UNDERGROUND ENGINEERING & ENVIRONMENTAL SOLUTIONS

(6)

REPORT ON REMEDIAL INVESTIGATION
ENARC-O MACHINE PRODUCTS
LIMA, NEW YORK
NYSDEC REGISTRY NO. 8-26-011

Volume I of VI

by

Haley & Aldrich of New York
Rochester, New York

for

Kaddis Manufacturing Corporation
Rochester, New York

File No. 70372-047
January 1996

HALEY & ALDRICH

UNDERGROUND
ENGINEERING &
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HALEY & ALDRICH

19 January 1996
File No. 70372-047

New York State Department of
Environmental Conservation
Division of Hazardous Waste Remediation
50 Wolf Road
Albany, New York 12233-7010

Attention: A. Joseph White

Subject: Remedial Investigation Report
Enarc-O Machine Products, Inc.
Lima, New York
NYSDEC Registry No. 8-26-011

Gentlemen:

Attached is a copy of the Remedial Investigation Report for the Enarc-O Machine Products facility in Lima, New York, prepared by Haley and Aldrich of New York on behalf of Kaddis Manufacturing Corporation, owner of the facility. The investigation and report, required under Order-On-Consent No. B8-0112-91-04, dated 22 March 1994, between Kaddis and NYSDEC, were performed and prepared in accordance with the RI Work Plan, dated 30 December 1993 as ammended by approved submittals to NYSDEC of 28 April and 10 October 1994 and 3 February 1995.

The investigation evaluated the presence of volatile organic compounds in soil and groundwater on the Enarc-O property as well as surrounding residential properties. The report details the aspects of the investigation and summarizes our findings with regard to the onsite and offsite presence of contaminants. An executive summary at the beginning of the report provides a summary of the significant findings and conclusions of the investigation. A more detailed presentation of findings and conclusions is included at the end of the report text.

In accordance with the Consent Order, we are forwarding 4 copies of the RI report to you, one unbound. Due to the large volume of the entire laboratory analytical report deliverable packages, only one copy contains the entire data package (Volumes I through VI). The other copies contain only the laboratory analytical summaries (Volumes I and II). Copies

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transmitted to the other parties of the Consent Order list (below) also contain only the laboratory analytical summaries.

If you need any additional information please do not hesitate to contact us.

Sincerely yours,
HALEY & ALDRICH of NEW YORK

Michael G. Beikirch
Hydrogeologist

Robert J. Mahoney
Senior Environmental Geologist

Vincent B. Dick
Vice President

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Enclosure

xc: Ronald Iannucci, Sr., Kaddis Manufacturing Corp.
William H. Helferich, III, Harter Secrest & Emery
Director, NYSDOH, Bur. of Environ. Exposure Investigation (2 copies)
Renée Forgensi-Davison, Regional Director, NYSDEC Region 8
Glen R. Bailey, NYSDEC, Div. Environ. Enforcement

EXECUTIVE SUMMARY

Haley and Aldrich of New York has performed a remedial investigation (RI) for the Enarc-O Machine Products, Inc. facility and property, located in Lima, New York. The work has been performed in accordance with the project Work Plan and approved submittals as well as the Order-on-Consent between NYSDEC and Kaddis Manufacturing Corporation, the owner of the facility. The study area encompassed the Enarc-O property and "nearby" residential areas.

The primary compounds of concern (COCs) at the site include trichloroethene and 1,1,1-trichloroethane, as well as other related chlorinated volatile organic compounds. The presence of these compounds is apparently related to releases in the mid-1980s of solvents from a former degreaser and solvent storage tank on the site. These tanks have since been removed. Usage of chlorinated solvents at the site has been discontinued and chemical handling practices have been improved.

The COCs migration offsite has affected groundwater quality in 21 residential wells, as determined by investigations by NYSDOH and USEPA in the mid 1980s. The wells are no longer used for drinking water or other uses; a public water supply was installed in 1988 to service the affected residences.

The presence of contaminants onsite is primarily limited to soils beneath the floor slab of the facility and the adjacent courtyard, as well as groundwater in the vicinity of the source area. Soils in the source area are generally unsaturated, with the exception of limited shallow perched water (as encountered in the courtyard area). Groundwater on the site is generally below the top of bedrock. COCs are present in onsite groundwater at levels above drinking water standards. Offsite groundwater is located at greater depths than onsite groundwater, and generally only contains COCs at levels at or below drinking water standards, as evidenced by the most recent sampling and analyses of former residential supply wells.

Sampling and analyses indicate COC concentrations in groundwater offsite have decreased significantly since initial sampling was performed in 1985. Based on groundwater flow and quality evaluation, it appears that no significant additional offsite migration of COCs in groundwater is occurring.

Results of the Health Risk Assessment indicate carcinogenic and noncarcinogenic risks for the four identified risk scenarios are within acceptable levels established by USEPA.

TABLE OF CONTENTS

TABLE OF CONTENTS (CONT.)

TABLE OF CONTENTS (CONT.)

LIST OF TABLES

LIST OF TABLES (CONT.)

LIST OF FIGURES

I. INTRODUCTION

This remedial investigation (RI) report is for the Enarc-O Machine Products, Inc. (Enarc-O) site [New York State Department of Environmental Conservation (NYSDEC) Registry No. B8-0112-91-04] located in Lima, New York. It has been prepared in accordance with the United States Environmental Protection Agency document entitled "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA", dated October 1988, and follows the Haley & Aldrich of New York Work Plan dated December 1993 (Work Plan) as amended by approved modification submittals, dated 28 April 1994, 10 October 1994 and 3 February 1995. This report also references data previously presented in a May 1991 site assessment report for the site, submitted by others to NYSDEC.

1-01. PURPOSE OF THE REPORT

Work at the site has been performed by Haley & Aldrich for Kaddis Manufacturing (Kaddis), owner of Enarc-O, in accordance with Order-on-Consent No. B8-0112-91-04 with the NYSDEC. The intent of this report is to describe the remedial investigations conducted, present and summarize the data collected, and evaluate the presence and extent of compounds of concern at the site.

1-02. SITE DESCRIPTION AND HISTORY

The site is a 6± acre property located at 1175 Bragg Street in Lima, New York, in the northeastern portion of Livingston County as shown on Figure 1. The site is approximately one mile southeast of the Village of Honeoye Falls. The Enarc-O facility is a one-story slab-on-grade building, located in the northern half of the site. The site is bounded on the north by residential property, on the east by residential property and Honeoye Creek and on the south and west by farmland and residential property. Immediately south of and adjacent to the Enarc-O property is a small automobile repair/bodywork shop, Crane's Collision, which has reportedly been operating since the mid 1960s. The present Enarc-O Machine Products location has been operating since 1960. A site plan is presented on Figure 2.

Site manufacturing activities include machining and shaping of small metal parts, followed by a deburring process. The latter process combines water, abrasive and various catalyst compounds in a tumbler to remove discolorations and metal burrs. Material Safety Data Sheets (MSDS) for the catalyst compounds indicate no solvents are present in the catalysts.

Past manufacturing activities included a passivation process in which an acid etch was used to remove free-iron radicals from the surface of newly-machined stainless steel parts. This work occurred in a former acid room. All fluids were contained in the process and it reportedly used no solvents. This etch is no longer performed on site and none of the compounds used in this procedure have been detected in site investigations.

Solvent use at the site has been limited to a vapor degreasing process which removed oil residues from newly-machined parts. This is a contained process that recirculates the cleaning fluids. No loss has been reported to have occurred from this system. Trichloroethene (TCE) was used in this process until 1980, and 1,1,1-trichloroethane (1,1,1-TCA) between 1980 and 1985. Since 1985, no chlorinated solvents have been used on site. Stoddard Solvent (Kensol 30) is presently used to degrease machined parts. The Kensol 30 is stored in 55-gallon drums in the storage building and transported into the main building as needed by forklift.

Former and current degreasing operations have been performed on the south side of the east wing of the main building (Figures 2 and 3). One degreaser is located on a metal grate over a concrete vault which is depressed approximately 2 ft. ± below slab grade.

The Enarc-O building has a NYSDEC State Pollution Discharge Elimination System (SPDES) permit for a discharge pipe which drains from the courtyard area on the east side of the building eastward to Honeoye Creek (Figure 2). The discharge from the drain is primarily acidity-adjusted, process-derived wastewater and non-contact cooling water.

An underground storage tank (UST) containing gasoline was previously located on the south side of the production building (Figure 2). This tank was removed, cut up and disposed of in July 1986. According to soil analytical results from subsurface soils, petroleum-related contaminants were detected in estimated concentrations (1)*.

