chlordane	R	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
gamma-Chlordane	R	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Toxaphene	R	ND 4.8	ND 4.9	ND 4.8	ND 4.8	ND 4.9	ND 4.9

TABLE 5.8

NOVEMBER 1994 GROUNDWATER SAMPLE DATA
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK

Source:	*MW2-94*	*MW4-94*	*MW3-94*	*MW1-94*	*MW6-94*	*MW5-94*	*MW7-94*
Sample ID:	*GW-5515-029*	*GW-5515-030*	*GW-5515-031*	*GW-5515-032*	*GW-5515-033*	*GW-5515-034*	*GW-5515-035*
Sample Date:	*11/09/94*	*11/09/94*	*11/09/94*	*11/09/94*	*11/10/94*	*11/10/94*	*11/10/94*
PCBs (ug/L)							
Aroclor-1016	R	ND 0.97	ND 0.98	ND 0.97	ND 0.97	ND 0.98	ND 0.98
Aroclor-1221	R	ND 1.9	ND 2.0	ND 1.9	ND 1.9	ND 2.0	ND 2.0
Aroclor-1232	R	ND 0.97	ND 0.98	ND 0.97	ND 0.97	ND 0.98	ND 0.98
Aroclor-1242	R	ND 0.97	ND 0.98	ND 0.97	ND 0.97	ND 0.98	ND 0.98
Aroclor-1248	R	ND 0.97	ND 0.98	ND 0.97	ND 0.97	ND 0.98	ND 0.98
Aroclor-1254	R	ND 0.97	ND 0.98	ND 0.97	ND 0.97	ND 0.98	ND 0.98
Aroclor-1260	R	ND 0.97	ND 0.98	ND 0.97	ND 0.97	ND 0.98	ND 0.98
TAL Metals (µg/L)							
Aluminum	580	140	43	64	170	79	690
Antimony	ND 3.0	ND 3.0	ND 3.0	ND 3.0	ND 3.0	ND 3.0	ND 3.0
Arsenic	170	22	ND 1.0	5.4J	2.8	6.9	24
Barium	33	51	68	33	27	ND 15	28
Beryllium	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Cadmium	28	ND 4.0	ND 4.0	ND 4.0	ND 4.0	ND 4.0	5.0
Calcium	21000	86000	70000	98000	130000	89000	8800
Chromium	ND 6.0	ND 6.0	ND 6.0	ND 6.0	ND 6.0	ND 6.0	ND 6.0
Cobalt	ND 9.0	ND 9.0	ND 9.0	ND 9.0	ND 9.0	ND 9.0	ND 9.0
Copper	110	62	ND 6.0	ND 6.0	ND 6.0	ND 6.0	8.0
Iron	2600	590	ND 60	ND 10	ND 240	ND 84	1100
Lead	210J	2.8J	ND 1.0	ND 1.0	3.1J	ND 1.0	25J
Magnesium	7800	36000	29000	38000	53000	35000	3600
Manganese	1300	340	29	68	98	94	76
Mercury	ND 0.10	ND 0.10	ND 0.10	ND 0.10	ND 0.10	ND 0.10	ND 0.10
Nickel	56	ND 10	ND 10	ND 10	21	ND 10	21
Potassium	1200	2400	2000	5300	3100	1800	1300
Selenium	3.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Silver	ND 7.0	ND 7.0	ND 7.0	ND 7.0	ND 7.0	ND 7.0	ND 7.0
Sodium	440000	190000	61000	23000	62000	75000	950000
Thallium	ND 2.0	ND 2.0	ND 3.4	ND 3.7	ND 2.8	ND 2.0	ND 10
Vanadium	ND 30	ND 21	ND 15	ND 24	ND 37	ND 27	ND 32
Zinc	1100	38	15	55	53	ND 4.0	60
Wet Chemistry							
Cyanide (µg/L)	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10

TABLE 5.8

NOVEMBER 1994 GROUNDWATER SAMPLE DATA
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK

Source:	*MW7-94*	*Sump #3*	*Extract Well-1*	*Sump #4*	*Sump #2*	*Sump #1*
Sample ID:	*GW-5515-036 Dup of -035*	*SU-5515-037*	*GW-5515-038*	*SU-5515-039*	*SU-5515-040*	*SU-5515-041*
Sample Date:	*11/10/94*	*11/10/94*	*11/10/94*	*11/10/94*	*11/10/94*	*11/10/94*
TCL Volatiles (µg/L)						
Chloromethane	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Bromomethane	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Vinyl chloride	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Chloroethane	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Methylene Chloride	3J	2J	2J	2J	3J	2J
Acetone	8J	ND 10	ND 10	6J	ND 10	ND 10
Carbon disulfide	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
1,1-Dichloroethene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
1,1-Dichloroethane	ND 5	ND 5	ND 5	ND 5	2J	ND 5
1,2-Dichloroethene (total)	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Chloroform	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
1,2-Dichloroethane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
2-Butanone	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
1,1,1-Trichloroethane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Carbon tetrachloride	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Bromodichloromethane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
1,2-Dichloropropane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
cis-1,3-Dichloropropene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Trichloroethene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Dibromochloromethane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
1,1,2-Trichloroethane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Benzene	18	ND 5	ND 5	ND 5	ND 5	ND 5
trans-1,3-Dichloropropene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Bromoform	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
4-Methyl-2-pentanone	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
2-Hexanone	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Tetrachloroethene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
1,1,2,2-Tetrachloroethane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Toluene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Chlorobenzene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Ethylbenzene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Styrene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Xylene (total)	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
TCL Semi-Volatiles (µg/L)						
Phenol	2J	ND 10	ND 10	ND 10	ND 10	ND 10
bis-(2-Chloroethyl) ether	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
2-Chlorophenol	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
1,3-Dichlorobenzene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
1,4-Dichlorobenzene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
1,2-Dichlorobenzene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
2-Methylphenol	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
2,2'-oxybis (1-Chloropropane)	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
4-Methylphenol	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
N-Nitroso-di-n-propylamine	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Hexachloroethane	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Nitrobenzene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Isophorone	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
2-Nitrophenol	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
2,4-Dimethylphenol	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
bis (2-Chloroethoxy) methane	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
2,4-Dichlorophenol	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
1,2,4-Trichlorobenzene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Naphthalene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
4-Chloroaniline	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Hexachlorobutadiene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
4-Chloro-3-methylphenol	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
2-Methylnaphthalene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Hexachlorocyclopentadiene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
2,4,6-Trichlorophenol	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10

TABLE 5.8

NOVEMBER 1994 GROUNDWATER SAMPLE DATA
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK

Source:	*MW7-94*	*Sump #3*	*Extract Well-1*	*Sump #4*	*Sump #2*	*Sump #1*
Sample ID:	*GW-5515-036 Dup of -035*	*SU-5515-037*	*GW-5515-038*	*SU-5515-039*	*SU-5515-040*	*SU-5515-041*
Sample Date:	*11/10/94*	*11/10/94*	*11/10/94*	*11/10/94*	*11/10/94*	*11/10/94*
TCL Semi-Volatiles (µg/L) (cont.)						
2,4,5-Trichlorophenol	ND 24	ND 24	ND 24	ND 26	ND 25	ND 24
2-Chloronaphthalene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
2-Nitroaniline	ND 24	ND 24	ND 24	ND 26	ND 25	ND 24
Dimethylphthalate	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Acenaphthylene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
2,6-Dinitrotoluene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
3-Nitroaniline	ND 24	ND 24	ND 24	ND 26	ND 25	ND 24
Acenaphthene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
2,4-Dinitrophenol	ND 24	ND 24	ND 24	ND 26	ND 25	ND 24
4-Nitrophenol	ND 24	ND 24	ND 24	ND 26	ND 25	ND 24
Dibenzofuran	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
2,4-Dinitrotoluene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Diethylphthalate	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
4-Chlorophenyl-phenylether	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Fluorene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
4-Nitroaniline	ND 24	ND 24	ND 24	ND 26	ND 25	ND 24
4,6-Dinitro-2-methylphenol	ND 24	ND 24	ND 24	ND 26	ND 25	ND 24
n-Nitrosodiphenylamine	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
4-Bromophenyl-phenylether	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Hexachlorobenzene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Pentachlorophenol	ND 24	ND 24	ND 24	ND 26	ND 25	ND 24
Phenanthrene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Anthracene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Carbazole	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Di-n-butylphthalate	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Fluoranthene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Pyrene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Butylbenzylphthalate	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
3,3'-Dichlorobenzidine	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Benzo [a] anthracene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Chrysene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
bis (2-Ethylhexyl) phthalate	ND 10	ND 10	12	440D	19	68
Di-n-octylphthalate	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Benzo [b] fluoranthene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Benzo [k] fluoranthene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Benzo [a] pyrene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Indeno [1,2,3-cd] pyrene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Dibenz [a,h] anthracene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Benzo [g,h,i] perylene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
TCL Pesticides (ug/L)						
alpha-BHC	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
beta-BHC	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
delta-BHC	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
gamma-BHC (Lindane)	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Heptachlor	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Aldrin	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Heptachlor epoxide	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Endosulfan I	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Dieldrin	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1
4,4'-DDE	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1
Endrin	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1
Endosulfan II	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1
4,4'-DDD	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1
Endosulfan sulfate	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1
4,4'-DDT	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1
Methoxychlor	ND 0.48	ND 0.48	ND 0.48	ND 0.49	ND 0.48	ND 0.52
Endrin ketone	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1
Endrin aldehyde	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1
alpha-Chlordane	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
gamma-Chlordane	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Toxaphene	ND 4.8	ND 4.8	ND 4.8	ND 4.9	ND 4.8	ND 5.2

TABLE 5.8

NOVEMBER 1994 GROUNDWATER SAMPLE DATA
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK

Source:	*MW7-94*	*Sump #3*	*Extract Well-1*	*Sump #4*	*Sump #2*	*Sump #1*
Sample ID:	*GW-5515-036 Dup of -035*	*SU-5515-037*	*GW-5515-038*	*SU-5515-039*	*SU-5515-040*	*SU-5515-041*
Sample Date:	*11/10/94*	*11/10/94*	*11/10/94*	*11/10/94*	*11/10/94*	*11/10/94*
PCBs (ug/L)						
Aroclor-1016	ND 0.97	ND 0.97	ND 0.97	ND 0.98	ND 0.97	ND 1.0
Aroclor-1221	ND 1.9	ND 1.9	ND 1.9	ND 2.0	ND 1.9	ND 2.0
Aroclor-1232	ND 0.97	ND 0.97	ND 0.97	ND 0.98	ND 0.97	ND 1.0
Aroclor-1242	ND 0.97	ND 0.97	ND 0.97	ND 0.98	ND 0.97	ND 1.0
Aroclor-1248	ND 0.97	ND 0.97	ND 0.97	ND 0.98	ND 0.97	ND 1.0
Aroclor-1254	ND 0.97	ND 0.97	ND 0.97	ND 0.98	ND 0.97	ND 1.0
Aroclor-1260	ND 0.97	ND 0.97	ND 0.97	ND 0.98	ND 0.97	ND 1.0
TAL Metals (µg/L)						
Aluminum	1100	180	99	ND 41	100	230
Antimony	ND 3.0	ND 3.0	ND 3.0	4.5	ND 3.0	ND 3.0
Arsenic	53	6.8J	4.7	57	4.6	6.8
Barium	29	34	30	ND 9.0	ND 16	53
Beryllium	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Cadmium	8.0	ND 4.0	ND 4.0	ND 4.0	5.0	ND 4.0
Calcium	9100	19000	20000	16000	56000	54000
Chromium	ND 6.0	ND 6.0	ND 6.0	ND 6.0	ND 6.0	6.0
Cobalt	ND 9.0	ND 9.0	ND 9.0	ND 9.0	ND 9.0	ND 9.0
Copper	16	ND 6.0	8.0	15	6.0	81
Iron	1800	480	470	1000	430	1900
Lead	53J	13J	10J	2.7J	86J	33J
Magnesium	3700	4800	5100	4500	19000	19000
Manganese	76	180	150	14	45	80
Mercury	ND 0.10	ND 0.10	ND 0.10	ND 0.10	ND 0.10	ND 0.10
Nickel	25	20	10	ND 10	100	130
Potassium	1300	8800	1200	1000	11000	5100
Selenium	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Silver	ND 7.0	ND 7.0.	ND 7.0	ND 7.0	ND 7.0	ND 7.0
Sodium	950000	230000	180000	190000	210000	400000
Thallium	ND 4.0	ND 2.0	ND 2.0	ND 2.0	ND 2.0	ND 2.0
Vanadium	ND 34	ND 31	ND 24	ND 13	22	23
Zinc	75	57	86	39	460	430
Wet Chemistry						
Cyanide (µg/L)	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10

Notes:
ND Non-detect at associated value.
J Associated value is estimated.
Dup Field Duplicate Sample
R Data Rejected
TAL Target Analyte List
TCL Target Compound List

TABLE 5.9

NOVEMBER 1994 GROUNDWATER DATA FOR DETECTED PARAMETERS
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK

	Source:	*MW2-94*	*MW4-94*	*MW3-94*	*MW1-94*	*MW6-94*	*MW5-94*	*MW7-94*
	Sample ID:	*GW-5515-029*	*GW-5515-030*	*GW-5515-031*	*GW-5515-032*	*GW-5515-033*	*GW-5515-034*	*GW-5515-035*
	Sample Date:	*11/09/94*	*11/09/94*	*11/09/94*	*11/09/94*	*11/10/94*	*11/10/94*	*11/10/94*
	Groundwater Standards (1)							
Volatiles (µg/L)								
Methylene Chloride	5	2J	ND 10	2J	ND 10	ND 5	2J	2J
Acetone	50*	26J	10J	5J	ND 10	ND 10	7J	7J
Carbon disulfide	-	0.4J	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
1,1-Dichloroethane	5	ND 5	ND 5	2J	0.6J	ND 5	ND 5	ND 5
Chloroform	7	1J	ND 5	ND 5	0.8J	ND 5	ND 5	ND 5
1,1,1-Trichloroethane	5	ND 5	ND 5	**13**	2J	ND 5	ND 5	ND 5
Trichloroethene	5	ND 5	ND 5	3J	ND 5	ND 5	ND 5	ND 5
Benzene	0.7	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	**18**
Semi-Volatiles (µg/L)								
Phenol	1	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	**3J**
bis (2-Ethylhexyl) phthalate	50	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Pesticides (µg/L)								
delta-BHC	ND	R	ND 0.05	ND 0.05	ND 0.05	**0.04J**	ND 0.05	ND 0.05
Heptachlor epoxide	ND	R	ND 0.05	ND 0.05	**0.02J**	**0.02J**	ND 0.05	ND 0.05
Metals (µg/L)								
Aluminum	-	580	140	43	64	170	79	690
Antimony	3*	ND 3.0	ND 3.0	ND 3.0	ND 3.0	ND 3.0	ND 3.0	ND 3.0
Arsenic	25	**170**	22	ND 1.0	5.4J	2.8	6.9	24
Barium	1000	33	51	68	33	27	ND 15	28
Cadmium	10	**28**	ND 4.0	ND 4.0	ND 4.0	ND 4.0	ND 4.0	5.0
Calcium	-	21000	86000	70000	98000	130000	89000	8800
Chromium	50	ND 6.0	ND 6.0	ND 6.0	ND 6.0	ND 6.0	ND 6.0	ND 6.0
Copper	200	110	62	ND 6.0	ND 6.0	ND 6.0	ND 6.0	8.0
Iron	300	**2600**	**590**	ND 60	ND 10	ND 240	ND 84	**1100**
Lead	25	**210J**	2.8J	ND 1.0	ND 1.0	3.1J	ND 1.0	25J
Magnesium	35000*	7800	**36000**	29000	**38000**	**53000**	35000	3600
Manganese	300	**1300**	**340**	29	68	98	94	76
Nickel	-	56	ND 10	ND 10	ND 10	21	ND 10	21
Potassium	-	1200	2400	2000	5300	3100	1800	1300
Selenium	10	3.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Sodium	20000	**440000**	**190000**	**61000**	**23000**	**62000**	**75000**	**950000**
Vanadium	-	ND 30	ND 21	ND 15	ND 24	ND 37	ND 27	ND 32
Zinc	300	**1100**	38	15	55	53	ND 4.0	60

TABLE 5.9

NOVEMBER 1994 GROUNDWATER DATA FOR DETECTED PARAMETERS
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK

	Source:	*MW7-94*	*Sump #3*	*Extract Well-1*	*Sump #4*	*Sump #2*	*Sump #1*
	Sample ID:	*GW-5515-036 Dup of -035*	*SU-5515-037*	*GW-5515-038*	*SU-5515-039*	*SU-5515-040*	*SU-5515-041*
	Sample Date:	*11/10/94*	*11/10/94*	*11/10/94*	*11/10/94*	*11/10/94*	*11/10/94*
	Groundwater Standards (1)						
Volatiles (µg/L)							
Methylene Chloride	5	3J	2J	2J	2J	3J	2J
Acetone	50*	8J	ND 10	ND 10	6J	ND 10	ND 10
Carbon disulfide	-	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
1,1-Dichloroethane	5	ND 5	ND 5	ND 5	ND 5	2J	ND 5
Chloroform	7	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
1,1,1-Trichloroethane	5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Trichloroethene	5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Benzene	0.7	**18**	ND 5	ND 5	ND 5	ND 5	ND 5
Semi-Volatiles (µg/L)							
Phenol	1	**2J**	ND 10	ND 10	ND 10	ND 10	ND 10
bis (2-Ethylhexyl) phthalate	50	ND 10	ND 10	12	**440D**	19	**68**
Pesticides (µg/L)							
delta-BHC	ND	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Heptachlor epoxide	ND	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Metals (µg/L)							
Aluminum	-	1100	180	99	ND 41	100	230
Antimony	3*	ND 3.0	ND 3.0	ND 3.0	**4.5**	ND 3.0	ND 3.0
Arsenic	25	**53**	6.8J	4.7	**57**	4.6	6.8
Barium	1000	29	34	30	ND 9.0	ND 16	53
Cadmium	10	8.0	ND 4.0	ND 4.0	ND 4.0	5.0	ND 4.0
Calcium	-	9100	19000	20000	16000	56000	54000
Chromium	50	ND 6.0	ND 6.0	ND 6.0	ND 6.0	ND 6.0	6.0
Copper	200	16	ND 6.0	8.0	15	6.0	81
Iron	300	**1800**	**480**	**470**	**1000**	**430**	**1900**
Lead	25	**53J**	13J	10J	2.7J	**86J**	**33J**
Magnesium	35000*	3700	4800	5100	4500	19000	19000
Manganese	300	76	180	150	14	45	80
Nickel	-	25	20	10	ND 10	100	130
Potassium	-	1300	8800	1200	1000	11000	5100
Selenium	10	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Sodium	20000	**950000**	**230000**	**180000**	**190000**	**210000**	**400000**
Vanadium	-	ND 34	ND 31	ND 24	ND 13	22	23
Zinc	300	75	57	86	39	**460**	**430**

Notes:

ND Non-detect at associated value.
J Associated value is estimated.
Dup Field Duplicate Sample
* Guidance Value
\- No standard or guidance value available.
(1) Groundwater standard or guidance value for a Class GA water, as reported in NYSDEC TOGS 1.1.1 - Ambient Water Quality Standards and Guidance Values, dated October 22, 1993.
Exceedance of New York State groundwater standard or guidance value.
R Data rejected.

APPENDICES

A

APPENDIX A

DRAWING A-3

LOCKPORT PLANT PROCESS SEWER pH CONTROL SYSTEM SITE PLAN

B

APPENDIX B

TEST PIT AND BORING LOGS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-01)

PROJECT NAME: FORMER DIAMOND SHAMROCK SITE
PROJECT NO.: 5515
CLIENT: OXYCHEM
LOCATION: FORMER SODIUM HYDROXIDE / SILICATE DISPOSAL AREA

HOLE DESIGNATION: BH1-94
DATE COMPLETED: JUNE 21, 1994
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: G. GILL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	Augered without sampling through 0.15 ft of black asphalt pavement and 0.35 ft of crushed stone subbase	-0.5	8"ø BOREHOLE	(2)			
2.5	SM-SAND(FILL), some silt, some refractory brick and crushed stone fragments, poorly graded, brown and yellowish brown, moist	-3.0	CEMENT/ BENTONITE GROUT	1SS		41	0
5.0	ML-SILT(NATIVE), little clay, occasional subrounded gravel, brown, moist	-4.7		(3)			
	Spoon and auger refusal on apparent dolostone bedrock			2SS		10	0
7.5	END OF HOLE @ 4.7 FT. BGS			3SS		>100	
	NOTES: 1. To get enough volume of the FILL and NATIVE material 3 borings were advanced near each other to the same refusal depth. 2. TCL, TAL, and RCRA hazardous waste analysis. 3. TCL and TAL analysis.						
10.0							
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (◯) WATER FOUND ▽ STATIC WATER LEVEL ▼

TEST PIT STRATIGRAPHY LOG

(L-02)

PROJECT NAME: FORMER DIAMOND SHAMROCK SITE
PROJECT NUMBER: 5515
CLIENT: OXYCHEM
LOCATION: LOCKPORT, NEW YORK

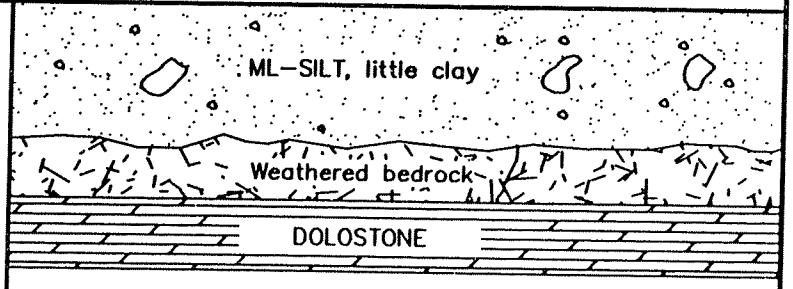
CONTRACTOR: BUFFALO DRILLING
SURFACE ELEVATION: N/A
TEST PIT METHOD: BACKHOE

TEST PIT DESIGNATION: TP1-94
DATE STARTED: JUNE 21, 1994
DATE COMPLETED: JUNE 21, 1994
CRA SUPERVISOR: G. GILL

DEPTH (ft) FROM	DEPTH (ft) AT	DEPTH (ft) TO	SAMPLE DESCRIPTION (SOIL SYMBOL, PRIMARY COMPONENT, SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS)	SAMPLE #	PID (ppm)
0.0		0.7	ML-SILT(NATIVE), little clay, dolostone, gravel and cobbles, dark brown, moist		0
0.7		1.0	Weathered bedrock fragments, gray dolostone		0
	1.0		Top of bedrock, no water		0

LOCATION: NORTH OF LIGHTWEIGHT ENVIRONMENTAL BUILDING

GEOLOGIC PROFILE



TEST PIT STRATIGRAPHY LOG

(L-03)

PROJECT NAME: FORMER DIAMOND SHAMROCK SITE
PROJECT NUMBER: 5515
CLIENT: OXYCHEM
LOCATION: LOCKPORT, NEW YORK

CONTRACTOR: BUFFALO DRILLING
SURFACE ELEVATION: N/A
TEST PIT METHOD: BACKHOE

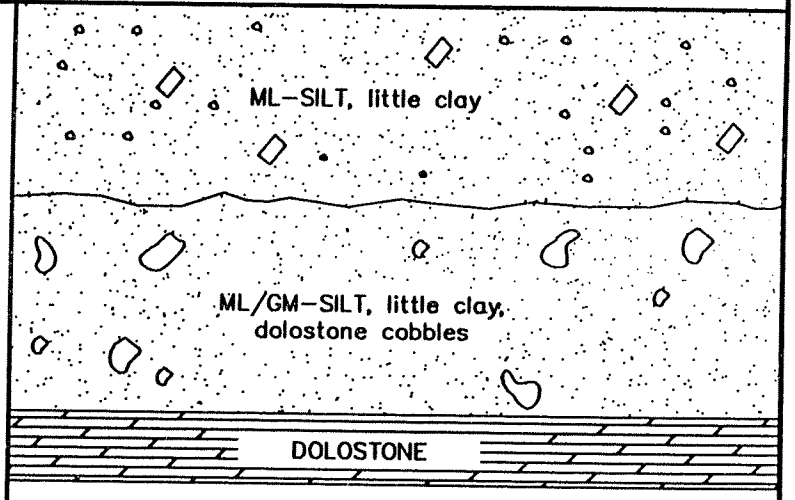
TEST PIT DESIGNATION: TP2-94
DATE STARTED: JUNE 21, 1994
DATE COMPLETED: JUNE 21, 1994
CRA SUPERVISOR: G. GILL

DEPTH (ft) FROM	DEPTH (ft) AT	DEPTH (ft) TO	SAMPLE DESCRIPTION SOIL SYMBOL, PRIMARY COMPONENT, SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS	SAMPLE #	PID (ppm)
0.0		1.0	ML-SILT(FILL), little clay, occasional gravel and brick fragments, dark brown, moist	(1)	0
1.0		2.1	ML/GM-SILT(NATIVE), little clay, some weathered bedrock cobbles, brown, moist		0
	2.1		DOLOSTONE BEDROCK, gray		

NOTE:
(1) Sample No S-5515-003 analysed for TCL and TAL parameters.

LOCATION: NORTH OF LIGHTWEIGHT ENVIRONMENTAL BUILDING

GEOLOGIC PROFILE



TEST PIT STRATIGRAPHY LOG

(L-04)

PROJECT NAME: FORMER DIAMOND SHAMROCK SITE
PROJECT NUMBER: 5515
CLIENT: OXYCHEM
LOCATION: LOCKPORT, NEW YORK

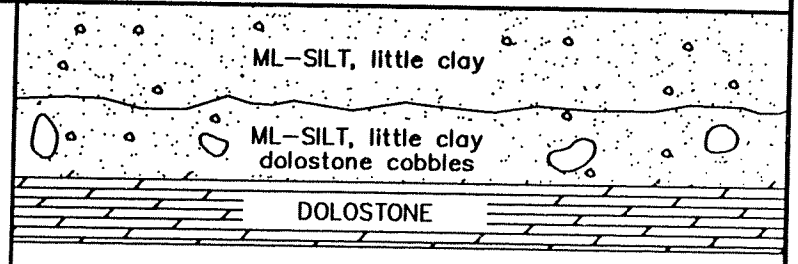
CONTRACTOR: BUFFALO DRILLING
SURFACE ELEVATION: N/A
TEST PIT METHOD: BACKHOE

TEST PIT DESIGNATION: TP3-94
DATE STARTED: JUNE 21, 1994
DATE COMPLETED: JUNE 21, 1994
CRA SUPERVISOR: G. GILL

DEPTH (ft) FROM	DEPTH (ft) AT	DEPTH (ft) TO	SAMPLE DESCRIPTION (SOIL SYMBOL, PRIMARY COMPONENT, SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS)	SAMPLE #	PID (ppm)
0.0		0.5	ML-SILT(NATIVE), little clay, dark brown, moist		0
0.5		0.9	ML/GM-SILT(NATIVE), little clay, some weathered dolostone gravel and cobbles		0
	0.9		DOLOSTONE BEDROCK, gray		

LOCATION: NORTHEAST OF LIGHTWEIGHT ENVIRONMENTAL BUILDING

GEOLOGIC PROFILE



TEST PIT STRATIGRAPHY LOG

(L-05)

PROJECT NAME: FORMER DIAMOND SHAMROCK SITE
PROJECT NUMBER: 5515
CLIENT: OXYCHEM
LOCATION: LOCKPORT, NEW YORK

CONTRACTOR: BUFFALO DRILLING
SURFACE ELEVATION: N/A
TEST PIT METHOD: BACKHOE

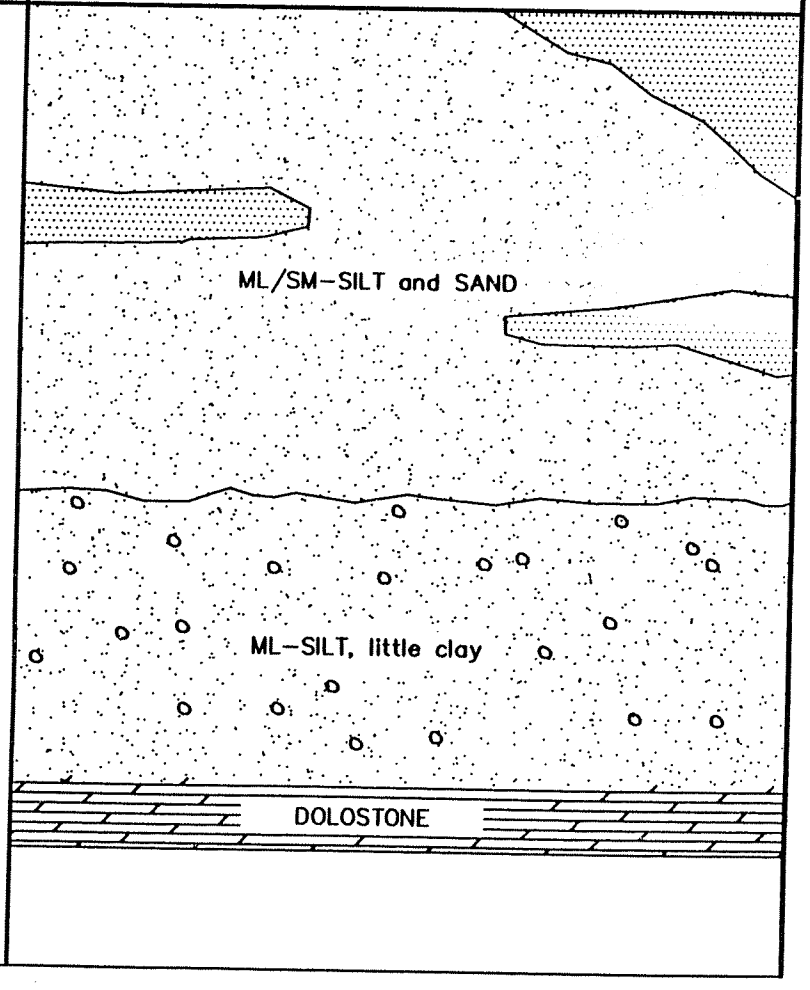
TEST PIT DESIGNATION: TP4-94
DATE STARTED: JUNE 21, 1994
DATE COMPLETED: JUNE 21, 1994
CRA SUPERVISOR: G. GILL

DEPTH (ft) FROM	DEPTH (ft) AT	DEPTH (ft) TO	SAMPLE DESCRIPTION SOIL SYMBOL, PRIMARY COMPONENT, SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS	SAMPLE #	PID (ppm)
0.0		2.5	ML/SM-SAND and SILT(FILL), little to some crushed stone, occasional brick fragment, trace wood, fine to medium grained, mixed and layered, brown and black, moist	(1)	0
2.5		4.0	ML-SILT(NATIVE), little clay, occasional subrounded gravel, brown, moist	(2)	
	4.0		DOLOSTONE BEDROCK, gray		

NOTE:
(1) Sample No S-5515-001 analysed for TCL and TAL parameters.
(2) Sample No S-5515-002 analysed for TCL and TAL parameters.

LOCATION: NORTH OF LIGHTWEIGHT ENVIRONMENTAL BUILDING

GEOLOGIC PROFILE



C

APPENDIX C

MONITORING WELL STRATIGRAPHIC AND INSTRUMENTATION LOGS

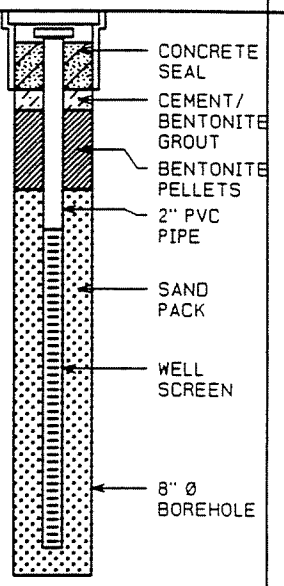
STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN AND BEDROCK)

(L-06)
Page 1 of 1

PROJECT NAME: FORMER DIAMOND SHAMROCK SITE
PROJECT NUMBER: 5515
CLIENT: OXYCHEM
LOCATION: AS PER PLAN

HOLE DESIGNATION: MW1-94
DATE COMPLETED: NOVEMBER 8, 1994
DRILLING METHOD: 4 ¼" HSA/WET ROTARY
CRA SUPERVISOR: G. GILL

DEPTH ft. BGS	DESCRIPTION OF STRATA	ELEV. ft. AMSL	MONITOR INSTALLATION	BEDROCK INTERVAL	RUN NUMBER	CORE RECOVERY %	RQD %	WATER RETURN %
	GROUND SURFACE REFERENCE POINT (Top of Riser)	*599.04* *598.82*						
	ML-SILT, trace fine sand, topsoil, loose, dark brown, wet	*598.24*						
2.5	SW/GW-SAND and GRAVEL, dolostone cobbles, fine to medium grained, wet	*597.94*						
5.0	DOLOSTONE (Lockport Formation), medium gray, moderately hard, numerous horizontal and vertical weathered fractures, with vugs and other solution structures, ocassional fossil fragments				1	95	0	50
7.5								
10.0					2	89	22	100
12.5								
	END OF HOLE @ 14.2 FT. BGS	*584.84*						
15.0								
17.5								
20.0								
22.5								
25.0								
27.5								
30.0								
32.5								



SCREEN DETAILS
Screened interval:
3.51 to 13.51ft BGS
Length: 8ft
Diameter: 2"
Slot Size: #6
Material: PVC
Sand Pack:
4.50 to 14.2ft BGS
Material: #00 Size Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

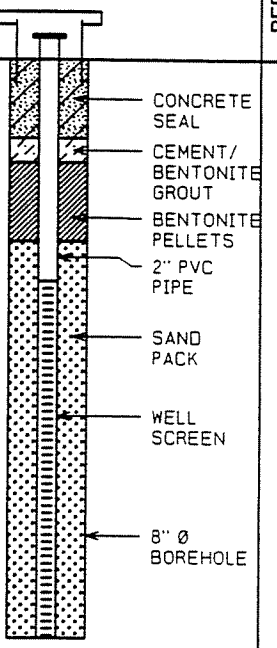
STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN AND BEDROCK)

(L-07)
Page 1 of 1

PROJECT NAME: FORMER DIAMOND SHAMROCK SITE
PROJECT NUMBER: 5515
CLIENT: OXYCHEM
LOCATION: AS PER PLAN

HOLE DESIGNATION: MW2-94
DATE COMPLETED: NOVEMBER 4, 1994
DRILLING METHOD: 4 ¼" HSA/WET ROTARY
CRA SUPERVISOR: G. GILL

DEPTH ft. BGS	DESCRIPTION OF STRATA	ELEV. ft. AMSL	MONITOR INSTALLATION	BEDROCK INTERVAL	RUN NUMBER	CORE RECOVERY %	RQD %	WATER RETURN %
	GROUND SURFACE REFERENCE POINT (Top of Riser)	*596.05* *597.99*						
	ML-SILT, little fine sand, topsoil, loose, dark brown, wet	*595.55*						
-2.5	SW-SAND, some silt, trace gravel, occasional cobbles, loose, fine to medium grained, brown, wet - weathered dolostone cobbles and boulders	*593.15*						
-5.0	DOLOSTONE (Lockport Formation), medium gray, moderately hard, numerous horizontal and vertical weathered fractures, with vugs and other solution structures, ocassional fossil fragments				1	90	0	100
-7.5					2	100	0	100
-10.0								
-12.5					3	96	25	100
-15.0	END OF HOLE @ 14.6 FT. BGS	*581.45*						
-17.5								
-20.0								
-22.5								
-25.0								
-27.5								
-30.0								
-32.5								



SCREEN DETAILS
Screened interval:
5.60 to 14.60ft BGS
Length: 8ft
Diameter: 2"
Slot Size: #6
Material: PVC
Sand Pack:
4.60 to 14.6ft BGS
Material: #00 Size Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN AND BEDROCK)

(L-08)
Page 1 of 1

PROJECT NAME: FORMER DIAMOND SHAMROCK SITE
PROJECT NUMBER: 5515
CLIENT: OXYCHEM
LOCATION: AS PER PLAN

HOLE DESIGNATION: MW3-94
DATE COMPLETED: NOVEMBER 7, 1994
DRILLING METHOD: 4 ¼" HSA/WET ROTARY
CRA SUPERVISOR: G. GILL

DEPTH ft. BGS	DESCRIPTION OF STRATA	ELEV. ft. AMSL	MONITOR INSTALLATION	BEDROCK INTERVAL	RUN NUMBER	CORE RECOVERY %	RQD %	WATER RETURN %
	GROUND SURFACE REFERENCE POINT (Top of Riser)	*598.87* *598.40*						
2.5	GP-GRAVEL (FILL), some sand, gray, wet, crusher run		CONCRETE SEAL CEMENT/ BENTONITE GROUT BENTONITE PELLETS 2" PVC PIPE					
5.0	Reamed without sampling through weathered bedrock (4.1 to 6.0ft BGS) to set 4" casing	*594.77*						
7.5	DOLOSTONE (Lockport Formation), medium gray, moderately hard, numerous horizontal and vertical weathered fractures, with vugs and other solution structures, ocassional fossil fragments	*592.87*	SAND PACK		1	100	0	75
10.0			WELL SCREEN					
12.5			8" Ø BOREHOLE		2	100	15	100
15.0	END OF HOLE @ 14.5 FT. BGS	*584.37*						
17.5								
20.0								
22.5								
25.0								
27.5								
30.0								
32.5								

SCREEN DETAILS
Screened interval:
6.08 to 14.08ft BGS
Length: 8ft
Diameter: 2"
Slot Size: #6
Material: PVC
Sand Pack:
5.00 to 14.5ft BGS
Material: #00 Size Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