Used cutting oil was previously stored in an above-ground tank on the east side of the production building (Figure 2). This tank was also removed in July 1986.

A solvent storage tank was previously located on the east side of the production building in the courtyard area (Figure 2). On June 18, 1985 approximately 5 gallons of 1,1,1-TCA reportedly spilled as the tank was being filled by a solvent-supply company employee. This was immediately reported to the NYSDEC, who sent a representative to the site. Upon the recommendation of the NYSDEC representative, the soil in the spill vicinity was excavated to a depth of approximately two feet. The soil was spread out in the parking area, allowing volatile organic compounds (VOCs) to volatilize. Enarc-O removed the solvent storage tank in July 1986 and discontinued chlorinated solvent usage.

For purposes of this investigation, based on the locations of former solvent tanks and results discussed herein, the apparent source area is assumed to be beneath the floor slab in the vicinity of the former degreaser and in the courtyard south of the degreaser area.

Prior to 1988, public water supply service did not extend into the study area and Enarc-O's water supply was obtained from a private well, 180 feet deep, located on the property. Enarc-O terminated usage of the water supply well as its source of water in 1988. Area residents on Martin Road west of Honeoye Creek, as well as Ideson Road and Bragg Street also relied on domestic private wells for their water.

1-03. SUMMARY OF PREVIOUS INVESTIGATIONS

Subsequent to the above-mentioned spill, the New York State Department of Health (NYSDOH), NYSDEC and Livingston County Department of Health (LCDOH) collected groundwater samples from the Enarc-O supply well and 38 offsite residential wells. The analytical results indicated VOCs,

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* Numbers in parentheses refers to references listed at the end of the text section.

primarily TCE and 1,1,1-TCA, in the Enarc-O well and 21 of the residential wells (Table 1). In the fall of 1985, NYSDEC formally requested assistance from USEPA to mitigate the affects of the groundwater contamination on area residents. Bottled water was temporarily supplied to residents. A public water main was subsequently constructed in 1988 that supplied water to the study area (Figure 4).

Laboratory analyses in 1984 of water from the onsite water supply well indicated the presence of TCE and 1,1,1-TCA. Samples collected from the facility's SPDES outfall 001 on August 24, 1988 contained detectable concentrations of several VOCs including 1,2-dichloroethene (1,2-DCE), chloroform, TCE, and bromodichloromethane. The well supplied process water for the facility which, after use, was discharged via the SPDES outfall. The compounds detected in the outfall had been previously detected in the supply well (or are breakdown products of these compounds) or are commonly associated with publicly-supplied water.

In January 1987 the site was listed on the NYSDEC Hazardous Waste Site Registry, and was assigned a listing classification code of 2. In July 1987 USEPA requested that Kaddis develop a site assessment work plan to evaluate groundwater conditions in the vicinity of the site. In 1989 a work plan was approved and an Administrative Order-on-Consent (No. B8-0112-91-04) between Kaddis and USEPA was signed. The results of the subsequent onsite soil and groundwater investigation, initiated in 1989, were presented in a May 1991 report by O'Brien & Gere Engineers, Inc. Results of laboratory analyses associated with these previous investigations are included in Tables 1 through 3 of this report. Based on the findings of the investigation, NYSDEC requested that Kaddis prepare a Remedial Investigation/Feasibility Study (RI/FS) work plan.

An RI Work Plan Scoping Document was prepared and submitted to NYSDEC by O'Brien & Gere in May 1992. Based on NYSDEC comments of 2 July 1992, Draft and Final Remedial Investigation Work Plans prepared by Haley & Aldrich were submitted to NYSDEC on 19 February 1992 and 30 December 1993, respectively. NYSDEC approval of the final Work Plan and Notice-to-Proceed was received on 12 January 1994. The above-mentioned submittals, dated 28 April 1994, 10 October 1994 and 3 February 1995, which modified or appended the Work Plan, were provided to NYSDEC and were approved. The RI Study Area limits include the Enarc-O property, and other surrounding residential areas, as shown on Figure 4.

1-04. REPORT ORGANIZATION

This remedial investigation report is organized in general accordance with the format recommended by the USEPA RI/FS Guidance Document, dated October 1988. Accordingly, the report contains the following sections:

II. Study Area Investigation - Summarizes both onsite and offsite field activities associated with soil and groundwater sampling, soil vapor surveys, geoprobe test boring explorations, observation well installations and stream level measurements.

III. Physical Characterization of the Study Area - Summarizes field investigation results and discusses site physical characteristics. Such characteristics include surface water, overburden soils, bedrock geology, hydrogeology and site ecology.

IV. Nature and Extent of Site Compounds of Concern - Presents the results of onsite and offsite contaminant characterization, including laboratory analytical results.

V. Compound Fate and Transport - Presents migration routes, persistence of site compounds, and factors affecting compound migration.

VI. Risk Assessment - Summarizes human health and environmental risk evaluations.

VII. Summary, Conclusions and Recommendations - Summarizes the nature and extent of site compounds of concern and the fate and transport of these compounds in the assessment of site risks. This section also discusses data limitations and recommendations.

Tables and Figures referenced in the text summarize data in tabular and graphic form. Appendices include data such as exploration logs, monitoring well completion reports, permeability testing report forms, an ecological assessment report and laboratory analytical data. The full laboratory data report deliverables are included in Appendices J and K (Volumes III through VI).

During the course of the Remedial Investigation, Quarterly Reports Nos. 1 through 6 were submitted to NYSDEC. These reports provided periodic summaries of activities undertaken during the remedial investigation, between the period 17 March 1994 to 3 September 1995.

II. STUDY AREA INVESTIGATIONS

2-01. SURFACE FEATURES

The Enarc-O facility is located on an irregularly-shaped 6-acre parcel and is surrounded by grassy lawn areas with a 0.5-acre gravel parking area on the south. Topography is generally flat to the west and south, and sloping downward to Honeoye Creek to the north and east. As such, site drainage is to the east and north, toward Honeoye Creek. Ground surface elevations site range from approximately 700 ft. to 720 ft. above mean sea level. The offsite portion of the study area, which is primarily residential, is mainly located toward the north and west of the Enarc-O site property (Figure 4). The offsite area also drains generally eastward to Honeoye Creek.

2-02. INVESTIGATION OF AREA OF CONCERN

As described in Section 1-03, TCE and 1,1,1-TCA and other VOCs were detected in 1985 in offsite residential wells located downgradient from the Enarc-O Machine Products building. Evaluation of site history indicated a spill associated with the 1,1,1-TCA storage tank and a general solvent use at the facility may have been sources of the groundwater contamination. Subsequent investigations have focused on the Enarc-O property, the possible relationship between the reported source area and the offsite domestic wells, and influences of study area features on soil and groundwater conditions.

For this remedial investigation, sampling and analysis were conducted on onsite and offsite groundwater, onsite soil vapor, onsite source area soils and offsite surface soils. The following sections provide a detailed summary of the field and laboratory investigations performed.

2.2.1 Residential Well Field Evaluation

As described in the Work Plan, selected residential wells in the vicinity of the Enarc-O site were to be used for groundwater level monitoring and sampling activities. The evaluation of these domestic wells was to determine whether a sufficient number of wells were accessible for the study or whether additional monitoring wells would need to be installed.

Residential wells were evaluated to determine the feasibility of using these wells in the offsite residential well sampling program. First, a review of existing data, including NYSDEC Water Usage Reconnaissance Survey forms and LCDOH Individual Drinking Water Wells Sanitary Survey forms, was conducted. These forms had been previously provided to residents and responses solicited by the respective agencies. A listing of potential wells was then created. Based on the review of this data, those wells which were plugged, filled with stone or buried/lost, etc., were eliminated. Effort was subsequently concentrated on the remaining wells, and attempts were made to contact those residents to verify the wells' existence, location, and condition.

Haley & Aldrich, with the assistance of David Napier of the NYSDOH, then contacted residents by telephone and/or mail and arranged to visually inspect the wells on their property, if accessible. All accessible wells were then inspected. Several of the wells were inaccessible due to burial and/or unknown location.

This information was used to assemble a proposed list of residential wells suitable for groundwater sampling. The list of these wells, with an accompanying letter of explanation, was sent to NYSDEC and all parties of the consent order distribution list in August 1994. NYSDEC's response to the proposed sampling list requested additional wells as potential sampling candidates.

Two additional wells at 7873 and 7880 Martin Road were located, using a subsurface metal detector. A final list of residential wells was proposed for sampling and, based on verbal approval by Mr. Gardiner Cross of the NYSDEC, a final list of residential wells to be sampled was generated (see Table 4 and Figure 4).

The residential wells to be sampled were then re-inspected to confirm well parameters. Several wells were found to contain pumps which were removed by Nothnagle Drilling Company, Inc., under Haley & Aldrich observation. It should be noted that the well at 7750 Martin Road was used for water level monitoring only, since previous analytical results indicated it was located well outside of the limits of known contamination.

Prior to sampling, selected wells were evaluated using downhole geophysical logging techniques. This portion of the investigation is described in Sections 2.2.6. and 3-02. Sampling of the wells is described in Section 2.2.7.

2.2.2 Soil Vapor Survey

The soil vapor investigation was conducted in two separate phases: a source area soil vapor survey, conducted on 6 and 7 May 1994, and a site-wide delineation soil vapor survey, conducted on 10 and 11 May 1994. The purpose of the soil vapor survey program was to better define the limits of soil contamination, both in the apparent source area (as previously defined) at the east end of the building as well as in the immediate vicinity of the source area and at the east end of the storage building.

Soil vapor analysis was conducted onsite using a portable Photovac 10S70 gas chromatograph (GC). Soil vapor samples taken from the subsurface were collected in air-tight Tedlar™ bags. Soil vapor samples were injected into the GC and allowed to elute within the GC column for between approximately 10 and 13 minutes to allow all compounds of concern to pass through the GC detector. Each sample was analyzed for the following compounds: vinyl chloride, 1,1-DCE, trans-1,2-DCE, cis-1,2-DCE, 1,1,1-TCA, TCE, toluene, PCE, ethylbenzene, m-xylene and o-xylene. The resulting soil vapor concentrations were computed based on calibration standards which included these compounds. Both the source area and sitewide delineation phases of the soil vapor survey program were designed to screen for the same list of above-noted compounds.

The following sections provide more detail on each phase of the soil vapor program. Refer to Figures 3 and 5 for soil vapor, soil sample, and soil vapor monitoring point locations. Figure 6 presents a subsurface profile of the source area soil vapor installations. See Table 5 for analytical results.

2.2.2.1 Source Area Phase

The source area soil vapor survey, conducted on 6 and 7 May 1994, focused on the apparent source area on the east side of the Enarc-O building, both inside and in the courtyard outside. Soil vapor samples were collected in the vicinity of the former TCA storage tank and degreaser (Figure 3). Nine locations (SV-101 through SV-109) were sampled inside the Enarc-O building. One sample, SV-110, was taken outside in the courtyard. Several other courtyard samples did not yield soil vapor due to saturated conditions in the shallow soils at the depth sampled. Soil samples were also taken at four of the nine indoor soil vapor locations and submitted to General Testing Corporation of Rochester, New York for analysis for VOCs. Soil vapor samples were collected using a Bosch rotary hammer to advance a one-inch-diameter probe hole to the desired depth. A length of tubing was inserted in the hole to depth, and the hole sealed using a bentonite plug around the tubing at the floor surface. Soil vapor samples were then withdrawn using a vacuum pump attached to the tubing.

Soil samples were taken by first removing the tubing and then re-advancing the rotary hammer, equipped with a one-inch diameter soil-sampling extension, to the bottom of the soil vapor hole. The probe was then advanced an additional 12 inches to obtain a core of soil. Permanent soil vapor monitoring points were installed at four indoor locations. Permanent soil vapor monitoring points consist of a vapor-porous tip attached to teflon tubing which extends to the ground surface. The monitoring point is placed within an annular sand pack, and finished with a concrete-sealed surface cap completion.

2.2.2.2 Site-Wide Delineation Phase

The objectives of the second phase of the soil vapor program were to determine the extent of soil contamination outside the immediate vicinity of the source area and to investigate the potential for VOCs to exist, and thereby indicate other possible source locations. The delineation phase, conducted on 10 and 11 May 1994, focused on: 1) the area just outside the source area; 2) the former gasoline UST location on the south side of the building; and 3) the area surrounding monitoring well MW-2 at the southeast corner of Enarc-O's storage building (Figure 5).

Delineation phase soil vapor samples were collected from 19 locations (SV-111 through SV-129), on the eastern half of the site surrounding the main building and storage building (Figure 5). The Geoprobe™ system of push-type sampling was utilized to obtain soil vapor samples at approximately 3-foot depth intervals to the top of rock at each location. The sampling was performed by Gaynor Associates of Cortland, New York.

At each location a Geoprobe™ sampler was advanced to the top of bedrock, or the furthest extent possible. Groundwater was encountered at four locations: SV-119, SV-120, SV-121, and SV-126. However, soil vapor samples were obtained at all of these locations at a depth of 0.5 to 2.5 feet. SV-120 also provided soil vapor from 9.0 - 11.0 feet. Figure 5 and Table 5 present the results from the site-wide soil vapor survey.

2.2.3 Onsite Well Installations

In accordance with the Work Plan, Haley & Aldrich installed three groundwater observation wells on the Enarc-O property (Figure 2): one shallow bedrock monitoring well and one overburden monitoring well were installed in the courtyard and another shallow bedrock monitoring well was placed near the west end of the storage building. The well installations were performed during the period 23 to 27 June 1994 by Nothnagle Drilling Company of Scottsville, New York.

Prior to well installation, a test boring was advanced at each location. The test borings were advanced to the top of bedrock using 6-1/4 inch hollow-stem augers and continuous split spoon sampling to collect soil samples for VOC screening, except the boring at MW-201S. This location was not sampled due to its close proximity to MW-201D, which had already been logged. MW-201S was completed with an 8-foot long, 4-inch diameter PVC screen section and a quartz sandpack around the screen. Bentonite pellets were placed over the sand and hydrated and cement grout sealed the well casing to the surface. Although apparent shallow saturated conditions had been encountered in overburden at this location during vapor sampling, the well MW201-S has been dry since installation, indicating perched groundwater conditions may be present.

Bedrock monitoring wells MW-201D and MW-202D were completed as follows: a permanent 4-inch diameter PVC casing was grouted into a 6-inch diameter rock socket approximately two feet into the top of bedrock. A 2-7/8-inch diameter NX corehole was then advanced 15 to 20 feet into bedrock; this served as the monitoring interval for the wells. However, in well MW-201D a 20-foot long section of 2-inch diameter PVC screen with solid riser pipe to the surface was installed inside the open hole/4-inch PVC due to a collapsing borehole. The wells were completed with a locking steel surface cover. Appendix A contains test boring reports for onsite monitoring wells. Well Completion Reports are presented in Appendix B. All test boring and well installation reports were completed by an experienced Haley & Aldrich field geologist.

Drilling equipment was decontaminated between test borings by steam-cleaning. Split-spoon sampling equipment was decontaminated between samples using Alconox soap and tap water and deionized water rinses.

The bedrock wells were developed upon completion to maximize hydraulic connection with the formation. Monitoring wells MW-201D and MW-202D lost approximately 1200 and 2300 gallons of water, respectively, during rock coring operations. Although extensive well development activities were undertaken, each well produced less than 40 gallons of water. NYSDEC agreed to cessation of development activities based on the low volumes of water produced. All purge water was drummed for disposal.

Investigation-derived waste was drummed for appropriate disposal by Enarc-O.

After well development, the water level in each well was allowed to equilibrate, and a rising head permeability test was then conducted to determine the hydraulic conductivity of the formation at the well bore. In addition, rising head permeability tests were conducted on the six previously installed monitoring wells MW-1 through MW-6. Results of this testing are described in Section 3.5.2.1.

2.2.4 Stream Staff Gauge Installation

A staff gauge was installed along the Honeoye Creek streambank to provide a surveyed reference point of known elevation from which to measure stream water levels. The stream water levels were compared to site groundwater levels to better understand stream/groundwater recharge-discharge relationships. The staff gauge consisted of a 1-1/4-inch solid steel rod cemented into a one-foot deep bedrock socket. The rod extended approximately three feet above the ground surface. The elevation of the top of the staff gauge was then surveyed. A hand level was used to determine the difference in height between the top of the staff gauge and the water level, allowing calculation of the stream elevation. Stream levels were measured concurrently with water level measurements in onsite monitoring wells. Hydrographs of stream levels are included in Appendix C.

2.2.5 Elevation Control

D.J. Parrone & Associates (Parrone) of Penfield, New York, a New York State-licensed surveyor conducted a survey on 11 June 1994 in which the following site features were surveyed:

- buildings and driveway/parking areas;
- property boundaries;
- roads;
- tree locations;
- site wide ground surface elevations;
- monitoring wells;
- exterior soil vapor survey locations and ground surface elevations; and
- stream staff gauge location and Honeoye Creek bank locations.

Parrone prepared a Site Plan which is shown, with added features on Figure 2. In addition, on 22 December 1994, Parrone established reference the elevations for offsite residential wells to be used in the groundwater sampling and water level measurement program. These data are presented in Table 6.