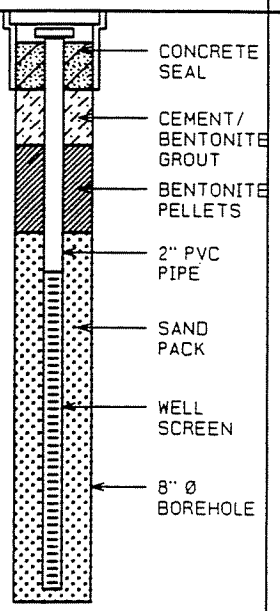
STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN AND BEDROCK)

(L-09)
Page 1 of 1

PROJECT NAME: FORMER DIAMOND SHAMROCK SITE
PROJECT NUMBER: 5515
CLIENT: OXYCHEM
LOCATION: AS PER PLAN

HOLE DESIGNATION: MW4-94
DATE COMPLETED: NOVEMBER 4, 1994
DRILLING METHOD: 4 ¼" HSA/WET ROTARY
CRA SUPERVISOR: G. GILL

DEPTH ft. BGS	DESCRIPTION OF STRATA	ELEV. ft. AMSL	MONITOR INSTALLATION	BEDROCK INTERVAL	RUN NUMBER	CORE RECOVERY %	RQD %	WATER RETURN %
	GROUND SURFACE **REFERENCE POINT (Top of Riser)**	*597.10* *596.71*						
	GM-GRAVEL (FILL), some fine to medium sand, dense, gray, wet, crusher run	*596.10*						
2.5	SW-SAND (FILL), some silt, some crushed stone, dense, fine to medium grained, gray, wet	*594.80*						
5.0	Reamed without sampling through weathered bedrock (2.3 to 3.6ft BGS) to set 4" casing	*593.50*						
7.5	DOLOSTONE (Lockport Formation), medium gray, moderately hard, numerous horizontal and vertical weathered fractures, with vugs and other solution structures, ocassional fossil fragments				1	100	0	50
10.0					2	100	10	100
12.5								
15.0					3	100	100	100
	END OF HOLE @ 14.9 FT. BGS	*582.20*						
17.5								
20.0								
22.5								
25.0								
27.5								
30.0								
32.5								



SCREEN DETAILS
Screened interval:
6.58 to 14.58ft BGS
Length: 8ft
Diameter: 2"
Slot Size: #6
Material: PVC
Sand Pack:
5.60 to 14.9ft BGS
Material: #00 Size Sand

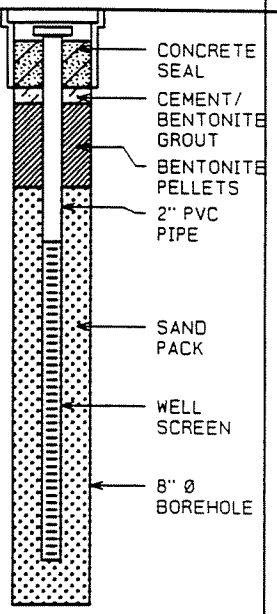
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN AND BEDROCK)

PROJECT NAME: FORMER DIAMOND SHAMROCK SITE
PROJECT NUMBER: 5515
CLIENT: OXYCHEM
LOCATION: AS PER PLAN

HOLE DESIGNATION: MW5-94
DATE COMPLETED: NOVEMBER 8, 1994
DRILLING METHOD: 4 ¼" HSA/WET ROTARY
CRA SUPERVISOR: G. GILL

DEPTH ft. BGS	DESCRIPTION OF STRATA	ELEV. ft. AMSL	MONITOR INSTALLATION	BEDROCK INTERVAL	RUN NUMBER	CORE RECOVERY %	RQD %	WATER RETURN %
	GROUND SURFACE REFERENCE POINT (Top of Riser)	*595.85* *595.59*						
	Augered without sampling through 0.2ft black ashphalt pavement	*595.65*						
	GM-GRAVEL (FILL), some sand, gray, wet, crusher run	*594.85*						
2.5	GP-GRAVEL (FILL), gray, wet, #1 size crushed stone							
	DOLOSTONE (Lockport Formation), medium gray, moderately hard, numerous horizontal and vertical weathered fractures, with vugs and other solution structures, ocassional fossil fragments	*591.65*						
5.0					1	80	0	50
7.5					2	100	20	100
10.0								
12.5					3	76	35	100
15.0	END OF HOLE @ 15.0 FT. BGS	*580.85*						
17.5								
20.0								
22.5								
25.0								
27.5								
30.0								
32.5								



SCREEN DETAILS
Screened interval:
5.88 to 13.88ft BGS
Length: 8ft
Diameter: 2"
Slot Size: #6
Material: PVC
Sand Pack:
4.50 to 15.0ft BGS
Material: #00 Size Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

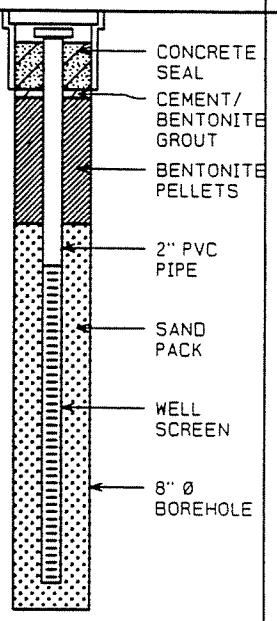
STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN AND BEDROCK)

(L-11)
Page 1 of 1

PROJECT NAME: FORMER DIAMOND SHAMROCK SITE
PROJECT NUMBER: 5515
CLIENT: OXYCHEM
LOCATION: AS PER PLAN

HOLE DESIGNATION: MW6-94
DATE COMPLETED: NOVEMBER 9, 1994
DRILLING METHOD: 4 ¼" HSA/WET ROTARY
CRA SUPERVISOR: G. GILL

DEPTH ft. BGS	DESCRIPTION OF STRATA	ELEV. ft. AMSL	MONITOR INSTALLATION	BEDROCK INTERVAL	RUN NUMBER	CORE RECOVERY %	RQD %	WATER RETURN %
	GROUND SURFACE REFERENCE POINT (Top of Riser)	*597.07 596.65*						
	GM-GRAVEL (FILL), some fine to medium sand, gray, moist, crusher run	*596.57*						
2.5	GP-GRAVEL and SAND (FILL), some slag, fine to medium grained, black, wet	*593.57*						
	ML-SILT (TILL), little fine sand, clay and gravel, brown, moist	*593.17*						
5.0	DOLOSTONE (Lockport Formation), medium gray, moderately hard, numerous horizontal and vertical weathered fractures, with vugs and other solution structures, ocassional fossil fragments							
7.5					1	92	0	50
10.0								
12.5					2	80	25	100
15.0	END OF HOLE @ 15.1 FT. BGS	*581.97*						
17.5								
20.0								
22.5								
25.0								
27.5								
30.0								
32.5								



SCREEN DETAILS
Screened interval:
6.44 to 14.44ft BGS
Length: 8ft
Diameter: 2"
Slot Size: #6
Material: PVC
Sand Pack:
5.40 to 15.1ft BGS
Material: #00 Size Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

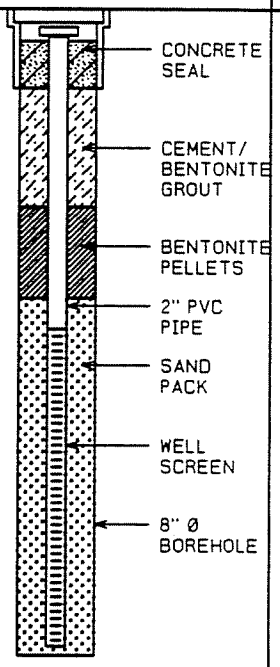
STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN AND BEDROCK)

(L-12)
Page 1 of 1

PROJECT NAME: FORMER DIAMOND SHAMROCK SITE
PROJECT NUMBER: 5515
CLIENT: OXYCHEM
LOCATION: AS PER PLAN

HOLE DESIGNATION: MW7-94
DATE COMPLETED: NOVEMBER 7, 1994
DRILLING METHOD: 4" ¼ HSA/WET ROTARY
CRA SUPERVISOR: G. GILL

DEPTH ft. BGS	DESCRIPTION OF STRATA	ELEV. ft. AMSL	MONITOR INSTALLATION	BEDROCK INTERVAL	RUN NUMBER	CORE RECOVERY %	RQD %	WATER RETURN %
	GROUND SURFACE REFERENCE POINT (Top of Riser)	*598.66* *598.41*						
	Augered without sampling through 0.2ft of black ashphalt pavement	*596.46*						
	GM-GRAVEL (FILL), some fine to medium sand, gray, moist, crusher run	*596.06*						
2.5	SW-SAND (FILL), some silt and fine gravel, fine to medium grained, black, wet	*593.66*						
5.0	ML/CL-SILT and CLAY, gray and brown mottled, moist, dessicated	*592.26*						
	SW-SAND (TILL), some silt and gravel, fine to medium grained, brown, moist	*590.16*						
7.5	Reamed without sampling (5.0 to 6.5ft BGS) to set 4" casing							
	DOLOSTONE (Lockport Formation), medium gray, moderately hard, numerous horizontal and vertical weathered fractures, with vugs and other solution structures, ocassional fossil fragments				1	95	27	100
10.0								
12.5								
15.0								
	END OF HOLE @ 16.3 FT. BGS	*580.36*						
17.5								
20.0								
22.5								
25.0								
27.5								
30.0								
32.5								



SCREEN DETAILS
Screened interval:
8.08 to 16.08ft BGS
Length: 8ft
Diameter: 2"
Slot Size: #6
Material: PVC
Sand Pack:
7.30 to 16.3ft BGS
Material: #00 Size Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

D

APPENDIX D

WELL DEVELOPMENT AND STABILIZATION FORMS

WELL DEVELOPMENT AND STABILIZATION FORM

PROJECT NAME: Diamond Shamrock RSA PROJECT NO. 5515
DATE OF WELL DEVELOPMENT: 11-9-94
DEVELOPMENT CREW MEMBERS: GG
SUPERVISOR:
PURGING METHOD: Bailer / Peristaltic Pump

WELL INFORMATION

WELL NUMBER: MW1-94
WELL TYPE (diameter/material): 2" / PVC
MEASURING POINT ELEVATION: 598.82 TOC
STATIC WATER DEPTH: 0.55 BTOC ELEVATION 598.27
BOTTOM DEPTH: 13.51 BTOC ELEVATION 585.31
WATER COLUMN LENGTH: 12.96
SCREENED INTERVAL: 13.51 → 4.5 BGS
WELL VOLUME: ≈ 2.0 gallons

Note: For 2" dia well, 1 foot = 0.14 gallons (imp) or 0.16 gallons (us).
1 meter = 2 liters

	1	2	3	4	5	TOT/AVG
VOLUME PURGED (# bails/tot. volume)	12	14	16	18	20	≈ 20 gallons
FIELD pH	7.04	7.09	7.21	7.09	7.09	7.10
FIELD TEMPERATURE	55	54	54	54	54	54
FIELD CONDUCTIVITY	970	972	980	975	980	975
CLARITY/TURBIDITY VALUES (NTU)	4.33	3.98	2.54	3.35	3.27	3.49
COLOUR	Clear →					
ODOR	None →					
COMMENTS						

COPIES TO:

Note: well purged a total of 10 volumes
only last 5 volumes shown

CRA

WELL DEVELOPMENT AND STABILIZATION FORM

PROJECT NAME: Diamond Shamrock R.S.A — PROJECT NO. 5515
DATE OF WELL DEVELOPMENT: 11-9-94
DEVELOPMENT CREW MEMBERS: G. G.
SUPERVISOR:
PURGING METHOD: Bailer/Peristaltic Pump

WELL INFORMATION

WELL NUMBER: MW2-94
WELL TYPE (diameter/material): 2" / PVC
MEASURING POINT ELEVATION: 597.99 TOC
STATIC WATER DEPTH: 3.42 BTOC — ELEVATION 594.57
BOTTOM DEPTH: 16.56 BTOC — ELEVATION 581.43
WATER COLUMN LENGTH: 13.14
SCREENED INTERVAL: 16.56 → 6.54 BGS
WELL VOLUME: ≈2.1 gal/volume

Note: For 2" dia well, 1 foot = 0.14 gallons (imp) or 0.16 gallons (us).
1 meter = 2 liters

	1	2	3	4	5	TOT/AVG
VOLUME PURGED (# bails/tot. volume)	14	16	18	20	22	≈22
FIELD pH	7.10	7.18	7.05	7.18	7.11	7.12
FIELD TEMPERATURE	50	50	50	49	51	50°
FIELD CONDUCTIVITY	1220	1220	1220	1220	1200	1216
CLARITY/TURBIDITY VALUES (NTU)	8.39	5.57	4.5	2.3	1.83	4.5
COLOUR	Clear	—	—	—	→	
ODOR	None	—	—	—	→	
COMMENTS						

COPIES TO: Note: well purged a total of 10 volumes
Only last 5 volumes shown

CRA

WELL DEVELOPMENT AND STABILIZATION FORM

PROJECT NAME: Diamond Shamrock P.S.A. — PROJECT NO. 5515
DATE OF WELL DEVELOPMENT: 11-9-94
DEVELOPMENT CREW MEMBERS: GG
SUPERVISOR:
PURGING METHOD: Bailer / Peristaltic Pump

WELL INFORMATION

WELL NUMBER: MW3-94
WELL TYPE (diameter/material): 2" / PVC
MEASURING POINT ELEVATION: 598.40 TOC
STATIC WATER DEPTH: 3.10 BTOC — ELEVATION 595.30
BOTTOM DEPTH: 14.08 BTOC — ELEVATION 584.32
WATER COLUMN LENGTH: 10.98
SCREENED INTERVAL: 14.08 → 5.0 BGS
WELL VOLUME: 1.7 gallons

Note: For 2" dia well, 1 foot = 0.14 gallons (imp) or 0.16 gallons (us).
1 meter = 2 liters

	1	2	3	4	5	TOT/AVG
VOLUME PURGED (# bails/tot. volume)	.12	14	16	18	20	20
FIELD pH	7.32	7.37	7.19	7.21	7.23	7.2
FIELD TEMPERATURE	56	56	56	56	55	56
FIELD CONDUCTIVITY	0820	0820	0850	0830	0850	835
CLARITY/TURBIDITY VALUES (NTU)	1.55	1.57	1.37	1.38	1.33	1.4
COLOUR	Clear →					
ODOR	None →					
COMMENTS						

COPIES TO: Note: Well purged a total of 10 volumes, only last 5 volumes shown

CRA

WELL DEVELOPMENT AND STABILIZATION FORM

PROJECT NAME Diamond Shamrock PSA — PROJECT NO. 5575
DATE OF WELL DEVELOPMENT 11-9-94
DEVELOPMENT CREW MEMBERS G. G.
SUPERVISOR
PURGING METHOD Bailer / Peristaltic Pump

WELL INFORMATION

WELL NUMBER MW4-94
WELL TYPE (diameter/material) 2" / PVC
MEASURING POINT ELEVATION 596.71 TOC — ELEVATION 595.27
STATIC WATER DEPTH 1.44 BTOC
BOTTOM DEPTH 14.58 BTOC — ELEVATION 582.13
WATER COLUMN LENGTH 13.14
SCREENED INTERVAL 14.58 → 5.6 BGS
WELL VOLUME 2.1 gallons

Note: For 2" dia well, 1 foot = 0.14 gallons (imp) or 0.16 gallons (us).
1 meter = 2 liters

	1	2	3	4	5	TOT/AVG
VOLUME PURGED (# bails/tot. volume)	.14	16	18	20	22	122 gallons
FIELD pH	9.88	10.08	9.96	10.11	10.05	10.01
FIELD TEMPERATURE	50	50	50	50	50	50
FIELD CONDUCTIVITY	2000	2010	2010	2020	2020	2012
CLARITY/TURBIDITY VALUES (NTU)	90	80	56	47	48	65
COLOUR	Translucent, Coffee Brown	→	→	→	→	
ODOR	None	→	→	→	→	
COMMENTS						

COPIES TO: Note: Well purged a total of 10 volumes, only last 5 volumes shown

CRA

WELL DEVELOPMENT AND STABILIZATION FORM

PROJECT NAME: Diamond Shamrock PSA — PROJECT NO. 5515
DATE OF WELL DEVELOPMENT: 11-10-94
DEVELOPMENT CREW MEMBERS: GG
SUPERVISOR:
PURGING METHOD: Bailer / Peristaltic pump

WELL INFORMATION

WELL NUMBER: MW 5-94
WELL TYPE (diameter/material): 2" / PVC
MEASURING POINT ELEVATION: 595.51 TOC
STATIC WATER DEPTH: 2.06 BTOC — ELEVATION 593.45
BOTTOM DEPTH: 13.88 BTOC — ELEVATION 581.63
WATER COLUMN LENGTH: 11.82
SCREENED INTERVAL: 13.88 → 4.5' BGS
WELL VOLUME: 1.8 gallons

Note: For 2" dia well, 1 foot = 0.14 gallons (imp) or 0.16 gallons (us).
1 meter = 2 liters

	1	2	3	4	5	TOT/AVG
VOLUME PURGED (# bails/tot. volume)	.12	14	16	18	20	320 gallons
FIELD pH	7.20	7.25	7.21	7.20	7.18	
FIELD TEMPERATURE	55	56	56	56	55	56
FIELD CONDUCTIVITY	940	1066	1050	1065	1050	1035
CLARITY/TURBIDITY VALUES (NTU)	49	28	16	9.2	7.5	42
COLOUR	Clear →				→	
ODOR	None →			→		
COMMENTS						

COPIES TO:

Note: Well purged a total of 10 volumes only last 5 volumes shown

CRA

WELL DEVELOPMENT AND STABILIZATION FORM

PROJECT NAME Diamond Shamrock R.S. 4. PROJECT NO. 5515
DATE OF WELL DEVELOPMENT 11-10-94
DEVELOPMENT CREW MEMBERS GG
SUPERVISOR
PURGING METHOD Bailer / Peristaltic Pump

WELL INFORMATION

WELL NUMBER MW6-94
WELL TYPE (diameter/material) 2" / PVC
MEASURING POINT ELEVATION 596.65 TOC
STATIC WATER DEPTH 1.30 BTOC ELEVATION 595.35
BOTTOM DEPTH 14.41 BTOC ELEVATION 582.24
WATER COLUMN LENGTH 13.14
SCREENED INTERVAL 14.44 → 5.4 BGS
WELL VOLUME 2.1 gallons

Note: For 2" dia well, 1 foot = 0.14 gallons (imp) or 0.16 gallons (us).
1 meter = 2 liters

	1	2	3	4	5	TOT/AVG
VOLUME PURGED (# bails/tot. volume)	.14	16	18	20	22	110 gallons
FIELD pH	7.29	7.24	7.26	7.18	7.24	7.24
FIELD TEMPERATURE	53	53	52	54	54	53
FIELD CONDUCTIVITY	1163	1170	1170	1170	1160	1165
CLARITY/TURBIDITY VALUES (NTU)	95	42	34	17.2	25	43
COLOUR	Clear →					
ODOR	None →					
COMMENTS						

COPIES TO: NOTE: Well purged a Total of 10 volumes
Only last 5 volumes shown.

CRA

WELL DEVELOPMENT AND STABILIZATION FORM

PROJECT NAME: Diamond Shamrock PSA — PROJECT NO. 5515
DATE OF WELL DEVELOPMENT: 11-10-94
DEVELOPMENT CREW MEMBERS: GG
SUPERVISOR:
PURGING METHOD: Bailer / Peristaltic Pump

WELL INFORMATION

WELL NUMBER: MW7-94
WELL TYPE (diameter/material): 2" / PVC
MEASURING POINT ELEVATION: 596.41 TOC
STATIC WATER DEPTH: 2.14 BTOC — ELEVATION 594.27
BOTTOM DEPTH: 16.08 BTOC — ELEVATION 580.33
WATER COLUMN LENGTH:
SCREENED INTERVAL: 16.33 → 7.3 BGS
WELL VOLUME: 2.2 gallons

Note: For 2" dia well, 1 foot = 0.14 gallons (imp) or 0.16 gallons (us).
1 meter = 2 liters

	1	2	3	4	5	TOT/AVG
VOLUME PURGED (# bails/tot. volume)	14	16	18	20	22	22 gallons
FIELD pH	10.40	10.42	10.56	10.49	10.51	10.47
FIELD TEMPERATURE	55	56	55	56	56	56
FIELD CONDUCTIVITY	3700	3710	3700	3720	3710	3708
CLARITY/TURBIDITY VALUES (NTU)	71	53	46	50	34	51
COLOUR	Translucent, Coffee Brown →				→	
ODOR	None →				→	
COMMENTS						

COPIES TO: Note: well purged a total of 10 volumes only last 5 shown.

CRA

E

APPENDIX E

HYDRAULIC CONDUCTIVITY TEST DATA

<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<>>

A Q T E S O L V   R E S U L T S

Version 1.10

02/20/95 16:09:17

==

TEST DESCRIPTION

Data set........... mw1.dat
Data set title..... MW1

Knowns and Constants:
- No. of data points.................. 18
- Pumping rate........................ 1
- Radius (distance) to obs. well...... 0.083

==

ANALYTICAL METHOD

Cooper et al. (Confined Aquifer Slug Test)

==

RESULTS FROM STATISTICAL CURVE MATCHING

STATISTICAL MATCH PARAMETER ESTIMATES

		Estimate		Std. Error
T	=	3.5274E-003	+/-	2.6879E-003
S	=	3.5681E-001	+/-	3.7658E-001

ANALYSIS OF MODEL RESIDUALS

residual = calculated - observed
weighted residual = residual * weight

Weighted Residual Statistics:
- Number of residuals............... 18
- Number of estimated parameters.... 2
- Degrees of freedom................ 16
- Residual mean..................... -0.01285
- Residual standard deviation....... 0.06617
- Residual variance................. 0.004379

Model Residuals:

Time	Observed	Calculated	Residual	Weight
0.01	0.46	0.53055	-0.070553	1
0.03	0.41	0.46553	-0.055526	1
0.06	0.39	0.41161	-0.021614	1
0.09	0.37	0.37573	-0.0057319	1
0.01	0.34	0.53055	-0.19055	1
0.19	0.34	0.30338	0.036621	1
0.28	0.32	0.26423	0.055768	1
0.36	0.3	0.23893	0.061073	1
0.43	0.28	0.22141	0.058594	1
0.51	0.26	0.20431	0.055685	1
0.59	0.24	0.19162	0.048381	1
0.66	0.19	0.17936	0.010639	1
1	0.12	0.14395	-0.023947	1
1.43	0.08	0.11598	-0.035983	1
2.18	0.05	0.087591	-0.037591	1
2.59	0.05	0.07714	-0.02714	1
3.01	0.03	0.072348	-0.042348	1
3.43	0.01	0.057007	-0.047007	1

RESULTS FROM VISUAL CURVE MATCHING

'ISUAL MATCH PARAMETER ESTIMATES

	Estimate
T =	3.5274E-003
S =	3.5681E-001

$$K = \frac{T}{b}$$

b = saturated thickness assumed to be height of static water level in the well

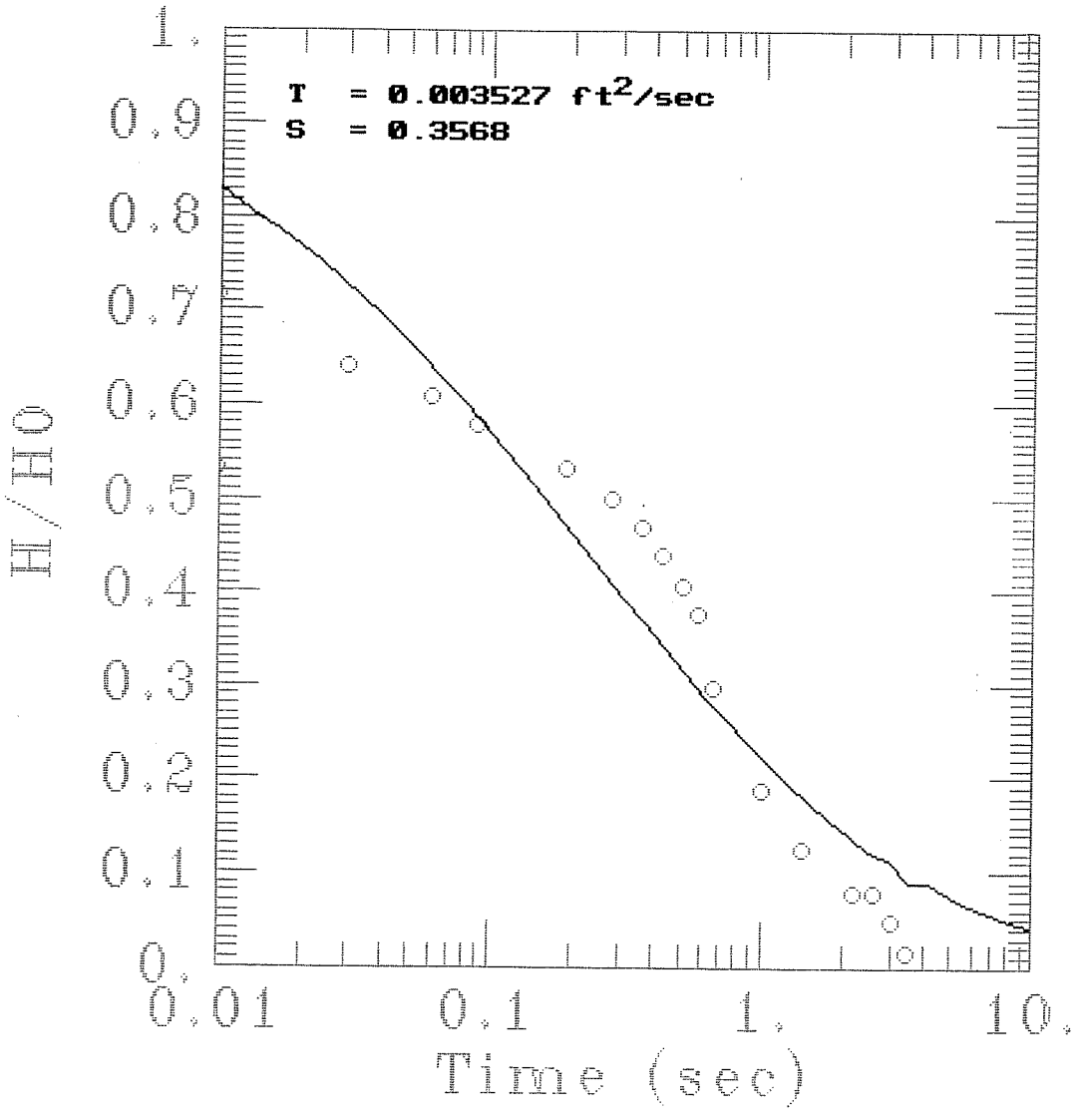
$$K = \frac{.0035 \text{ ft}^2/\text{sec}}{11.83 \text{ ft}} = .000298 \text{ ft/sec} \times .3048 \text{ conv. factor}$$

= .000098 meters/sec × 100

= .0090 cm/sec

= 9.0×10^{-3} cm/sec

MW1


T = 0.003527 ft²/sec
S = 0.3568
H/H0
1.
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.
0.01
0.1
1.
10.
Time (sec)

AQTESOLV RESULTS
Version 1.10

02/20/95 14:23:23

TEST DESCRIPTION

Data set..... MW2.DAT
Data set title..... MW2.DAT

Knowns and Constants:
No. of data points..... 14
Pumping rate..... 1
Radius (distance) to obs. well..... 0.083

ANALYTICAL METHOD

Cooper et al. (Confined Aquifer Slug Test)

RESULTS FROM STATISTICAL CURVE MATCHING

STATISTICAL MATCH PARAMETER ESTIMATES

	Estimate	Std. Error
T =	3.9263E-002 +/-	6.4637E-003
S =	2.3883E-003 +/-	1.9059E-003

ANALYSIS OF MODEL RESIDUALS

residual = calculated - observed
weighted residual = residual * weight

weighted Residual Statistics:
Number of residuals..... 14
Number of estimated parameters.... 2
Degrees of freedom..... 12
Residual mean..... -0.001016
Residual standard deviation..... 0.01493
Residual variance..... 0.0002228

odel Residuals:

Time	Observed	Calculated	Residual	Weight
0.01	0.5	0.48136	0.018644	1
0.05	0.37	0.39086	-0.020858	1
0.1	0.32	0.31868	0.0013183	1
0.11	0.3	0.30702	-0.0070158	1
0.15	0.25	0.26662	-0.016619	1
0.21	0.23	0.21984	0.010163	1
0.26	0.2	0.18965	0.010354	1
0.33	0.18	0.15667	0.023335	1
0.35	0.16	0.14878	0.011222	1
0.45	0.11	0.11686	-0.0068556	1
0.58	0.09	0.088464	0.0015365	1
0.61	0.07	0.083371	-0.013371	1
1.06	0.02	0.040615	-0.020615	1
1.48	0.02	0.025464	-0.0054639	1

RESULTS FROM VISUAL CURVE MATCHING

SUAL MATCH PARAMETER ESTIMATES

	Estimate
T =	3.9263E-002
S =	2.3883E-003

$K = \frac{T}{b}$

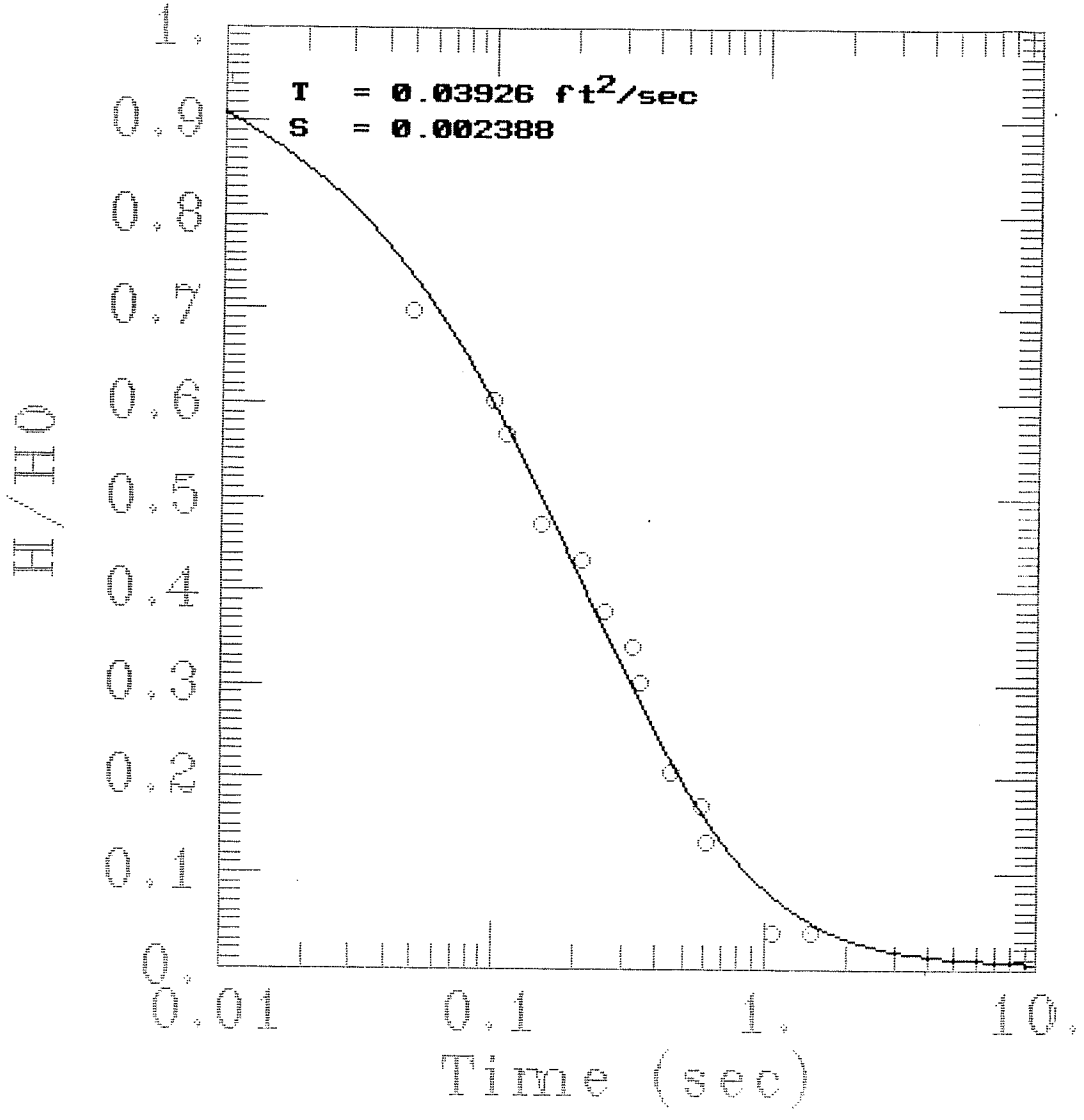
b = saturated thickness, assumed to be height of static water level in the well

$K = \frac{.03926\ ft^2/sec}{10.72\ ft} = .00366\ ft/sec \times .3048$ conversion factor

$= .0011\ m/sec \times 100 = .1162\ cm/sec$

$= 1.1 \times 10^{-1}\ cm/sec$

MW2.DAT


T = 0.03926 ft²/sec
S = 0.002388
H/Ho
1.
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.
0.01
0.1
1.
10.
Time (sec)

‹‹››

A Q T E S O L V R E S U L T S
Version 1.10

02/20/95 14:32:19

==

TEST DESCRIPTION

Data set........... mw3.dat
Data set title..... MW3

Knowns and Constants:
- No. of data points.................. 14
- Pumping rate........................ 1
- Radius (distance) to obs. well...... 0.083

==

ANALYTICAL METHOD

Cooper et al. (Confined Aquifer Slug Test)

==

RESULTS FROM STATISTICAL CURVE MATCHING

STATISTICAL MATCH PARAMETER ESTIMATES

	Estimate		Std. Error
T =	6.1261E-002	+/-	1.0798E-002
S =	3.7503E-005	+/-	2.8537E-005

ANALYSIS OF MODEL RESIDUALS

residual = calculated - observed
weighted residual = residual * weight

Weighted Residual Statistics:
- Number of residuals............... 14
- Number of estimated parameters.... 2
- Degrees of freedom................ 12
- Residual mean..................... 0.0003449
- Residual standard deviation....... 0.01943
- Residual variance................. 0.0003775

Model Residuals:

Time	Observed	Calculated	Residual	Weight
0.03	0.51	0.48572	0.024277	1
0.05	0.42	0.4213	-0.0012979	1
0.06	0.39	0.39475	-0.0047463	1
0.08	0.32	0.3495	-0.029498	1
0.1	0.3	0.31216	-0.012157	1
0.11	0.28	0.2958	-0.015801	1
0.15	0.28	0.24197	0.038025	1
0.18	0.23	0.21076	0.019242	1
0.23	0.18	0.17064	0.0093584	1
0.31	0.11	0.12666	-0.01666	1
0.36	0.09	0.10729	-0.017293	1
0.55	0.07	0.063652	0.0063481	1
0.78	0.05	0.039884	0.010116	1
1.1	0.02	0.025083	-0.0050828	1

==

RESULTS FROM VISUAL CURVE MATCHING

VISUAL MATCH PARAMETER ESTIMATES

	Estimate
T =	6.1261E-002
S =	3.7503E-005

<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>

$K = \frac{T}{b}$

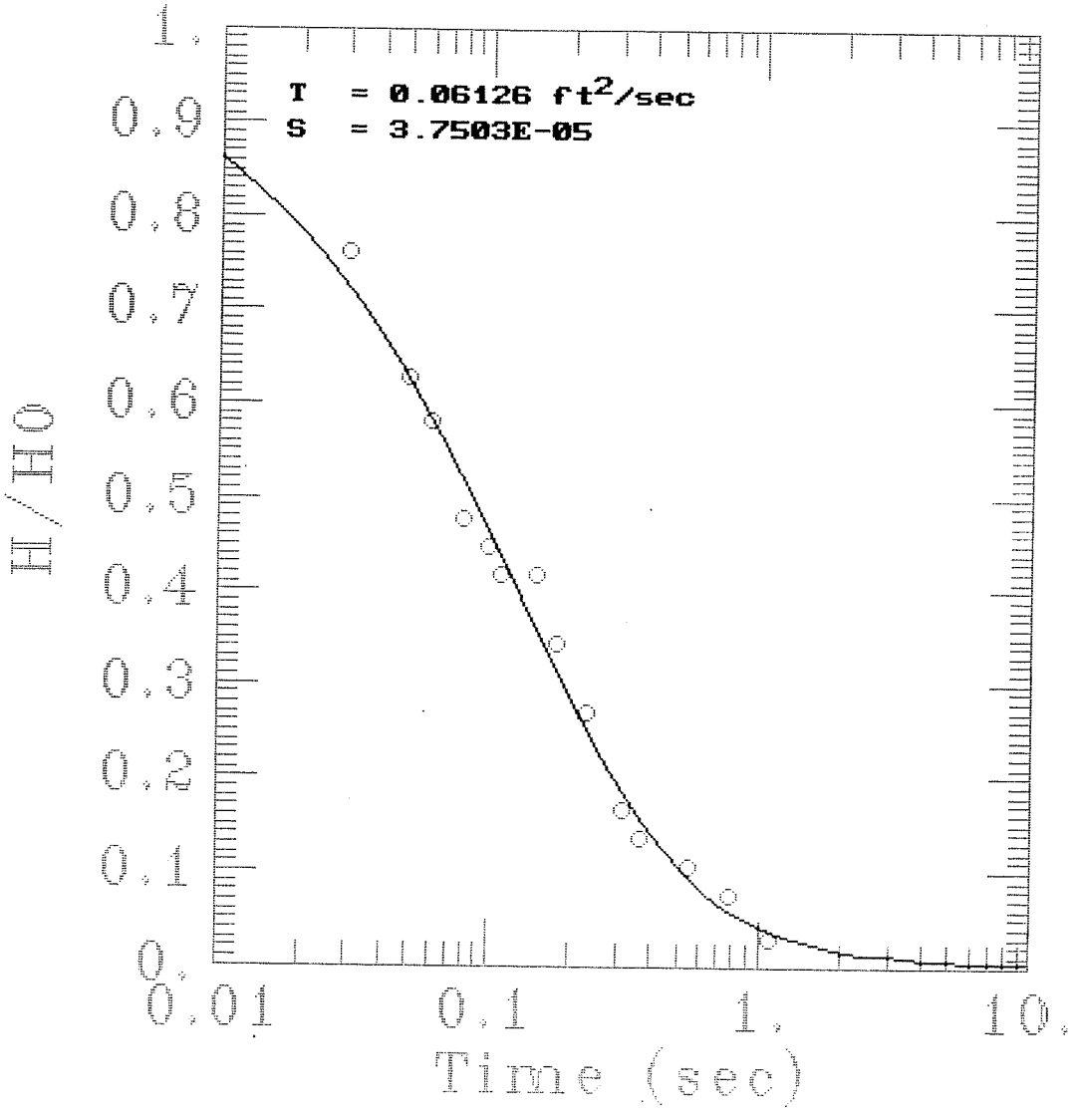
b = saturated thickness assumed to be height of static water level in well