Measured elevations were referenced to the National Geodetic Vertical Datum (NGVD) to an accuracy of 0.01 feet, and locations were based on a site-specific fixed-point reference system.

2.2.6 Borehole Geophysical Logging

Borehole geophysical logging was conducted on four off-site residential wells and the Enarc-O supply well. In the absence of sufficient residential well construction data or driller's logs, NYSDEC requested downhole geophysical logging be conducted on several offsite wells to obtain information on casing length, open interval, geology and hydrogeology. The purpose of the geophysical logging was to determine zones of possible groundwater flow and thus potential groundwater sampling intervals. Gartner Lee, Inc. of Niagara Falls, New York was contracted to perform the logging, which was conducted on 21 and 22 December 1994, under Haley & Aldrich of New York observation.

The geophysical well logging was conducted at: 1081 and 1121 Ideson Road, 7820 and 7873 Martin Road and the Enarc-O supply well. The following geophysical parameters/techniques were measured/utilized: caliper for borehole diameter, temperature and resistivity for fluid properties and video camera inspection for visual identification of borehole features and water flow. The results of the geophysical logging are summarized in Section 3-02. The video camera portion of the logging did not yield useful data due to a defective video unit. The defect was not readily apparent until videotape of the logging was reviewed after demobilization from the site. The remaining data was ultimately determined to contain sufficient information for well characterization.

2.2.7 Well Sampling

Onsite Bedrock Monitoring Wells

All shallow bedrock groundwater monitoring wells onsite were sampled manually using disposable bailers and rope. Prior to sampling, each well was measured for static water level and depth to bottom, and a well water volume was calculated. Each well was purged of three volumes of groundwater, or until the well went dry. Since disposable sampling equipment was utilized, no decontamination procedures were required. Collected groundwater samples were transported to General Testing Corporation (GTC) of Rochester, New York using standard chain-of-custody protocol.

Offsite Residential Bedrock Wells and Enarc-O Supply Well

The deep offsite residential wells and the Enarc-O supply well were sampled with an electric submersible pump. In these wells, due to the excessive volume of water that would be generated in purging three well volumes, a low-flow purge method was used. The sample depths were chosen at elevations shown by geophysical logging to be likely zones of inflow to the borehole. The sampling pump was lowered to the desired sampling depth and operated at a low flow rate until real-time-measured pH/temperature/conductivity parameters had stabilized. This stabilization indicated water was being withdrawn from the formation in the vicinity of the pump inlet. Upon pH-temperature-conductivity stabilization, a sample was then collected. Samples were collected "upstream" of the pH-temperature-conductivity parameter measurement unit to minimize the potential for cross-contamination of samples.

The pump and tubing were decontaminated after each sample using an Alconox wash and tap water rinse sequence. Collected samples were submitted to GTC along with a completed chain-of-custody record.

2.2.8 Offsite Surface Soil Sampling

Four offsite soil samples were obtained at the locations shown on Figure 7. The locations were selected in conjunction with David Napier of NYSDOH. The samples, which were obtained from a depth of approximately 6-inches, were submitted to GTC for analysis for VOCs, using the same methodology as onsite soil samples. Results of the offsite soil sampling is discussed in Section 4-02.

2.2.9 Utility Pathway Migration Evaluation

To evaluate the presence of VOCs in a basement sump water at 7883 Martin Road, as well as other potentially affected offsite areas, an evaluation of the utility pathways in the study area was conducted. The objective of the evaluation was to determine if the potential exists for utility routes to create preferential pathways for offsite migration of contaminated groundwater.

The predominant utility in the study area appears to be an eight-inch water main and associated residential connections completed in 1988 by the Rochester Water Works. The water main was installed along Bragg Street to a point just south of 1191 Bragg, along the entire length of Ideson Road, and along Martin Road from 7883 Martin Road (just west of Honeoye Creek) to west of 7750 Martin Road (Figure 7). The 8-inch diameter water main was installed approximately 4 to 6 feet below ground surface within sand and gravel bedding material (2).

National Fuel natural gas lines were also reported to exist in the study area. These are reportedly located at approximately a two-foot depth (3).

A utility route can act as a potential migration pathway if groundwater levels rise above the utility excavation's base, and if the trench backfill is more permeable then the surrounding formation in which the bedding is placed. Groundwater elevations from Enarc-O site wells and residential wells indicate that area groundwater elevations generally lie between 15 feet below ground surface (onsite wells) and 50 feet or more below ground surface (residential wells). Although the surface topography in the vicinity of 7883 Martin Road is low-lying, no shallow groundwater data is readily available for that portion of the study area. An initial USEPA report (4) documents that the water main trench required dewatering in selected locations during installation. However, this information is not location-specific and does not provide an accurate description of where water was observed in the trench. It could not be determined whether water which had collected in the dewatered trench sections came from groundwater, surface water, or other water sources during construction.

The granular bedding material used for the water main construction suggests it could act as a route of preferential contaminant flow. However, it appears groundwater levels likely are below the water main bedding level or intercept it only in limited segments. Documentation of actual locations of this potential inflow was not provided. Further, water levels and inferred flow directions indicate shallow bedrock groundwater may flow toward the area of 7883 Martin Road from the Enarc-O property only on a limited seasonal basis (see Figures 10 and 11, and Section 3.5.2.3). The actual groundwater elevation in the vicinity of 7883 Martin Road is not known. Based on the available information, it appears the known utilities (water main and shallower gas lines) are not significant pathways of preferred migration.

2-03. ECOLOGICAL INVESTIGATION/HABITAT ASSESSMENT

An ecological investigation was conducted by TPC Environmental Consulting of Buffalo, New York to provide a summary of the fish and wildlife present at the Enarc-O study area,. The comprehensive report, including figures, is presented in its entirety in Appendix D. The investigation is comprised of field reconnaissance and literature/records review phases in accordance with "NYSDEC's Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites," June 1991. Mr. Thomas Connare of TPC conducted the Enarc-O study area walkover to assess the general flora and fauna resources found to inhabit the area. Based on the visit to the study area, he also assessed the general environments present in which the fish and wildlife were found, i.e. the types of terrestrial and aquatic habitats observed around the Enarc-O site. The TPC report presents a habitat-based analysis of fish and wildlife usage of the study area based on the site walkover as well as a review of NYSDEC files located at the Region 8 headquarters in Avon, New York and aerial photos at the Soil and Water Conservation District Office in Leicester, New York.

The investigation also evaluated the flora and fauna present within a 2-mile radius of the site including the potential presence of significant terrestrial and aquatic habitat. A summary of the major findings of the study are presented in Section 3-01.

III. PHYSICAL CHARACTERIZATION OF THE STUDY AREA

As described in the previous section, the RI investigation included the collection of soil and groundwater samples for laboratory analysis, and documentation of physical characteristics of the site, such as ecological information (Habitat Assessment), subsurface conditions (geophysical logging, soil and bedrock logging), and surface conditions (creek water levels, elevation control, etc.). This section presents the results of each of these aspects of the investigation.

3-01. ECOLOGICAL INVESTIGATION

3.1.1 Environmental Setting

The Enarc-O study area is located in what has historically been rural farming lands and many portions of the study area are still farmed today. Aside from utilized agricultural fields, Upland cover types, namely "old field," "shrub land" and "woodlot," are the predominant stages of vegetative succession, as follows:

- "Old field" consists of aggressive herbaceous varieties such as the grasses tall fescue, timothy, hard grass, goldenrod, and Canada thistle, and woody shrubs and trees such as staghorn sumac and green ash.

- "Shrub land" comprises aged fields where woody vegetation including shrub and saplings are dominant. Patchy clumps of shrubs with green ash, black walnut, dogwoods, scotch pine and sumac were observed in the study area.

- "Woodlot" consists of advanced-stage old field where primarily woody tree species exist with other varieties of lower cover, such as tartarian honeysuckle, grape, garlic mustard, enchanter's nightshade and Virginia creeper.

A wide range of flora and fauna potentially inhabiting the study area are listed in Appendix D.

No regulated wetlands exist in the study area. Small wetland areas may exist as strips of riparian wetlands immediately adjacent to Honeoye Creek and along the creek, associated with the lower level of the bank, close to creek bed level. Two State-regulated wetlands, HF-1 and HF-4, lie upgradient one mile or more from the study area.

The ecological environmental investigation above was used in conjunction with site groundwater quality and hydrogeology to assess ecological environmental exposure, as discussed in Section 6-01.