$K = \frac{.06126 \text{ ft}^2/\text{sec}}{10.56 \text{ ft}} = .0058 \text{ ft/sec} \times .3048$ conversion factor =

$.00176 \text{ m/sec} \times 100 = .1767 \text{ cm/sec}$

$= 1.76 \times 10^{-1} \text{ cm/sec}$

MW3


T = 0.06126 ft²/sec
S = 3.7503E-05
H/Ho
1.
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.
0.01
0.1
1.
10.
Time (sec)

<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<>>

A Q T E S O L V   R E S U L T S
Version 1.10

2/20/95 14:35:49

==

TEST DESCRIPTION

ata set........... mw4.dat
ata set title..... MW4

nowns and Constants:
No. of data points.................. 12
Pumping rate........................ 1
Radius (distance) to obs. well...... 0.083

==

ANALYTICAL METHOD

ooper et al. (Confined Aquifer Slug Test)

==

RESULTS FROM STATISTICAL CURVE MATCHING

ATISTICAL MATCH PARAMETER ESTIMATES

	Estimate		Std. Error
T =	2.3255E-002	+/-	2.7521E-003
S =	7.9094E-004	+/-	9.4131E-005

ALYSIS OF MODEL RESIDUALS

esidual = calculated - observed
ighted residual = residual * weight

eighted Residual Statistics:
Number of residuals............... 12
Number of estimated parameters.... 2
Degrees of freedom................ 10
Residual mean..................... -0.007001
Residual standard deviation....... 0.03409
Residual variance................. 0.001162

Model Residuals:

Time	Observed	Calculated	Residual	Weight
0.01	0.37	0.44474	-0.074738	1
0.05	0.32	0.31904	0.00096419	1
0.1	0.27	0.24948	0.020524	1
0.11	0.25	0.23584	0.014159	1
0.13	0.23	0.22384	0.0061566	1
0.2	0.21	0.17285	0.037147	1
0.28	0.16	0.13916	0.020843	1
0.33	0.13	0.12382	0.0061752	1
0.43	0.08	0.10108	-0.021081	1
0.55	0.06	0.082384	-0.022384	1
0.71	0.03	0.065657	-0.035657	1
1.03	0.01	0.046116	-0.036116	1

==

RESULTS FROM VISUAL CURVE MATCHING

VISUAL MATCH PARAMETER ESTIMATES

		Estimate
T	=	2.3255E-002
S	=	7.9094E-004

<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<>>

$K = \frac{T}{b}$

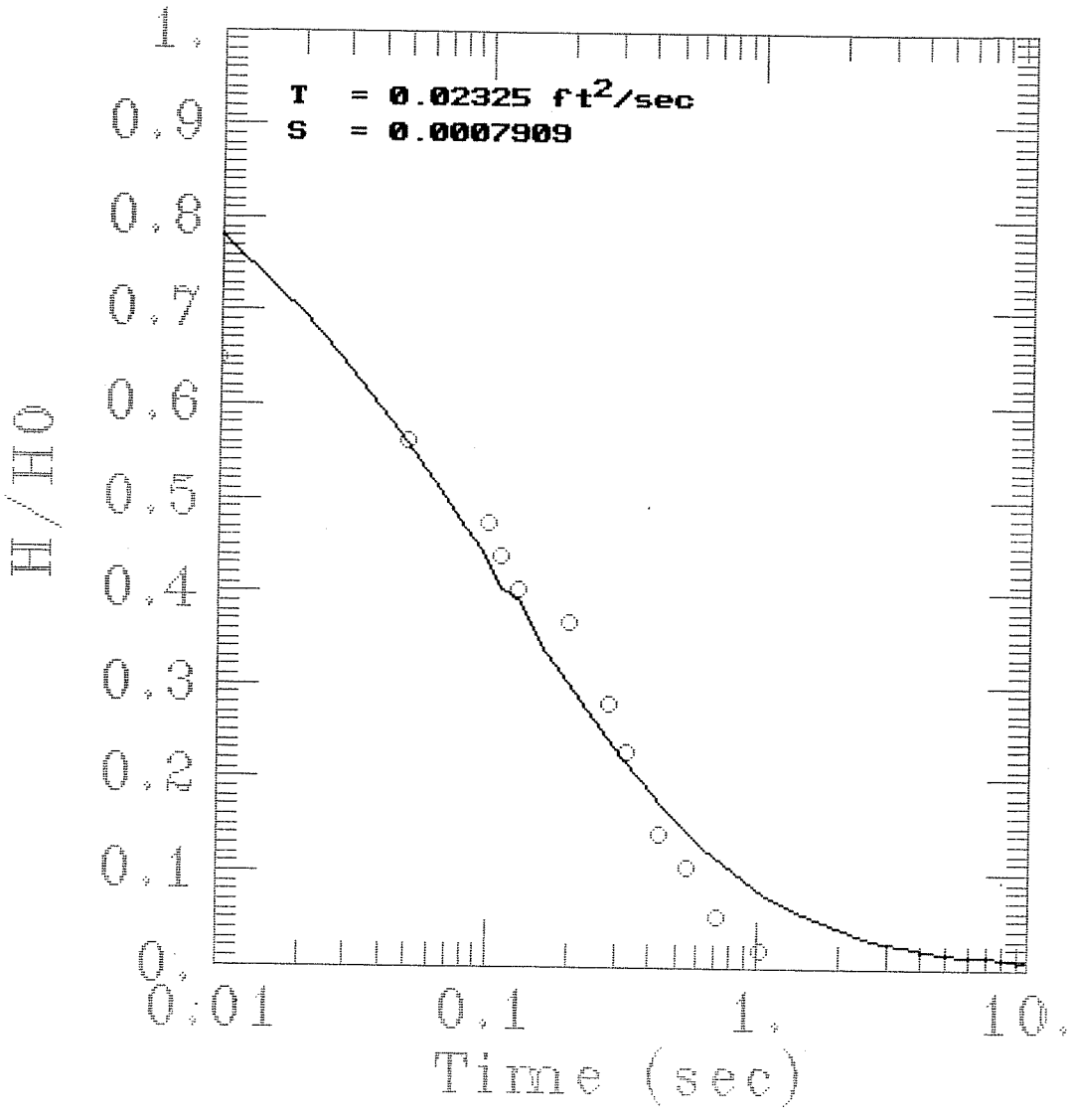
b = saturated thickness, assumed to be static height of water in well

$K = \frac{.02325 \text{ ft}^2/\text{sec}}{12.88 \text{ ft}} = .0018$ ft/sec × .3048 Conversion Factor =

.00055 m/sec × 100 = .055 cm/sec

= 5.5×10^{-2} cm/sec

MW4


T = 0.02325 ft²/sec
S = 0.0007909
H/Ho
1.
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.
0.01
0.1
1.
10.
Time (sec)

<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<>>

A Q T E S O L V R E S U L T S

Version 1.10

02/20/95 14:38:28

==

TEST DESCRIPTION

ata set........... mw5.dat
Data set title..... MW5

nowns and Constants:
No. of data points.................. 9
Pumping rate........................ 1
Radius (distance) to obs. well...... 0.083

==

ANALYTICAL METHOD

Cooper et al. (Confined Aquifer Slug Test)

==

RESULTS FROM STATISTICAL CURVE MATCHING

STATISTICAL MATCH PARAMETER ESTIMATES

		Estimate		Std. Error
T	=	1.0867E-003	+/-	2.1880E-004
S	=	1.5915E-003	+/-	4.7737E-004

ANALYSIS OF MODEL RESIDUALS

residual = calculated - observed
weighted residual = residual * weight

Weighted Residual Statistics:
Number of residuals............... 9
Number of estimated parameters.... 2
Degrees of freedom................ 7
Residual mean..................... -0.005541
Residual standard deviation....... 0.04445
Residual variance................. 0.001976

Model Residuals:

Time	Observed	Calculated	Residual	Weight
0.03	0.6	0.54765	0.052353	1
0.05	0.48	0.52821	-0.048211	1
0.11	0.41	0.48887	-0.078874	1
0.56	0.39	0.36394	0.026059	1
1.36	0.27	0.2731	-0.0031039	1
3.01	0.21	0.1888	0.021199	1
4.26	0.18	0.15752	0.022478	1
4.93	0.11	0.13459	-0.024587	1
7.45	0.09	0.10719	-0.017187	1

==

RESULTS FROM VISUAL CURVE MATCHING

VISUAL MATCH PARAMETER ESTIMATES

		Estimate
T	=	1.0867E-003
S	=	1.5915E-003

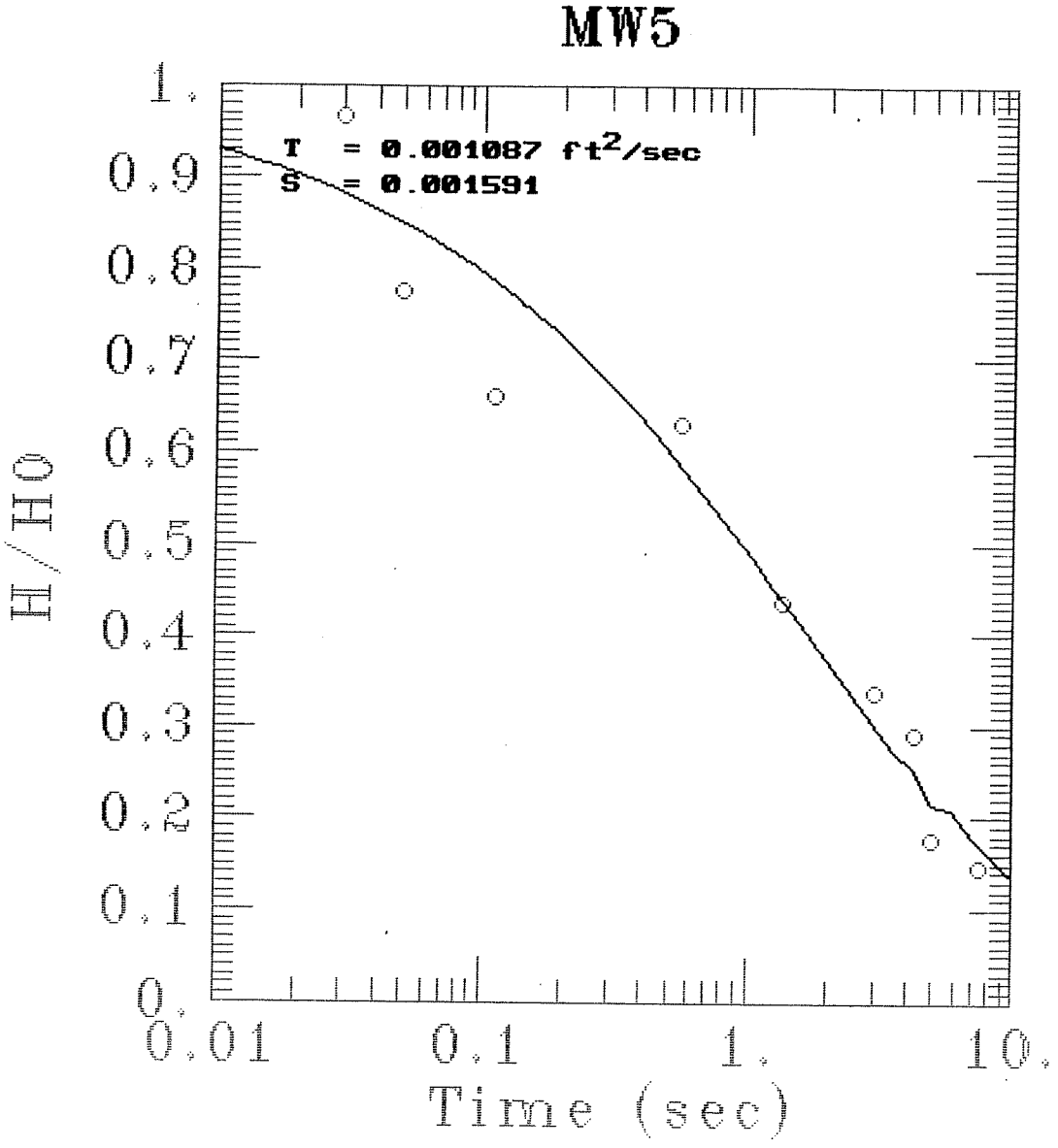
<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<>>

$K = \frac{T}{b}$ b = saturated thickness, assumed to be height of static water level in the well

$K = \frac{.00108 \text{ ft}^2/\text{sec}}{11.43 \text{ ft}} = .000095$ ft/sec × .3048 conversion factor

$= .0000289$ m/sec × 100

$= .00289 = 2.89 \times 10^{-3}$ cm/sec


MW5
T = 0.001087 ft²/sec
S = 0.001591
H/H0
1.
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.
0.01
0.1
1.
10.
Time (sec)

<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<>>

A Q T E S O L V   R E S U L T S
Version 1.10

02/20/95 14:49:54

==

TEST DESCRIPTION

Data set........... mw6.dat
Data set title..... MW6

Knowns and Constants:
   No. of data points.................. 12
   Pumping rate........................ 1
   Radius (distance) to obs. well...... 0.083

==

ANALYTICAL METHOD

Cooper et al. (Confined Aquifer Slug Test)

==

RESULTS FROM STATISTICAL CURVE MATCHING

STATISTICAL MATCH PARAMETER ESTIMATES

	Estimate		Std. Error
T =	3.8574E-003	+/-	8.8911E-004
S =	3.2736E-003	+/-	8.4862E-004

ANALYSIS OF MODEL RESIDUALS

residual = calculated - observed
weighted residual = residual * weight

Weighted Residual Statistics:
   Number of residuals................ 12
   Number of estimated parameters.... 2
   Degrees of freedom................ 10
   Residual mean..................... -0.001253
   Residual standard deviation....... 0.08031
   Residual variance................. 0.006449

Model Residuals:

Time	Observed	Calculated	Residual	Weight
0.01	0.51	0.67928	-0.16928	1
0.03	0.46	0.59545	-0.13545	1
0.1	0.42	0.46684	-0.04684	1
0.21	0.39	0.37292	0.017075	1
0.35	0.37	0.30643	0.063568	1
0.4	0.35	0.28868	0.061319	1
0.81	0.25	0.20345	0.046551	1
1.23	0.21	0.15907	0.050925	1
1.65	0.16	0.13175	0.028248	1
2.06	0.14	0.11184	0.028162	1
2.48	0.12	0.1029	0.017103	1
3.73	0.09	0.066418	0.023582	1

==

RESULTS FROM VISUAL CURVE MATCHING

VISUAL MATCH PARAMETER ESTIMATES

		Estimate
T	=	3.8574E-003
S	=	3.2736E-003

<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<>>>

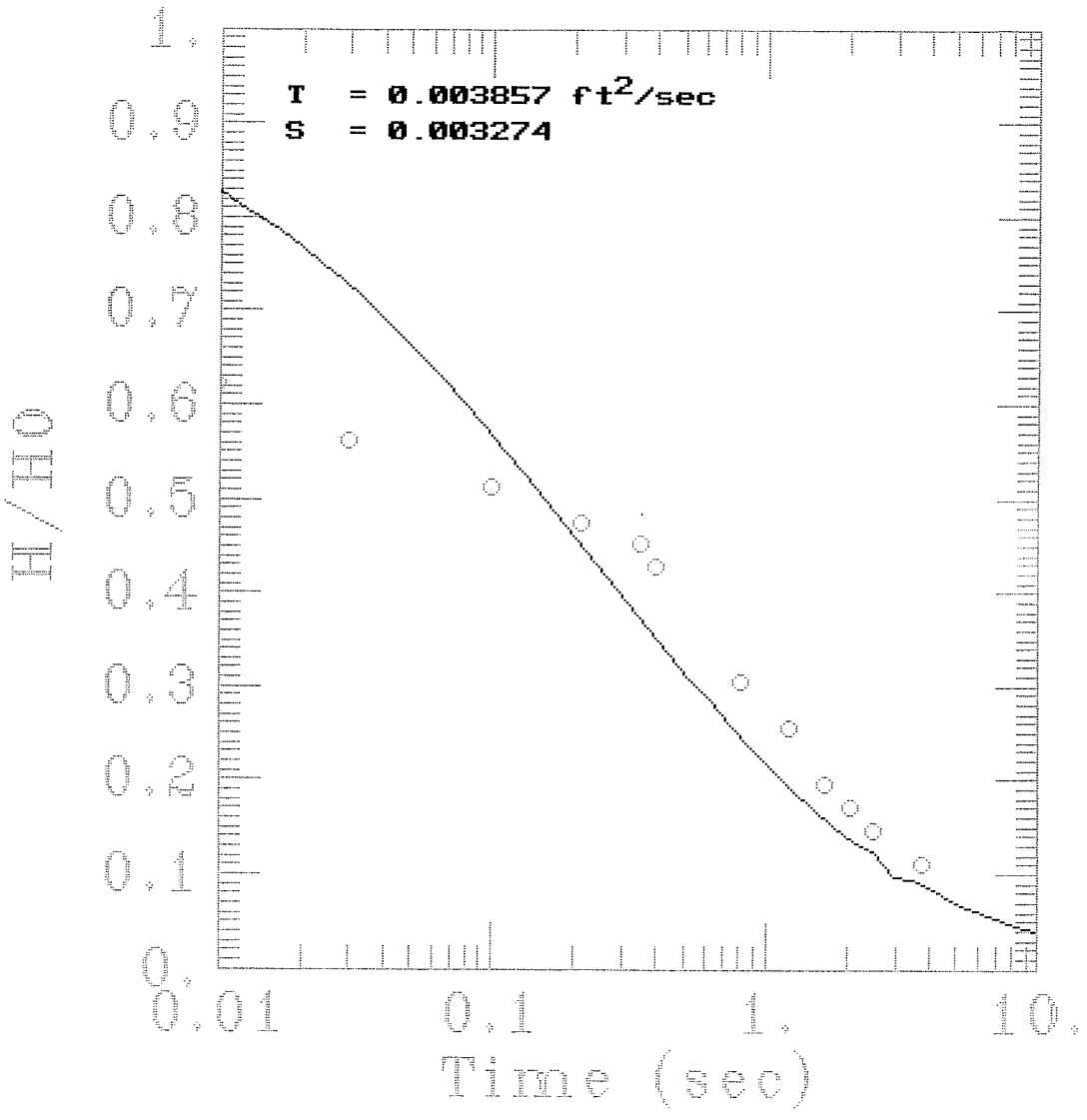
$K = \frac{T}{b}$ b = saturated thickness, assumed to be height of static water level in well

$K = \frac{.00385 \text{ ft}^2/\text{sec}}{13.02} = .000295$ ft/sec × .3048 conversion factor

= .0000901 m/sec ×100 = .0090 cm/sec

$= 9.0 \times 10^{-3}$ cm/sec

MW6


T = 0.003857 ft²/sec
S = 0.003274
H/H0
1.
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.
0.01
0.1
1.
10.
Time (sec)

A Q T E S O V R E S U L T S
Version 1.10

12/20/95 14:53:41

TEST DESCRIPTION

Data set..... mw7.dat
Data set title..... MW7

Flows and Constants:
No. of data points..... 12
Pumping rate..... 1
Radius (distance) to obs. well..... 0.083

ANALYTICAL METHOD

Cooper et al. (Confined Aquifer Slug Test)

RESULTS FROM STATISTICAL CURVE MATCHING

STATISTICAL MATCH PARAMETER ESTIMATES

	Estimate	Std. Error
T =	3.4962E-003 +/-	7.0168E-004
S =	2.7967E-003 +/-	7.8595E-004

ANALYSIS OF MODEL RESIDUALS

Residual = calculated - observed
Weighted residual = residual * weight

Weighted Residual Statistics:
Number of residuals..... 12
Number of estimated parameters.... 2
Degrees of freedom..... 10
Residual mean..... -0.007991
Residual standard deviation..... 0.06784
Residual variance..... 0.004602

Model Residuals:

Time	Observed	Calculated	Residual	Weight
0.01	0.44	0.64319	-0.20319	1
0.16	0.39	0.40474	-0.014739	1
0.25	0.34	0.351	-0.010998	1
0.31	0.32	0.32467	-0.0046714	1
0.43	0.3	0.28516	0.014843	1
0.61	0.27	0.24319	0.026808	1
0.78	0.25	0.21391	0.036093	1
1.1	0.21	0.1766	0.033402	1
1.21	0.18	0.16686	0.013142	1
2.31	0.14	0.11286	0.027136	1
2.58	0.09	0.099088	-0.0090885	1
3.48	0.07	0.074621	-0.0046209	1

RESULTS FROM VISUAL CURVE MATCHING

VISUAL MATCH PARAMETER ESTIMATES

	Estimate
T =	3.4962E-003
S =	2.7967E-003

$K = \frac{T}{b}$

b = saturated thickness, assumed to be height of static water in well

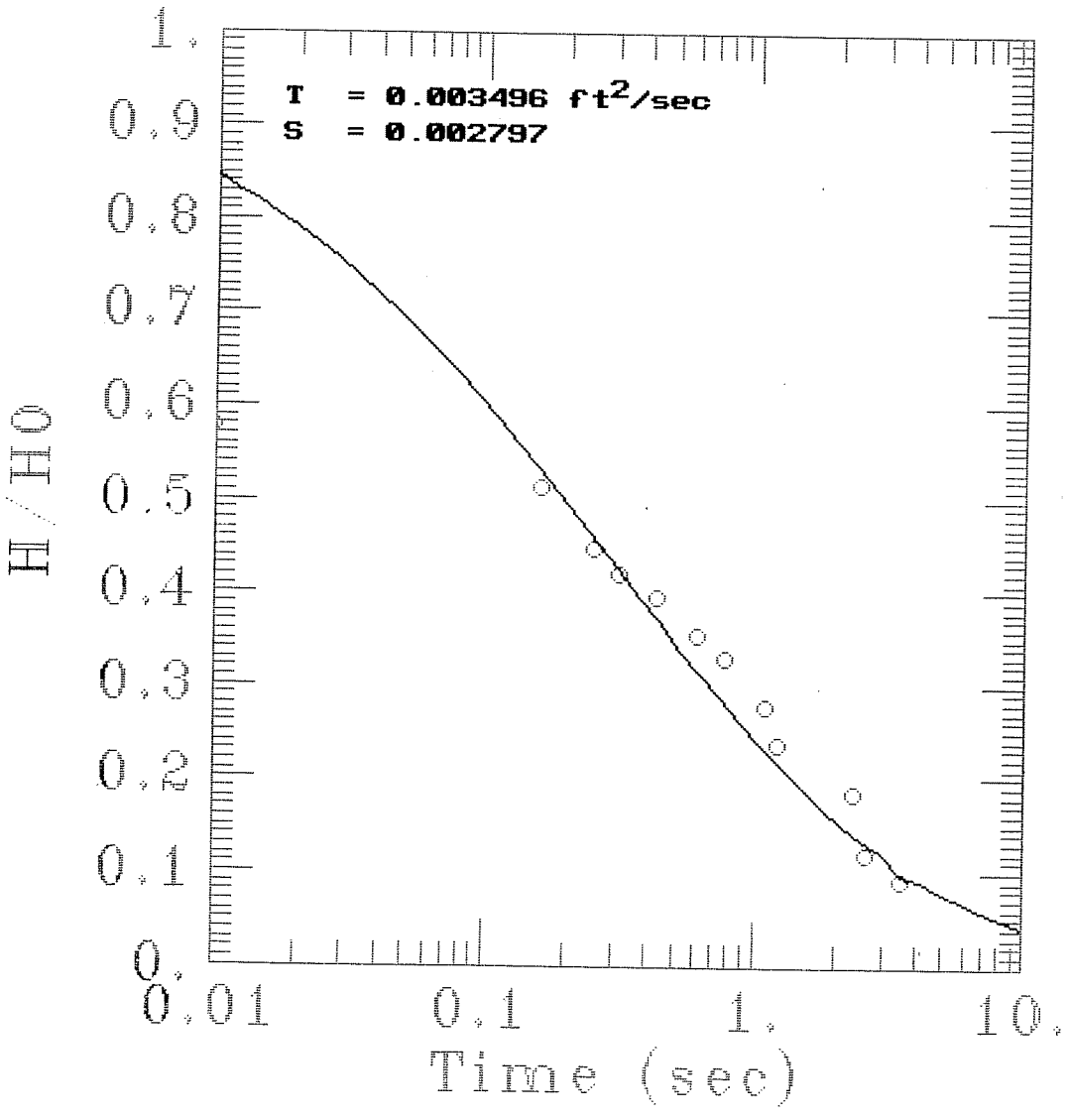
$K = \frac{.003496\ ft^2/sec}{14.64\ ft} = .000238\ ft/sec \times .3048$ Conversion Factor

$= .000072\ m/sec \times 100 =$

$.00727\ cm/sec$

$= 7.27 \times 10^{-3}\ cm/sec$

MW7


T = 0.003496 ft²/sec
S = 0.002797
H/H0
1.
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.
0.01
0.1
1.
10.
Time (sec)

F

APPENDIX F

DATA VALIDATION REPORT FOR THE JUNE 1994 WASTE CHARACTERIZATION SAMPLES

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1.0 EXECUTIVE SUMMARY

Six samples (including one field duplicate) were submitted for full Target Compounds List/Target Analyte List (TCL/TAL) analysis in support of the Preliminary Assessment Study at the Former Diamond Shamrock Site (Site). One sample was also analyzed for Resource Conservation and Recovery Act (RCRA) hazardous waste characterization parameters.

Volatiles

All data were acceptable. Methylene chloride was detected in the trip blank and associated sample results were qualified as non-detect. Some acetone results were qualified as estimated based on calibration standard non-linearity. Volatile compounds of interest were non-detect, with the exception of low concentrations of acetone (6 to 85 µg/kg) and 2-butanone (14 µg/kg).

Semi-Volatiles

All data were acceptable. Some carbazole and pyrene results were qualified as estimated based on variability in instrument calibrations. Most semi-volatile compound results were non-detect. Positive results for various polynuclear aromatic hydrocarbons (PAHs) were detected.

Pesticides/PCBs

All results were acceptable. Some pesticide results were qualified as estimated based on low surrogate recoveries. Most results were non-detect. Positive hits for dieldrin, 4,4'-DDT and gamma-chlordane were detected ranging from 1.2 to 8.2 µg/kg. Aroclor 1254 was detected in three samples at concentrations ranging from 25 to 200 µg/kg.

Inorganics

All data were acceptable. Iron results were qualified as estimated based on a low laboratory control sample (LCS) recovery. Some selenium results were qualified based on low spike recoveries. Zinc results were qualified as estimated based on variability in serial dilution results. Results for aluminum, barium, iron, sodium, chromium, and zinc analyses for samples S-5515-004 and S-5515-005 were qualified as estimated due to field duplicate discrepancies. Positive results of the TAL metals were detected at various levels.

2.0 INTRODUCTION

Three test pit samples and three borehole samples (including one field duplicate) were collected in support of the Former Diamond Shamrock Lockport site (Site) Preliminary Assessment Study in June 1994. All samples were submitted for full TCL/TAL analysis and one of the borehole samples was also submitted for RCRA hazardous waste characterization analyses.

Analytical services were provided by IEA. All analyses were performed in accordance with New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol (ASP) Methodologies, 1991 Revision; with the exception of the RCRA characteristic analysis methods which were referenced from "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", November 1986, SW-846, 3rd Edition.

A summary of the analytical data is presented in Table 1. The Quality Assurance/Quality Control (QA/QC) criteria by which these data have been assessed are outlined in the analytical methods and the following documents:

i) "National Functional Guidelines for Organic Data Review, Multi-Media, Multi-Concentration (OLM01.0)", 12/90 (Rev. 6/91);

ii) "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses" (July 1, 1988), prepared by the United States Environmental Protection Agency (USEPA) Data Review Work Group; and

iii) Quality Assurance Project Plan (QAPP), Appendix B of the "Preliminary Site Assessment Work Plan", Former Diamond Shamrock Site, Lockport, New York, NYSDEC Site No. 932071, April 1994.

3.0 QUALITY ASSURANCE/QUALITY CONTROL REVIEW

3.1 HOLDING TIME

A summary of sample holding time criteria specified in the QAPP is presented in Table 2. Actual holding time data for samples are summarized in Table 3. All samples were extracted and/or analyzed within the specified time frames.

3.2 GC/MS CALIBRATION - VOLATILES AND SEMI-VOLATILES

Instrument Tuning and Mass Calibration

Prior to sample analysis, and every 12 hours thereafter, the GC/MS instrumentation tuning and mass calibration were verified using bromofluorobenzene (BFB) for volatile analyses and decafluorotriphenylphosphine (DFTPP) for semi-volatile analyses. All criteria specified in ASP Methods 91-1 and 91-2 were met for the analyses of these compounds.

Initial Calibration

Initial calibration curves containing all TCL volatile compounds were analyzed. All relative response factors (RRFs) showed adequate instrument sensitivity.

Percent relative standard deviation (%RSD) values for acetone were greater than 30 percent, indicating some variability in the instrument response for this compound over the calibration range. Associated positive sample results were qualified as estimated. Outlying %RSD values are summarized in Table 4.

An initial calibration curve containing all TCL semi-volatiles was analyzed. All compound response factors showed

adequate instrument sensitivity. All %RSD values were less than 30 percent indicating good linearity of the calibration curve for the TCL compounds.

Continuing Calibration

Continuing calibration standards were analyzed for TCL volatiles and semi-volatiles as specified in Methods 91-1 and 91-2. All RRF values were acceptable. Some percent difference (%D) values between the initial and continuing calibration RRFs were high, indicating variability in instrument response. Associated positive sample results for these compounds were qualified as estimated. Non-detect results were not qualified, as they were not quantitated from the calibration standards. A summary of the outlying calibration data is presented in Table 4.

3.3 GC CALIBRATION - PESTICIDES/PCBs

Resolution Check Standard Analysis

Resolution check standards were analyzed as required and showed acceptable peak resolution.

Performance Evaluation - Mixture (PEM) Analysis

PEM standards were analyzed at the proper frequency. All PEM analyses met the peak resolution, retention time, analyte recovery and DDT/endrin breakdown criteria specified in Method 91-3.

Initial Calibration

Initial calibration standards were analyzed at the required concentrations and frequencies. All peak resolution and linearity criteria specified in Method 91-3 were satisfied.

Initial calibration blanks were analyzed and all compounds of interest were reported as non-detect.

Continuing Calibration

Continuing calibration standards were analyzed at the proper frequency. All peak resolution and linearity criteria specified in Method 91-3 were satisfied.

Continuing calibration blanks were analyzed at the proper frequency. All blank results were non-detect with one exception; the blank analyzed on July 7, 1994 on column DB-1701 contained 0.27 mg/kg 4,4'-DDT. Since all sample results were either non-detect or significantly higher than the level in the blank, sample data were not affected.

3.4 INORGANICS INSTRUMENTATION CALIBRATION

Initial Calibration

Calibration curves were analyzed per the analytical methods and linearity values were acceptable. Initial calibration verification (ICV) standards were analyzed at the required frequency and recoveries were acceptable.

Initial calibration blanks (ICBs) were analyzed at the required frequency. No ICB results were above the instrument detection limits (IDLs).

Continuing Calibration

Continuing calibration verification (CCV) standards were analyzed at the required frequency and all recoveries were acceptable.

Continuing calibration blanks (CCBs) were analyzed at the required frequency and all results were less than the associated contract required detection limits (CRDLs). Aluminum, calcium, iron, and manganese were detected in some CCBs at concentrations between the IDLs and CRDLs. Since all sample results for these elements were at significantly higher concentrations, these results did not impact the data.

CRDL Standard Analyses

The CRDL standards were analyzed at the proper frequency. All recoveries were within general control limits of 80 to 120 percent.

3.5 SURROGATE ANALYSES - ORGANICS

The proper surrogate compounds were added to all blanks, samples and QC samples prior to extraction and/or analysis for TCL volatiles, semi-volatiles and pesticides/PCBs. A summary of the recoveries is presented in Table 5.

All volatile surrogate recoveries were acceptable.

Some semi-volatile surrogate recoveries were high and associated positive sample results were qualified as estimated due to a potential high bias. Although two outlying surrogate recoveries were reported for the semi-volatile analysis of sample S-551S-003, sample results were not qualified as it is acceptable for one surrogate compound from each fraction (base/acid) to fail the acceptance criteria.

High recoveries for pesticide/PCB surrogate decachlorobiphenyl (DCB) were reported on GC column RTX-35 for sample S-5515-003 and S-5515-004 due to interference peaks coeluting with the DCB peak. For sample S-5515-003, an acceptable DCB recovery was reported on the alternate column (DB-1701) and sample results were not qualified as

estimated. The DCB analysis of sample S-5515-004 on column DB-1701 yielded a slightly low recovery (50 percent) and all positive results were qualified as estimated. Since the DCB recovery for this sample was slightly low and the other surrogate (TCMX) recoveries were acceptable on both columns, non-detect results were not qualified.

3.6 INTERNAL STANDARD ANALYSES - VOLATILES AND SEMI-VOLATILES

The appropriate internal standard (IS) compounds were added to all samples analyzed for TCL volatiles and semi-volatiles. All IS recoveries were acceptable.

3.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) ANALYSES - ORGANICS

MS/MSD analyses were performed on sample S-5515-002 for volatiles, semi-volatiles and pesticides/PCBs, and results are summarized in Table 6. All recoveries were within the specified control limits with one exception; the MS and MSD recoveries reported for the semi-volatile compound 2,4-dinitrotoluene were high. Since all sample results for this compound were non-detect, a high bias would have no effect. Relative percent difference (RPD) values reported for the MS/MSD analyses were all acceptable indicating good overall analytical precision.

3.8 MATRIX SPIKE (MS) ANALYSES - INORGANICS

MS analyses were performed on sample S-5515-002 for metals and cyanide, and the results are summarized in Table 6. All spike recoveries were acceptable with the exception of low recoveries reported for antimony, selenium and mercury. Since these elements were not detected in the original sample, and recoveries were not extremely low (less than 30 percent), the sample results were not qualified on this basis. Analytical

accuracy was further investigated during evaluation of the laboratory control sample (LCS) analyses (Section 3.11).

3.9 LABORATORY DUPLICATE ANALYSES - INORGANICS

Sample S-5515-002 was prepared and analyzed in duplicate by the laboratory (see Table 7). All results showed good analytical precision.

3.10 LABORATORY BLANK ANALYSES

Laboratory blanks were prepared and analyzed with each analytical sample batch. A summary of the results is presented in Table 8.

TCL volatile and semi-volatile compounds were not detected in the respective laboratory blanks.

A low level concentration of pesticide 4,4'-DDT (0.28 µg/kg) was detected in the laboratory blank. Since all sample results for this compound were either non-detect, or greater than five times the level in the blank, the sample data were unaffected.

Iron, potassium, aluminum, and manganese were detected in the laboratory blanks at concentrations less than the CRDL but above the IDL. Since all sample results for these analytes were significantly higher than the levels detected in the blank, the data were not affected.

Cyanide was not detected in the laboratory blank.

3.11 ADDITIONAL QA/QC FOR INORGANIC ANALYSES

Laboratory Control Sample (LCS) Analyses

LCSs were prepared and analyzed with each batch of samples. All recoveries were acceptable, with the exception of the iron analysis which yielded a low recovery (71 percent). As this may indicate a low bias, all sample results for iron were qualified as estimated.

Post Digestion Spikes - Furnace Atomic Absorption (AA) Analyses

Post digestion spikes were performed as required. All recoveries were acceptable with the following exceptions:

i) Low recoveries were reported for the selenium analysis of samples S-5515-001, S-5515-002, S-5515-005 and S-5515-006, which may indicate a low bias in sample results. Positive data were qualified as estimated. Non-detect data were not qualified based on acceptable CRDL standard results for selenium (see Section 3.4).

ii) A low recovery was reported for the arsenic analysis of sample S-5515-001. The sample was reanalyzed using the method of standard addition (MSA) and the resulting correlation coefficient was acceptable.

Serial Dilution -ICP Analyses

A serial dilution analysis was performed on sample S-5515-002. All relevant sample results yielded percent difference (%D) values less than 10 percent between original and diluted analyses with one exception; an 11 percent difference was reported for zinc. All associated zinc results were qualified as estimated.

3.12 FIELD QA/QC

Trip Blanks Analysis - Volatiles

One trip blank was transported with the samples and analyzed for TCL volatiles. All TCL volatiles were non-detect with the exception of low level methylene chloride, a common laboratory artifact. All sample results up to ten times the concentration reported in the blank were qualified as non-detect.

Field Blank Analyses

A field blank was collected and submitted for analysis (see Table 9 for a summary of the results). A low concentration of methylene chloride (4 µg/L) was detected. Associated samples were previously qualified as non-detect on the basis of the trip blank results and further qualification was not necessary.

Low concentrations (between the CRDLs and IDLs) of calcium, copper and iron were detected in the field blank. Since all sample results for these analytes were significantly higher than those detected in the blank, the data were unaffected.