3-02. BOREHOLE GEOPHYSICAL LOGGING

The borehole geophysical logging program was designed primarily to evaluate residential wells for the presence of zones of groundwater inflow to the well bore. The logging data was used to optimize the collection of samples representative of groundwater from the bedrock formation. As discussed above, the parameters measured during the logging program included caliper, temperature, and resistivity. The report generated by Gartner Lee Inc., included in its entirety in Appendix E, is summarized in this section.

In general, zones that exhibited correlations between caliper anomalies and temperature/resistivity anomalies were of interest. These anomaly correlations were interpreted as possible zones of groundwater flow into and/or out of the borehole. Also, such anomalies identified zones above the water table where flow was occurring, such as cascading water observed in the well at 1121 Ideson Road.

The geophysical data were reviewed for indications of study-area-wide features or trends in the bedrock or groundwater that would aid in determining optimum sampling depths in unlogged wells. In general, none of the logging parameters appeared to delineate specific zones of bedrock fracturing or groundwater flow common to all wells logged. Flow from the unsaturated zone was noted in only two of the five wells logged. The perched water observed in those wells may have been a result of connection through fractures to the Honeoye Creek streambed or other sources of recharge. The wells are located approximately 250 ft. (1121 Ideson Road) and 900 ft. (7820 Martin Road) from the stream.

The caliper data indicated significant variation in caliper anomalies among the logged wells. The majority of the "spikes" in the caliper plots likely represented planes in the rock formation and not necessarily fractures through which groundwater flow occurred. There were no specific zones or elevations where significant caliper anomalies were observed in all logged wells across the study area.

Fluid temperature measurements ranged from approximately 8° to 10.1°C. In most of the wells the fluid temperature remained relatively constant throughout the borehole, with minor variations. The well at 1081 Ideson Road showed the warmest near-surface water (approximately 10.1°C) and gradually decreased throughout the borehole with depth.

Fluid resistivity showed significant sitewide variation, ranging from approximately 10 to 23.5 ohm-meters (ohm-m). The well at 1081 Ideson Road had the highest resistivity values, ranging from approximately 20.5 to 23.5 ohm-m. This may have been related to the relatively high temperatures observed in that well. The well at 7873 Martin Road showed the lowest resistivity values, averaging approximately 10 ohm-m. The remainder of the wells showed values between approximately 11.5 to 17 ohm-m. These results indicated variation in the total dissolved solids concentration in groundwater across the site and was possibly indicative of a variation in the source of groundwater flowing to individual wells.

Based on the information above, sampling elevations were chosen where general features or trends in bedrock or groundwater conditions across the study area were apparent from the geophysical data. However, the intervals initially proposed to be sampled in the unlogged wells were approximated.

The sample locations which were initially proposed for the logged wells generally fell into three intervals:

- perched water in the unsaturated zone, where present;
- shallow samples at or near the water table, approximately el. 635 to el. 640; and
- deeper samples in the interval from el. 582 to 612 where apparent flow zones were observed.

Based on interpretation of these subsurface conditions, Haley & Aldrich proposed sampling the logged wells at the following elevations:

- 1081 Ideson - 607 and 640 feet;
- 1121 Ideson - 605 and 673 (cascading water);
- 7820 Martin - 583 and 680 (cascading water);
- 7873 Martin - 592 and 637;
- Enarc-O supply well - 598 and 637;

These data indicated two primary sampling zones to be considered in the unlogged wells. The first was shallow, within approximately five feet of the water table, or approximately el. 640. The second was approximately el. 600. Data from similar elevations across the study area allowed reasonable comparison of data among wells and would provide an indication of vertical distribution of contaminants in groundwater. Thus, all unlogged wells were originally proposed to be sampled at elevations 600 and 640 feet. This was conveyed in a letter proposal to NYSDEC dated 3 February 1995. The NYSDEC's comments on the proposed sampling concerned the depth of the wells at 7880 Martin Road and the Enarc-O supply well. A final agreement was reached which permitted a sampling protocol of sampling from elevations 600 and 640 within the majority of the off-site wells, and from three elevations within the Enarc-O supply well (els. 540, 600 and 640) and 7880 Martin Road (els. 565, 600 and 650) well. Results of the residential well sampling are discussed in Section 4.3.2.

3-03. STRATIGRAPHIC DATA ANALYSIS

Stratigraphic data collected during the RI test boring and monitoring well installation program is documented on testing boring reports in Appendix A. Based on these data, stratigraphic profiles across for the site were prepared and are included as Figures 8 and 9. The locations of the profiles are shown on Figure 2.

3-04 SITE GEOLOGY

3.4.1 Regional Geologic Setting

The northeastern portion of Livingston County lies in the Erie-Ontario Plain Lowlands physiographic province. This area consists of low, flat to gently-rolling topography immediately south of Lake Ontario. North Bloomfield (the township in which the site lies), located near the Monroe/Ontario/Livingston County junction, is within an area characterized primarily by glaciolacustrine soils. The glacial geology of the area is indicative of a proglacial lake environment established as ice recession occurred. Recent fluvial deposits attributable to Honeoye Creek, as well as glacial till and proglacial sand and gravel outwash deposits are also found within an approximate 2-mile radius of the site (5).

The glacial overburden in the region overlies sedimentary bedrock. Bedrock units strike in a general east-west direction and dip to the south at approximately 50 ft. per mile ($0.5° \pm$). The Onondaga Limestone of the Middle Devonian-aged Hamilton Group, which underlies the site, overlies the Akron Dolomite, Bertie Limestone and Camillus Shale of the Upper Silurian-aged Salina Group (6).

The bedrock unit outcropping or subcropping throughout much of the region is the Onondaga Limestone, which is approximately 100 ft. thick in this area. The Onondaga is subdivided into four members: the Seneca; Moorehouse; Nedrow; and Edgecliff. The underlying Akron Dolomite is approximately 20 ft. thick, and the Bertie formation is approximately 50 ft. thick. These units are underlain by Upper Silurian Camillus Shale, which is nearly 500 ft. thick in the vicinity of the site.

The Onondaga Formation is described as a dark gray to gray massively-bedded limestone with abundant silicified fossils and chert. The chert and silicified fossils are typically more weather-resistant than the limestone matrix, and often protrude from the matrix in outcrop. Chert is present both in nodular and bedded form, and is less abundant in the Seneca and Edgecliff members (7,8,9).

Haley & Aldrich visited the General Crushed Stone Quarry in Honeoye Falls, approximately three miles west of the site, to observe the bedrock exposed in the quarry walls. The quarry walls provide a view of essentially the entire section of the Onondaga Formation. The Edgecliff member was not visible at the time of the visit, as it was present only below the quarry floor in a submerged sump pit. The Onondaga has been extensively mapped in the region (9).

The Onondaga comprises the top of bedrock surface in the study area, and is characterized by lineations in the form of fractures and joint sets. These fractures and joint sets are fairly narrowly spaced (5-20 ft.) and form a well-connected matrix within the rock mass of the upper 30± feet of bedrock. The vertical and high-angled fractures and joints prevalent in the Onondaga are the result of past orogenic stress and are often significantly wider in the upper, near-surface sections where weathering is most pronounced. The fracture and joint trends in the upper Onondaga in the study area have been reviewed by others and are aligned in two primary sets at approximately N20° W to N60° W and N40° E to N50° E (1,8).

In addition, the Onondaga contains many bedding planes, which have experienced widening due to: 1) dissolution; and 2) tension relief from removal by erosion of overlying rock mass and the retreat of the glacial ice mass. The bedding planes are more extensive than the near-vertical fractures and are present in most of the Onondaga, although they are less prevalent in the more massive Nedrow member (8,9).

The bedrock units underlying the Onondaga are not considered to play a relevant role in hydrogeologic process on the Enarc-O site due to their depth below bedrock surface and the apparent distribution of contaminants. For documentation purposes, the Cobleskill Dolomite and the Bertie Limestone are both gray, shaley, thin to medium- bedded dolomites and dolomitic limestones. The lower Cobleskill is difficult to distinguish from the underlying Bertie. These two calcareous units are dense, relatively unfractured dolomites and limestones and may act as a semi-impermeable barrier to vertical groundwater flow. The upper section of the Camillus Formation is a gray to brown shale with occasional carbonate interbeds and sulfate beds up to several feet thick; fossils are rare (7,8).

3.4.2 Site -Specific Geology

Overburden: The site is underlain primarily by a mixture of glacial soils typical of the region. Soils encountered at the exploration locations included glaciolacustrine silt and clay, underlain by dense, relatively fine-grained glacial till. Fill soils were also encountered at the surface at several of the explorations, generally in close proximity to the Enarc-O building. These three deposits were generally described as follows (see also test boring logs in Appendix A):

- Fill - Brown coarse to fine Sand with varying amounts of silt, clay and gravel, trace organics (in topsoil). Fill thickness ranged from 0 to 7 ft. at the exploration locations, and was greatest in the courtyard area (Figures 8 and 9). Fill soils in the courtyard appeared to be generally loose, as evidenced by significant settlement during drilling activities.

- Glaciolacustrine - Brown, hard, Silt and Clay with lesser amounts of gravel and coarse sand. This deposit ranged from finely-laminated to massive, and was observed to have fractures containing apparent precipitate and/or staining. Thickness ranged from 3 to 12 ft. at the exploration locations, and was generally greatest away from the building.

- Glacial Till - Brown to gray, very dense, fine sandy Gravel to Silt and Clay with varying amounts of sand and gravel. The gravel consisted of both locally-derived limestone and igneous rocks.

Bedrock: Bedrock was encountered at depths ranging from 10 to 18 ft. below ground surface. As indicated previously, the bedrock encountered directly beneath the overburden soils consists of the Onondaga Limestone. The bedrock encountered is generally a gray, slightly to moderately weathered, fine-grained, siliceous limestone.

Observation of bedrock outcrops in close proximity to the project site, as well as rock core obtained in test borings, indicates the bedrock unit subcropping beneath the Enarc-O site is probably the Moorehouse member of the Onondaga Formation (9). The nearby outcrops and rock core from monitoring wells MW-201D and MW-202 indicated the presence of abundant chert with a brown hue in the limestone matrix suggesting that the upper section of the site bedrock is the Moorehouse member (9). These observations were reviewed and confirmed with Charles VerStraeten (University of Rochester), an author/stratigrapher on the Onondaga.

Joint spacing in the bedrock exposed in Honeoye Creek in the vicinity of the site is generally greater than several feet. Joint orientations are generally about N40°W and N40°E, which is consistent with the regional joint orientation (8). Honeoye Creek flows in a northwesterly direction in the vicinity of the site, indicating the stream course is likely joint-controlled in this area.

3-05. SITE HYDROGEOLOGY

3.5.1 Regional Hydrogeologic Setting

The Enarc-O study area is located in an upland groundwater recharge area characterized by infiltration and recharge to the regional groundwater table. Based on area topographic trends, regional groundwater flow direction is assumed to be from the highlands south of the study area to the north towards Lake Ontario.

Localized groundwater flow in the region is affected by surface water features such as lakes, ponds or streams, as well as variation in topography. Glacially-deposited overburden features typical of the region such as moraines, kame deposits and drumlins exhibit distinct hydrogeologic characteristics that can locally control groundwater flow direction and rates. Further, perennial streams typically act as groundwater discharge locations. However, localized recharge conditions can exist such as is apparent at the Enarc-O site. See Section 3.5.2.2.

Area bedrock hydrogeology is controlled through the primary and secondary porosity of the rock mass. Secondary porosity is generally greatest in near-surface bedrock units through fractures and joint sets formed by regional stress relief and subsequent dissolution and weathering by moving groundwater; the secondary porosity typically represents the principal transmission porosity in the bulk rock matrix.

3.5.2. Site-Specific Hydrogeology

Hydrogeologic conditions at the site were evaluated through the following: 1) Monitoring well installations; 2) water level elevation measurements in monitoring wells, offsite residential wells and Honeoye Creek and 3) hydrogeologic testing of monitoring wells; These data were used to develop groundwater contour plans and hydrographs, as discussed in the following sections.

3.5.2.1 Rising Head Permeability Tests

Rising head permeability tests were performed on the onsite bedrock monitoring wells MW-1 through MW-6 by O'Brien & Gere, during previous investigations in December 1990. Rising head test hydraulic conductivity (K) values were determined by O'Brien & Gere using the Hvorslev (1951) method. Calculated hydraulic conductivities ranged from 1.1×10^{-5} centimeters per second (cm/s) at MW-6, to 6.7×10^{-2} cm/s at MW-2. The geometric mean of these hydraulic conductivity values was 6.4×10^{-4} cm/s.

Haley & Aldrich conducted rising head permeability tests on wells MW-1 through MW-6 in June 1994, also using the Hvorslev (1951) method. K-values ranged from 2.6×10^{-6} cm/s at MW-3 to 1.4×10^{-2} cm/s at MW-5, and had a geometric mean of 8.9×10^{-5} cm/s. In general, values from Haley & Aldrich's June 1994 testing were in reasonable agreement with the values from the December 1990 testing.

Rising head tests were also conducted on the additional bedrock wells installed by Haley & Aldrich in May 1994. K-values were calculated to be 4.0×10^{-6} cm/s and 3.8×10^{-5} cm/s in wells MW-201D and MW-202, respectively. Well MW-201S has been dry since installation.

Based on these data, hydraulic conductivity varies by approximately four orders of magnitude at the monitoring well locations and is likely controlled by the presence or absence of bedrock fractures intercepted by the well boreholes. A preliminary plot of K-values on a site-vicinity plan did not indicate a clear pattern of hydraulic conductivity on site. Rising head permeability testing results are presented in Appendix F.

3.5.2.2 Monitoring Well and Creek Level Measurements

Periodic water level measurements were taken in Honeoye Creek immediately adjacent to the site using the staff gauge described in Section 2.2.4. Concurrent measurements were also obtained from onsite monitoring wells. These measurements were obtained during the period 20 May 1994 through 23 August 1995. All measurements were referenced to the nearest 0.01 ft. for monitoring wells and Honeoye Creek. Surveyed reference points were established for each well and the staff gauge.

Groundwater elevations for the on-site monitoring wells and Honeoye Creek are shown on hydrographs in Appendix C.

Honeoye Creek water level elevations adjacent the staff gauge location generally ranged from el. 702.5 to el. 703.5 feet. Onsite monitoring well groundwater elevations (el.) generally ranged from el. 690 to el. 700 feet. Well MW-3 has frequently exhibited groundwater levels just above el. 700 feet.

A review of the data indicate both the groundwater and surface water followed similar trends, i.e. a rise in stream level was generally accompanied by a corresponding groundwater rise. Since the stream levels are higher than groundwater levels in onsite wells, and bedrock in the site vicinity contains abundant high-angle to vertical joints, the stream appears to provide groundwater recharge to the shallow groundwater zone onsite via these fractures.

3.5.2.3 Groundwater Flow Direction

Based on the water level data obtained, groundwater flow direction has been evaluated using both the onsite, shallow monitoring wells, and the study area-wide, deeper residential wells.

Because of the lack of overburden groundwater observed in the previous investigations by O'Brien and Gere, only one overburden well was installed on the site by Haley & Aldrich. This well, MW-201S, was installed in the courtyard area and has remained dry throughout the RI investigation. A localized shallow, perched groundwater condition was encountered in the courtyard during the soil vapor investigations, however.

Bedrock groundwater levels in the study area appear to exist as two distinct regimes. Shallow bedrock wells (onsite monitoring wells) have groundwater elevations between approximately el. 690 to el. 700, while deep bedrock wells (Enarc-O supply well and offsite residential wells) have groundwater elevations ranging from el. 625 to el. 645, depending on the time of year. These two groundwater regimes are discussed below.

Shallow Bedrock Wells (Onsite)

Onsite shallow bedrock monitoring wells MW-1 through MW-6 and MW-201D and MW-202 contain open intervals that monitor approximately the upper 20 feet of bedrock. Groundwater in these wells generally lies between el. 690 and el. 700 or approximately 5 to 15 feet below the top of rock. Based on groundwater elevations in the eight shallow bedrock on-site wells, the groundwater flow direction in the shallow bedrock zone were determined. Figures 10 and 11 depict representative groundwater elevations and flow direction for July and December 1994, respectively. These two figures indicate a variation in groundwater flow direction with time. Notably, an apparent reversal of flow direction is indicated for the northern portion of the Enarc-O property, from northerly during July 1994, to southerly in December 1994.

Groundwater gradients on the Enarc-O property, based on these data, ranges from 0.01 to 0.07 feet per foot. Combining both sets of data indicate a net northwestern groundwater flow direction for the onsite groundwater.

Deep Bedrock Wells (Offsite and Enarc-O Supply)

Offsite deep bedrock residential wells and the Enarc-O supply well have open rock intervals that extend up to 150 feet into bedrock (Table 6). Groundwater elevations in these wells are generally much lower than the shallow bedrock wells, and ranged from approximately el. 627 feet in August 1995 to el. 645 in December 1994 and April 1995. Groundwater contour plans are presented in Figures 12 and 13, for December 1994 and April 1995, respectively. Due to the reduced number of off-site wells sampled and/or measured in August 1995 and the relative locations of the wells which were sampled, a contour plan was not generated for August 1995. Although, the August 1995 groundwater elevations were about 17 feet lower than in December 1994 and April 1995, as shown in Table 6, the water levels were generally still consistent relative to one another.