Field Duplicate Analyses

A duplicate of sample S-5515-004 was collected and submitted "blind" to the laboratory as sample S-5515-005 for analysis. A comparison of the analytical results is presented in Table 10.

The data showed acceptable reproducibility for all parameters, with the exception of aluminum, barium, iron, sodium, chromium, and zinc. Variability in soil sample collection is not uncommon and the above results are a reflection of this. Data for these metals were qualified as estimated for samples S-5515-004 and S-5515-005 only.

3.13 TENTATIVELY IDENTIFIED COMPOUNDS (TICS) - VOLATILE AND SEMI-VOLATILE ANALYSES

TIC analysis results were as follows:

Sample ID	*Volatile TIC*	*Estimated Concentration*	*Semi-volatile TIC*	*Estimated Concentration*
S-5515-001	Octamethylcyclotetrasiloxane	17	Unknown PAHs	16,000
			Unknowns	6,400
			7H-benz[de]anthracen-7-one	760
S-5515-002	Unknown siloxane	75	4-methyl-3-penten-2-one	260
	Octamethylcyclotetrasiloxane	55	Unknowns	4,200
			Unknown Alkanes	4,600
S-5515-003	Unknown siloxane	56		
		110	7H-benz[de]anthracen-7-one	800
			Unknown PAHs	
			Unknowns	3,800
			Unknown PAHs	13,000
			Unknown Alkanes	1,200
S-5515-004	None detected		None detected	
S-5515-005 (Dup of 004)	Unknown	8	None detected	
S-5515-006	None detected		4-methyl-3-penten-2-one	190
			3,6-dichloro-9H-carbazole	110
			Unknowns	2,900
			Unknown Alkanes	2,000

Siloxanes are straight-chain, silicon containing compounds having many applications (i.e. anti-foaming agents, lubricants).

4-Methyl-3-penten-2-one (mesityl oxide) is an oily, colorless ketone used as a solvent for cellulose esters and ethers, vinyl resins, lacquers, roll-coating inks, stains, paint removers, and insect repellents.

7H-Benz[de]anthracen-7-one (benzanthrone) is a PNA compound used primarily in dyes.

4.0 CONCLUSION

Based on this QA/QC review, all data were acceptable with the qualifications noted herein.

TABLE 1

ANALYTICAL RESULTS
PRELIMINARY SITE ASSESSMENT- WASTE CHARACTERIZATION SOIL SAMPLES
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
JUNE 1994

Sample ID:	*S-5515-001*	*S-5515-002*	*S-5515-003*	*S-5515-004*	*S-5515-005 (Dup. of 004)*	*S-5515-006*
Collection Date:	*06/21/94*	*06/21/94*	*06/21/94*	*06/21/94*	*06/21/94*	*06/21/94*
TCL Volatiles (µg/kg)						
Chloromethane	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
Bromomethane	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
Vinyl Chloride	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
Chloroethane	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
Methylene chloride	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
Acetone	6J	8J	16J	85J	71J	35J
Carbon disulfide	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
1,1-Dichloroethene	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
1,1-Dichloroethane	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
1,2-Dichloroethene (total)	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
Chloroform	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
1,2-Dichloroethane	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
2-Butanone	ND 11	ND 13	ND 14	14	14J	ND 12
1,1,1-Trichloroethane	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
Carbon tetrachloride	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
Bromodichloromethane	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
1,2-Dichloropropane	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
cis-1,3-Dichloropropene	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
Trichloroethene	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
Dibromochloromethane	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
1,1,2-Trichloroethane	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
Benzene	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
trans-1,3-Dichloropropene	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
Bromoform	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
4-Methyl-2-pentanone	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
2-Hexanone	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
Tetrachloroethene	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
1,1,2,2-Tetrachloroethane	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
Toluene	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
Chlorobenzene	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
Ethylbenzene	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
Styrene	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12
Xylene (total)	ND 11	ND 13	ND 14	ND 14	ND 14	ND 12

TABLE 1

ANALYTICAL RESULTS
PRELIMINARY SITE ASSESSMENT- WASTE CHARACTERIZATION SOIL SAMPLES
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
JUNE 1994

Sample ID:	*S-5515-001*	*S-5515-002*	*S-5515-003*	*S-5515-004*	*S-5515-005 (Dup. of 004)*	*S-5515-006*
Collection Date:	*06/21/94*	*06/21/94*	*06/21/94*	*06/21/94*	*06/21/94*	*06/21/94*
TCL Semi-Volatiles (µg/kg)						
Phenol	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
bis(2-Chloroethyl)ether	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
2-Chlorophenol	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
1,3-Dichlorobenzene	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
1,4-Dichlorobenzene	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
1,2-Dichlorobenzene	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
2-Methylphenol	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
2,2'-oxybis(1-chloropropane)	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
4-Methylphenol	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
N-Nitroso-di-n-propylamine	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
Hexachloroethane	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
Nitrobenzene	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
Isophorone	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
2-Nitrophenol	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
2,4-Dimethylphenol	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
bis(2-Chloroethoxy)methane	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
2,4-Dichlorphenol	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
1,2,4-Trichlorobenzene	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
Naphthalene	170J	ND 430	59J	46J	26J	ND 390
4-Chloroaniline	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
Hexachlorobutadiene	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
4-Chloro-3-methylphenol	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
2-Methylnaphthalene	170J	ND 430	87J	90J	45J	ND 390
Hexachlorocyclopentadiene	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
2,4,6-Trichlorophenol	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
2,4,5-Trichlorophenol	ND 4700	ND 1100	ND 4200	ND 900	ND 960	ND 980
2-Chloronaphthalene	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
2-Nitroaniline	ND 4700	ND 1100	ND 4200	ND 900	ND 960	ND 980
Dimethylphthalate	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
Acenaphthylene	720J	ND 430	870J	ND 350	ND 380	ND 390
2,6-Dinitrotoluene	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
3-Nitroaniline	ND 4700	ND 1100	ND 4200	ND 900	ND 960	ND 980
Acenaphthene	400J	ND 430	120J	ND 350	13J	ND 390
2,4-Dinitrophenol	ND 4700	ND 1100	ND 4200	ND 900	ND 960	ND 980
4-Nitrophenol	ND 4700	ND 1100	ND 4200	ND 900	ND 960	ND 980
Dibenzofuran	390J	ND 430	200J	27J	17J	ND 390
2,4-Dinitrotoluene	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
Diethylphthalate	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
4-Chlorophenyl-phenylether	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
Fluorene	910J	ND 430	570J	14J	15J	ND 390
4-Nitroaniline	ND 4700	ND 1100	ND 4200	ND 900	ND 960	ND 980
4,6-Dinitro-2-methylphenol	ND 4700	ND 1100	ND 4200	ND 900	ND 960	ND 980
N-Nitrosodiphenylamine	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
4-Bromophenyl-phenylether	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
Hexachlorobenzene	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
Pentachlorophenol	ND 4700	ND 1100	ND 4200	ND 900	ND 960	ND 980
Phenanthrene	6600	[illegible]	4900	140J	160J	ND 390

TABLE 1

ANALYTICAL RESULTS
PRELIMINARY SITE ASSESSMENT- WASTE CHARACTERIZATION SOIL SAMPLES
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
JUNE 1994

Sample ID:	*S-5515-001*	*S-5515-002*	*S-5515-003*	*S-5515-004*	*S-5515-005 (Dup. of 004)*	*S-5515-006*
Collection Date:	*06/21/94*	*06/21/94*	*06/21/94*	*06/21/94*	*06/21/94*	*06/21/94*
TCL Semi-Volatiles (µg/kg)						
Anthracene	2000J	ND 430	1400J	15J	23J	ND 390
Carbazole	910J	ND 430	500J	14J	22J	ND 390
Di-n-butylphthalate	ND 1900	ND 430	ND 1600	14J	ND 380	ND 390
Fluoranthene	11000	91J	8900	160J	210J	ND 390
Pyrene	7500J	68J	6300J	140J	170J	ND 390
Butylbenzylphthalate	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
3,3'-Dichlorobenzidine	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
Benzo(a)anthracene	4800	43J	4000	83J	92J	ND 390
Chrysene	4600	49J	3700	110J	120J	ND 390
bis(2-Ethylhexyl)phthalate	ND 1900	ND 430	ND 1600	42J	ND 380	22J
Di-n-octylphthalate	ND 1900	ND 430	ND 1600	ND 350	ND 380	ND 390
Benzo(b)fluoranthene	4500	46J	3400	120J	130J	ND 390
Benzo(k)fluoranthene	4300	46J	3200	110J	120J	ND 390
Benzo(a)pyrene	4800	43J	3600	97J	110J	ND 390
Indeno(1,2,3-cd)pyrene	2700	34J	2100	43J	39J	ND 390
Dibenzo(a,h)anthracene	990J	ND 430	880J	ND 350	ND 380	ND 390
Benzo(g,h,i)perylene	2200	31J	1700	35J	ND 380	ND 390
TCL Pesticides/ PCBs (µg/kg)						
alpha-BHC	ND 1.9	ND 2.2	ND 2.1	ND 1.8	ND 2.0	ND 2.0
beta-BHC	ND 1.9	ND 2.2	ND 2.1	ND 1.8	ND 2.0	ND 2.0
delta-BHC	ND 1.9	ND 2.2	ND 2.1	ND 1.8	ND 2.0	ND 2.0
gamma-BHC (Lindane)	ND 1.9	ND 2.2	ND 2.1	ND 1.8	ND 2.0	ND 2.0
Heptachlor	ND 1.9	ND 2.2	ND 2.1	ND 1.8	ND 2.0	ND 2.0
Aldrin	ND 1.9	ND 2.2	ND 2.1	ND 1.8	ND 2.0	ND 2.0
Heptachlor epoxide	ND 1.9	ND 2.2	ND 2.1	ND 1.8	ND 2.0	ND 2.0
Endosulfan I	ND 1.9	ND 2.2	ND 2.1	ND 1.8	ND 2.0	ND 2.0
Dieldrin	8.2	1.2J	6.4	ND 3.5	ND 3.8	ND 3.9
4,4'-DDE	ND 3.8	ND 4.3	ND 4.1	ND 3.5	ND 3.8	ND 3.9
Endrin	ND 3.8	ND 4.3	ND 4.1	ND 3.5	ND 3.8	ND 3.9
Endosulfan II	ND 3.8	ND 4.3	ND 4.1	ND 3.5	ND 3.8	ND 3.9
4,4'-DDD	ND 3.8	ND 4.3	ND 4.1	ND 3.5	ND 3.8	ND 3.9
Endosulfan sulfate	ND 3.8	ND 4.3	ND 4.1	ND 3.5	ND 3.8	ND 3.9
4,4'-DDT	ND 3.8	1.7J	7.8	ND 3.5	ND 3.8	ND 3.9
Methoxychlor	ND 19	ND 22	ND 21	ND 18	ND 20	ND 20
Endrin ketone	ND 3.8	ND 4.3	ND 4.1	ND 3.5	ND 3.8	ND 3.9
Endrin aldehyde	ND 3.8	ND 4.3	ND 4.1	ND 3.5	ND 3.8	ND 3.9
alpha-chlordane	ND 1.9	ND 2.2	ND 2.1	ND 1.8	ND 2.0	ND 2.0
gamma-chlordane	ND 1.9	ND 2.2	ND 2.1	1.6J	1.4J	ND 2.0
Toxaphene	ND 190	ND 220	ND 210	ND 180	ND 200	ND 200
Aroclor-1016	ND 38	ND 43	ND 41	ND 35	ND 38	ND 39
Aroclor-1221	ND 76	ND 88	ND 84	ND 72	ND 77	ND 79
Aroclor-1232	ND 38	ND 43	ND 41	ND 35	ND 38	ND 39
Aroclor-1242	ND 38	ND 43	ND 41	ND 35	ND 38	ND 39
Aroclor-1248	ND 38	ND 43	ND 41	ND 35	ND 38	ND 39
Aroclor-1254	ND 38	ND 43	25J	200J	200	ND 39
Aroclor-1260	ND 38	ND 43	ND 41	ND 35	ND 38	ND 39

TABLE 1

ANALYTICAL RESULTS
PRELIMINARY SITE ASSESSMENT- WASTE CHARACTERIZATION SOIL SAMPLES
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
JUNE 1994

Sample ID:	*S-5515-001*	*S-5515-002*	*S-5515-003*	*S-5515-004*	*S-5515-005 (Dup. of 004)*	*S-5515-006*
Collection Date:	*06/21/94*	*06/21/94*	*06/21/94*	*06/21/94*	*06/21/94*	*06/21/94*
TAL Metals (mg/kg)						
Aluminum	8900	10000	7700	18000J	4900J	17000
Antimony	ND 8.5	ND 10	12	ND 11	ND 10	ND 10
Arsenic	6.1	4.9	7.8	7.0	4.4	4.5
Barium	70	42	70	210J	37J	120
Beryllium	0.3	0.59	ND 0.29	0.53	0.32	ND 0.25
Cadmium	1.5	2.8	2.0	3.5	0.86	0.97
Calcium	80000	120000	46000	20000	99000	47000
Chromium	19	14	92	24J	13J	21
Cobalt	13	3.0	59	13	13	9.9
Copper	28	9.2	64	21	21	16
Iron	14000J	14000J	15000J	30000J	9700J	24000J
Lead	99	39	82	40	41	21
Magnesium	23000	71000	21000	12000	43000	27000
Manganese	670	840	1100	1700	580	730
Mercury	0.11	ND 0.12	0.14	ND 0.14	ND 0.12	ND 0.11
Nickel	230	15	410	32	45	27
Potassium	1500	1800	1000	2100	930	2600
Selenium	0.40J	ND 0.25	0.49	ND 0.27	ND 0.26	ND 0.25
Silver	ND 0.64	ND 0.76	ND 0.87	ND 0.81	ND 0.78	ND 0.75
Sodium	160	230	950	3400J	540J	1700
Thallium	0.28	ND 0.25	0.38	ND 0.27	ND 0.26	ND 0.25
Vanadium	17	16	24	27	8.0	29
Zinc	280J	750J	320J	1800J	240J	1300J
Wet Chemistry (mg/kg)						
Cyanide	ND 0.56	ND 3.2	ND 0.69	1.1	ND 0.65	ND 0.61
RCRA Characteristics						
Corrosivity (S.U.)	-	-	-	9.4	-	-
Reactive Cyanide (mg/kg)	-	-	-	ND 0.50	-	-
Ignitability (°F)	-	-	-	>200	-	-
Reactive Sulfide (mg/kg)	-	-	-	ND 10	-	-

Notes:

ND	Non-detect at associated value.
J	Associated value is estimated.
TCL	Target Compound List
TAL	Target Analyte List
PCBs	Polychlorinated Biphenyls
Dup.	Field duplicate
S.U.	Standard Units
RCRA	Resource Conservation and Recovery Act
-	Not Applicable

TABLE 2

SAMPLE HOLDING TIME CRITERIA
PRELIMINARY SITE ASSESSMENT- WASTE CHARACTERIZATION SOIL SAMPLES
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
JUNE 1994

Parameter	*Preservative*	*Holding Time*	
		to Extraction (days)	*to Analysis (days)*
Volatiles	Cool to 4°C (±2°C)	-	7 (1)
Semi-volatiles	Cool to 4°C (±2°C)	5 (1)	40
Pesticides/PCBs	Cool to 4°C (±2°C)	5 (1)	40
Metals (except mercury)	Cool to 4°C (±2°C)	-	180 (1)
Mercury	Cool to 4°C (±2°C)	-	26 (1)
Cyanide	Cool to 4°C (±2°C)	-	12 (1)

Notes:
(1) Holding times from Verified Time of Sample Receipt (VTSR).

TABLE 3

SAMPLE HOLDING TIME DATA
PRELIMINARY SITE ASSESSMENT-WASTE CHARACTERIZATION SOIL SAMPLES
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
JUNE 1994

Sample ID	*VTSR*	*Extraction Date*	*Analysis Date*	*Exceedance (Days)*	
				to Extraction	*To Analysis*
TCL Volatiles					
S-5515-001	06/22/94	-	06/23/94	-	0
S-5515-002	06/22/94	-	06/23/94	-	0
S-5515-003	06/22/94	-	06/23/94	-	0
S-5515-004	06/22/94	-	06/23/94	-	0
S-5515-005	06/22/94	-	06/23/94	-	0
S-5515-006	06/22/94	-	06/23/94		0
TCL Semi-Volatiles					
S-5515-001	06/22/94	06/24/94	07/05/94	0	0
S-5515-002	06/22/94	06/24/94	07/02/94	0	0
S-5515-003	06/22/94	06/24/94	07/05/94	0	0
S-5515-004	06/22/94	06/24/94	06/30/94	0	0
S-5515-005	06/22/94	06/24/94	06/30/94	0	0
S-5515-006	06/22/94	06/24/94	07/02/94	0	0
TCL Pesticides/PCBs					
S-5515-001	06/22/94	06/23/94	07/07/94	0	0
S-5515-002	06/22/94	06/23/94	07/06/94	0	0
S-5515-003	06/22/94	06/23/94	07/07/94	0	0
S-5515-004	06/22/94	06/23/94	07/07/94	0	0
S-5515-005	06/22/94	06/23/94	07/07/94	0	0
S-5515-006	06/22/94	06/23/94	07/07/94	0	0

TABLE 3

SAMPLE HOLDING TIME DATA
PRELIMINARY SITE ASSESSMENT-WASTE CHARACTERIZATION SOIL SAMPLES
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
JUNE 1994

Sample ID	*VTSR*	*Extraction Date*	*Analysis Date*	*Exceedance (Days)*	
				to Extraction	*To Analysis*
TAL Metals					
S-5515-001	06/22/94	-	07/94	-	0
S-5515-002	06/22/94	-	07/94	-	0
S-5515-003	06/22/94	-	07/94	-	0
S-5515-004	06/22/94	-	07/94	-	0
S-5515-005	06/22/94	-	07/94	-	0
S-5515-006	06/22/94	-	07/94	-	0
Mercury					
S-5515-001	06/22/94	-	07/01/94	-	0
S-5515-002	06/22/94	-	07/01/94	-	0
S-5515-003	06/22/94	-	07/01/94	-	0
S-5515-004	06/22/94	-	07/01/94	-	0
S-5515-005	06/22/94	-	07/01/94	-	0
S-5515-006	06/22/94	-	07/01/94	-	0
Cyanide					
S-5515-001	06/22/94	-	06/25/94	-	0
S-5515-002	06/22/94	-	06/25/94	-	0
S-5515-003	06/22/94	-	06/25/94	-	0
S-5515-004	06/22/94	-	06/25/94	-	0
S-5515-005	06/22/94	-	06/25/94	-	0
S-5515-006	06/22/94	-	06/25/94	-	0

Notes:
VTSR Verified Time of Sample Receipt
TCL Target CompoundList
TAL Target Analyte List

TABLE 4

OUTLYING GC/MS CALIBRATION DATA
PRELIMINARY SITE ASSESSMENT- WASTE CHARACTERIZATION SOIL SAMPLES
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
JUNE 1994

Parameter	*Compound*	*Calibration Date*	*Outlying*	
			%RSD	*%D*
Volatiles	Acetone	06/01/94	37	-
Semi-volatiles	Carbazole	06/30/94	-	65
	Carbazole	07/02/94	-	78
	Carbazole	07/05/94	-	77
	Pyrene	07/05/94	-	27

Notes:
%RSD Relative Standard Deviation
%D Percent Difference

TABLE 5

SURROGATE SPIKE RECOVERIES
PRELIMINARY SITE ASSESSMENT- WASTE CHARACTERIZATION SOIL SAMPLES
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
JUNE 1994

	Surrogate Recovery (%)		
Parameter	***Toluene-d8***	***Bromofluorobenzene***	***1,2-Dichloroethane-d4***
TCL Volatiles			
S-5515-001	102	89	99
S-5515-002	109	102	104
S-5515-003	107	91	98
S-5515-004	102	96	103
S-5515-005	101	92	107
S-5515-006	99	93	102
QC Limits (%) :	84-138	59-113	70-121

	Surrogate Recovery (%)							
	Nitrobenzene-D5	***2-Fluorobiphenyl***	***Terphenyl-D14***	***Phenol-D5***	***2-Fluorophenol***	***2,4,6-Tribromophenol***	***4-Chlorophenol-d4***	***1,2-Dichlorobenzene-d4***
Semi-Volatiles								
S-5515-001	99	135 *	141 *	116 *	106	139 *	118	98
S-5515-002	85	87	120	97	95	114	97	86
S-5515-003	93	119 *	127	108	95	131 *	106	93
S-5515-004	78	83	99	93	80	93	83	76
S-5515-005	66	76	96	78	64	86	69	64
S-5515-006	72	72	111	78	75	106	80	72
QC Limits (%) :	23-120	30-115	18-137	24-113	25-121	19-122	20-130	20-130

	Tetrachloro-m-xylene		*Decachlorobiphenyl*	
	%Recovery (1)	***%Recovery (2)***	***% Recovery (1)***	***% Recovery (2)***
Pesticides/PCBs				
S-5515-001	79	75	80	98
S-5515-002	84	96	86	72
S-5515-003	78	68	67	217 *
S-5515-004	71	71	51 *	264 *
S-5515-005	75	74	79	142 *
S-5515-006	64	60	74	61
Advisory Limits (%):	60-150	60-150	60-150	60-150

Notes:
(1) Designates GC column DB-1701.
(2) Designates GC column RTX-35.
* Value is outside of QC limits.

TABLE 6

MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) ANALYSIS
PRELIMINARY SITE ASSESSMENT-WASTE CHARACTERIZATION SOIL SAMPLES
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
JUNE 1994

Sample ID:	*S-5515-002*				
	Matrix Spike (% Recovery)	*Matrix Spike Duplicate (% Recovery)*	*QC Limits (%)*	*RPD*	*RPD Limit*
TCL Volatiles					
1,1-Dichloroethene	84	87	59-172	4	22
Trichloroethene	95	97	62-137	2	24
Benzene	97	98	66-142	1	21
Toluene	102	105	59-139	3	21
Chlorobenzene	108	108	60-133	0	21
TCL Semi-Volatiles					
Phenol	88	91	26-90	3	35
2-Chlorophenol	91	91	25-102	0	50
1,4-Dichlorobenzene	77	82	28-104	6	27
N-Nitroso-di-n-propylamine	73	73	41-126	0	38
1,2,4-Trichlorobenzene	77	82	38-107	6	23
4-Chloro-3-methylphenol	88	88	26-103	0	33
Acenaphthene	82	82	31-137	0	19
4-Nitrophenol	100	100	11-114	0	50
2,4-Dinitrotoluene	91 *	95 *	28-89	4	47
Pentachlorophenol	97	94	17-109	3	47
Pyrene	88	92	35-142	4	36
TCL Pesticides/PCBs					
gamma-BHC (Lindane)	68	59	46-127	14	50
Heptachlor	64	61	35-130	5	31
Aldrin	86	75	34-132	14	43
Dieldrin	82	78	31-134	5	38
Endrin	98	92	42-139	6	45
4,4-DDT	77	76	23-134	1	50

TABLE 6

MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) ANALYSIS
PRELIMINARY SITE ASSESSMENT-WASTE CHARACTERIZATION SOIL SAMPLES
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
JUNE 1994

Sample ID:	*S-5515-002*				
	Matrix Spike (% Recovery)	*Matrix Spike Duplicate (% Recovery)*	*QC Limits (%)*	*RPD*	*RPD Limit*
TAL Metals					
Aluminum	NA	-	75-125	-	-
Antimony	47 *	-	75-125	-	-
Arsenic	97	-	75-125	-	-
Barium	89	-	75-125	-	-
Beryllium	94	-	75-125	-	-
Cadmium	95	-	75-125	-	-
Chromium	82	-	75-125	-	-
Cobalt	87	-	75-125	-	-
Copper	89	-	75-125	-	-
Iron	NA	-	75-125	-	-
Lead	NA	-	75-125	-	-
Magnesium	-	-	75-125	-	-
Manganese	NA	-	75-125	-	-
Mercury	53 *	-	75-125	-	-
Nickel	86	-	75-125	-	-
Selenium	67 *	-	75-125	-	-
Silver	78	-	75-125	-	-
Thallium	86	-	75-125	-	-
Vanadium	87	-	75-125	-	-
Zinc	NA	-	75-125	-	-
Wet Chemistry					
Cyanide	103		75-125	-	-

Notes:

RPD Relative Percent Difference
* Value is outside of QC limits.
TCL Target Compound List
TAL Target Analyte List
NA Not applicable due to significant concentration of analyte in original sample.

TABLE 7

LABORATORY DUPLICATE RESULTS
PRELIMINARY SITE ASSESSMENT- WASTE CHARACTERIZATION SOIL SAMPLES
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
JUNE 1994

	S-5515-002				
	Original Result (mg/kg)	*Duplicate Result (mg/kg)*	*RPD (1)*	*Difference Between Results (1)*	*2 x CRDL*
TAL Metals					
Aluminum	10000	8800	6	NA	NA
Antimony	ND 10	ND 9.8	NA	*	31
Arsenic	4.9	4.3	NA	0.6	5.1
Barium	42	40	NA	2	100
Beryllium	0.59	0.62	NA	0.03	2.5
Cadmium	2.8	2.5	NA	0.3	2.5
Calcium	120000	120000	0	NA	NA
Chromium	14	14	NA	0	5.1
Cobalt	3.0	2.4	NA	0.6	25
Copper	9.2	9.5	NA	0.3	13
Iron	14000	13000	7	NA	NA
Lead	39	41	5	NA	NA
Magnesium	71000	69000	3	NA	NA
Manganese	840	770	9	NA	NA
Mercury	ND 0.12	ND 0.12	NA	*	0.10
Nickel	15	15	NA	0	20
Potassium	1800	1400	NA	400	2500
Selenium	ND 0.25	0.25	NA	*	2.5
Silver	ND 0.76	ND 0.74	NA	*	5.1
Sodium	230	230	NA	0	2500
Thallium	ND 0.25	0.25	NA	*	5.1
Vanadium	16	13	NA	3	25
Zinc	750	720	4	NA	NA

TABLE 7

LABORATORY DUPLICATE RESULTS
PRELIMINARY SITE ASSESSMENT- WASTE CHARACTERIZATION SOIL SAMPLES
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
JUNE 1994

	S-5515-002				
	Original Result (mg/kg)	*Duplicate Result (mg/kg)*	*RPD (1)*	*Difference Between Results (1)*	*2 x CRDL*
Wet Chemistry					
Cyanide	ND 3.2	ND 3.1	*	*	5.1

Notes

ND Non-detect at associated value.
TAL Target Analyte List
RPD Relative Percent Difference
NA Not Applicable
* RPD value cannot be calculated due to one or more values being non-detect.
(1) An acceptance criteria of ±2 times the CRDL is applied to all data less than 5 times the CRDL. Otherwise, a maximum RPD of 35 percent is the acceptance criteria used.

TABLE 8

METHOD BLANK RESULTS
PRELIMINARY SITE ASSESSMENT- WASTE CHARACTERIZATION SOIL SAMPLES
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
JUNE 1994

Blank ID:	*VBLKBE*
Analysis Date:	*06/23/94*

TCL Volatiles (ug/kg)	
Chloromethane	ND 10
Bromomethane	ND 10
Vinyl chloride	ND 10
Chloroethane	ND 10
Methylene chloride	ND 10
Acetone	ND 10
Carbon disulfide	ND 10
1,1-Dichloroethene	ND 10
1,1-Dichloroethane	ND 10
1,2-Dichloroethene (total)	ND 10
Chloroform	ND 10
1,2-Dichloroethane	ND 10
2-Butanone	ND 10
1,1,1-Trichloroethane	ND 10
Carbon tetrachloride	ND 10
Bromodichloromethane	ND 10
1,2-Dichloropropane	ND 10
cis-1,3-Dichloropropene	ND 10
Trichloroethene	ND 10
Dibromochloromethane	ND 10
1,1,2-Trichloroethane	ND 10
Benzene	ND 10
trans-1,3-Dichloropropene	ND 10
Bromoform	ND 10
4-Methyl-2-pentanone	ND 10
2-Hexanone	ND 10
Tetrachloroethene	ND 10
1,1,2,2-Tetrachloroethane	ND 10
Toluene	ND 10
Chlorobenzene	ND 10
Ethylbenzene	ND 10
Styrene	ND 10
Xylene (total)	ND 10

TABLE 8

METHOD BLANK RESULTS
PRELIMINARY SITE ASSESSMENT- WASTE CHARACTERIZATION SOIL SAMPLES
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
JUNE 1994

Blank ID:	*SBLKIK*
Extraction Date:	*06/24/94*

TCL Semi-Volatiles (ug/kg)	
Phenol	ND 330
bis(2-Chloroethyl)ether	ND 330
2-Chlorophenol	ND 330
1,3-Dichlorobenzene	ND 330
1,4-Dichlorobenzene	ND 330
1,2-Dichlorobenzene	ND 330
2-Methylphenol	ND 330
2,2'-oxybis(1-chloropropane)	ND 330
4-Methylphenol	ND 330
N-Nitroso-di-n-propylamine	ND 330
Hexachloroethane	ND 330
Nitrobenzene	ND 330
Isophorone	ND 330
2-Nitrophenol	ND 330
2,4-Dimethylphenol	ND 330
bis(2-Chloroethoxy)methane	ND 330
2,4-Dichlorphenol	ND 330
1,2,4-Trichlorobenzene	ND 330
Naphthalene	ND 330
4-Chloroaniline	ND 330
Hexachlorobutadiene	ND 330
4-Chloro-3-methylphenol	ND 330
2-Methylnaphthalene	ND 330
Hexachlorocyclopentadiene	ND 330
2,4,6-Trichlorophenol	ND 330
2,4,5-Trichlorophenol	ND 830
2-Chloronaphthalene	ND 330
2-Nitroaniline	ND 830
Dimethylphthalate	ND 330
Acenaphthylene	ND 330
2,6-Dinitrotoluene	ND 330
3-Nitroaniline	ND 830
Acenaphthene	ND 330
2,4-Dinitrophenol	ND 830
4-Nitrophenol	ND 830
Dibenzofuran	ND 330
2,4-Dinitrotoluene	ND 330
Diethylphthalate	ND 330
4-Chlorophenyl-phenylether	ND 330
Fluorene	ND 330

TABLE 8

METHOD BLANK RESULTS
PRELIMINARY SITE ASSESSMENT- WASTE CHARACTERIZATION SOIL SAMPLES
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
JUNE 1994

Blank ID:	*SBLKIK*
Extraction Date:	*06/24/94*

TCL Semi-Volatiles (ug/kg) (Cont'd.)

4-Nitroaniline	ND 830
4,6-Dinitro-2-methylphenol	ND 830
N-Nitrosodiphenylamine	ND 330
4-Bromophenyl-phenylether	ND 330
Hexachlorobenzene	ND 330
Pentachlorophenol	ND 830
Phenanthrene	ND 330
Anthracene	ND 330
Carbazole	ND 330
Di-n-butylphthalate	ND 330
Fluoranthene	ND 330
Pyrene	ND 330
Butylbenzylphthalate	ND 330
3,3'-Dichlorobenzidine	ND 330
Benzo(a)anthracene	ND 330
Chrysene	ND 330
bis(2-Ethylhexyl)phthalate	ND 330
Di-n-octylphthalate	ND 330
Benzo(b)fluoranthene	ND 330
Benzo(k)fluoranthene	ND 330
Benzo(a)pyrene	ND 330
Indeno(1,2,3-cd)pyrene	ND 330
Dibenz(a,h)anthracene	ND 330
Benzo(g,h,i)perylene	ND 330

Blank ID:	*PBLK42*
Extraction Date:	*06/23/94*

TCL Pesticides/ PCBs (ug/kg)

alpha-BHC	ND 1.7
beta-BHC	ND 1.7
delta-BHC	ND 1.7
gamma-BHC (Lindane)	ND 1.7
Heptachlor	ND 1.7
Aldrin	ND 1.7
Heptachlor epoxide	ND 1.7
Endosulfan I	ND 1.7
Dieldrin	ND 3.3
4,4'-DDE	ND 3.3
Endrin	ND 3.3

TABLE 8

METHOD BLANK RESULTS
PRELIMINARY SITE ASSESSMENT- WASTE CHARACTERIZATION SOIL SAMPLES
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
JUNE 1994

Blank ID:	*PBLK42*
Extraction Date:	*06/23/94*

TCL Pesticides/ PCBs (ug/kg) (Cont'd.)

Endosulfan II	ND 3.3
4,4'-DDD	ND 3.3
Endosulfan sulfate	ND 3.3
4,4'-DDT	0.28J
Methoxychlor	ND 17
Endrin ketone	ND 3.3
Endrin aldehyde	ND 3.3
alpha-chlordane	ND 1.7
gamma-chlordane	ND 1.7
Toxaphene	ND 170
Aroclor-1016	ND 33
Aroclor-1221	ND 67
Aroclor-1232	ND 33
Aroclor-1242	ND 33
Aroclor-1248	ND 33
Aroclor-1254	ND 33
Aroclor-1260	ND 33

TABLE 8

METHOD BLANK RESULTS
PRELIMINARY SITE ASSESSMENT- WASTE CHARACTERIZATION SOIL SAMPLES
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
JUNE 1994

Blank ID:	*PBLK(ColdVapor)*	*PBLK(ICP)*	*PBLK(Furnace)*
Analysis Date:	*06/30/94*	*07/06/94*	*07/06/94*
TAL Metals (mg/kg)			
Aluminum	NA	ND 4.6	NA
Antimony	NA	ND 8.0	NA
Arsenic	NA	NA	ND 0.20
Barium	NA	ND 1.6	NA
Beryllium	NA	ND 0.20	NA
Cadmium	NA	ND 0.40	NA
Calcium	NA	ND 1.2	NA
Chromium	NA	ND 1.0	NA
Cobalt	NA	ND 0.60	NA
Copper	NA	ND 0.60	NA
Iron	NA	2.9	NA
Lead	NA	ND 4.0	ND 0.40
Magnesium	NA	ND 3.4	NA
Manganese	NA	ND 0.20	NA
Mercury	ND 0.10	NA	NA
Nickel	NA	ND 2.6	NA
Potassium	NA	100	NA
Selenium	NA	NA	ND 0.20
Silver	NA	ND 0.60	NA
Sodium	NA	ND 5.6	NA
Thallium	NA	NA	ND 0.20
Vanadium	NA	ND 1.2	NA
Zinc	NA	ND 0.40	NA

Blank ID:	*PBLK (AS)*
Analysis Date:	*06/24/94*
WetChemistry (mg/kg)	
Cyanide	ND 0.50

Notes:
ND Non-detect at associated value.
J Associated value is estimated.
TCL Target Compound List
TAL Target Analyte List
PCBs Polychlorinated Biphenyls
NA Not Applicable
AS Automated Spectrophotometer
ICP Inductively Coupled Plasma

TABLE 9

FIELD BLANK RESULTS
PRELIMINARY SITE ASSESSMENT- WASTE CHARACTERIZATION SOIL SAMPLES
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
JUNE 1994

Sample ID:	*S-5515-001*
Collection Date:	*06/21/94*

TCL Volatiles (µg/kg)	
Chloromethane	ND 10
Bromomethane	ND 10
Vinyl Chloride	ND 10
Chloroethane	ND 10
Methylene chloride	ND 10
Acetone	4J
Carbon disulfide	ND 10
1,1-Dichloroethene	ND 10
1,1-Dichloroethane	ND 10
1,2-Dichloroethene (total)	ND 10
Chloroform	ND 10
1,2-Dichloroethane	ND 10
2-Butanone	ND 10
1,1,1-Trichloroethane	ND 10
Carbon tetrachloride	ND 10
Bromodichloromethane	ND 10
1,2-Dichloropropane	ND 10
cis-1,3-Dichloropropene	ND 10
Trichloroethene	ND 10
Dibromochloromethane	ND 10
1,1,2-Trichloroethane	ND 10
Benzene	ND 10
trans-1,3-Dichloropropene	ND 10
Bromoform	ND 10
4-Methyl-2-pentanone	ND 10
2-Hexanone	ND 10
Tetrachloroethene	ND 10
1,1,2,2-Tetrachloroethane	ND 10
Toluene	ND 10
Chlorobenzene	ND 10
Ethylbenzene	ND 10
Styrene	ND 10
Xylene (total)	ND 10

TABLE 9

FIELD BLANK RESULTS
PRELIMINARY SITE ASSESSMENT- WASTE CHARACTERIZATION SOIL SAMPLES
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
JUNE 1994

Sample ID:	*S-5515-001*
Collection Date:	*06/21/94*

TCL Semi-Volatiles (µg/kg)	
Phenol	ND 330
bis(2-Chloroethyl)ether	ND 330
2-Chlorophenol	ND 330
1,3-Dichlorobenzene	ND 330
1,4-Dichlorobenzene	ND 330
1,2-Dichlorobenzene	ND 330
2-Methylphenol	ND 330
2,2'-oxybis(1-chloropropane)	ND 330
4-Methylphenol	ND 330
N-Nitroso-di-n-propylamine	ND 330
Hexachloroethane	ND 330
Nitrobenzene	ND 330
Isophorone	ND 330
2-Nitrophenol	ND 330
2,4-Dimethylphenol	ND 330
bis(2-Chloroethoxy)methane	ND 330
2,4-Dichlorphenol	ND 330
1,2,4-Trichlorobenzene	ND 330
Naphthalene	ND 330
4-Chloroaniline	ND 330
Hexachlorobutadiene	ND 330
4-Chloro-3-methylphenol	ND 330
2-Methylnaphthalene	ND 330
Hexachlorocyclopentadiene	ND 330
2,4,6-Trichlorophenol	ND 330
2,4,5-Trichlorophenol	ND 830
2-Chloronaphthalene	ND 330
2-Nitroaniline	ND 830
Dimethylphthalate	ND 330
Acenaphthylene	ND 330
2,6-Dinitrotoluene	ND 330
3-Nitroaniline	ND 830
Acenaphthene	ND 330
2,4-Dinitrophenol	ND 830
4-Nitrophenol	ND 830
Dibenzofuran	ND 330
2,4-Dinitrotoluene	ND 330
Diethylphthalate	ND 330
4-Chlorophenyl-phenylether	ND 330
Fluorene	ND 330
4-Nitroaniline	ND 830
4,6-Dinitro-2-methylphenol	ND 830

TABLE 9

FIELD BLANK RESULTS
PRELIMINARY SITE ASSESSMENT- WASTE CHARACTERIZATION SOIL SAMPLES
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
JUNE 1994

Sample ID:	*S-5515-001*
Collection Date:	*06/21/94*

TCL Semi-Volatiles (µg/kg)(cont'd)	
N-Nitrosodiphenylamine	ND 330
4-Bromophenyl-phenylether	ND 330
Hexachlorobenzene	ND 330
Pentachlorophenol	ND 830
Phenanthrene	ND 330
Anthracene	ND 330
Carbazole	ND 330
Di-n-butylphthalate	ND 330
Fluoranthene	ND 330
Pyrene	ND 330
Butylbenzylphthalate	ND 330
3,3'-Dichlorobenzidine	ND 330
Benzo(a)anthracene	ND 330
Chrysene	ND 330
bis(2-Ethylhexyl)phthalate	ND 330
Di-n-octylphthalate	ND 330
Benzo(b)fluoranthene	ND 330
Benzo(k)fluoranthene	ND 330
Benzo(a)pyrene	ND 330
Indeno(1,2,3-cd)pyrene	ND 330
Dibenzo(a,h)anthracene	ND 330
Benzo(g,h,i)perylene	ND 330

TCL Pesticides/ PCBs (µg/kg)	
alpha-BHC	ND 1.7
beta-BHC	ND 1.7
delta-BHC	ND 1.7
gamma-BHC (Lindane)	ND 1.7
Heptachlor	ND 1.7
Aldrin	ND 1.7
Heptachlor epoxide	ND 1.7
Endosulfan I	ND 1.7
Dieldrin	ND 3.3
4,4'-DDE	ND 3.3
Endrin	ND 3.3
Endosulfan II	ND 3.3
4,4'-DDD	ND 3.3
Endosulfan sulfate	ND 3.3
4,4'-DDT	ND 3.3
Methoxychlor	ND 17
Endrin ketone	ND 3.3

TABLE 9

FIELD BLANK RESULTS
PRELIMINARY SITE ASSESSMENT- WASTE CHARACTERIZATION SOIL SAMPLES
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
JUNE 1994

Sample ID:	*S-5515-001*
Collection Date:	*06/21/94*

TCL Pesticides/ PCBs (µg/kg) (Cont'd.)	
Endrin aldehyde	ND 3.3
alpha-chlordane	ND 1.7
gamma-chlordane	ND 1.7
Toxaphene	ND 170
Aroclor-1016	ND 33
Aroclor-1221	ND 67
Aroclor-1232	ND 33
Aroclor-1242	ND 33
Aroclor-1248	ND 33
Aroclor-1254	ND 33
Aroclor-1260	ND 33

TAL Metals (mg/kg)	
Aluminum	ND 4.6
Antimony	ND 8.0
Arsenic	ND 0.20
Barium	ND 1.6
Beryllium	ND 0.20
Cadmium	ND 0.40
Calcium	9.8
Chromium	ND 2.0
Cobalt	ND 0.60
Copper	0.92
Iron	3.8
Lead	ND 0.20
Magnesium	ND 3.4
Manganese	ND 0.20
Mercury	ND 0.10
Nickel	ND 2.6
Potassium	ND 100
Selenium	ND 0.20
Silver	ND 0.60
Sodium	ND 5.6
Thallium	ND 0.20
Vanadium	ND 1.2
Zinc	ND 0.40

TABLE 9

FIELD BLANK RESULTS
PRELIMINARY SITE ASSESSMENT- WASTE CHARACTERIZATION SOIL SAMPLES
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
JUNE 1994

Sample ID:	*S-5515-001*
Collection Date:	*06/21/94*
Wet Chemistry (mg/kg)	
Cyanide	ND 0.50

Notes:

ND	Non-detect at associated value.
J	Associated value is estimated.
TCL	Target Compound List
TAL	Target Analyte List
PCBs	Polychlorinated Biphenyls
Dup.	Field duplicate
S.U.	Standard Units
RCRA	Resource Conservation and Recovery Act
-	Not Applicable

TABLE 10

FIELD DUPLICATE RESULTS
PRELIMINARY SITE ASSESSMENT- WASTE CHARACTERIZATION SOIL SAMPLES
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
JUNE 1994

Sample ID:	*S-5515-004*	*S-5515-005 (Dup. of 004)*	*RPD*
Sample Date:	*06/21/94*	*06/21/94*	
TCL Volatiles (ug/kg)			
Chloromethane	ND 14	ND 14	*
Bromomethane	ND 14	ND 14	*
Vinyl Chloride	ND 14	ND 14	*
Chloroethane	ND 14	ND 14	*
Methylene chloride	ND 14	ND 14	*
Acetone	85	71	18
Carbon disulfide	ND 14	ND 14	*
1,1-Dichloroethene	ND 14	ND 14	*
1,1-Dichloroethane	ND 14	ND 14	*
1,2-Dichloroethene (total)	ND 14	ND 14	*
Chloroform	ND 14	ND 14	*
1,2-Dichloroethane	ND 14	ND 14	*
2-Butanone	14	14J	0
1,1,1-Trichloroethane	ND 14	ND 14	*
Carbon tetrachloride	ND 14	ND 14	*
Bromodichloromethane	ND 14	ND 14	*
1,2-Dichloropropane	ND 14	ND 14	*
cis-1,3-Dichloropropene	ND 14	ND 14	*
Trichloroethene	ND 14	ND 14	*
Dibromochloromethane	ND 14	ND 14	*
1,1,2-Trichloroethane	ND 14	ND 14	*
Benzene	ND 14	ND 14	*
trans-1,3-Dichloropropene	ND 14	ND 14	*
Bromoform	ND 14	ND 14	*
4-Methyl-2-pentanone	ND 14	ND 14	*
2-Hexanone	ND 14	ND 14	*
Tetrachloroethene	ND 14	ND 14	*
1,1,2,2-Tetrachloroethane	ND 14	ND 14	*
Toluene	ND 14	ND 14	*
Chlorobenzene	ND 14	ND 14	*
Ethylbenzene	ND 14	ND 14	*
Styrene	ND 14	ND 14	*
Xylene (total)	ND 14	ND 14	*

TABLE 10

FIELD DUPLICATE RESULTS
PRELIMINARY SITE ASSESSMENT- WASTE CHARACTERIZATION SOIL SAMPLES
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
JUNE 1994

Sample ID:	*S-5515-004*	*S-5515-005 (Dup. of 004)*	*RPD*
Sample Date:	*06/21/94*	*06/21/94*	
TCL Semi-volatiles (ug/kg)			
Phenol	ND 350	ND 380	*
bis(2-Chloroethyl)ether	ND 350	ND 380	*
2-Chlorophenol	ND 350	ND 380	*
1,3-Dichlorobenzene	ND 350	ND 380	*
1,4-Dichlorobenzene	ND 350	ND 380	*
1,2-Dichlorobenzene	ND 350	ND 380	*
2-Methylphenol	ND 350	ND 380	*
2,2'-oxybis(1-chloropropane)	ND 350	ND 380	*
4-Methylphenol	ND 350	ND 380	*
N-Nitroso-di-n-propylamine	ND 350	ND 380	*
Hexachloroethane	ND 350	ND 380	*
Nitrobenzene	ND 350	ND 380	*
Isophorone	ND 350	ND 380	*
2-Nitrophenol	ND 350	ND 380	*
2,4-Dimethylphenol	ND 350	ND 380	*
bis(2-Chloroethoxy)methane	ND 350	ND 380	*
2,4-Dichlorphenol	ND 350	ND 380	*
1,2,4-Trichlorobenzene	ND 350	ND 380	*
Naphthalene	46J	26J	56
4-Chloroaniline	ND 350	ND 380	*
Hexachlorobutadiene	ND 350	ND 380	*
4-Chloro-3-methylphenol	ND 350	ND 380	*
2-Methylnaphthalene	90J	45J	67
Hexachlorocyclopentadiene	ND 350	ND 380	*
2,4,6-Trichlorophenol	ND 350	ND 380	*
2,4,5-Trichlorophenol	ND 900	ND 960	*
2-Chloronaphthalene	ND 350	ND 380	*
2-Nitroaniline	ND 900	ND 960	*
Dimethylphthalate	ND 350	ND 380	*
Acenaphthylene	ND 350	ND 380	*
2,6-Dinitrotoluene	ND 350	ND 380	*
3-Nitroaniline	ND 900	ND 960	*
Acenaphthene	ND 350	13J	*
2,4-Dinitrophenol	ND 900	ND 960	*
4-Nitrophenol	ND 900	ND 960	*
Dibenzofuran	27J	17J	45
2,4-Dinitrotoluene	ND 350	ND 380	*
Diethylphthalate	ND 350	ND 380	*
4-Chlorophenyl-phenylether	ND 350	ND 380	*
Fluorene	14J	15J	7
4-Nitroaniline	ND 900	ND [illegible]	*
4,6-Dinitro-2-methylphenol	ND 900	ND [illegible]	*
N-Nitrosodiphenylamine	ND 350	ND [illegible]	*

TABLE 10

FIELD DUPLICATE RESULTS
PRELIMINARY SITE ASSESSMENT- WASTE CHARACTERIZATION SOIL SAMPLES
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
JUNE 1994

Sample ID:	*S-5515-004*	*S-5515-005 (Dup. of 004)*	*RPD*
Sample Date:	*06/21/94*	*06/21/94*	
TCL Semi-volatiles (ug/kg) (Cont'd.)			
4-Bromophenyl-phenylether	ND 350	ND 380	*
Hexachlorobenzene	ND 350	ND 380	*
Pentachlorophenol	ND 900	ND 960	*
Phenanthrene	140J	160J	13
Anthracene	15J	23J	42
Carbazole	14J	22J	44
Di-n-butylphthalate	14J	ND 380	*
Fluoranthene	160J	210J	27
Pyrene	140J	170J	19
Butylbenzylphthalate	ND 350	ND 380	*
3,3'-Dichlorobenzidine	ND 350	ND 380	*
Benzo(a)anthracene	83J	92J	10
Chrysene	110J	120J	9
bis(2-Ethylhexyl)phthalate	42J	ND 380	*
Di-n-octylphthalate	ND 350	ND 380	*
Benzo(b)fluoranthene	120J	130J	8
Benzo(k)fluoranthene	110J	120J	9
Benzo(a)pyrene	97J	110J	13
Indeno(1,2,3-cd)pyrene	43J	39J	10
Dibenz(a,h)anthracene	ND 350	ND 380	*
Benzo(g,h,i)perylene	35J	ND 380	*
TCL Pesticides/ PCBs (ug/kg)			
alpha-BHC	ND 1.8	ND 2.0	*
beta-BHC	ND 1.8	ND 2.0	*
delta-BHC	ND 1.8	ND 2.0	*
gamma-BHC (Lindane)	ND 1.8	ND 2.0	*
Heptachlor	ND 1.8	ND 2.0	*
Aldrin	ND 1.8	ND 2.0	*
Heptachlor epoxide	ND 1.8	ND 2.0	*
Endosulfan I	ND 1.8	ND 2.0	*
Dieldrin	ND 3.5	ND 3.8	*
4,4'-DDE	ND 3.5	ND 3.8	*
Endrin	ND 3.5	ND 3.8	*
Endosulfan II	ND 3.5	ND 3.8	*
4,4'-DDD	ND 3.5	ND 3.8	*
Endosulfan sulfate	ND 3.5	ND 3.8	*
4,4'-DDT	ND 3.5	ND 3.8	*
Methoxychlor	ND 18	ND 20	*
Endrin ketone	ND 3.5	ND 3.8	*
Endrin aldehyde	ND 3.5	ND 3.8	*
alpha-chlordane	ND 1.8	ND 2.0	*

TABLE 10

FIELD DUPLICATE RESULTS
PRELIMINARY SITE ASSESSMENT- WASTE CHARACTERIZATION SOIL SAMPLES
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
JUNE 1994

TCL Pesticides/ PCBs (ug/kg) (Cont'd.)

gamma-chlordane	1.6J	1.4J	13
Toxaphene	ND 180	ND 200	*
Aroclor-1016	ND 35	ND 38	*
Aroclor-1221	ND 72	ND 77	*
Aroclor-1232	ND 35	ND 38	*
Aroclor-1242	ND 35	ND 38	*
Aroclor-1248	ND 35	ND 38	*
Aroclor-1254	200	200	0
Aroclor-1260	ND 35	ND 38	*

TABLE 10

FIELD DUPLICATE RESULTS
PRELIMINARY SITE ASSESSMENT- WASTE CHARACTERIZATION SOIL SAMPLES
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
JUNE 1994

Sample ID:	*S-5515-004* (mg/kg)	*S-5515-005 (Dup. of 004)* (mg/kg)	*RPD*	*Difference Between Results (1)*	*2 x CRDL*
TAL Metals					
Aluminum	18000	4900	114 **	NA	NA
Antimony	ND 11	ND 10	NA	*	33
Arsenic	7.0	4.4	NA	2.6	5.6
Barium	210	37	NA	170 **	110
Beryllium	0.53	0.32	NA	0.2	2.8
Cadmium	3.5	0.86	NA	2.6	2.8
Calcium	20000	99000	133	NA	NA
Chromium	24	13	NA	11 **	5.6
Cobalt	13	13	NA	0	28
Copper	21	21	NA	0	14
Iron	30000	9700	102 **	NA	NA
Lead	40	41	2	NA	NA
Magnesium	12000	43000	113	NA	NA
Manganese	1700	580	98	NA	NA
Mercury	ND 0.14	ND 0.12	NA	*	0.11
Nickel	32	45	NA	13	22
Potassium	2100	930	NA	1200	2800
Selenium	ND 0.27	ND 0.26	NA	*	2.8
Silver	ND 0.81	ND 0.78	NA	*	5.6
Sodium	3400	540	NA	2900 **	2800
Thallium	ND 0.27	ND 0.26	NA	*	5.6
Vanadium	27	8.0	NA	19	28
Zinc	1800	240	153 **	NA	NA
Wet Chemistry (mg/kg)					
Cyanide	1.1	ND 0.65	NA	*	5.6

Notes:

ND Non-detect at associated value.
J Associated value is estimated.
TCL Target Compound List
TAL Target Analyte List
RPD Relative Percent Difference
PCBs Polychlorinated Biphenyls
Dup. Field duplicate
CRDL Contract Required Detection Limit
* RPD value cannot be calculated due to one or more values being non-detect.
** Value fails acceptance criteria.
(1) An acceptance criteria of ±2 times the CRDL is applied to all data less than 5 times the CRDL. Otherwise, a maximum RPD of 35 percent is the acceptance criteria used.

G

APPENDIX G

DATA VALIDATION REPORT FOR THE NOVEMBER 1994 PSA SAMPLES

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1.0 EXECUTIVE SUMMARY

Twenty-two soil/sediment samples, thirteen groundwater samples and five surface water samples were collected during the preliminary Site Assessment at the Former Diamond Shamrock Site (Site). The samples were collected during November 1994. The groundwater samples were analyzed for the full Target Compound List/Target Analyte List (TCL/TAL) including Tentatively Identified Compound (TIC) analyses. The soil and sediment and surface water samples were analyzed for Site-specific semi-volatiles and metals.

Groundwater Samples

All data were acceptable with the exception of the pesticide/PCB results for sample GW-5515-029 which were rejected due to low surrogate recoveries.

Volatile results were non-detect with the exception of some low level concentrations (≤26 µg/L).

Semi-volatile results were non-detect except for phenol (2 to 3 µg/L) in two samples, and bis(2-ethylhexyl)phthalate in four samples (12 to 440 µg/L).

Pesticide/PCB results were non-detect with the exception of 0.04 µg/L delta-BHC in one sample, and 0.02 µg/L heptachlor epoxide in two samples.

Various metals were detected in the samples. Antimony, beryllium, mercury, cobalt, silver and thallium results were non-detect for all samples.

Surface Water Samples

All data were acceptable.

Site-specific semi-volatile results were non-detect with the exception of one sample which contained 4 µg/L fluoranthene.

Most Site-specific metal results were either non-detect or very near the instrument detection limits.

Soil/Sediment Samples

All data were acceptable.

The Site-specific semi-volatile compounds (polynuclear aromatics) were detected in the samples at various concentrations. The highest levels were reported in the sediment samples.

The Site-specific metals were detected in the samples at various levels.

2.0 INTRODUCTION

Twenty-two soil/sediment samples (including two field duplicates), thirteen groundwater samples (including one field duplicate) and five surface water samples (including one field duplicate) were collected in support of the Former Diamond Shamrock Lockport site (Site) Preliminary Assessment Study in November 1994. The soil and surface water samples were submitted for Site-Specific Parameter List (SSPL) semi-volatile and metals analysis. The groundwater samples were analyzed for the full Target Compound List/Target Analyte List (TCL/TAL). A summary of the sampling and analysis plan is provided in Table 1.

Analytical services were provided by Galson Laboratories. Groundwater analyses were performed in accordance with New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol (ASP) Methodologies, 1991 Revision. SSPL analyses were performed using methods referenced from "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", November 1986 (Rev. 7/92), SW-846, 3rd Edition. The specific methods used are summarized in Table 2.

A summary of the analytical data is presented in Tables 3A through 3C. The Quality Assurance/Quality Control (QA/QC) criteria by which these data have been assessed are outlined in the analytical methods and the following documents:

i) "National Functional Guidelines for Organic Data Review, Multi-Media, Multi-Concentration (OLM01.0)", 12/90 (Rev. 6/91);

ii) "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses" (July 1, 1988), prepared by the United States Environmental Protection Agency (USEPA) Data Review Work Group; and

iii) Quality Assurance Project Plan (QAPP), Appendix B of the "Preliminary Site Assessment Work Plan", Former Diamond

Shamrock Site, Lockport, New York, NYSDEC Site No. 932071, April 1994.

Full ASP Category B deliverables were provided for the groundwater analyses. Limited deliverables, excluding raw data, were provided for the soil/sediment and surface water sample analyses.

3.0 QUALITY ASSURANCE/QUALITY CONTROL REVIEW

3.1 HOLDING TIME

A summary of sample holding time criteria specified in the QAPP is presented in Table 4. Actual holding time data for samples are summarized in Table 5. All samples were extracted and/or analyzed within the specified time frames.

3.2 GC/MS CALIBRATION - VOLATILES AND SEMI-VOLATILES

Calibration data were reviewed for groundwater sample analyses only. All outlying calibration data are summarized in Table 6.

Instrument Tuning and Mass Calibration

Prior to sample analysis, and every 12 hours thereafter, the GC/MS instrumentation tuning and mass calibration were verified using bromofluorobenzene (BFB) for volatile analyses and decafluorotriphenylphosphine (DFTPP) for semi-volatile analyses. All criteria specified in ASP Methods 91-1 and 91-2 were met for the analyses of these compounds.

Initial Calibration

An initial calibration curve containing all TCL volatile compounds was analyzed. All relative response factors (RRFs) showed adequate instrument sensitivity.

The percent relative standard deviation (%RSD) value for acetone was greater than 30 percent, indicating some variability in the instrument response for this compound over the calibration range. Associated positive sample results were qualified as estimated. Based on

acceptable RRF values, instrument sensitivity was adequate for this compound and non-detect results were not qualified.

An initial calibration curve containing all TCL semi-volatiles was analyzed. All compound response factors showed adequate instrument sensitivity. All %RSD values were less than 30 percent indicating good linearity of the calibration curve for the TCL compounds.

Continuing Calibration

Continuing calibration standards were analyzed for TCL volatiles and semi-volatiles as specified in Methods 91-1 and 91-2. All RRF values were acceptable. Some percent difference (%D) values between the initial and continuing calibration RRFs were high, indicating variability in instrument response. Associated positive sample results for these compounds were qualified as estimated. Non-detect results were not qualified, as they were not quantitated from the outlying calibration standards and analyte sensitivity was not compromised based on acceptable RRF values.

3.3 GC CALIBRATION - PESTICIDES/PCBs

Resolution Check Standard Analysis

Resolution check standards were analyzed as required and showed acceptable peak resolution.

Performance Evaluation - Mixture (PEM) Analysis

PEM standards were analyzed at the proper frequency. All PEM analyses met the peak resolution, retention time, analyte recovery and DDT/endrin breakdown criteria specified in Method 91-3.

Initial Calibration

Initial calibration standards were analyzed at the required concentrations and frequencies. All peak resolution and linearity criteria specified in Method 91-3 were satisfied.

Initial calibration blanks were analyzed and all compounds of interest were reported as non-detect.

Continuing Calibration

Continuing calibration standards were analyzed at the proper frequency. All peak resolution and linearity criteria specified in Method 91-3 were satisfied.

Continuing calibration blanks were analyzed at the proper frequency. All blank results were non-detect with one exception; the blank analyzed on July 7, 1994 on column DB-608 contained 0.004 µg/L 4,4'-DDT. All associated sample results were non-detect for 4,4'-DDT.

3.4 INORGANICS INSTRUMENTATION CALIBRATION

Instrument calibrations were assessed for groundwater sample analyses only.

Initial Calibration

Calibration curves were analyzed per the analytical methods, and linearity values were acceptable. Initial calibration verification (ICV) standards were analyzed at the required frequency and recoveries were acceptable.

Initial calibration blanks (ICBs) were analyzed at the required frequency. The results were non-detect with the exception of low level barium, calcium and zinc concentrations. Associated sample results up to five times the concentrations in the blank were qualified as non-detect.

Continuing Calibration

Continuing calibration verification (CCV) standards were analyzed at the required frequency and all recoveries were acceptable. Continuing calibration blanks (CCBs) were analyzed at the required frequency and all results were less than the associated contract required detection limits (CRDLs). Barium, beryllium, calcium, iron, magnesium, sodium, thallium, vanadium and zinc were detected in some CCBs at concentrations between the IDLs and CRDLs. Associated sample results up to five times the blank concentrations were qualified as non-detect.

CRDL Standard Analyses

The CRDL standards were analyzed at the proper frequency. All recoveries were within general control limits of 80 to 120 percent.

3.5 SURROGATE ANALYSES - ORGANICS

The proper surrogate compounds were added to all blanks, samples and QC samples prior to extraction and/or analysis for TCL

volatiles, semi-volatiles and pesticides/PCBs. A summary of the recoveries is presented in Table 7.

All volatile surrogate recoveries were acceptable.

All semi-volatile surrogate recoveries were greater than 10 percent. As specified in Method 91-2, no more than one surrogate recovery per fraction (base/neutral acid extractable) was outside of the control limits for any sample analysis.

Surrogate recoveries for the pesticide/PCB analysis of samples were acceptable with the following exceptions:

i) All surrogate recoveries for sample GW-5515-029 were 10 percent or lower. This is an indication of extraction inefficiency and the sample results, all non-detect, were rejected.

ii) Low DCB recoveries were reported for the analysis of samples GW-5515-035, GW-5515-036, and SU-5515-037. Since the DCB recovery for these analyses were slightly low and the other surrogate (TCMX) recoveries were acceptable on both columns, the data were not qualified.

iii) A high DCB recovery was reported for sample GW-5515-038. All results for this sample were non-detect and would have been unaffected by a potential high bias.

3.6 INTERNAL STANDARD ANALYSES - VOLATILES AND SEMI-VOLATILES

Internal Standard (IS) data were reviewed for groundwater sample analyses only. The appropriate IS compounds were added to the groundwater samples analyzed for TCL volatiles and semi-volatiles. All IS recoveries were acceptable.

3.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) ANALYSES - ORGANICS

MS/MSD analyses were performed on sample GW-5515-032 for TCL volatiles, semi-volatiles and pesticides/PCBs, and on samples SW-5515-018, S-5515-004, and SED-5515-022 for SSPL semi-volatiles. Results are summarized in Table 8. All recoveries and RPD values were within the specified control limits with the following exceptions.

Volatiles

i) A low 1,1-dichloroethene recovery was reported for the MSD analysis of sample GW-5515-02. The value was 1 percent below the control limit and the MS recovery was acceptable. Data were not qualified.

Semi-Volatiles

i) The MS analysis of sample GW-5515-032 yielded a slightly high recovery for 4-nitrophenol; the MSD recovery was acceptable. All associated groundwater sample results were non-detect for this compound and would not have been affected by a high bias.

ii) The MS/MSD analysis of sample SW-5515-018 yielded high recoveries for three of the semi-volatile spiking compounds. Results for these compounds for groundwater samples were non-detect and would not have been impacted by a potential high bias.

iii) MS/MSD recoveries and RPD values for sample SED-5515-022 were high due to significant analyte concentrations in the sample, and potential non-homogeneity of the soil. Positive results for this sample were qualified as estimated to reflect a potential high bias. High variability in these results may indicate poor precision; this was further investigated using the field duplicate data (see Section 3.12).

3.8 MATRIX SPIKE (MS) ANALYSES - INORGANICS

MS analyses were performed on sample GW-5515-032 for TAL inorganics and samples S-5515-004, SED-5515-022 and SW-5515-018 for SSPL metals. The results are summarized in Table 8. All spike recoveries were acceptable with the exception of low recoveries reported for cadmium, cobalt, copper, chromium, and nickel. Associated positive sample results were qualified as estimated due to a potential low bias. Non-detect results were not qualified as the recoveries were not extremely low (<30 percent).

A 0 percent arsenic recovery was reported for the MS analysis of sample GW-5515-032. Arsenic was detected in the associated samples and these results were qualified as estimated to reflect a potential low bias.

Some samples used for MS analyses contained metal concentrations significantly higher than the spiking concentrations used. These results were not used to assess analytical accuracy.

3.9 LABORATORY DUPLICATE ANALYSES - INORGANICS

Sample GW-5515-032 was prepared and analyzed in duplicate by the laboratory for TAL inorganics; samples SW-5515-004, SED-5515-022 and SW-5515-018 were prepared and analyzed in duplicate for SSPL metals. A summary of the results is presented in Table 9. Generally duplicate results showed good analytical precision. Some lead, zinc and manganese results showed variability and associated positive results were qualified as estimated.

3.10 LABORATORY BLANK ANALYSES

Laboratory blanks were prepared and analyzed with each analytical sample batch. A summary of the results is presented in Table 10.

TCL volatile results for laboratory blanks were non-detect with the exceptions of:

i) 11 µg/L of methylene chloride detected on November 16, 1994. Associated sample results up to ten times the blank concentration were qualified as non-detect.

ii) 2 µg/L of chloromethane was detected in the method blank analyzed on November 18, 1994. This compound was not detected in any of the associated samples.

TCL semi-volatile and pesticide/PCB compounds were not detected in the respective laboratory blanks.

Barium, beryllium and thallium were detected in some of the laboratory blanks at concentrations less than the CRDL but above the IDL. Sample results up to five times the blank concentrations were qualified as non-detect.

Cyanide was not detected in the laboratory blank.

3.11 ADDITIONAL QA/QC FOR INORGANIC ANALYSES

Additional QA/QC was assessed for the groundwater sample analyses only.

Laboratory Control Sample (LCS) Analyses

LCSs were prepared and analyzed with each batch of samples. All recoveries were acceptable.

Post Digestion Spikes - Furnace Atomic Absorption (AA) Analyses

Post digestion spikes were performed as required. All recoveries were acceptable with the exception of some outlying recoveries for antimony, arsenic, lead and thallium. Associated positive results were qualified as estimated. Analyte instrument sensitivity was previously judged acceptable based on the CRDL standard results and none of the outlying spike recoveries were excessively low (<30 percent); non-detect results were not qualified.

Method of Standard Additions (MSA) - Furnace AA Analyses

Samples were analyzed using MSA where required. Resulting correlation coefficients were acceptable.

Serial Dilution -ICP Analyses

A serial dilution analysis was performed on sample GW-5515-029. All relevant sample results yielded percent difference (%D) values less than 10 percent between original and diluted analyses.

Interference Check Standard - ICP Analyses

Interference check standards were analyzed at the proper frequency and all analyte recoveries were acceptable.

3.12 FIELD QA/QC

Trip Blanks Analysis - Volatiles

Two trip blanks were transported with the water samples and analyzed for TCL volatiles. All results were non-detect (see Table 11 for a summary).

Rinse Blank Analyses

Two rinse blanks were collected and submitted for SSPL analyses (see Table 12 for a summary of the results). Low concentrations (between the CRDLs and IDLs) of iron, lead and/or zinc were detected in the rinse blanks. Associated sample results up to five times the blank concentrations were qualified non-detect. SSPL semi-volatile compounds were not detected in the rinse blanks.

Rinse blanks were not submitted for full TCL/TAL analysis.

Field Duplicate Analyses

Duplicate samples were collected and submitted "blind" to the laboratory as follows:

Matrix	*Sample ID*	*Duplicate Sample ID*
Soil	SS-5515-026	SS-5515-027
Sediment	SED-5515-021	SED-5515-025
Surface Water	SW-5515-017	SW-5515-024
Groundwater	GW-5515-035	GW-5515-036

A comparison of the analytical results is provided in Tables 13A through 13C. Sampling and analytical precision were generally

acceptable for the water samples and the sediment samples. The soil results showed some variability for the semi-volatile compounds; results for these compounds were qualified as estimated for both of these samples. Based upon the acceptable RPD values reported for the MS/MSD analysis of the soil sample (see Section 3.7), the poor precision identified for the field duplicate analysis appears to be an isolated incidence and data for the remaining samples were not qualified.

3.13 TENTATIVELY IDENTIFIED COMPOUNDS (TICS) - VOLATILE AND SEMI-VOLATILE ANALYSES

TIC analyses were performed on the groundwater samples which were analyzed for the TCL and TAL parameters. The following is a summary of the results:

Sample ID	*TICs*	*Estimated Concentration (µg/L)*
Volatiles - Groundwater Samples		
None Found		
Semi-Volatiles - Groundwater Samples		
GW-5515-029	Butanoic Acid	13J
GW-5515-030	Butanoic Acid	13J
	3-Methyl butanoic acid	10J
	Unknown	6J
GW-5515-033	Unknown	5J
GW-5515-034	Unknown	5J
GW-5515-035	Butanoic Acid	6J
GW-5515-038	Unknown	17J
SU-5515-037	Unknown	58J
	2-[2-(2-Butoxyethoxy)ethoxy]-ethanol	6J
	3,4-Dichlorobenzoic Acid	4J
	3,6,9,12-Tetrahexadecan-1-ol	5J
SU-5515-039	Unknowns	17J

4.0 CONCLUSION

Based on this QA / QC review, all data were acceptable with the exceptions and qualifications noted herein.

TABLE 1

SAMPLING AND ANALYSIS PLAN
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK PLANT SITE
LOCKPORT, NEW YORK FACILITY
NOVEMBER 1994

Sample Identification	*Source/ Sample Location*	*Date Sampled*	*Time Sampled*	*Matrix*	*Interval Sampled (feet)*	*Analyses Parameters*	*Comments*
S-5515-001	MW2-94	11/03/94	0830	Soil	0-2.0	SSPL	Native soil, no fill encountered
S-5515-002	MW4-94	11/03/94	0930	Soil	0-2.3	SSPL	Fill material, no native soil encountered
S-5515-003	MW3-94	11/03/94	1000	Soil	0-4.1	SSPL	Fill material, no native soil encountered
S-5515-004	MW1-94	11/03/94	1030	Soil	0-1.0	SSPL	Native soil, no fill encountered, MS/MSD also
S-5515-005	MW6-94	11/03/94	1100	Soil	0-3.5	SSPL	Fill material
S-5515-006	MW6-94	11/03/94	1115	Soil	3.5-3.9	SSPL	Native soil
S-5515-007	MW7-94	11/03/94	1130	Soil	0-3.0	SSPL	Fill material
S-5515-008	MW7-94	11/03/94	1130	Soil	0-3.0	SSPL	Fill material, Dup. of S-5515-007
S-5515-009	MW7-94	11/03/94	1200	Soil	3.0-4.9	SSPL	Native soil
S-5515-010	MW5-94	11/03/94	1230	Soil	0-4.2	SSPL	Fill material, no native soil encountered
SS-5515-011	SS-3	11/08/94	1030	Soil	0-1.0	SSPL	
SS-5515-012	SS-2	11/08/94	1100	Soil	0-1.0	SSPL	
SS-5515-013	SS-1	11/08/94	1115	Soil	0-1.0	SSPL	
SS-5515-014	SS-5	11/08/94	1130	Soil	0-1.0	SSPL	
SS-5515-015	SS-6	11/08/94	1145	Soil	0-1.0	SSPL	
SW-5515-016	SW-2	11/08/94	1330	Surface Water	-	SSPL	
SW-5515-017	SW-3	11/08/94	1300	Surface Water	-	SSPL	
SW-5515-018	SW-4	11/08/94	1400	Surface Water	-	SSPL	MS/MSD
SW-5515-019	SW-5	11/10/94	1400	Surface Water	-	SSPL	
SED-5515-020	SED-2	11/08/94	1330	Sediment	0-0.5	SSPL	
SED-5515-021	SED-3	11/08/94	1315	Sediment	0-0.5	SSPL	
SED-5515-022	SED-4	11/08/94	1400	Sediment	0-0.5	SSPL	MS/MSD
SED-5515-023	SED-5	11/10/94	1400	Sediment	0-0.5	SSPL	
SW-5515-024	SW-3	11/08/94	1315	Surface Water	-	SSPL	Dup. of SW-5515-017
SED-5515-025	SED-3	11/08/94	1315	Sediment	0-0.5	SSPL	Dup. of SED-5515-021
SS-5515-026	SS-4	11/09/94	1200	Soil	0-1.0	SSPL	
SS-5515-027	SS-4	11/09/94	1200	Soil	0-1.0	SSPL	Dup. of SS-5515-026
RB-5515-028	-	11/09/94	1230	Rinse Water	-	SSPL	Rinse blank taken after Sample SS-5515-027
GW-5515-029	MW2-94	11/09/94	1300	Groundwater	-	TCL, TAL	
GW-5515-030	MW4-94	11/09/94	1330	Groundwater	-	TCL, TAL	
GW-5515-031	MW3-94	11/09/94	1430	Groundwater	-	TCL, TAL	
GW-5515-032	MW1-94	11/09/94	1530	Groundwater	-	TCL, TAL	MS/MSD

TABLE 1

SAMPLING AND ANALYSIS PLAN
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK PLANT SITE
LOCKPORT, NEW YORK FACILITY
NOVEMBER 1994

Sample Identification	*Source/ Sample Location*	*Date Sampled*	*Time Sampled*	*Matrix*	*Interval Sampled (feet)*	*Analyses Parameters*	*Comments*
GW-5515-033	MW6-94	11/10/94	0830	Groundwater	-	TCL, TAL	
GW-5515-034	MW5-94	11/10/94	0930	Groundwater	-	TCL, TAL	
GW-5515-035	MW7-94	11/10/94	1030	Groundwater	-	TCL, TAL	
GW-5515-036	MW7-94	11/10/94	1030	Groundwater	-	TCL, TAL	Dup. of Sample GW-5515-035
SU-5515-037	Sump #3	11/10/94	1100	Water/Groundwater	-	TCL, TAL	
GW-5515-038	Extraction Well #1	11/10/94	1115	Groundwater	-	TCL, TAL	
SU-5515-039	Sump #4	11/10/94	1130	Water/Groundwater	-	TCL, TAL	
SU-5515-040	Sump #2	11/10/94	1300	Water/Groundwater	-	TCL, TAL	
SU-5515-041	Sump #1	11/10/94	1330	Water/Groundwater	-	TCL, TAL	
RB-5515-042	-	11/10/94	1430	Rinse Water	-	SSPL	Rinse blank taken after Sample SU-5515-039

Notes:
MS Matrix Spike
MSD Matrix Spike Duplicate
Dup. Duplicate Sample
SSPL Site Specific Parameter List
TCL Target Compound List
TAL Target Analyte List

TABLE 2

ANALYTICAL METHOD SUMMARY
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK PLANT SITE
LOCKPORT, NEW YORK FACILITY
NOVEMBER 1994

Parameter	*Analytical Method*
Groundwater Samples	
TCL Volatiles	91-1 (1)
TCL Semi-Volatiles	91-2 (1)
TCL Pesticides/PCBs	91-3 (1)
TAL Metals	Method 200 Series CLP-M (1)
	Method 6000/7000 Series CLP-M (1)
Cyanide	9010 CLP-M (1)
Soil Samples	
SSPL Semi-Volatiles	SW-846 8270 (2)
SSPL Metals	SW-846 6000/7000 Series (2)

Notes:
SSPL Site-Specific Parameter List
TCL Target Compound List
TAL Target Analyte List
(1) Method referenced from New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol (ASP), 1991 Revision.
(2) Method referenced from "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", November 1986, SW-846 (Rev. 7/92).