The December 1994 contour plan indicates a relatively low gradient (less than .005 feet per foot) with westerly and southerly flow directions. The April 1995 contour plan shows a southerly flow direction in the vicinity of Martin Road, and a westerly flow direction across Ideson Road. Both contour plans indicate the groundwater high to be in relatively close proximity to Honeoye Creek. This indicates the stream may be acting as a recharge boundary, losing water to the bedrock mass through interconnected joints.

Two offsite wells, 7852 Martin Road and 1191 Bragg Street, exhibit anomalous groundwater elevations when compared to the remaining offsite wells. These two deep bedrock wells exhibit water levels more consistent with the onsite shallow bedrock wells, at approximately el. 690. The well at 1191 Bragg Street is about 80 feet deep, and the 7852 Martin Road well is 140 feet deep. A possible explanation is that isolated vertical fractures of limited aerial extent may connect these wells with the shallower bedrock zone.

IV. NATURE AND EXTENT OF SITE COMPOUNDS OF CONCERN

Remedial investigation sampling and analysis included: 1) groundwater from onsite monitoring wells and offsite residential wells; 2) onsite soil vapor; 3) onsite source area soils; 4) onsite septic tank solids; and 5) offsite surface soils. Each sampling event and the associated analytical results are discussed in the following sections.

Samples were collected, handled and analyzed according to the procedures outlined in the Work Plan. Soil and groundwater, and septic samples collected by Haley & Aldrich were analyzed for volatile organic compounds (VOCs) by General Testing Corporation of Rochester, New York. Samples were analyzed in accordance with Method 91-1 NYSDEC Analytical Services Protocol, for the Target Compound List (TCL).

4-01. SOIL VAPOR RESULTS

As discussed in Section 2.2.2, sampling of site soil vapor was done in May 1994, and included both source area and extended coverage. Results of the survey are summarized in Table 5 and graphically on Figures 3 and 5.

4.1.1 Source Area Survey

Subsurface soil vapor was collected at 10 locations in the source area; nine locations inside (SV-101 to SV-109) the Enarc-O building and three outside (SV-110, SV-120 and SV-121) the building in the courtyard area (Figure 3). Soil vapor locations SV-120 and SV-121, although actually conducted during the sitewide portion of the soil vapor program as described below, were located in the courtyard area, which is considered part of the source area. Vapor samples collected from the probe locations were analyzed for VOCs onsite using a portable Photovac 10S70 gas chromatograph.

TCE, 1,1,1-TCA, 1,1-DCE and 1,2-DCE were the major soil vapor constituents detected. Other compounds detected at significantly lower concentrations included PCE, vinyl chloride, toluene and xylenes. Soil vapor location SV-110, located outside the building immediately south in the courtyard area, contained 387 parts per million by volume (ppmV), highest among the soil vapor samples. Figure 6 presents a profile view of soil vapor concentrations as detected in the source area. The profile section line is shown trending in a general north-south direction, covering both inside the Enarc-O building adjacent to the degreaser and outside the building in the courtyard. A complete listing of detected compounds is shown on Table 5.

The data indicate the contaminants in soil are concentrated generally in the vicinity of the former degreaser, and are not present at significant concentrations at locations more than approximately 50 feet toward the north, east or west. TCE and total VOCs in soil vapor were detected at levels indicative of a source area at shallow depths within the building near the degreaser and just outside the south building wall in the courtyard (SV-110). In the courtyard area TCE and other VOCs are present in an irregular pattern with respect to depth and distance from the degreaser south wall, as can be observed in Figure 6. Location SV-120 at the south end of the courtyard area detected less than 0.62 ppmV total VOCs in both shallow (0.5-2.5 ft.) and deep (9.0-11.0 ft.) soil vapor samples, which would indicate that the entire courtyard area is not part of the source area. Conditions in soils outside the courtyard are discussed in the following section.

4.1.2 Sitewide Delineation Survey

The remainder of the soil vapor investigation consisted of a delineation survey focused around the eastern half of the production building and around the storage building. Figure 5 shows the locations of the 19 soil vapor locations included in the delineation survey.

Soil vapor analyses from the 19 locations showed that only four locations had detected VOC concentrations greater than 1.01 ppmV. These were located in the area east and southeast of the courtyard and along the south wall of the building in the vicinity of the former gasoline UST (refer to Figures 2 and 5). The majority of the suspect compounds screened for were detected; concentrations ranged from non-detect to 250 ppmV (Table 5). All other soil vapor samples detected less than 1 ppmV. Soil vapor locations SV-120 and SV-121, which were conducted in the source/courtyard area, also were below 1.01 ppmV. Perched water was encountered at locations SV-119 through SV-121 and at SV-126. Perched water conditions in the soils in and around the courtyard may be due to roof drains which discharge to the overburden. Water headspace analyses were conducted on these samples, with only SV-121 (37.4 ppmV) having total VOCs levels over 1.25 ppmV (Table 7). This indicates the shallow fill soils reportedly replaced after the 1985 spill contain only relatively low levels of VOCs.

These data would indicate the chlorinated-solvent-related VOCs in soil are generally limited to the source area, specifically to that portion of the source area beneath the floor slab in the vicinity of the former degreaser and soils in the courtyard area south of the degreaser area south wall. No significant VOC concentrations were detected in the vicinity of the Enarc-O storage building. This indicates the source of VOCs detected in groundwater analyses in monitoring MW-2 is apparently not associated with near-surface soils.

4-02. SOIL AND SEPTIC TANK SAMPLING RESULTS

As part of the source area investigation, soil samples were obtained from selected soil vapor locations inside the Enarc-O building below the floor slab. Soil samples were taken from 40 to 52-inch depths at locations SV-101, SV-102, SV-105 and SV-107 (Figure 3) and analyzed for VOCs. Analytical data indicated the presence of TCE, 1,1,1-TCA, 1,1-DCE, 1,2-DCE, 1,1-DCA, 1,2-DCA and PCE. TCE and 1,1,1-TCA were detected at the highest concentrations (1500 and 670 ppm, respectively) and were present in all of the four soil samples (Table 3 and Figure 3). Analytical results are presented in Appendix G.

These data, as well as previous soil boring analytical data conducted in the courtyard area (refer to Table 3 and Appendix G for these November 1990 results), would indicate that TCE and total VOCs in soil samples at levels indicative of a source area are present in an irregular pattern with respect to vertical distribution. High VOCs levels were observed at shallow depths inside the Enarc-O building in the vicinity of the degreaser and in deeper samples in the courtyard area (B-3 sample farther from the degreaser and deep B-2 sample nearer the degreaser source).

Offsite background surface soil samples were taken on 31 May 1994 at four locations (Figure 7) from a depth of approximately 6 inches. Samples were obtained manually in accordance with procedures described in the Work Plan and were analyzed for VOCs. Analytical results indicated that no VOCs were detected in any of the four offsite surface soil samples (Table 3 and Appendix G).

One solids sample was also obtained from the Enarc-O plant septic tank located near the southwest corner of the plant building (Figure 2). Tank solids were collected from the surface of the nearly-full tank on 31 May 1994, and analyzed for VOCs. Acetone, toluene and 2-Butanone (methyl ethyl ketone or MEK) were detected at 14, 14, and 13 ppm respectively, based on a diluted sample analysis. It is believed that these results reflect possible laboratory contamination and are not indicative of contamination present in the septic tank. Levels of these compounds in the undiluted sample are in agreement with levels usually indicative of such laboratory contamination. Acetone and MEK are commonly detected as contaminants in laboratory grade methanol used in the dilution process. Toluene may be a constituent of the mineral spirits blend presently used in the facility or of volatile fragrance and cleaners contained in the soaps, cleaners and sanitary products used in the restroom sinks and toilets. Total VOCs detected were 139 ppm due to the presence of unknown hydrocarbon compounds most likely associated with the mineral spirits blend used at the facility.

There is a leach field present in the lawn area west of the facility which receives liquid overflow from the septic tank when it is full. Two subsurface holding tanks are used, and both tanks are pumped empty approximately once per year. The septic tank reportedly only receives solids and liquids from the men's bathroom. Liquids then drain by gravity to another liquid holding tank. It is assumed the unknown VOCs result from either the mineral spirits being washed from workers' hands or from aforementioned cleaning and sanitary products.

At the suggestion of NYSDEC, Haley & Aldrich attempted to verify the septic tank waste analytical results by obtaining analytical results generated at the time of disposal at the Monroe County Pure Waters (MCPW) POTW facility. The waste is removed and hauled by H.G.Meyers of Macedon, New York.