TABLE 3A

ANALYTICAL RESULTS SUMMARY-SOIL/SEDIMENT SAMPLES
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Sample ID:	*S-5515-001*	*S-5515-002*	*S-5515-003*	*S-5515-004*	*S-5515-005*	*S-5515-006*	*S-5515-007*	*S-5515-008*	*S-5515-009*	*S-5515-010*	*SS-5515-011*
Sample Date:	*11/03/94*	*11/03/94*	*11/03/94*	*11/03/94*	*11/03/94*	*11/03/94*	*11/03/94*	*11/03/94*	*11/03/94*	*11/03/94*	*11/08/94*
SSPL Semi-Volatiles (µg/kg)											
Acenaphthylene	ND 450	ND 370	ND 280	ND 380	ND 310	ND 370	ND 320	ND 320	ND 330	ND 340	ND 400
Fluorene	ND 540	ND 450	ND 340	ND 450	ND 370	ND 440	83J	ND 380	ND 400	ND 400	ND 480
Phenanthrene	450	540	69J	130J	300	ND 300	920	400	ND 270	100J	130J
Anthracene	110J	95J	ND 240	ND 320	ND 260	ND 320	200J	ND 270	ND 280	ND 290	ND 340
Fluoranthene	1300	1100	96J	250J	710	ND 280	1200	580	ND 250	74J	230J
Pyrene	820	740	66J	170J	490	ND 360	1300	680	ND 320	72J	200J
Benzo (a) anthracene	650	440	ND 280	100J	320	ND 370	560	300J	ND 330	ND 340	110J
Chrysene	580	530	58J	120J	420	ND 330	760	430	ND 300	ND 300	130J
Benzo (b) fluoranthene	470J	430J	ND 350	ND 460	400	ND 450	600	380J	ND 410	ND 410	ND 490
Benzo (k) fluoranthene	1400	450J	ND 350	ND 460	330J	ND 450	560	320J	ND 410	ND 410	ND 490
Benzo (a) pyrene	490	410	ND 240	97J	330	ND 320	530	310	ND 280	ND 290	86J
Indeno (1,2,3-cd) pyrene	370J	330J	ND 350	ND 460	240J	ND 450	460	280J	ND 410	ND 410	ND 490
Dibenzo (a,h) anthracene	160J	170J	ND 290	ND 390	120J	ND 380	220J	150J	ND 340	ND 350	ND 410
Benzo (g,h,i) perylene	310J	330J	ND 290	ND 380	240J	ND 370	510	310J	ND 340	ND 340	ND 410
Carbazole	ND 350	ND 290	ND 220	ND 300	ND 240	ND 290	110J	ND 250	ND 260	ND 260	ND 300
SSPL Metals (mg/kg)											
Arsenic	3.4J	3.7J	2.6J	15J	3.2J	3.9J	2.8J	3.1J	5.0J	5.8J	12J
Beryllium	0.62	ND 0.15	0.11	0.87	0.20	0.77	0.47	0.60	0.60	0.37	0.87
Cadmium	4.5J	0.62J	ND 0.42	3.9J	0.40J	1.9J	1.3J	1.4J	0.60J	0.98J	11J
Chromium	30	9.7	5.7	140	38	23	48	26	20	11	77
Cobalt	9.8J	2.2J	1.5J	29J	6.4J	9.5J	17J	10J	9.0J	4.9J	20J
Copper	16J	6.0J	5.4J	49J	14J	18J	29J	25J	21J	12J	36J
Iron	25000	8300	5500	27000	8300	25000	16000	20000	20000	11000	32000
Lead	53J	25J	20J	83J	30J	19J	61J	48J	11J	36J	160J
Manganese	2200J	1400J	860J	2200J	780J	820J	240J	310J	540J	530J	4800J
Mercury	0.08	ND 0.08	ND 0.05	0.12	ND 0.05	0.09	ND 0.06	ND 0.06	ND 0.06	ND 0.06	0.16
Nickel	52	15	11	390	140	25	150	77	24	18	210
Zinc	830J	110J	52J	810J	47J	610J	170J	110J	65J	190J	2000J

TABLE 3A

ANALYTICAL RESULTS SUMMARY-SOIL/SEDIMENT SAMPLES
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Sample ID:	*SS-5515-012*	*SS-5515-013*	*SS-5515-014*	*SS-5515-015*	*SED-5515-020*	*SED-5515-021*	*SED-5515-022*	*SED-5515-023*	*SED-5515-025 Dup of -021*	*SS-5515-026*	*SS-5515-027 Dup of -026*
Sample Date:	*11/08/94*	*11/08/94*	*11/08/94*	*11/08/94*	*11/08/94*	*11/08/94*	*11/08/94*	*11/10/94*	*11/08/94*	*11/09/94*	*11/09/94*
SSPL Semi-Volatiles (µg/kg)											
Acenaphthylene	ND 370	ND 410	86J	ND 290	ND 1600	ND 2900	ND 1700J	ND 380	ND 2200	190J	ND 380
Fluorene	ND 440	ND 490	260J	440	18000D	1600DJ	2900DJ	400J	900DJ	470J	ND 460
Phenanthrene	200J	120J	2700	3800	170000D	22000D	23000DJ	4200	14000D	3600J	640J
Anthracene	ND 320	ND 350	550	650	28000D	3000D	5100DJ	750	1800DJ	990J	140J
Fluoranthene	380	210J	4400	5100	200000D	37000D	25000DJ	5800	24000D	5200J	1400J
Pyrene	280J	160J	4200	4900	160000D	36000D	27000DJ	5600	30000D	4600J	1200J
Benzo (a) anthracene	150J	95J	2100	2500	77000D	15000D	13000DJ	3100	11000D	2900J	740J
Chrysene	190J	110J	2400	3000	89000D	22000D	15000DJ	3700	18000D	2800J	740J
Benzo (b) fluoranthene	140J	ND 500	2300	3000	100000D	32000D	15000DJ	5700	19000D	3100J	770J
Benzo (k) fluoranthene	140J	ND 500	1600	2300	71000D	19000D	10000DJ	3300	13000D	1600J	630J
Benzo (a) pyrene	120J	ND 350	1700	2200	72000D	19000D	12000DJ	3400	14000D	2000	570J
Indeno (1,2,3-cd) pyrene	ND 450	ND 500	1200	1600	38000D	16000D	8600DJ	2000	12000D	1300J	410J
Dibenzo (a,h) anthracene	ND 380	ND 420	650	820	23000D	7300D	4500DJ	920	5400D	770J	240J
Benzo (g,h,i) perylene	100J	ND 420	1200	1500	36000D	15000D	8400DJ	2000	12000D	1100J	900J
Carbazole	ND 290	ND 320	300	490	24000D	3000D	3900DJ	590	1400DJ	480J	130J
SSPL Metals (mg/kg)											
Arsenic	6.2J	6.0J	4.6J	3.5J	5.2	6.8	3.7	3.8	6.4	3.9J	4.5J
Beryllium	0.66	0.61	0.36	ND 0.11	0.24	0.45	0.25	0.26	0.43	0.42	0.44
Cadmium	4.1J	14J	0.49J	ND 0.42	1.9	2.9	1.3	1.4	2.6	1.7J	1.9J
Chromium	53	96	66	28	53J	58J	38J	29J	51J	65	82
Cobalt	16J	20J	18J	5.5J	6.6	9.5	4.1	4.9	8.5	26J	29J
Copper	29J	37J	34J	12J	49J	79J	50J	42J	69J	32J	40J
Iron	23000	22000	15000	6600	20000	14000	15000	7400	12000	19000	21000
Lead	80J	150J	73J	28J	85J	180J	140J	97J	170J	72J	89J
Manganese	2000J	4900J	660J	830J	580	650	620	350	560	1100J	1100J
Mercury	0.10	0.11	0.07	ND 0.05	0.13	ND 0.11	ND 0.06	ND 0.07	ND 0.11	ND 0.07	ND 0.07
Nickel	140	250	210	87	120J	110J	58J	56J	96J	190	250
Zinc	700J	2200J	100J	100J	360J	640J	630J	320J	580J	550J	620J

Notes:
SSPL Site-Specific Parameter List
ND Not detected at the associated value.
J Associated value is estimated.
D Dilution
Dup Field Duplicate

TABLE 3B

ANALYTICAL RESULTS SUMMARY-SURFACEWATER SAMPLES
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Sample ID:	*SW-5515-016*	*SW-5515-017*	*SW-5515-018*	*SW-5515-019*	*SW-5515-024*
Sample Date:	*11/08/94*	*11/08/94*	*11/08/94*	*11/10/94*	*Dup of -017* *11/08/94*
SSPL Semi-Volatiles (µg/L)					
Acenaphthylene	ND 10	ND 12	ND 10	ND 10	ND 10
Fluorene	ND 9	ND 11	ND 8	ND 9	ND 9
Phenanthrene	ND 8	ND 9	ND 7	ND 7	ND 7
Anthracene	ND 8	ND 10	ND 8	ND 8	ND 8
Fluoranthene	4J	ND 8	ND 6	ND 7	ND 7
Pyrene	ND 10	ND 12	ND 9	ND 9	ND 10
Benzo (a) anthracene	ND 8	ND 9	ND 7	ND 7	ND 8
Chrysene	ND 8	ND 10	ND 8	ND 8	ND 8
Benzo (b) fluoranthene	ND 7	ND 8	ND 6	ND 6	ND 6
Benzo (k) fluoranthene	ND 10	ND 12	ND 10	ND 10	ND 10
Benzo (a) pyrene	ND 8	ND 9	ND 7	ND 7	ND 8
Indeno (1,2,3-cd) pyrene	ND 10	ND 12	ND 10	ND 10	ND 10
Dibenzo (a,h) anthracene	ND 6	ND 7	ND 5	ND 6	ND 6
Benzo (g,h,i) perylene	ND 8	ND 9	ND 7	ND 7	ND 8
Carbazole	ND 7	ND 9	ND 7	ND 7	ND 7
SSPL Metals (µg/L)					
Arsenic	2.0	1.5	ND 1.0	ND 1.0	ND 1.0
Beryllium	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Cadmium	ND 4.0	ND 4.0	ND 4.0	ND 4.0	ND 4.0
Chromium	9.0	ND 6.0	19	ND 6.0	ND 6.0
Cobalt	ND 9.0	ND 9.0	ND 9.0	ND 9.0	ND 9.0
Copper	10	ND 6.0	7.0	ND 6.0	ND 6.0
Iron	210	ND 68	ND 51	ND 49	ND 70
Lead	ND 2.5	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Manganese	30	9.0	5.0	ND 2.0	7.0
Mercury	ND 0.10	ND 0.10	ND 0.10	ND 0.10	ND 0.10
Nickel	32	ND 10	46	ND 10	ND 10
Zinc	36	27	24	33	23

Notes:
SSPL Site-Specific Parameter List
ND Not detected at the associated value.
Dup Field Duplicate Sample
J Associated value is estimated.

TABLE 3C

FIELD DUPLICATE ANALYSIS RESULTS SUMMARY-GROUNDWATER SAMPLES
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Sample ID:	*GW-5515-029*	*GW-5515-030*	*GW-5515-031*	*GW-5515-032*	*GW-5515-033*	*GW-5515-034*	*GW-5515-035*
Sample Date:	*11/09/94*	*11/09/94*	*11/09/94*	*11/09/94*	*11/10/94*	*11/10/94*	*11/10/94*
TCL Volatiles (µg/L)							
Chloromethane	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Bromomethane	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Vinyl chloride	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Chloroethane	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Methylene Chloride	2J	ND 10	2J	ND 10	ND 5	2J	2J
Acetone	26J	10J	5J	ND 10	ND 10	7J	7J
Carbon disulfide	0.4J	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
1,1-Dichloroethene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
1,1-Dichloroethane	ND 5	ND 5	2J	0.6J	ND 5	ND 5	ND 5
1,2-Dichloroethene (total)	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Chloroform	1J	ND 5	ND 5	0.8J	ND 5	ND 5	ND 5
1,2-Dichloroethane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
2-Butanone	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
1,1,1-Trichloroethane	ND 5	ND 5	13	2J	ND 5	ND 5	ND 5
Carbon tetrachloride	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Bromodichloromethane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
1,2-Dichloropropane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
cis-1,3-Dichloropropene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Trichloroethene	ND 5	ND 5	3J	ND 5	ND 5	ND 5	ND 5
Dibromochloromethane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
1,1,2-Trichloroethane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Benzene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	18
trans-1,3-Dichloropropene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Bromoform	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
4-Methyl-2-pentanone	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
2-Hexanone	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Tetrachloroethene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
1,1,2,2-Tetrachloroethane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Toluene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Chlorobenzene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Ethylbenzene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Styrene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Xylene (total)	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
TCL Semi-Volatiles (µg/L)							
Phenol	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	3J
bis-(2-Chloroethyl) ether	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
2-Chlorophenol	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
1,3-Dichlorobenzene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
1,4-Dichlorobenzene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
1,2-Dichlorobenzene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
2-Methylphenol	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
2,2'-oxybis (1-Chloropropane)	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
4-Methylphenol	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
N-Nitroso-di-n-propylamine	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Hexachloroethane	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Nitrobenzene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Isophorone	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
2-Nitrophenol	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
2,4-Dimethylphenol	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
bis (2-Chloroethoxy) methane	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
2,4-Dichlorophenol	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
1,2,4-Trichlorobenzene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Naphthalene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
4-Chloroaniline	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Hexachlorobutadiene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
4-Chloro-3-methylphenol	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
2-Methylnaphthalene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Hexachlorocyclopentadiene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
2,4,6-Trichlorophenol	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10

TABLE 3C
FIELD DUPLICATE ANALYSIS RESULTS SUMMARY-GROUNDWATER SAMPLES
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Sample ID:	GW-5515-029	GW-5515-030	GW-5515-031	GW-5515-032	GW-5515-033	GW-5515-034	GW-5515-035
Sample Date:	11/09/94	11/09/94	11/09/94	11/09/94	11/10/94	11/10/94	11/10/94
TCL Semi-Volatiles (µg/L) (cont.)							
2,4,5-Trichlorophenol	ND 25	ND 24	ND 25	ND 24	ND 29	ND 24	ND 24
2-Chloronaphthalene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
2-Nitroaniline	ND 25	ND 24	ND 25	ND 24	ND 29	ND 24	ND 24
Dimethylphthalate	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Acenaphthylene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
2,6-Dinitrotoluene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
3-Nitroaniline	ND 25	ND 24	ND 25	ND 24	ND 29	ND 24	ND 24
Acenaphthene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
2,4-Dinitrophenol	ND 25	ND 24	ND 25	ND 24	ND 29	ND 24	ND 24
4-Nitrophenol	ND 25	ND 24	ND 25	ND 24	ND 29	ND 24	ND 24
Dibenzofuran	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
2,4-Dinitrotoluene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Diethylphthalate	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
4-Chlorophenyl-phenylether	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Fluorene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
4-Nitroaniline	ND 25	ND 24	ND 25	ND 24	ND 29	ND 24	ND 24
4,6-Dinitro-2-methylphenol	ND 25	ND 24	ND 25	ND 24	ND 29	ND 24	ND 24
n-Nitrosodiphenylamine	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
4-Bromophenyl-phenylether	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Hexachlorobenzene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Pentachlorophenol	ND 25	ND 24	ND 25	ND 24	ND 29	ND 24	ND 24
Phenanthrene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Anthracene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Carbazole	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Di-n-butylphthalate	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Fluoranthene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Pyrene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Butylbenzylphthalate	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
3,3-Dichlorobenzidine	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Benzo [a] anthracene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Chrysene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
bis (2-Ethylhexyl) phthalate	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Di-n-octylphthalate	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Benzo [b] fluoranthene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Benzo [k] fluoranthene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Benzo [a] pyrene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Indeno [1,2,3-cd] pyrene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Dibenz [a,h] anthracene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
Benzo [g,h,i] perylene	ND 10	ND 10	ND 10	ND 10	ND 12	ND 10	ND 10
TCL Pesticides (ug/L)							
alpha-BHC	R	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
beta-BHC	R	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
delta-BHC	R	ND 0.05	ND 0.05	ND 0.05	0.04J	ND 0.05	ND 0.05
gamma-BHC (Lindane)	R	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Heptachlor	R	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Aldrin	R	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Heptachlor epoxide	R	ND 0.05	ND 0.05	0.02J	0.02J	ND 0.05	ND 0.05
Endosulfan I	R	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Dieldrin	R	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1
4,4'-DDE	R	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1
Endrin	R	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1
Endosulfan II	R	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1
4,4'-DDD	R	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1
Endosulfan sulfate	R	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1
4,4'-DDT	R	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1
Methoxychlor	R	ND 0.48	ND 0.49	ND 0.48	ND 0.48	ND 0.49	ND 0.49
Endrin ketone	R	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1
Endrin aldehyde	R	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1
alpha-Chlordane	R	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
gamma-Chlordane	R	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Toxaphene	R	ND 4.8	ND 4.9	ND 4.8	ND 4.8	ND 4.9	ND 4.9

TABLE 3C

FIELD DUPLICATE ANALYSIS RESULTS SUMMARY-GROUNDWATER SAMPLES
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Sample ID:	GW-5515-029	GW-5515-030	GW-5515-031	GW-5515-032	GW-5515-033	GW-5515-034	GW-5515-035
Sample Date:	11/09/94	11/09/94	11/09/94	11/09/94	11/10/94	11/10/94	11/10/94
PCBs (ug/L)							
Aroclor-1016	R	ND 0.97	ND 0.98	ND 0.97	ND 0.97	ND 0.98	ND 0.98
Aroclor-1221	R	ND 1.9	ND 2.0	ND 1.9	ND 1.9	ND 2.0	ND 2.0
Aroclor-1232	R	ND 0.97	ND 0.98	ND 0.97	ND 0.97	ND 0.98	ND 0.98
Aroclor-1242	R	ND 0.97	ND 0.98	ND 0.97	ND 0.97	ND 0.98	ND 0.98
Aroclor-1248	R	ND 0.97	ND 0.98	ND 0.97	ND 0.97	ND 0.98	ND 0.98
Aroclor-1254	R	ND 0.97	ND 0.98	ND 0.97	ND 0.97	ND 0.98	ND 0.98
Aroclor-1260	R	ND 0.97	ND 0.98	ND 0.97	ND 0.97	ND 0.98	ND 0.98
TAL Metals (µg/L)							
Aluminum	580	140	43	64	170	79	690
Antimony	ND 3.0	ND 3.0	ND 3.0	ND 3.0	ND 3.0	ND 3.0	ND 3.0
Arsenic	170	22	ND 1.0	5.4J	2.8	6.9	24
Barium	33	51	68	33	27	ND 15	28
Beryllium	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Cadmium	28	ND 4.0	ND 4.0	ND 4.0	ND 4.0	ND 4.0	5.0
Calcium	21000	86000	70000	98000	130000	89000	8800
Chromium	ND 6.0	ND 6.0	ND 6.0	ND 6.0	ND 6.0	ND 6.0	ND 6.0
Cobalt	ND 9.0	ND 9.0	ND 9.0	ND 9.0	ND 9.0	ND 9.0	ND 9.0
Copper	110	62	ND 6.0	ND 6.0	ND 6.0	ND 6.0	8.0
Iron	2600	590	ND 60	ND 10	ND 240	ND 84	1100
Lead	210J	2.8J	ND 1.0	ND 1.0	3.1J	ND 1.0	25J
Magnesium	7800	36000	29000	38000	53000	35000	3600
Manganese	1300	340	29	68	98	94	76
Mercury	ND 0.10	ND 0.10	ND 0.10	ND 0.10	ND 0.10	ND 0.10	ND 0.10
Nickel	56	ND 10	ND 10	ND 10	21	ND 10	21
Potassium	1200	2400	2000	5300	3100	1800	1300
Selenium	3.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Silver	ND 7.0	ND 7.0	ND 7.0	ND 7.0	ND 7.0	ND 7.0	ND 7.0
Sodium	440000	190000	61000	23000	62000	75000	950000
Thallium	ND 2.0	ND 2.0	ND 3.4	ND 3.7	ND 2.8	ND 2.0	ND 10
Vanadium	ND 30	ND 21	ND 15	ND 24	ND 37	ND 27	ND 32
Zinc	1100	38	15	55	53	ND 4.0	60
Wet Chemistry							
Cyanide (µg/L)	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10

TABLE 3C

FIELD DUPLICATE ANALYSIS RESULTS SUMMARY-GROUNDWATER SAMPLES
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Sample ID:	*GW-5515-036 Dup of -035*	*SU-5515-037*	*GW-5515-038*	*SU-5515-039*	*SU-5515-040*	*SU-5515-041*
Sample Date:	*11/10/94*	*11/10/94*	*11/10/94*	*11/10/94*	*11/10/94*	*11/10/94*
TCL Volatiles (µg/L)						
Chloromethane	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Bromomethane	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Vinyl chloride	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Chloroethane	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Methylene Chloride	3J	2J	2J	2J	3J	2J
Acetone	8J	ND 10	ND 10	6J	ND 10	ND 10
Carbon disulfide	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
1,1-Dichloroethene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
1,1-Dichloroethane	ND 5	ND 5	ND 5	ND 5	2J	ND 5
1,2-Dichloroethene (total)	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Chloroform	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
1,2-Dichloroethane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
2-Butanone	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
1,1,1-Trichloroethane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Carbon tetrachloride	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Bromodichloromethane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
1,2-Dichloropropane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
cis-1,3-Dichloropropene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Trichloroethene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Dibromochloromethane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
1,1,2-Trichloroethane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Benzene	18	ND 5	ND 5	ND 5	ND 5	ND 5
trans-1,3-Dichloropropene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Bromoform	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
4-Methyl-2-pentanone	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
2-Hexanone	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Tetrachloroethene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
1,1,2,2-Tetrachloroethane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Toluene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Chlorobenzene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Ethylbenzene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Styrene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
Xylene (total)	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
TCL Semi-Volatiles (µg/L)						
Phenol	2J	ND 10	ND 10	ND 10	ND 10	ND 10
bis-(2-Chloroethyl) ether	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
2-Chlorophenol	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
1,3-Dichlorobenzene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
1,4-Dichlorobenzene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
1,2-Dichlorobenzene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
2-Methylphenol	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
2,2'-oxybis (1-Chloropropane)	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
4-Methylphenol	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
N-Nitroso-di-n-propylamine	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Hexachloroethane	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Nitrobenzene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Isophorone	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
2-Nitrophenol	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
2,4-Dimethylphenol	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
bis (2-Chloroethoxy) methane	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
2,4-Dichlorophenol	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
1,2,4-Trichlorobenzene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Naphthalene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
4-Chloroaniline	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Hexachlorobutadiene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
4-Chloro-3-methylphenol	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
2-Methylnaphthalene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Hexachlorocyclopentadiene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
2,4,6-Trichlorophenol	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10

TABLE 4

SAMPLE HOLDING TIME CRITERIA
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Parameter	*Matrix*	*Preservative*	*Holding Time*	
			to Extraction (days)	*to Analysis (days)*
Volatiles	Water	Cool to 4°C (±2°C)	-	7 (1)
Semi-Volatiles	Water	Cool to 4°C (±2°C)	5 (1)	40
	Soil/Sediment	Cool to 4°C (±2°C)	5 (1)	40
Pesticides/PCBs	Water	Cool to 4°C (±2°C)	5 (1)	40
Metals (except mercury)	Water	Cool to 4°C (±2°C), HNO3 to pH<2	-	180 (1)
	Soil/Sediment	Cool to 4°C (±2°C)	-	180 (1)
Mercury	Water	Cool to 4°C (±2°C), HNO3 to pH<2	-	38 (1)
	Soil/Sediment	Cool to 4°C (±2°C)	-	38 (1)
Cyanide	Water	Cool to 4°C (±2°C), NaOH to pH >12	-	12 (1)

Notes:
(1) Holding times from Verified Time of Sample Receipt (VTSR).

TABLE 5

SAMPLE HOLDING TIME SUMMARY
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Sample ID	*VTSR*	*Extraction Date*	*Analysis Date*	*Exceedance (days)*	
				to Extraction	*to Analysis*
Volatiles - Water Samples					
GW-5515-029	11/10/94	-	11/17/94	-	0
GW-5515-030	11/10/94	-	11/16/94	-	0
GW-5515-031	11/10/94	-	11/17/94	-	0
GW-5515-032	11/10/94	-	11/16/94	-	0
GW-5515-033	11/11/94	-	11/17/94	-	0
GW-5515-034	11/11/94	-	11/17/94	-	0
GW-5515-035	11/11/94	-	11/17/94	-	0
GW-5515-036	11/11/94	-	11/18/94	-	0
GW-5515-038	11/11/94	-	11/18/94	-	0
SU-5515-037	11/11/94	-	11/18/94	-	0
SU-5515-039	11/11/94	-	11/18/94	-	0
SU-5515-040	11/11/94	-	11/18/94	-	0
SU-5515-041	11/11/94	-	11/18/94	-	0
Semi-volatiles - Water Samples					
GW-5515-029	11/10/94	11/14/94	11/30/94	0	0
GW-5515-030	11/10/94	11/14/94	11/30/94	0	0
GW-5515-031	11/10/94	11/14/94	11/30/94	0	0
GW-5515-032	11/10/94	11/14/94	11/30/94	0	0
GW-5515-033	11/11/94	11/15/94	11/30/94	0	0
GW-5515-034	11/11/94	11/15/94	11/30/94	0	0
GW-5515-035	11/11/94	11/15/94	11/30/94	0	0
GW-5515-036	11/11/94	11/15/94	12/1/94	0	0
GW-5515-038	11/11/94	11/15/94	12/1/94	0	0
SU-5515-037	11/11/94	11/15/94	12/1/94	0	0
SU-5515-039	11/11/94	11/15/94	12/1/94	0	0
SU-5515-039D	11/11/94	11/15/94	12/2/94	0	0
SU-5515-040	11/11/94	11/15/94	12/1/94	0	0
SU-5515-041	11/11/94	11/15/94	12/1/94	0	0
SW-5515-016	11/9/94	11/10/94	11/16/94	0	0
SW-5515-017	11/10/94	11/10/94	11/16/94	0	0
SW-5515-018	11/10/94	11/10/94	11/16/94	0	0
SW-5515-019	11/14/94	11/14/94	11/30/94	0	0
SW-5515-024	11/10/94	11/10/94	11/16/94	0	0

TABLE 5

SAMPLE HOLDING TIME SUMMARY
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Sample ID	*VTSR*	*Extraction Date*	*Analysis Date*	*Exceedance (days)*	
				to Extraction	*to Analysis*
Semi-Volatiles - Soil/Sediment Samples					
S-5515-001	11/4/94	11/5/94	11/8/94	0	0
S-5515-002	11/4/94	11/5/94	11/8/94	0	0
S-5515-003	11/4/94	11/5/94	11/8/94	0	0
S-5515-004	11/4/94	11/5/94	11/8/94	0	0
S-5515-005	11/4/94	11/5/94	11/8/94	0	0
S-5515-006	11/4/94	11/5/94	11/8/94	0	0
S-5515-007	11/4/94	11/5/94	11/8/94	0	0
S-5515-008	11/4/94	11/5/94	11/8/94	0	0
S-5515-009	11/4/94	11/5/94	11/8/94	0	0
S-5515-010	11/4/94	11/5/94	11/11/94	0	0
S-5515-011	11/10/94	11/13/94	11/17/94	0	0
S-5515-012	11/10/94	11/13/94	11/17/94	0	0
S-5515-013	11/10/94	11/13/94	11/17/94	0	0
S-5515-014	11/10/94	11/13/94	11/17/94	0	0
S-5515-015	11/10/94	11/13/94	11/17/94	0	0
S-5515-026	11/10/94	11/13/94	11/17/94	0	0
S-5515-027	11/10/94	11/13/94	11/17/94	0	0
SED-5515-020	11/10/94	11/14/94	12/1/94	0	0
SED-5515-020D	11/10/94	11/14/94	12/5/94	0	0
SED-5515-021	11/10/94	11/14/94	12/1/94	0	0
SED-5515-022	11/10/94	11/14/94	12/1/94	0	0
SED-5515-023	11/11/94	11/15/94	12/5/94	0	0
SED-5515-023D	11/11/94	11/15/94	12/5/94	0	0
SED-5515-025	11/10/94	11/14/94	12/1/94	0	0
Pesticides/PCBs - Water Samples					
GW-5515-029	11/10/94	11/15/94	11/30/94	0	0
GW-5515-030	11/10/94	11/15/94	11/30/94	0	0
GW-5515-031	11/10/94	11/15/94	11/30/94	0	0
GW-5515-032	11/10/94	11/15/94	11/30/94	0	0
GW-5515-033	11/11/94	11/15/94	11/30/94	0	0
GW-5515-034	11/11/94	11/15/94	11/30/94	0	0
GW-5515-035	11/11/94	11/15/94	11/30/94	0	0
GW-5515-036	11/11/94	11/15/94	11/30/94	0	0
GW-5515-038	11/11/94	11/15/94	11/30/94	0	0
SU-5515-037	11/11/94	11/15/94	11/30/94	0	0
SU-5515-039	11/11/94	11/15/94	11/30/94	0	0
SU-5515-040	11/11/94	11/15/94	11/30/94	0	0
SU-5515-041	11/11/94	11/15/94	11/30/94	0	0

TABLE 5

SAMPLE HOLDING TIME SUMMARY
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Sample ID	*VTSR*	*Extraction Date*	*Analysis Date*	*Exceedance (days)* *to Extraction*	*to Analysis*
Metals (except Mercury) - Water Samples					
GW-5515-029	11/10/94	-	11/94 - 12/94	-	0
GW-5515-030	11/10/94	-	11/94 - 12/94	-	0
GW-5515-031	11/10/94	-	11/94 - 12/94	-	0
GW-5515-032	11/10/94	-	11/94 - 12/94	-	0
GW-5515-033	11/11/94	-	11/94 - 12/94	-	0
GW-5515-034	11/11/94	-	11/94 - 12/94	-	0
GW-5515-035	11/11/94	-	11/94 - 12/94	-	0
GW-5515-036	11/11/94	-	11/94 - 12/94	-	0
GW-5515-038	11/11/94	-	11/94 - 12/94	-	0
SU-5515-037	11/11/94	-	11/94 - 12/94	-	0
SU-5515-039	11/11/94	-	11/94 - 12/94	-	0
SU-5515-040	11/11/94	-	11/94 - 12/94	-	0
SU-5515-041	11/11/94	-	11/94 - 12/94	-	0
SW-5515-016	11/9/94	-	11/94	-	0
SW-5515-017	11/9/94	-	11/94	-	0
SW-5515-018	11/9/94	-	11/94	-	0
SW-5515-019	11/11/94	-	11/94	-	0
SW-5515-024	11/9/94	-	11/94	-	0
Metals (except Mercury) - Soil/Sediment Samples					
S-5515-001	11/4/94	-	11/94	-	0
S-5515-002	11/4/94	-	11/94	-	0
S-5515-003	11/4/94	-	11/94	-	0
S-5515-004	11/4/94	-	11/94	-	0
S-5515-005	11/4/94	-	11/94	-	0
S-5515-006	11/4/94	-	11/94	-	0
S-5515-007	11/4/94	-	11/94	-	0
S-5515-008	11/4/94	-	11/94	-	0
S-5515-009	11/4/94	-	11/94	-	0
S-5515-010	11/4/94	-	11/94	-	0
S-5515-011	11/10/94	-	11/94	-	0
S-5515-012	11/10/94	-	11/94	-	0
S-5515-013	11/10/94	-	11/94	-	0
S-5515-014	11/10/94	-	11/94	-	0
S-5515-015	11/10/94	-	11/94	-	0
S-5515-026	11/10/94	-	11/94	-	0
S-5515-027	11/10/94	-	11/94	-	0
SED-5515-020	11/10/94	-	11/94	-	0
SED-5515-021	11/10/94	-	11/94	-	0
SED-5515-022	11/10/94	-	11/94	-	0
SED-5515-023	11/11/94	-	11/94	-	0
SED-5515-025	11/10/94	-	11/94	-	0

TABLE 3C

FIELD DUPLICATE ANALYSIS RESULTS SUMMARY-GROUNDWATER SAMPLES
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Sample ID:	*GW-5515-036 Dup of -035*	*SU-5515-037*	*GW-5515-038*	*SU-5515-039*	*SU-5515-040*	*SU-5515-041*
Sample Date:	*11/10/94*	*11/10/94*	*11/10/94*	*11/10/94*	*11/10/94*	*11/10/94*
TCL Semi-Volatiles (µg/L) (cont.)						
2,4,5-Trichlorophenol	ND 24	ND 24	ND 24	ND 26	ND 25	ND 24
2-Chloronaphthalene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
2-Nitroaniline	ND 24	ND 24	ND 24	ND 26	ND 25	ND 24
Dimethylphthalate	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Acenaphthylene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
2,6-Dinitrotoluene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
3-Nitroaniline	ND 24	ND 24	ND 24	ND 26	ND 25	ND 24
Acenaphthene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
2,4-Dinitrophenol	ND 24	ND 24	ND 24	ND 26	ND 25	ND 24
4-Nitrophenol	ND 24	ND 24	ND 24	ND 26	ND 25	ND 24
Dibenzofuran	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
2,4-Dinitrotoluene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Diethylphthalate	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
4-Chlorophenyl-phenylether	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Fluorene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
4-Nitroaniline	ND 24	ND 24	ND 24	ND 26	ND 25	ND 24
4,6-Dinitro-2-methylphenol	ND 24	ND 24	ND 24	ND 26	ND 25	ND 24
n-Nitrosodiphenylamine	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
4-Bromophenyl-phenylether	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Hexachlorobenzene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Pentachlorophenol	ND 24	ND 24	ND 24	ND 26	ND 25	ND 24
Phenanthrene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Anthracene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Carbazole	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Di-n-butylphthalate	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Fluoranthene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Pyrene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Butylbenzylphthalate	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
3,3'-Dichlorobenzidine	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Benzo [a] anthracene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Chrysene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
bis (2-Ethylhexyl) phthalate	ND 10	ND 10	12	440D	19	68
Di-n-octylphthalate	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Benzo [b] fluoranthene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Benzo [k] fluoranthene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Benzo [a] pyrene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Indeno [1,2,3-cd] pyrene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Dibenz [a,h] anthracene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
Benzo [g,h,i] perylene	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
TCL Pesticides (ug/L)						
alpha-BHC	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
beta-BHC	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
delta-BHC	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
gamma-BHC (Lindane)	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Heptachlor	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Aldrin	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Heptachlor epoxide	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Endosulfan I	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Dieldrin	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1
4,4'-DDE	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1
Endrin	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1
Endosulfan II	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1
4,4'-DDD	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1
Endosulfan sulfate	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1
4,4'-DDT	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1
Methoxychlor	ND 0.48	ND 0.48	ND 0.48	ND 0.49	ND 0.48	ND 0.52
Endrin ketone	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1
Endrin aldehyde	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1
alpha-Chlordane	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
gamma-Chlordane	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Toxaphene	ND 4.8	ND 4.8	ND 4.8	ND 4.9	ND 4.8	ND 5.2

TABLE 3C

FIELD DUPLICATE ANALYSIS RESULTS SUMMARY-GROUNDWATER SAMPLES
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Sample ID:	*GW-5515-036 Dup of -035*	*SU-5515-037*	*GW-5515-038*	*SU-5515-039*	*SU-5515-040*	*SU-5515-041*
Sample Date:	*11/10/94*	*11/10/94*	*11/10/94*	*11/10/94*	*11/10/94*	*11/10/94*
PCBs (ug/L)						
Aroclor-1016	ND 0.97	ND 0.97	ND 0.97	ND 0.98	ND 0.97	ND 1.0
Aroclor-1221	ND 1.9	ND 1.9	ND 1.9	ND 2.0	ND 1.9	ND 2.0
Aroclor-1232	ND 0.97	ND 0.97	ND 0.97	ND 0.98	ND 0.97	ND 1.0
Aroclor-1242	ND 0.97	ND 0.97	ND 0.97	ND 0.98	ND 0.97	ND 1.0
Aroclor-1248	ND 0.97	ND 0.97	ND 0.97	ND 0.98	ND 0.97	ND 1.0
Aroclor-1254	ND 0.97	ND 0.97	ND 0.97	ND 0.98	ND 0.97	ND 1.0
Aroclor-1260	ND 0.97	ND 0.97	ND 0.97	ND 0.98	ND 0.97	ND 1.0
TAL Metals (µg/L)						
Aluminum	1100	180	99	ND 41	100	230
Antimony	ND 3.0	ND 3.0	ND 3.0	4.5	ND 3.0	ND 3.0
Arsenic	53	6.8J	4.7	57	4.6	6.8
Barium	29	34	30	ND 9.0	ND 16	53
Beryllium	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Cadmium	8.0	ND 4.0	ND 4.0	ND 4.0	5.0	ND 4.0
Calcium	9100	19000	20000	16000	56000	54000
Chromium	ND 6.0	ND 6.0	ND 6.0	ND 6.0	ND 6.0	6.0
Cobalt	ND 9.0	ND 9.0	ND 9.0	ND 9.0	ND 9.0	ND 9.0
Copper	16	ND 6.0	8.0	15	6.0	81
Iron	1800	480	470	1000	430	1900
Lead	53J	13J	10J	2.7J	86J	33J
Magnesium	3700	4800	5100	4500	19000	19000
Manganese	76	180	150	14	45	80
Mercury	ND 0.10	ND 0.10	ND 0.10	ND 0.10	ND 0.10	ND 0.10
Nickel	25	20	10	ND 10	100	130
Potassium	1300	8800	1200	1000	11000	5100
Selenium	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Silver	ND 7.0	ND 7.0	ND 7.0	ND 7.0	ND 7.0	ND 7.0
Sodium	950000	230000	180000	190000	210000	400000
Thallium	ND 4.0	ND 2.0	ND 2.0	ND 2.0	ND 2.0	ND 2.0
Vanadium	ND 34	ND 31	ND 24	ND 13	22	23
Zinc	75	57	86	39	460	430
Wet Chemistry						
Cyanide (µg/L)	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10

Notes:
RPD Relative Percent Difference
ND Non-detect at associated value.
J Associated value is estimated.
Dup Field Duplicate Sample
R Data Rejected
TAL Target Analyte List
TCL Target Compound List

TABLE 5

SAMPLE HOLDING TIME SUMMARY
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Sample ID	*VTSR*	*Extraction Date*	*Analysis Date*	*Exceedance (days)*	
				to Extraction	*to Analysis*
Mercury - Water Samples					
GW-5515-029	11/10/94	-	11/28/94	-	0
GW-5515-030	11/10/94	-	11/28/94	-	0
GW-5515-031	11/10/94	-	11/28/94	-	0
GW-5515-032	11/10/94	-	11/28/94	-	0
GW-5515-033	11/11/94	-	11/28/94	-	0
GW-5515-034	11/11/94	-	11/28/94	-	0
GW-5515-035	11/11/94	-	11/28/94	-	0
GW-5515-036	11/11/94	-	11/28/94	-	0
GW-5515-038	11/11/94	-	11/28/94	-	0
SU-5515-037	11/11/94	-	11/28/94	-	0
SU-5515-039	11/11/94	-	11/28/94	-	0
SU-5515-040	11/11/94	-	11/28/94	-	0
SU-5515-041	11/11/94	-	11/28/94	-	0
SW-5515-016	11/9/94	-	11/21/94	-	0
SW-5515-017	11/9/94	-	11/21/94	-	0
SW-5515-018	11/9/94	-	11/21/94	-	0
SW-5515-019	11/11/94	-	11/21/94	-	0
SW-5515-024	11/9/94	-	11/21/94	-	0
Mercury - Soil/Sediment Samples					
S-5515-001	11/4/94	-	11/21/94	-	0
S-5515-002	11/4/94	-	11/21/94	-	0
S-5515-003	11/4/94	-	11/21/94	-	0
S-5515-004	11/4/94	-	11/21/94	-	0
S-5515-005	11/4/94	-	11/21/94	-	0
S-5515-006	11/4/94	-	11/21/94	-	0
S-5515-007	11/4/94	-	11/21/94	-	0
S-5515-008	11/4/94	-	11/21/94	-	0
S-5515-009	11/4/94	-	11/21/94	-	0
S-5515-010	11/4/94	-	11/21/94	-	0
S-5515-011	11/10/94	-	11/21/94	-	0
S-5515-012	11/10/94	-	11/21/94	-	0
S-5515-013	11/10/94	-	11/21/94	-	0
S-5515-014	11/10/94	-	11/21/94	-	0
S-5515-015	11/10/94	-	11/21/94	-	0
S-5515-026	11/10/94	-	11/21/94	-	0
S-5515-027	11/10/94	-	11/21/94	-	0
SED-5515-020	11/10/94	-	11/23/94	-	0
SED-5515-021	11/10/94	-	11/23/94	-	0
SED-5515-022	11/10/94	-	11/23/94	-	0
SED-5515-023	11/11/94	-	11/23/94	-	0
SED-5515-025	11/10/94	-	11/23/94	-	0

TABLE 5

SAMPLE HOLDING TIME SUMMARY
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Sample ID	*VTSR*	*Extraction Date*	*Analysis Date*	*Exceedance (days)*	
				to Extraction	*to Analysis*
Cyanide - Water Samples					
GW-5515-029	11/10/94	-	11/17/94	-	0
GW-5515-030	11/10/94	-	11/17/94	-	0
GW-5515-031	11/10/94	-	11/17/94	-	0
GW-5515-032	11/10/94	-	11/17/94	-	0
GW-5515-033	11/11/94	-	11/22/94	-	0
GW-5515-034	11/11/94	-	11/22/94	-	0
GW-5515-035	11/11/94	-	11/22/94	-	0
GW-5515-036	11/11/94	-	11/22/94	-	0
GW-5515-038	11/11/94	-	11/22/94	-	0
SU-5515-037	11/11/94	-	11/22/94	-	0
SU-5515-039	11/11/94	-	11/22/94	-	0
SU-5515-040	11/11/94	-	11/22/94	-	0
SU-5515-041	11/11/94	-	11/22/94	-	0

Notes:
VTSR Verified Time of Sample Receipt
D Denotes sample dilution

TABLE 6

SUMMARY OF OUTLYING GC MS CALIBRATION RESULTS

PRELIMINARY SITE ASSESSMENT

FORMER DIAMOND SHAMROCK SITE

LOCKPORT, NEW YORK

NOVEMBER 1994

Parameter	*Compound*	*Analysis Date*	*Outlying*	
			%RSD	*%D*
Volatiles	Acetone	11/16/94	35	-
	Chloroethane	11/16/94	-	34.1
	Methylene Chloride	11/16/94	-	25.7
	1,1-Dichloroethene	11/16/95	-	26.9
	1,1-Dichloroethane	11/17/94	-	25.2
	4-Methyl-2-pentanone	11/17/94	-	34.8
		11/18/94	-	33.4
	2-Hexanone	11/17/94	-	25.7
	Carbon tetrachloride	11/18/94	-	28.5
Semi-volatiles	Di-n-octylphthalate	11/30/94	-	36.3
		12/1/94	-	45.0

Notes:

%RSD Relative Standard Deviation

%D Percent Difference

TABLE 7

SURROGATE SPIKE RECOVERY SUMMARY
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

	Surrogate Recovery (percent)		
Surrogate:	*TOL*	*BFB*	*DCE*
Control Limits:	*(88-110)*	*(86-115)*	*(76-1140)*
Volatiles			
GW-5515-029	103	107	108
GW-5515-030	90	98	110
GW-5515-031	97	105	114
GW-5515-032	94	101	107
GW-5515-033	97	106	112
GW-5515-034	97	106	109
GW-5515-035	95	103	111
GW-5515-036	102	103	112
GW-5515-038	99	102	102
SU-5515-037	93	100	110
SU-5515-039	99	92	106
SU-5515-040	95	101	114
SU-5515-041	96	99	113

	Surrogate Recovery (percent)							
Surrogate:	*NBZ*	*FBP*	*TPH*	*PHL*	*2FP*	*TBP*	*2CP*	*DCB*
Control Limits:	*(35-114)*	*(43-116)*	*(33-141)*	*(10-110)*	*(21-110)*	*(10-123)*	*(33-110)*	*(16-110)*
Semi-volatiles - Water Samples								
GW-5515-029	94	85	40	98	102	91	102	90
GW-5515-030	90	84	63	97	100	85	102	89
GW-5515-031	82	80	87	89	89	90	94	80
GW-5515-032	86	80	51	89	98	88	97	84
GW-5515-033	74	76	75	90	85	83	90	75
GW-5515-034	75	72	75	87	80	81	85	73
GW-5515-035	74	74	27 *	88	83	90	87	73
GW-5515-036	74	71	26 *	90	82	80	84	68

TABLE 7

SURROGATE SPIKE RECOVERY SUMMARY
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

	Surrogate Recovery (percent)							
Surrogate:	*NBZ*	*FBP*	*TPH*	*PHL*	*2FP*	*TBP*	*2CP*	*DCB*
Control Limits:	*(35-114)*	*(43-116)*	*(33-141)*	*(10-110)*	*(21-110)*	*(10-123)*	*(33-110)*	*(16-110)*
Semi-volatiles - Water Samples (cont.)								
GW-5515-038	71	68	20 *	83	75	74	79	67
SU-5515-037	68	65	17 *	82	71	83	75	60
SU-5515-039	73	72	36	86	78	80	80	70
SU-5515-039DL	61	74	36	85	71	62	79	69
SU-5515-040	72	68	54	84	74	82	80	66
SU-5515-041	69	70	36	85	71	62	79	69
SW-5515-016	95	105	67	96	-	-		
SW-5515-017	95	99	113	101	-	-		
SW-5515-018	86	96	109	90	-	-		
SW-5515-019	77	80	84	88	-	-	-	
SW-5515-024	94	102	111	101	-	-	-	-

	Surrogate Recovery (percent)			
Surrogate:	*NBZ*	*FBP*	*TPH*	*DCB*
Control Limits:	*(23-120)*	*(30-115)*	*(18-137)*	*(20-130)*
Semi-volatiles - Soil Samples				
S-5515-001	77	85	94	74
S-5515-002	78	80	90	76
S-5515-003	81	81	92	80
S-5515-004	70	75	87	65
S-5515-005	86	82	90	75
S-5515-006	74	73	79	66
S-5515-007	89	87	112	78
S-5515-008	83	83	107	75
S-5515-009	41	42	54	42
S-5515-010	72	82	110	74
S-5515-011	93	102	111	90

TABLE 7

SURROGATE SPIKE RECOVERY SUMMARY
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

	Surrogate Recovery (percent)			
Surrogate:	*NBZ*	*FBP*	*TPH*	*DCB*
Control Limits:	*(23-120)*	*(30-115)*	*(18-137)*	*(20-130)*
Semi-volatiles - Soil Samples (cont.)				
S-5515-012	89	96	112	85
S-5515-013	90	12 *	111	90
S-5515-014	99	106	129	98
S-5515-015	96	102	134	88
S-5515-026	97	16 *	138 *	90
S-5515-027	88	97	120	84
SED-5515-020	65	89	109	75
SED-5515-020DL	D	92	92	84
SED-5515-021	48	60	66	60
SED-5515-022	29	39	46	38
SED-5515-023	67	70	87	64
SED-5515-023DL	67	80	89	77
SED-5515-025	54	68	91	65
Surrogate:	*TCX (1)*	*TCX (2)*	*DCB (1)*	*DCB (2)*
Control Limits:	*(60-150)*	*(60-150)*	*(60-150)*	*(60-150)*
Pesticides/PCBs				
GW-5515-029	8*	6*	8*	10*
GW-5515-030	74	74	70	68
GW-5515-031	87	78	90	93
GW-5515-032	83	82	91	93
GW-5515-033	85	88	76	91
GW-5515-034	90	87	79	101
GW-5515-035	73	72	58 *	63
GW-5515-036	69	66	53 *	63
GW-5515-038	83	98	105	205 *
SU-5515-037	67	62	47 *	51 *

TABLE 7

SURROGATE SPIKE RECOVERY SUMMARY
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Surrogate:	*TCX (1)*	*TCX (2)*	*DCB (1)*	*DCB (2)*
Control Limits:	*(60-150)*	*(60-150)*	*(60-150)*	*(60-150)*
Pesticides/PCBs				
SU-5515-039	86	78	87	98
SU-5515-040	75	82	61	87
SU-5515-041	81	78	71	78

Key:

TOL	Toluene-d8	2FP	2-Fluorophenol
BFB	Bromofluorobenzene	TBP	2,4,6-Tribromophenol
DCE	1,2-Dichloroethane-d4	2CP	2-Chlorophenol-d4
NBZ	Nitrobenzene-d5	DCB	1,2-Dichlorobenzene-d4
FBP	2-Fluorobiphenyl	TCX	Tetrachloro-m-xylene
TPH	Terphenyl-d14	DCB	Decachlorobiphenyl
PHL	Phenol-d6		

Notes:

(1) Denotes surrogate recovery reported from GC column DB-1701
(2) Denotes surrogate recovery reported from GC column DB-608
* Denotes value outside of applicable control limits.

TABLE 8

MATRIX SPIKE/MATRIX SPIKE DUPLICATE DATA SUMMARY
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Sample ID:	*GW-5515-032*			*Control Limits*	
	MS Recovery (percent)	*MSD Recovery (percent)*	*RPD*	*Recovery (percent)*	*RPD*
Volatiles					
1,1-Dichloroethene	66	60 *	10	61-145	14
Trichloroethene	104	104	0	71-120	14
Benzene	98	98	0	76-127	11
Toluene	104	100	4	76-125	13
Chlorobenzene	114	112	2	75-130	13
Semi-volatiles					
Phenol	83	98	5	12-110	42
2-Chlorophenol	92	79	14	27-123	40
1,4-Dichlorobenzene	72	79	9	36-97	28
N-Nitroso-di-N-propylamine	82	79	3	41-116	38
1,2,4-Trichlorobenzene	83	79	5	39-98	28
4-Chloro-3-methylphenol	82	78	4	23-97	42
Acenaphthene	74	70	6	46-118	31
4-Nitrophenol	81 *	78	4	10-80	50
2,4-Dinitrotoluene	83	77	8	24-96	38
Pentachlorophenol	83	78	7	9-103	50
Pyrene	77	75	3	26-127	31
Pesticides/PCBs					
gamma-BHC	78	86	10	60-150	15
Heptachlor	92	106	14	60-150	20
Aldrin	96	102	6	60-150	22
Dieldrin	102	122	18	60-150	18
Endrin	100	112	12	60-150	21
4,4'-DDT	101	112	10	60-150	27

TABLE 8

MATRIX SPIKE/MATRIX SPIKE DUPLICATE DATA SUMMARY
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Sample ID:	*GW-5515-032*			*Control Limits*	
	MS Recovery (percent)	*MSD Recovery (percent)*	*RPD*	*Recovery (percent)*	*RPD*
Metals					
Aluminum	99	-	-	75-125	-
Antimony	98	-	-	75-125	-
Arsenic	102	-	-	75-125	-
Barium	105	-	-	75-125	-
Beryllium	108	-	-	75-125	-
Cadmium	106	-	-	75-125	-
Chromium	101	-	-	75-125	-
Cobalt	102	-	-	75-125	-
Copper	103	-	-	75-125	-
Iron	104	-	-	75-125	-
Lead	60 *	-	-	75-125	-
Manganese	99	-	-	75-125	-
Mercury	102	-	-	75-125	-
Nickel	100	-	-	75-125	-
Selenium	107	-	-	75-125	-
Silver	100	-	-	75-125	-
Thallium	83	-	-	75-125	-
Vanadium	104	-	-	75-125	-
Zinc	104	-	-	75-125	-
Cyanide	103	-	-	75-125	-

TABLE 8

MATRIX SPIKE/MATRIX SPIKE DUPLICATE DATA SUMMARY
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Sample ID:	*SW-5515-018*			*Control Limits*	
	MS Recovery (percent)	*MSD Recovery (percent)*	*RPD*	*Recovery (percent)*	*RPD*
Semi-volatiles					
Phenol	100	97	3	12-110	42
2-Chlorophenol	106	99	7	27-123	40
1,4-Dichlorobenzene	92	83	10	36-97	28
N-Nitroso-di-N-propylamine	96	92	4	41-116	38
1,2,4-Trichlorobenzene	96	92	4	39-98	28
4-Chloro-3-methylphenol	104 *	101 *	3	23-97	42
Acenaphthene	100	100	0	46-118	31
4-Nitrophenol	94 *	101 *	7	10-80	50
2,4-Dinitrotoluene	77	81	5	24-96	38
Pentachlorophenol	111	114 *	2	9-103	50
Pyrene	108	114	6	26-127	31
Metals					
Arsenic	116	-	-	75-125	-
Beryllium	102	-	-	75-125	-
Cadmium	108	-	-	75-125	-
Chromium	101	-	-	75-125	-
Cobalt	103	-	-	75-125	-
Copper	104	-	-	75-125	-
Lead	93	-	-	75-125	-
Manganese	99	-	-	75-125	-
Mercury	96	-	-	75-125	-
Nickel	100	-	-	75-125	-
Zinc	104	-	-	75-125	-

TABLE 8

MATRIX SPIKE/MATRIX SPIKE DUPLICATE DATA SUMMARY
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Sample ID:	*S-5515-004*			*Control Limits*	
	MS Recovery (percent)	*MSD Recovery (percent)*	*RPD*	*Recovery (percent)*	*RPD*
Semi-volatiles					
Acenaphthylene	66	64	2	52-108	20
Fluorene	66	67	1	62-96	20
Phenanthrene	74	73	2	71-107	20
Anthracene	73	71	2	66-108	20
Fluoranthene	78	77	2	70-109	20
Pyrene	71	72	1	68-103	20
Benzo(a)anthracene	81	82	2	69-107	20
Chrysene	83	82	1	73-111	20
Benzo(b)fluoranthene	83	76	10	75-110	20
Benzo(k)fluornathene	83	96	14	67-106	20
benzo(a)pyrene	77	76	2	60-99	20
Indeno(1,2,3-cd)pyrene	79	78	1	68-100	20
Dibenzo(a,h)anthracene	75	76	1	74-108	20
Benzo(g,h,i)perylene	75	73	2	50-135	20
Carbazole	77	76	2	64-109	20
Metals					
Arsenic	0*	-	-	75-125	-
Beryllium	82	-	-	75-125	-
Cadmium	72*	-	-	75-125	-
Chromium	NA	-	-	75-125	-
Cobalt	67*	-	-	75-125	-
Copper	39*	-	-	75-125	-
Lead	NA	-	-	75-125	-
Manganese	NA	-	-	75-125	-
Mercury	95	-	-	75-125	-
Nickel	NA	-	-	75-125	-
Zinc	NA	-	-	75-125	-

TABLE 8

MATRIX SPIKE/MATRIX SPIKE DUPLICATE DATA SUMMARY
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Sample ID:	*SED-5515-022*			*Control Limits*	
	MS Recovery (percent)	*MSD Recovery (percent)*	*RPD*	*Recovery (percent)*	*RPD*
Semi-volatiles					
Acenaphthylene	76	75	1	52-108	20
Fluorene	107 *	162 *	41 *	62-96	20
Phenanthrene	284 *	493 *	54 *	71-107	20
Anthracene	685 *	256 *	91 *	66-108	20
Fluoranthene	261 *	446 *	52 *	70-109	20
Pyrene	426 *	728 *	52 *	68-103	20
Benzo(a)anthracene	261 *	469 *	57 *	69-107	20
Chrysene	308 *	516 *	50 *	73-111	20
Benzo(b)fluoranthene	190 *	751 *	119 *	75-110	20
Benzo(k)fluornathene	948 *	1430 *	41 *	67-106	20
benzo(a)pyrene	261 *	493 *	62 *	60-99	20
Indeno(1,2,3-cd)pyrene	246 *	432 *	55 *	68-100	20
Dibenzo(a,h)anthracene	154 *	246 *	46 *	74-108	20
Benzo(g,h,i)perylene	227 *	437 *	63 *	50-135	20
Carbazole	133 *	214 *	47 *	64-109	20
Metals					
Arsenic	112	-	-	75-125	-
Beryllium	92	-	-	75-125	-
Cadmium	86	-	-	75-125	-
Chromium	70*	-	-	75-125	-
Cobalt	86	-	-	75-125	-
Copper	65*	-	-	75-125	-
Lead	NA	-	-	75-125	-
Manganese	108	-	-	75-125	-
Mercury	81	-	-	75-125	-
Nickel	49*	-	-	75-125	-
Zinc	NA	-	-	75-125	-

Notes:
RPD Relative Percent Difference
NA Recovery not applicable; original analyte concentration in the sample was significantly greater than the spike concentration.
* Denotes value outside of applicable control limits.

TABLE 9

LABORATORY DUPLICATE RESULTS
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Sample ID:	*GW-032*			*Difference Between*	
	Original Result (µg/L)	*Duplicate Result (µg/L)*	*RPD (1)*	*Results (1) (µg/L)*	*CRDL*
TAL Metals					
Aluminum	64	62	-	2	200
Antimony	ND 3.0	ND 3.0	-	0	60
Arsenic	5.4	ND 1.0	-	4.4	10
Barium	33	33	-	0	200
Beryllium	ND 1.0	ND 1.0	-	0	5
Cadmium	ND 4.0	ND 4.0	-	0	5
Calcium	97600	98900	1	-	5000
Chromium	ND 6.0	ND 6.0	-	0	10
Cobalt	ND 9.0	ND 9.0	-	0	50
Copper	ND 6.0	ND 6.0	-	0	25
Iron	ND 10	ND 10	-	0	100
Lead	ND 1.0	ND 1.0	-	0	3
Magnesium	38500	39400	2	-	5000
Manganese	68	69	-	1	15
Mercury	ND 0.1	ND 0.1	-	0	0.2
Nickel	ND 10	ND 10	-	0	40
Potassium	5260	5050	-	210	5000
Selenium	ND 1.0	ND 1.0	-	0	5
Silver	ND 7.0	ND 7.0	-	0	10
Sodium	22900	26000	-	3100	5000
Thallium	3.7	2.55	-	1.1	10
Vanadium	24	23	-	1	50
Zinc	55	56	-	1	20
Wet Chemistry					
Cyanide	ND 10	ND 10	-	0	10

TABLE 9

LABORATORY DUPLICATE RESULTS
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Sample ID:	*S-004*				
	Original Result (µg/L)	*Duplicate Result (µg/L)*	*RPD (1)*	*Difference Between Results (1) (µg/L)*	*CRDL*
SSPL Metals					
Arsenic	15	13	-	2	10
Beryllium	0.87	0.72	-	0.15	5
Cadmium	3.9	3.5	-	0.4	5
Cobalt	140	110	-	30	50
Chromium	29	26	-	3	10
Copper	49	40	-	9	25
Iron	27000	25000	8	-	100
Lead	83	120	36*	-	3
Manganese	2200	1700	26*	-	15
Mercury	0.12	0.11	-	0.01	0.2
Nickel	390	320	20	-	40
Zinc	810	700	25*	-	20

Sample ID:	*SED-022*				
	Original Result (mg/kg)	*Duplicate Result (mg/kg)*	*RPD (1)*	*Difference Between Results (1) (mg/kg)*	*CRDL*
SSPL Metals					
Arsenic	3.6	2.4	-	1.2	2.0
Beryllium	0.25	0.25	-	0	1.0
Cadmium	1.3	2.0	-	0.7	1.0
Cobalt	38	39	-	1	10
Chromium	4.1	4.7	-	0.6	2.0
Copper	49	41	-	8	5.0
Iron	15000	13000	14	-	20
Lead	140	92	41*	-	0.6
Manganese	620	740	18	-	3.0
Mercury	ND 0.06	ND 0.06	-	0	0.04
Nickel	58	57	2	-	8.0
Zinc	630	300	71*	-	4.0

TABLE 9

LABORATORY DUPLICATE RESULTS
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Sample ID:	*SW-018*				
	Original Result (µg/L)	*Duplicate Result (µg/L)*	*RPD (1)*	*Difference Between Results (1) (µg/L)*	*CRDL*
SSPL Metals					
Arsenic	ND 1.0	ND 1.0	-	0	10
Beryllium	ND 1.0	1.0	-	0	5
Cadmium	ND 4.0	ND 4.0	-	0	5
Cobalt	19	20	-	1	50
Chromium	ND 9.0	ND 9.0	-	0	10
Copper	7.0	7.0	-	0	25
Iron	51	45	-	6	100
Lead	ND 1.0	ND 1.0	-	0	3
Manganese	5.0	5.0	-	0	15
Mercury	ND 0.10	ND 0.10	-	0	0.2
Nickel	46	42	-	4	40
Zinc	24	22	-	2	20

Notes:

ND Non-detect at associated value.

RPD Relative Percent Difference

(1) Values <5 times the applicable CRDL are acceptable if the difference between duplicate results is <CRDL for water samples or <2 times the CRDL for soil samples. Values >5 times the applicable CRDL are acceptable if the RPD value is <20 percent for water samples or <35 percent for soil samples.

CRDL Contract Required Detection Limit

TAL Target Analyte List

SSPL Site-Specific Parameter List

* Denotes value outside of control limits.

TABLE 10

LABORATORY BLANK RESULTS
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Blank ID:	*VBLK 2*	*VBLK 3*	*VBLK 1*
Analysis Date:	*11/16/94*	*11/17/94*	*11/18/94*
TCL Volatiles (µg/L)			
Chloromethane	ND 10	ND 10	2J
Bromomethane	ND 10	ND 10	ND 10
Vinyl chloride	ND 10	ND 10	ND 10
Chloroethane	ND 10	ND 10	ND 10
Methylene Chloride	11	ND 10	ND 10
Acetone	ND 10	ND 10	ND 10
Carbon disulfide	ND 5	ND 5	ND 5
1,1-Dichloroethene	ND 5	ND 5	ND 5
1,1-Dichloroethane	ND 5	ND 5	ND 5
1,2-Dichloroethene (total)	ND 5	ND 5	ND 5
Chloroform	ND 5	ND 5	ND 5
1,2-Dichloroethane	ND 5	ND 5	ND 5
2-Butanone	ND 10	ND 10	ND 10
1,1,1-Trichloroethane	ND 5	ND 5	ND 5
Carbon tetrachloride	ND 5	ND 5	ND 5
Bromodichloromethane	ND 5	ND 5	ND 5
1,2-Dichloropropane	ND 5	ND 5	ND 5
cis-1,3-Dichloropropene	ND 5	ND 5	ND 5
Trichloroethene	ND 5	ND 5	ND 5
Dibromochloromethane	ND 5	ND 5	ND 5
1,1,2-Trichloroethane	ND 5	ND 5	ND 5
Benzene	ND 5	ND 5	ND 5
trans-1,3-Dichloropropene	ND 5	ND 5	ND 5
Bromoform	ND 5	ND 5	ND 5
4-Methyl-2-pentanone	ND 10	ND 10	ND 10
2-Hexanone	ND 10	ND 10	ND 10
Tetrachloroethene	ND 5	ND 5	ND 5
1,1,2,2-Tetrachloroethane	ND 5	ND 5	ND 5
Toluene	ND 5	ND 5	ND 5
Chlorobenzene	ND 5	ND 5	ND 5
Ethylbenzene	ND 5	ND 5	ND 5
Styrene	ND 5	ND 5	ND 5
Xylene (total)	ND 5	ND 5	ND 5

Blank ID:	*SBLK 2099*	*SBLK 2105*
Extraction Date:	*11/14/94*	*11/15/94*
TCL Semi-Volatiles (µg/L)		
Phenol	ND 10	ND 10
bis-(2-Chloroethyl) ether	ND 10	ND 10
2-Chlorophenol	ND 10	ND 10
1,3-Dichlorobenzene	ND 10	ND 10
1,4-Dichlorobenzene	ND 10	ND 10
1,2-Dichlorobenzene	ND 10	ND 10
2-Methylphenol	ND 10	ND 10
2,2'-oxybis (1-Chloropropane)	ND 10	ND 10
4-Methylphenol	ND 10	ND 10

TABLE 10

LABORATORY BLANK RESULTS
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Blank ID:	*SBLK 2099*	*SBLK 2105*
Extraction Date:	*11/14/94*	*11/15/94*
TCL Semi-Volatiles (cont.) (µg/L)		
N-Nitroso-di-n-propylamine	ND 10	ND 10
Hexachloroethane	ND 10	ND 10
Nitrobenzene	ND 10	ND 10
Isophorone	ND 10	ND 10
2-Nitrophenol	ND 10	ND 10
2,4-Dimethylphenol	ND 10	ND 10
bis (2-Chloroethoxy) methane	ND 10	ND 10
2,4-Dichlorophenol	ND 10	ND 10
1,2,4-Trichlorobenzene	ND 10	ND 10
Naphthalene	ND 10	ND 10
4-Chloroaniline	ND 10	ND 10
Hexachlorobutadiene	ND 10	ND 10
4-Chloro-3-methylphenol	ND 10	ND 10
2-Methylnaphthalene	ND 10	ND 10
Hexachlorocyclopentadiene	ND 10	ND 10
2,4,6-Trichlorophenol	ND 10	ND 10
2,4,5-Trichlorophenol	ND 25	ND 25
2-Chloronaphthalene	ND 10	ND 10
2-Nitroaniline	ND 25	ND 25
Dimethylphthalate	ND 10	ND 10
Acenaphthylene	ND 10	ND 10
2,6-Dinitrotoluene	ND 10	ND 10
3-Nitroaniline	ND 25	ND 25
Acenaphthene	ND 10	ND 10
2,4-Dinitrophenol	ND 25	ND 25
4-Nitrophenol	ND 25	ND 25
Dibenzofuran	ND 10	ND 10
2,4-Dinitrotoluene	ND 10	ND 10
Diethylphthalate	ND 10	ND 10
4-Chlorophenyl-phenylether	ND 10	ND 10
Fluorene	ND 10	ND 10
4-Nitroaniline	ND 25	ND 25
4,6-Dinitro-2-methylphenol	ND 25	ND 25
n-Nitrosodiphenylamine	ND 10	ND 10
4-Bromophenyl-phenylether	ND 10	ND 10
Hexachlorobenzene	ND 10	ND 10
Pentachlorophenol	ND 25	ND 25
Phenanthrene	ND 10	ND 10
Anthracene	ND 10	ND 10
Carbazole	ND 10	ND 10
Di-n-butylphthalate	ND 10	ND 10
Fluoranthene	ND 10	ND 10
Pyrene	ND 10	ND 10
Butylbenzylphthalate	ND 10	ND 10
3,3'-Dichlorobenzidine	ND 10	ND 10
Benzo [a] anthracene	ND 10	ND 10
Chrysene	ND 10	ND 10

TABLE 10

LABORATORY BLANK RESULTS
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Blank ID:	*SBLK 2099*	*SBLK 2105*
Extraction Date:	*11/14/94*	*11 15 94*
TCL Semi-Volatiles (cont.) (µg/L)		
bis (2-Ethylhexyl) phthalate	ND 10	ND 10
Di-n-octylphthalate	ND 10	ND 10
Benzo [b] fluoranthene	ND 10	ND 10
Benzo [k] fluoranthene	ND 10	ND 10
Benzo [a] pyrene	ND 10	ND 10
Indeno [1,2,3-cd] pyrene	ND 10	ND 10
Dibenz [a,h] anthracene	ND 10	ND 10
Benzo [g,h,i] perylene	ND 10	ND 10

Blank ID:	*PBLK 2104*	*PBLK 2108*
Extraction Date:	*11/15/94*	*11/15/94*
TCL Pesticides/PCBs (ug/L)		
alpha-BHC	ND 0.05	ND 0.05
beta-BHC	ND 0.05	ND 0.05
delta-BHC	ND 0.05	ND 0.05
gamma-BHC (Lindane)	ND 0.05	ND 0.05
Heptachlor	ND 0.05	ND 0.05
Aldrin	ND 0.05	ND 0.05
Heptachlor epoxide	ND 0.05	ND 0.05
Endosulfan I	ND 0.05	ND 0.05
Dieldrin	ND 0.05	ND 0.05
4,4'-DDE	ND 0.1	ND 0.1
Endrin	ND 0.1	ND 0.1
Endosulfan II	ND 0.1	ND 0.1
4,4'-DDD	ND 0.1	ND 0.1
Endosulfan sulfate	ND 0.1	ND 0.1
4,4'-DDT	ND 0.1	ND 0.1
Methoxychlor	ND 0.5	ND 0.5
Endrin ketone	ND 0.1	ND 0.1
Endrin aldehyde	ND 0.1	ND 0.1
alpha-Chlordane	ND 0.05	ND 0.05
gamma-Chlordane	ND 0.05	ND 0.05
Toxaphene	ND 5.0	ND 5.0
Aroclor-1016	ND 1.0	ND 1.0
Aroclor-1221	ND 2.0	ND 2.0
Aroclor-1232	ND 1.0	ND 1.0
Aroclor-1242	ND 1.0	ND 1.0
Aroclor-1248	ND 1.0	ND 1.0
Aroclor-1254	ND 1.0	ND 1.0
Aroclor-1260	ND 1.0	ND 1.0

TABLE 10

LABORATORY BLANK RESULTS
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Blank ID: / *Digestion Date:*	*PBW* *11/22/94*	*PBW* *11/27/94*	*PBW* *11/16/94*	*PBW* *11/17/94*	*PBW* *11/21/94*
TAL Metals (ug/L)					
Aluminum	ND 41	-	-	-	-
Antimony	ND 3.0	-	-	-	-
Arsenic	ND 1.0	-	-	-	-
Barium	3.0	-	-	-	-
Beryllium	ND 1.0	-	-	-	-
Cadmium	ND 4.0	-	-	-	-
Calcium	ND 11	-	-	-	-
Chromium	ND 6.0	-	-	-	-
Cobalt	ND 9.0	-	-	-	-
Copper	ND 6.0	-	-	-	-
Iron	ND 10	-	-	-	-
Lead	ND 1.0	-	-	-	-
Magnesium	ND 61	-	-	-	-
Manganese	ND 2.0	-	-	-	-
Mercury		ND 0.10	-	-	-
Nickel	ND 10	-	-	-	-
Potassium	ND 450	-	-	-	-
Selenium	ND 1.0	-	-	-	-
Silver	ND 7.0	-	-	-	-
Sodium	ND 137	-	-	-	-
Thallium	2.6	-	-	-	-
Vanadium	ND 7.0	-	-	-	-
Zinc	ND 4.0	-	-	-	-
Wet Chemistry (µg/L)					
Cyanide	-	-	ND 10	ND 10	ND 10

Blank ID: / *Extraction Date:*	*SBLK2101* *11/14/94*	*SBLK2107* *11/15/94*	*SBLK2076* *11/5/94*	*SBLK2095* *11/13/94*
SSPL Semi-Volatiles (ug/kg)				
Acenaphthylene	ND 270	ND 270	ND 270	ND 270
Fluorene	ND 330	ND 330	ND 330	ND 330
Phenanthrene	ND 220	ND 220	ND 220	ND 220
Anthracene	ND 230	ND 230	ND 230	ND 230
Fluoranthene	ND 210	ND 210	ND 210	ND 210
Pyrene	ND 270	ND 270	ND 270	ND 270
Benzo (a) anthracene	ND 270	ND 270	ND 270	ND 270
Chrysene	ND 250	ND 250	ND 250	ND 250
Benzo (b) fluoranthene	ND 330	ND 330	ND 330	ND 330
Benzo (k) fluoranthene	ND 330	ND 330	ND 330	ND 330
Benzo (a) pyrene	ND 230	ND 230	ND 230	ND 230
Indeno (1,2,3-cd) pyrene	ND 330	ND 330	ND 330	ND 330
Dibenzo (a,h) anthracene	ND 280	ND 280	ND 280	ND 280
Benzo (g,h,i) perylene	ND 280	ND 280	ND 280	ND 280
Carbazole	ND 210	ND 210	ND 210	ND 210

TABLE 10

LABORATORY BLANK RESULTS
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Blank ID:	*SBLK2085*	*SBLK2098*
Extraction Date:	*11/10/94*	*11/14/94*
SSPL Semi-Volatiles (ug/L)		
Acenaphthylene	ND 10	ND 10
Fluorene	ND 9	ND 9
Phenanthrene	ND 7	ND 7
Anthracene	ND 8	ND 8
Fluoranthene	ND 7	ND 7
Pyrene	ND 10	ND 10
Benzo (a) anthracene	ND 8	ND 8
Chrysene	ND 8	ND 8
Benzo (b) fluoranthene	ND 6	ND 6
Benzo (k) fluoranthene	ND 10	ND 10
Benzo (a) pyrene	ND 8	ND 8
Indeno (1,2,3-cd) pyrene	ND 10	ND 10
Dibenzo (a,h) anthracene	ND 6	ND 6
Benzo (g,h,i) perylene	ND 8	ND 8
Carbazole	ND 7	ND 7

Blank ID:	*PBS*	*PBS*	*PBS*	*PBS*
Digestion Date:	*11/28/94*	*11/23/94*	*11/18/94*	*11/20/94*
SSPL Metals (mg/kg)				
Arsenic	-0.12	-	ND 0.001	-
Beryllium	ND 0.10	-	-0.001	-
Cadmium	ND 0.40	-	ND 0.004	-
Chromium	ND 0.60	-	ND 0.006	-
Cobalt	ND 0.90	-	ND 0.009	-
Copper	ND 0.60	-	ND 0.006	-
Iron	ND 1.0	-	ND 0.01	-
Lead	ND 0.10	-	ND 0.001	-
Manganese	ND 0.20	-	ND 0.002	-
Mercury	-	ND 0.050	-	ND 0.050
Nickel	ND 1.0	-	ND 0.01	-
Zinc	-0.50	-	ND 0.004	-

TABLE 10

LABORATORY BLANK RESULTS
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Blank ID:	*PBW*	*PBW*
Digestion Date:	*11/21/94*	*11/21/94*
SSPL Metals (ug/L)		
Arsenic	ND 1.0	-
Beryllium	1.0	-
Cadmium	ND 4.0	-
Chromium	ND 6.0	-
Cobalt	ND 9.0	-
Copper	ND 6.0	-
Iron	ND 10	-
Lead	ND 1.0	-
Manganese	ND 2.0	-
Mercury	-	ND 0.10
Nickel	ND 10	-
Zinc	ND 4.0	-

Notes:
SSPL Site-Specific Parameter List
ND Non-detect at associated value.
TCL Target Compound List
TAL Target Analyte List
J Associated value is estimated.

TABLE 11

TRIP BLANK RESULTS SUMMARY
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Sample Date:	*11/9/94*	*11/10/94*
Volatiles (µg/L)		
Chloromethane	ND 10	ND 10
Bromomethane	ND 10	ND 10
Vinyl chloride	ND 10	ND 10
Chloroethane	ND 10	ND 10
Methylene Chloride	ND 5	ND 5
Acetone	ND 10	ND 10
Carbon disulfide	ND 5	ND 5
1,1-Dichloroethene	ND 5	ND 5
1,1-Dichloroethane	ND 5	ND 5
1,2-Dichloroethene (total)	ND 5	ND 5
Chloroform	ND 5	ND 5
1,2-Dichloroethane	ND 5	ND 5
2-Butanone	ND 10	ND 10
1,1,1-Trichloroethane	ND 5	ND 5
Carbon tetrachloride	ND 5	ND 5
Bromodichloromethane	ND 5	ND 5
1,2-Dichloropropane	ND 5	ND 5
cis-1,3-Dichloropropene	ND 5	ND 5
Trichloroethene	ND 5	ND 5
Dibromochloromethane	ND 5	ND 5
1,1,2-Trichloroethane	ND 5	ND 5
Benzene	ND 5	ND 5
trans-1,3-Dichloropropene	ND 5	ND 5
Bromoform	ND 5	ND 5
4-Methyl-2-pentanone	ND 10	ND 10
2-Hexanone	ND 10	ND 10
Tetrachloroethene	ND 5	ND 5
1,1,2,2-Tetrachloroethane	ND 5	ND 5
Toluene	ND 5	ND 5
Chlorobenzene	ND 5	ND 5
Ethylbenzene	ND 5	ND 5
Styrene	ND 5	ND 5
Xylene (total)	ND 5	ND 5

Notes:
ND Non-detect at associated value.

TABLE 13B

FIELD DUPLICATE ANALYSIS RESULTS SUMMARY - SURFACE WATER SAMPLES
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Sample ID:	*SW-5515-017*	*SW-5515-024*	*RPD*
Sample Date:	*11/08/94*	*11/08/94*	
Semi-Volatiles (µg/L)			
Acenaphthylene	ND 12	ND 10	NA
Fluorene	ND 11	ND 9	NA
Phenanthrene	ND 9	ND 7	NA
Anthracene	ND 10	ND 8	NA
Fluoranthene	ND 8	ND 7	NA
Pyrene	ND 12	ND 10	NA
Benzo (a) anthracene	ND 9	ND 8	NA
Chrysene	ND 10	ND 8	NA
Benzo (b) fluoranthene	ND 8	ND 6	NA
Benzo (k) fluoranthene	ND 12	ND 10	NA
Benzo (a) pyrene	ND 9	ND 8	NA
Indeno (1,2,3-cd) pyrene	ND 12	ND 10	NA
Dibenzo (a,h) anthracene	ND 7	ND 6	NA
Benzo (g,h,i) perylene	ND 9	ND 8	NA
Carbazole	ND 9	ND 7	NA
Metals (µg/L)			
Arsenic	1.5	ND 1.0	NA
Beryllium	ND 1.0	ND 1.0	NA
Cadmium	ND 4.0	ND 4.0	NA
Chromium	ND 6.0	ND 6.0	NA
Cobalt	ND 9.0	ND 9.0	NA
Copper	ND 6.0	ND 6.0	NA
Iron	ND 68	ND 70	NA
Lead	ND 1.0	ND 1.0	NA
Manganese	9.0	7.0	25
Mercury	ND 0.10	ND 0.10	NA
Nickel	ND 10	ND 10	NA
Zinc	27	23	16

Notes:

ND	Not detected at the associated value.
NA	Value not available due to one or more non-detect results.
RPD	Relative Percent Difference

TABLE 13C

FIELD DUPLICATE ANALYSIS RESULTS SUMMARY - GROUNDWATER SAMPLES
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Sample ID:	*GW-5515-035*	*GW-5515-036*	*RPD*
Sample Date:	*11/10/94*	*11/10/94*	
Volatiles (µg/L)			
Chloromethane	ND 10	ND 10	NA
Bromomethane	ND 10	ND 10	NA
Vinyl chloride	ND 10	ND 10	NA
Chloroethane	ND 10	ND 10	NA
Methylene Chloride	2J	3J	40
Acetone	7J	8J	13
Carbon disulfide	ND 5	ND 5	NA
1,1-Dichloroethene	ND 5	ND 5	NA
1,1-Dichloroethane	ND 5	ND 5	NA
1,2-Dichloroethene (total)	ND 5	ND 5	NA
Chloroform	ND 5	ND 5	NA
1,2-Dichloroethane	ND 5	ND 5	NA
2-Butanone	ND 10	ND 10	NA
1,1,1-Trichloroethane	ND 5	ND 5	NA
Carbon tetrachloride	ND 5	ND 5	NA
Bromodichloromethane	ND 5	ND 5	NA
1,2-Dichloropropane	ND 5	ND 5	NA
cis-1,3-Dichloropropene	ND 5	ND 5	NA
Trichloroethene	ND 5	ND 5	NA
Dibromochloromethane	ND 5	ND 5	NA
1,1,2-Trichloroethane	ND 5	ND 5	NA
Benzene	18	18	0
trans-1,3-Dichloropropene	ND 5	ND 5	NA
Bromoform	ND 5	ND 5	NA
4-Methyl-2-pentanone	ND 10	ND 10	NA
2-Hexanone	ND 10	ND 10	NA
Tetrachloroethene	ND 5	ND 5	NA
1,1,2,2-Tetrachloroethane	ND 5	ND 5	NA
Toluene	ND 5	ND 5	NA
Chlorobenzene	ND 5	ND 5	NA
Ethylbenzene	ND 5	ND 5	NA
Styrene	ND 5	ND 5	NA
Xylene (total)	ND 5	ND 5	NA
Semi-Volatiles (µg/L)			
Phenol	3J	2J	40
bis-(2-Chloroethyl) ether	ND 10	ND 10	NA
2-Chlorophenol	ND 10	ND 10	NA
1,3-Dichlorobenzene	ND 10	ND 10	NA
1,4-Dichlorobenzene	ND 10	ND 10	NA
1,2-Dichlorobenzene	ND 10	ND 10	NA
2-Methylphenol	ND 10	ND 10	NA
2,2'-oxybis (1-Chloropropane)	ND 10	ND 10	NA
4-Methylphenol	ND 10	ND 10	NA
N-Nitroso-di-n-propylamine	ND 10	ND 10	NA
Hexachloroethane	ND 10	ND 10	NA
Nitrobenzene	ND 10	ND 10	NA
Isophorone	ND 10	ND 10	NA
2-Nitrophenol	ND 10	ND 10	NA
2,4-Dimethylphenol	ND 10	ND 10	NA
bis (2-Chloroethoxy) methane	ND 10	ND 10	NA
2,4-Dichlorophenol	ND 10	ND 10	NA
1,2,4-Trichlorobenzene	ND 10	ND 10	NA
Naphthalene	ND 10	ND 10	NA
4-Chloroaniline	ND 10	ND 10	NA
Hexachlorobutadiene	ND 10	ND 10	NA
4-Chloro-3-methylphenol	ND 10	ND 10	NA
2-Methylnaphthalene	ND 10	ND 10	NA
Hexachlorocyclopentadiene	ND 10	ND 10	NA
2,4,6-Trichlorophenol	ND 10	ND 10	NA
2,4,5-Trichlorophenol	ND 24	ND 24	NA

TABLE 13C

FIELD DUPLICATE ANALYSIS RESULTS SUMMARY - GROUNDWATER SAMPLES
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Sample ID:	*GW-5515-035*	*GW-5515-036*	*RPD*
Sample Date:	*11/10/94*	*11/10/94*	
Semi-Volatiles (µg/L) (cont.)			
2-Chloronaphthalene	ND 10	ND 10	NA
2-Nitroaniline	ND 24	ND 24	NA
Dimethylphthalate	ND 10	ND 10	NA
Acenaphthylene	ND 10	ND 10	NA
2,6-Dinitrotoluene	ND 10	ND 10	NA
3-Nitroaniline	ND 24	ND 24	NA
Acenaphthene	ND 10	ND 10	NA
2,4-Dinitrophenol	ND 24	ND 24	NA
4-Nitrophenol	ND 24	ND 24	NA
Dibenzofuran	ND 10	ND 10	NA
2,4-Dinitrotoluene	ND 10	ND 10	NA
Diethylphthalate	ND 10	ND 10	NA
4-Chlorophenyl-phenylether	ND 10	ND 10	NA
Fluorene	ND 10	ND 10	NA
4-Nitroaniline	ND 24	ND 24	NA
4,6-Dinitro-2-methylphenol	ND 24	ND 24	NA
n-Nitrosodiphenylamine	ND 10	ND 10	NA
4-Bromophenyl-phenylether	ND 10	ND 10	NA
Hexachlorobenzene	ND 10	ND 10	NA
Pentachlorophenol	ND 24	ND 24	NA
Phenanthrene	ND 10	ND 10	NA
Anthracene	ND 10	ND 10	NA
Carbazole	ND 10	ND 10	NA
Di-n-butylphthalate	ND 10	ND 10	NA
Fluoranthene	ND 10	ND 10	NA
Pyrene	ND 10	ND 10	NA
Butylbenzylphthalate	ND 10	ND 10	NA
3,3'-Dichlorobenzidine	ND 10	ND 10	NA
Benzo [a] anthracene	ND 10	ND 10	NA
Chrysene	ND 10	ND 10	NA
bis (2-Ethylhexyl) phthalate	ND 10	ND 10	NA
Di-n-octylphthalate	ND 10	ND 10	NA
Benzo [b] fluoranthene	ND 10	ND 10	NA
Benzo [k] fluoranthene	ND 10	ND 10	NA
Benzo [a] pyrene	ND 10	ND 10	NA
Indeno [1,2,3-cd] pyrene	ND 10	ND 10	NA
Dibenz [a,h] anthracene	ND 10	ND 10	NA
Benzo [g,h,i] perylene	ND 10	ND 10	NA
Pesticides (ug/L)			
alpha-BHC	ND 0.05	ND 0.05	NA
beta-BHC	ND 0.05	ND 0.05	NA
delta-BHC	ND 0.05	ND 0.05	NA
gamma-BHC (Lindane)	ND 0.05	ND 0.05	NA
Heptachlor	ND 0.05	ND 0.05	NA
Aldrin	ND 0.05	ND 0.05	NA
Heptachlor epoxide	ND 0.05	ND 0.05	NA
Endosulfan I	ND 0.05	ND 0.05	NA
Dieldrin	ND 0.1	ND 0.1	NA
4,4'-DDE	ND 0.1	ND 0.1	NA
Endrin	ND 0.1	ND 0.1	NA
Endosulfan II	ND 0.1	ND 0.1	NA
4,4'-DDD	ND 0.1	ND 0.1	NA
Endosulfan sulfate	ND 0.1	ND 0.1	NA
4,4'-DDT	ND 0.1	ND 0.1	NA
Methoxychlor	ND 0.49	ND 0.48	NA
Endrin ketone	ND 0.1	ND 0.1	NA
Endrin aldehyde	ND 0.1	ND 0.1	NA
alpha-Chlordane	ND 0.05	ND 0.05	NA
gamma-Chlordane	ND 0.05	ND 0.05	NA
Toxaphene	ND 4.9	ND 4.8	NA

TABLE 13C

FIELD DUPLICATE ANALYSIS RESULTS SUMMARY - GROUNDWATER SAMPLES
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Sample ID:	*GW-5515-035*	*GW-5515-036*	*RPD*
Sample Date:	*11/10/94*	*11/10/94*	
PCBs (ug/L)			
Aroclor-1016	ND 0.98	ND 0.97	NA
Aroclor-1221	ND 2.0	ND 1.9	NA
Aroclor-1232	ND 0.98	ND 0.97	NA
Aroclor-1242	ND 0.98	ND 0.97	NA
Aroclor-1248	ND 0.98	ND 0.97	NA
Aroclor-1254	ND 0.98	ND 0.97	NA
Aroclor-1260	ND 0.98	ND 0.97	NA
Metals (µg/L)			
Aluminum	690	1100	46
Antimony	ND 3.0	ND 3.0	NA
Arsenic	24	53	75
Barium	28	29	4
Beryllium	ND 1.0	ND 1.0	NA
Cadmium	5.0	8.0	46
Calcium	8800	9100	3
Chromium	ND 6.0	ND 6.0	NA
Cobalt	ND 9.0	ND 9.0	NA
Copper	8.0	16	67
Iron	1100	1800	48
Lead	25J	53J	72
Magnesium	3600	3700	3
Manganese	76	76	0
Mercury	ND 0.10	ND 0.10	NA
Nickel	21	25	17
Potassium	1300	1300	0
Selenium	ND 1.0	ND 1.0	NA
Silver	ND 7.0	ND 7.0	NA
Sodium	950000	950000	0
Thallium	ND 10	ND 4.0	NA
Vanadium	ND 32	ND 34	NA
Zinc	60	75	22
Wet Chemistry (µg/L)			
Cyanide	ND 10	ND 10	NA

Notes:
RPD Relative Percent Difference
NA Value not available due to one or more non-detect results.
ND Non-detect at associated value.
J Associated value is estimated.

TABLE 12

RINSE BLANK RESULTS SUMMARY
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Sample ID:	*RB-5515-042*	*RB-5515-028*
Sample Date:	*11/10/94*	*11/09/94*
Semi-Volatiles (µg/L)		
Acenaphthylene	ND 10	ND 10
Fluorene	ND 9	ND 9
Phenanthrene	ND 7	ND 7
Anthracene	ND 8	ND 8
Fluoranthene	ND 7	ND 7
Pyrene	ND 9	ND 9
Benzo (a) anthracene	ND 7	ND 7
Chrysene	ND 8	ND 8
Benzo (b) fluoranthene	ND 6	ND 6
Benzo (k) fluoranthene	ND 10	ND 10
Benzo (a) pyrene	ND 7	ND 7
Indeno (1,2,3-cd) pyrene	ND 10	ND 10
Dibenzo (a,h) anthracene	ND 5	ND 5
Benzo (g,h,i) perylene	ND 7	ND 7
Carbazole	ND 7	ND 7
Metals (ug/L)		
Arsenic	ND 1.0	ND 1.0
Beryllium	ND 1.0	ND 1.0
Cadmium	ND 4.0	ND 4.0
Chromium	ND 6.0	ND 6.0
Cobalt	ND 9.0	ND 9.0
Copper	ND 6.0	ND 6.0
Iron	54	15
Lead	ND 1.0	1.9
Manganese	ND 2.0	ND 2.0
Mercury	ND 0.10	ND 0.10
Nickel	ND 10	ND 10
Zinc	4.0	ND 4.0

Notes:
ND Non-detect at associated value.

TABLE 13A

FIELD DUPLICATE ANALYSIS RESULTS SUMMARY-SOIL/SEDIMENT SAMPLES
PRELIMINARY SITE ASSESSMENT
FORMER DIAMOND SHAMROCK SITE
LOCKPORT, NEW YORK
NOVEMBER 1994

Sample ID:	*SED-5515-021*	*SED-5515-025*	*RPD*	*SS-5515-026*	*SS-5515-027*	*RPD*
Sample Date:	*11/08/94*	*11/08/94*		*11/09/94*	*11/09/94*	
Semi-Volatiles (µg/kg)						
Acenaphthylene	ND 2900	ND 2200	NA	190J	ND 380	NA
Fluorene	1600JD	900JD	56	470	ND 460	NA
Phenanthrene	22000D	14000D	44	3600	640	140
Anthracene	3000D	1800JD	50	990	140J	150
Fluoranthene	37000D	24000D	43	5200	1400	115
Pyrene	36000D	30000D	18	4600	1200	117
Benzo (a) anthracene	15000D	11000D	31	2900	740	119
Chrysene	22000D	18000D	20	2800	740	116
Benzo (b) fluoranthene	32000D	19000D	51	3100	770	120
Benzo (k) fluoranthene	19000D	13000D	38	1600	630	87
Benzo (a) pyrene	19000D	14000D	30	2000	570	111
Indeno (1,2,3-cd) pyrene	16000D	12000D	29	1300	440J	99
Dibenzo (a,h) anthracene	7300D	5400D	30	770	240J	105
Benzo (g,h,i) perylene	15000D	12000D	22	1100	390	95
Carbazole	3000D	1400JD	73	480	73J	147
Metals (mg/kg)						
Arsenic	6.8	6.4	6	3.9J	4.5J	14
Beryllium	0.45	0.43	5	0.42	0.44	5
Cadmium	2.9	2.6	11	1.7J	1.9J	11
Chromium	58J	51J	13	65	82	23
Cobalt	9.5	8.5	11	26J	29J	11
Copper	79J	69J	14	32J	40J	22
Iron	14000	12000	15	19000	21000	10
Lead	180J	170J	6	72J	89J	21
Manganese	650	560	15	1100J	1100J	0
Mercury	ND 0.11	ND 0.11	NA	ND 0.07	ND 0.07	NA
Nickel	110J	96J	14	190	250	27
Zinc	640J	580J	10	550J	620J	12

Notes:

ND Not detected at the associated value.
J Associated value is estimated.
D Dilution
NA Value not available due to one or more non-detect results.
RPD Relative Percent Difference

H

APPENDIX H

CHAIN OF TITLE - DIAMOND SHAMROCK CHEMICAL COMPANY

Niagara Boundary

And Mapping Services

CHAIN OF TITLE
Diamond Shamrock Chemical Company

PARCEL I (see attachments)

September 4, 1986	Occidental Diamond Alkalai Corporation Purchased 100% Diamond Shamrock Chemicals Co.
September 29, 1986	Occidental Diamond Alkalai Corporation Becomes Occidental Electrochemicals Corp.
November 30, 1987	Occidental Electrochemicals Corporation Becomes Occidental Chemical Corporation
Present Owner	Occidental Chemical Corporation Liber 971, Page 562

PARCEL II (see attachments)

September 4, 1986	Occidental Diamond Alkalai Corporation Purchased 100% Diamond Shamrock Chemicals Co.
September 29, 1986	Occidental Diamond Alkalai Corporation Becomes Occidental Electrochemicals Corporation
November 30, 1987	Occidental Electrochemicals Corporation Becomes Occidental Chemical Corporation
November 27, 1989	Occidental Chemical Corporation conveys parcel to Lightweight Environmental Products Corporation Liber 2226, Page 266
September 10, 1992	Lightweight Environmental Products Corporation conveys parcel to Eastern Ohio Paving, Inc. N/K/A Hazorb Inc., Liber 2403, Page 321
Present Owner	Hazorb, Inc.

The Carborundum Center
345 Third St., Suite 470 • Niagara Falls, NY 14303
(716) 282-3202 • FAX (716) 282-3204

PARCEL III (see attachments)

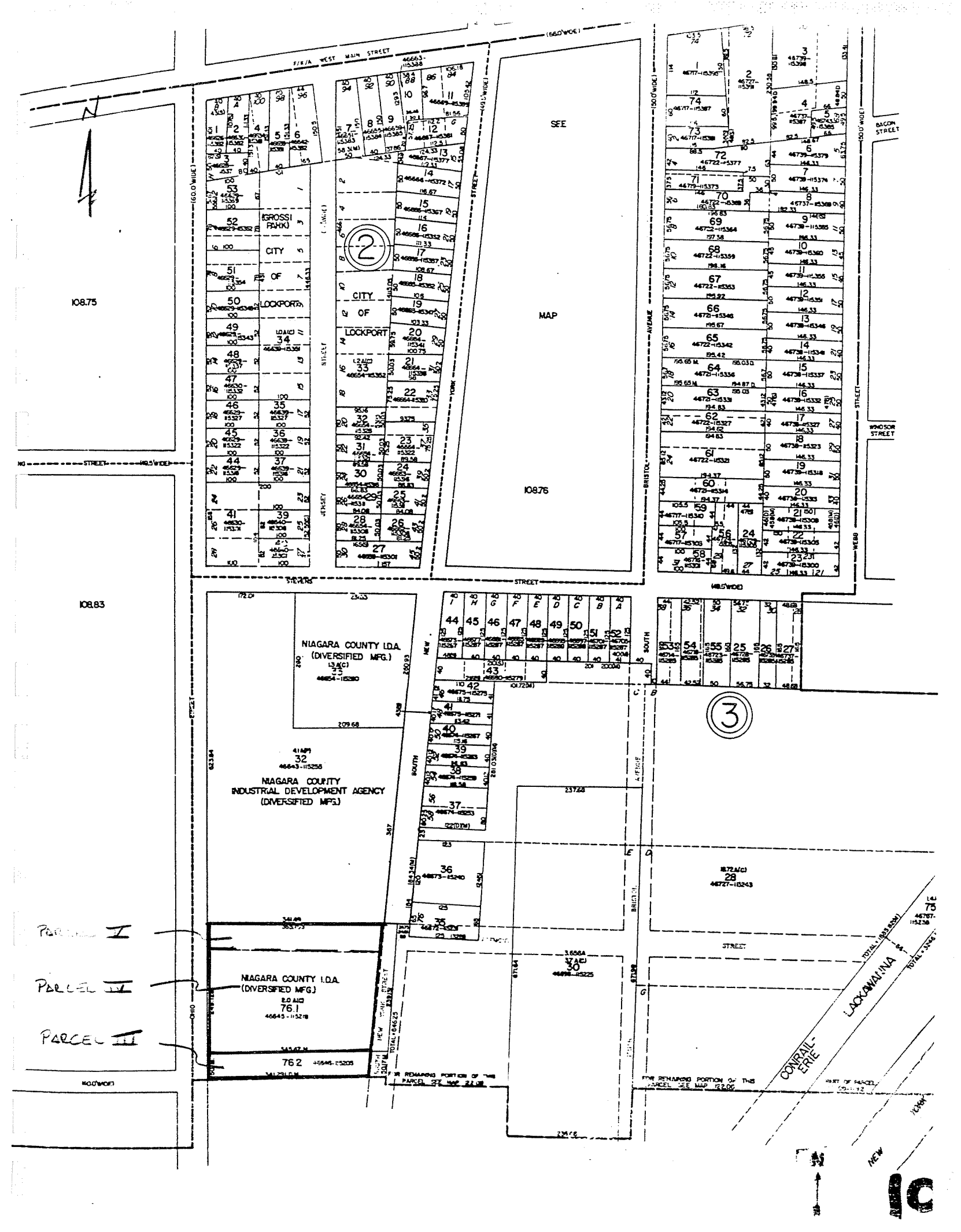
December 13, 1985	Diamond Shamrock Chemicals Company conveys parcel to Niagara County Industrial Development Agency, Liber 1976, Page 297
April 28, 1989	Niagara County Industrial Development Agency conveys parcels to Diversified Manufacturing, Inc. QC Liber 2194, Page 94
May 25, 1989	Diversified Manufacturing, Inc. conveys parcel to Domtar Gypsum, Inc. Liber 2194, Page 96
September 22, 1992	Domtar Gypsum, Inc. conveys parcel to Buffalo Paper Board Liber 2409, Page 295
December 15, 1992	Parcel is combined with properties owned by Upson Company. As per records of Real Property Office Niagara County Courthouse
Present Owner	Upson Company

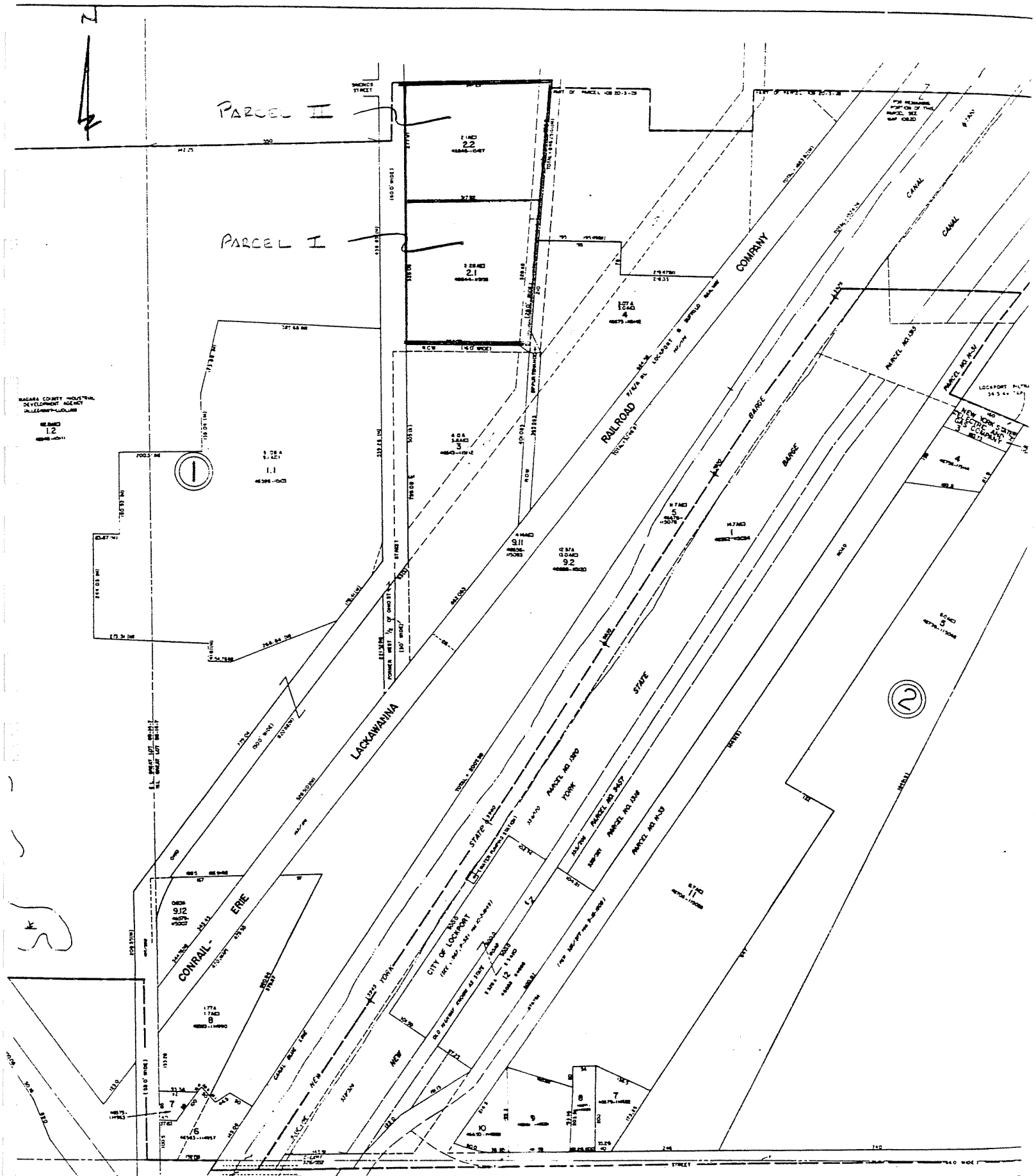
PARCEL IV (see attachments)

December 13, 1985	Diamond Shamrock Chemicals Company conveys parcel to Niagara County Industrial Development Agency, Liber 1976, Page 297
December 1, 1985	Niagara County Industrial Development Agency leases property to Diversified Manufacturing, Inc. Liber 1977, Page 86
Present Owner	Niagara County Industrial Development Agency w/lease to Diversified Manufacturing, Inc.

PARCEL V (see attachments)

December 13, 1985	Diamond Shamrock Chemicals Company conveys parcel to Niagara County Industrial Development Agency, Liber 1976, Page 303
December 1, 1985	Niagara County Industrial Development Agency leases property to Diversified Manufacturing, Inc. Liber 1977, Page 85
Present Owner	Niagara County Industrial Development Agency with lease to Diversified Manufacturing, Inc.

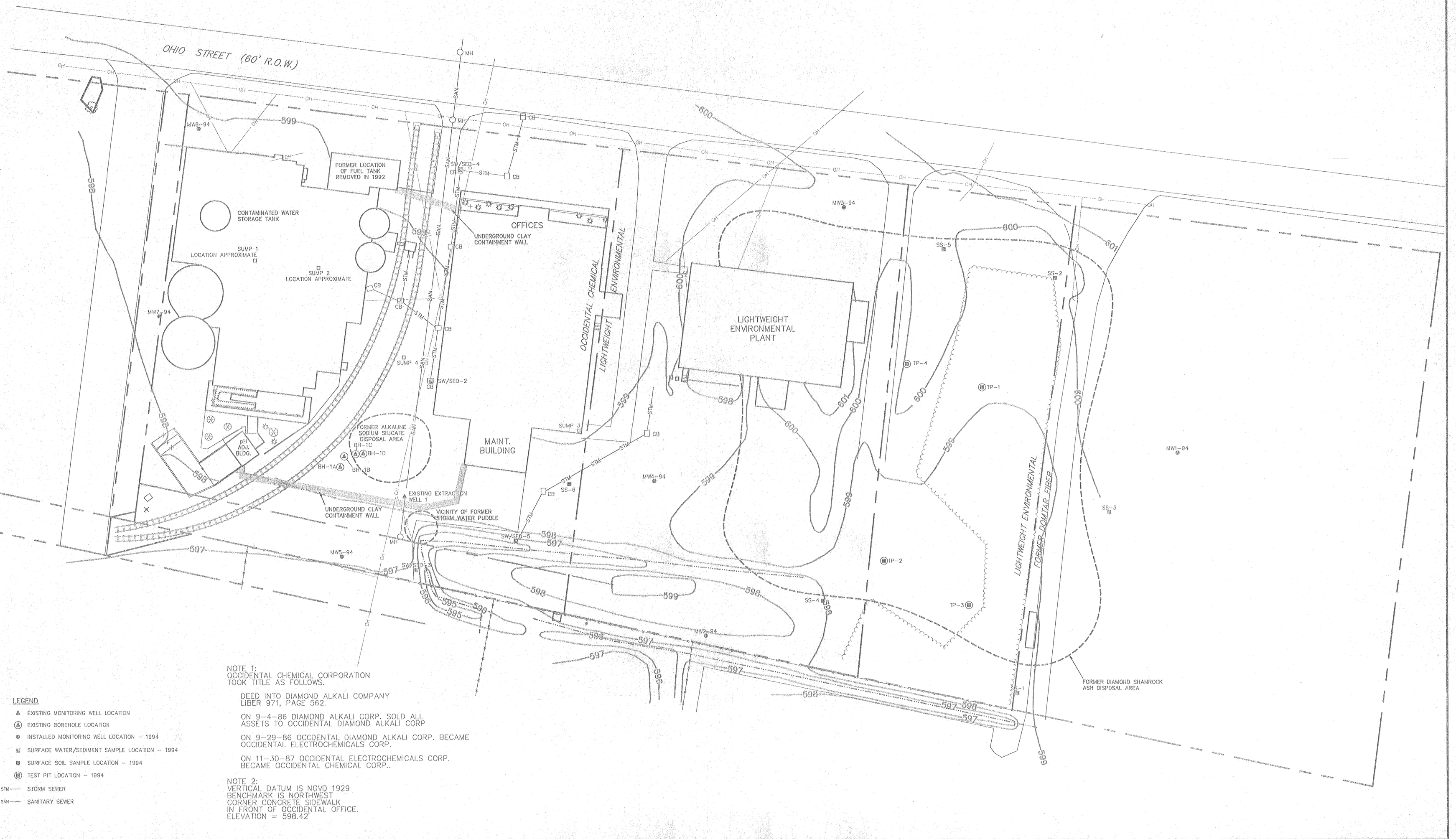

F/K/A WEST MAIN STREET
(66.0'WIDE)
108.75
108.83
108.76
SEE MAP
(GROSSI PARK)
CITY OF LOCKPORT
NIAGARA COUNTY I.D.A. (DIVERSIFIED MFG.)
NIAGARA COUNTY INDUSTRIAL DEVELOPMENT AGENCY (DIVERSIFIED MFG.)
NIAGARA COUNTY I.D.A. (DIVERSIFIED MFG.)
PARCEL I
PARCEL II
PARCEL III
CONRAIL-ERIE LACKAWANNA
FOR REMAINING PORTION OF THIS PARCEL SEE MAP 72.08
FOR REMAINING PORTION OF THIS PARCEL SEE MAP 72.08
NEW
SOUTH
STREET
AVENUE
BRISTOL
YORK
JERSEY
OHIO
WEBB
BACON STREET
WINDSOR STREET



REVISION TABLE			SPECIAL DISTRICTS
OR ADDITIONS	DATE	MADE BY	CHANGES OR ADDITIONS
			SCHOOL: LOCKPORT CITY SCHOOL
			FIRE: NO TAXABLE FIRE DISTRICT
			WATER

LEGEND

TOWN LINE	FIRE DISTRICT LINE	GREAT LOT NO.	
CITY OR VILLAGE LINE	DENOTES COMMON OWNER	CALCULATED ACREAGE	
BLOCK LINE		DEED ACREAGE	
GREAT LOT LINE	TAX MAP BLOCK NO.	SCALES	
SCHOOL DISTRICT LINE	TAX MAP PARCEL NO.	DEED DIMENSIONS	
WATER DISTRICT LINE	FILED PLAN LOT NO.	COORDINATE LOCATOR	



NOTE 1:
OCCIDENTAL CHEMICAL CORPORATION
TOOK TITLE AS FOLLOWS.

DEED INTO DIAMOND ALKALI COMPANY
LIBER 971, PAGE 562.

ON 9-4-86 DIAMOND ALKALI CORP. SOLD ALL
ASSETS TO OCCIDENTAL DIAMOND ALKALI CORP

ON 9-29-86 OCCDENTAL DIAMOND ALKALI CORP. BECAME
OCCIDENTAL ELECTROCHEMICALS CORP.

ON 11-30-87 OCCIDENTAL ELECTROCHEMICALS CORP.
BECAME OCCIDENTAL CHEMICAL CORP..

NOTE 2:
VERTICAL DATUM IS NGVD 1929
BENCHMARK IS NORTHWEST
CORNER CONCRETE SIDEWALK
IN FRONT OF OCCIDENTAL OFFICE.
ELEVATION = 598.42'

LEGEND

- EXISTING MONITORING WELL LOCATION
- (A) EXISTING BOREHOLE LOCATION
- INSTALLED MONITORING WELL LOCATION – 1994
- SURFACE WATER/SEDIMENT SAMPLE LOCATION – 1994
- SURFACE SOIL SAMPLE LOCATION – 1994
- (TP) TEST PIT LOCATION – 1994
- ——STM—— STORM SEWER
- ——SAN—— SANITARY SEWER

MAP PREPARED BY: NIAGARA BOUNDARY AND MAPPING SERVICES
THE CARBORUNDUM CENTER
345 THIRD STREET
SUITE 470
NIAGARA FALLS, NEW YORK 14303
(716) 282-3202

№	Revision	Date	Initial

Approved

Occidental Chemical Corporation

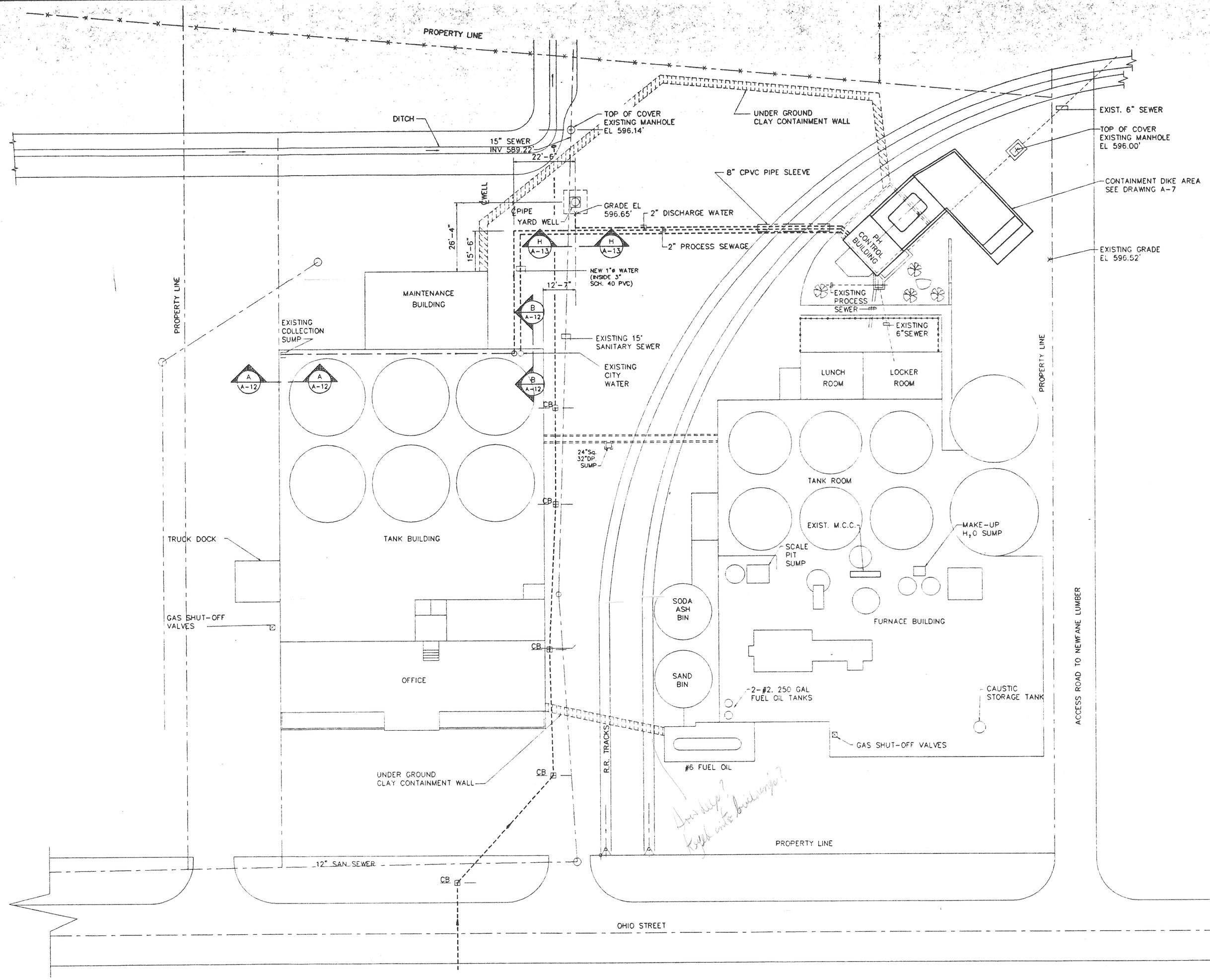
FORMER DIAMOND SHAMROCK SITE

SITE TOPOGRAPHIC PLAN

CRA CONESTOGA-ROVERS & ASSOCIATES

Drawn by: JTM	Scale: 1"=30'	Date: JANUARY 1995	File №: P-10	Rev.№: 0
Designed by: GG				
Checked by: WCL	Field book:	Project №: 5515	Drawing №: PLAN 1	

MAR 15/95(NF)



AUG 07 1991

2LS581-1A

MESCH ENGINEERING, P.C.
CONSULTING ENGINEERS
P.O. BOX 451, LOCKPORT, N.Y. 14094

E.S. FALSETTI, P.E.
J.F. PANZA, P.E.
T.L. DIXON, P.E.

PROJECT JOB NO. 23688-1	REFERENCE ACC'T. NO.	TEMP. DRAWING NO. A-3

NO.	REVISIONS	DRAWN	CHK'D.	APP'.	DATE
5	UPDATED DRAWING	WJB	FJF		8/7/88
4	RECORD DRAWING		FJF		12/13/88
3	ISSUED FOR CONSTRUCTION	FLF	FJF		10/5/88
2	ISSUED FOR QUOTATION	RRS	FJF		9/21/88
1	ISSUED FOR PRE - BID	RRS	FJF		9/13/88

APPROVAL:	SO'D. LDR.	ENGR.	DATE
STR. AND CIVIL			
MECHANICAL			
ELECT. AND INST.			
PROCESS			
PROJECT			

DRAWN BY D.R. HOLCOMBE DATE 8/12/88
DSGN. CAL. BY _____ DATE _____
CHECKED BY F.J.F. DATE 8/13/88

Occidental Chemical Corporation

LOCKPORT PLANT PROCESS SEWER PH CONTROL SYSTEM
SITE PLAN

SCALE 1"=20' | BLDG. No X | DWG. A-3

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