It was determined that the waste was most likely combined with wastes from other facilities by the hauler. Further, MCPW would not have been able to determine if that specific load had been tested. Thus, there exists no readily-available manner to confirm the presence of the contaminants in the Enarc-O septic tank waste. Appendix H contains Enarc-O septic tank pumping receipts and an affidavit from the licensed cleaner/hauler, H.G.Meyers.

4-03. GROUNDWATER SAMPLING RESULTS

4.3.1 Onsite Groundwater

Onsite shallow-bedrock monitoring well groundwater sampling was conducted on a quarterly basis, beginning in July 1994, on existing wells MW-1 through MW-6 and newly-installed wells MW-201D and MW-202. As described in Section 2.2.3, MW-201S is a dry well, and could not be sampled. Monitoring wells were sampled in July and November 1994, and in April and August 1995.

In all sampling events, the principal compound detected was TCE, with lesser levels of 1,1,1-TCA, cis-1,2-DCE and lesser amounts of PCE. For any given well, the relative amounts of these individual compounds were generally consistent over the four sampling events. Minor amounts of 1,1-dichloroethane (1,1-DCA), 1,1-dichloroethene (1,1-DCE), vinyl chloride and chloroform were also detected. Other chlorinated compounds such as 1,1,2,2-TCA and carbon tetrachloride were detected during previous investigations but were not detected during the remedial investigation sample events.

During the four remedial investigation sampling events TCE concentrations were highest in wells MW-2, MW-3, MW-5 and MW-201D, with highest detected TCE concentrations of 1600, 3200, 1100, and 7400 parts per billion (ppb), respectively. The highest 1,1,1-TCA concentrations detected in these wells were 19, 250, 55 and 660 (estimated) ppb, respectively. A comparison of the last four sampling events with the 1991 groundwater sample VOC concentrations (for wells MW-1 through MW-6 only) indicates contaminant levels have decreased significantly in several of the wells (MW-2 through MW-4) or have decreased from already low levels to non-detect (non-estimated values only) in MW-1 and MW-6. Only well MW-5 has not shown a substantial decrease (Table 2 and Appendix I).

Groundwater VOC concentrations in wells MW-1 and MW-6 are substantially lower than the other onsite monitoring wells, and have been at or below drinking water standards for all sampling events since installation in 1990. Wells MW-2, MW-3, MW-5 and MW-201D have had the highest VOC concentrations. Wells MW-2, MW-3 and MW-4 have exhibited overall decreasing total VOC concentration trends since the 1991 sampling events (with some seasonal variation). Total VOC levels in MW-5 have increased somewhat since 1991.

Contaminant concentrations did not appear to follow trends typically associated with seasonal variation in precipitation and infiltration. Periods of high infiltration can cause dilution of contamination, resulting in lower VOC levels than are detected during dry periods. However, in August of 1995, after an exceptionally dry spring and summer, well MW-2 had only 147 ppb total VOCs, an order of magnitude lower than two of the three previous sampling events which were conducted during periods of greater precipitation. MW-3 also had its lowest detected total VOC concentration in August 1995, which coincides with its lowest groundwater elevation. Fluctuating water levels, and thus possibly VOC levels, at MW-3 may be due to a roof drain that discharges to the lawn in the nearby area. At the same time well MW-201D contained the highest total VOC value of the 1994-1995 sampling rounds, at 9860 ppb.

4.3.2 Residential Well Groundwater

Groundwater sampling and analyses of 38 residential water supply wells by others in 1985 indicated the presence of VOC contamination in 21 of the residential wells as well as the Enarc-O supply well. In accordance with the RI work plan, Haley & Aldrich resampled and analyzed 11 residential wells and the Enarc-O supply well in April 1995. Based on a review of the analytical results with NYSDEC, seven of the residential wells, and also the Enarc-O well, were sampled again in August 1995, to allow seasonal comparison of data. The sump in the basement of 7883 Martin Road was also sampled during this event, for comparison to previous analyses performed by NYSDOH.

Laboratory analytical results of these sampling events are summarized in Table 1 and graphically on Figure 7. The results for each event were transmitted to NYSDEC in quarterly update letters dated 23 May 1995 and 16 October 1995. The following is a summary of these results as presented in those letters:

April 1995

This was the first sampling event for the offsite former residential water supply wells, and included 11 residential wells and the Enarc-O supply well. Each well was sampled at two depths, with the exception of the Enarc-O supply well and the well at 7880 Martin Road. A third, deep sample was obtained in these two wells because of their greater depth.

The groundwater analytical data from the April 1995 sampling event indicated the following:

- Volatile organic compound (VOC) concentrations in nearly all of the offsite wells decreased significantly since the 1985 sampling events, and in some cases no VOCs were detected. One exception was the well at 1116 Ideson Road, where acetone was detected at 82 parts per billion (ppb) in the deeper sample.

- VOC concentrations in six of the twelve wells sampled were below New York State drinking water standards.

- VOCs also dropped significantly in the wells nearer the apparent source area (Enarc-O supply well, 7873 and 7880 Martin Road, 1167 Bragg Street), although selected compounds were detected at levels above NYS drinking water standards.

- Compound concentrations did not exhibit a discernable pattern with regard to vertical distribution. In most cases the shallow and deep samples exhibited similar concentrations. The samples from the Enarc-O well indicated the greatest compound concentrations near the apparent source area to be near the water table. With the exception of acetone (in the 1116 Ideson Road well), TCE (in the 1167 Ideson and 7880 Martin Road wells) and 1,2-DCE (in the 7880 Martin Road well), compounds in the deeper samples were detected only at low, estimated concentrations.

- Acetone was detected in offsite wells at 1116 and 1121 Ideson Road. The well at 1121 Ideson Road had acetone at an estimated 9 ppb. The well at 1116 Ideson Road contained 82 ppb acetone in the deep sample. In addition, this well had an estimated 71 ppb of unknown compounds. These results are believed to be anomalous and do not fit the general pattern of chlorinated solvents seen in the study area to date. Acetone, a common laboratory contaminant, had been detected only in one other groundwater sample: onsite well MW-2 at 25 ppb (estimated) in July 1994. Refer to Table 2.

August 1995

The August sampling event differed from the April sampling event by incorporating an NYSDEC-approved reduction of the number of offsite wells for sampling from 11 to 6 and a reduction of the number of samples per well to one (previous sampling had been performed at multiple depths in each well). Where possible, the sampling depth for the August event was set at the elevations where the highest concentrations had been during the April sampling. In addition to the Enarc-O supply well, the following residential wells were sampled:

- 7852, 7873 and 7880 Martin Road,
- 1167 Bragg Street, and
- 1121 and 1146 Ideson Road.

At the request of NYSDEC, the basement sump at 7883 Martin Road was also sampled. This sump had been sampled several times previously by NYSDOH.

The analytical results are summarized in Table 1 and are presented graphically on Figure 7. The contaminant concentrations in the offsite wells showed little or no change from the April 1995 sampling results. All detected VOCs were present at levels below the detection limit, thus the values were estimated, as indicated by the "J" qualifiers on Table 1 and Figure 7. There were no non-estimated VOCs detected at levels at or above New York State Drinking Water Standards.

The sump sample from 7883 Martin Road contained TCE at 19 parts per billion (ppb). Three other VOCs were present at estimated levels below the detection limit. These values, although just slightly lower than April 1993 results, are the lowest values for total VOCs detected to date in this sump.

The former Enarc-O supply well showed an increase in the TCE concentration over previous analyses to 160 ppb. All other compounds detected for this well were low, estimated values.

Offsite data from the two sampling events indicate the VOC concentrations do not demonstrate significant seasonal fluctuation and are generally at or below New York State drinking water standards, for non-estimated VOC concentrations, with the following exceptions: TCE and cis-1,2-DCE concentrations between 10 and 15 ppb at 7880 Martin Road and 1167 Bragg Street in April 1995; and 82 ppb acetone at 1116 Ideson Road. The acetone detected at 1116 Ideson is not believed to associated with the contamination at the Enarc-O facility, since it is not used at the facility. These data indicate offsite contaminant presence has undergone significant attenuation and that continued significant migration of VOCs from the apparent Enarc-O source area is not occurring.

4-04. DATA VALIDATION

Data validation procedures performed as part of the Enarc-O Remedial Investigation included the evaluation of each round of soil and groundwater sampling and analysis conducted from June 1994 through August 1995. The evaluation included the review of each analytical data report and chain of custody record for compliance with sample holding time requirements, surrogate compound recoveries, internal standard recoveries and method-specific quality control and quality assurance sample analyses. The data validation was performed with guidance provided from the "Functional Guidelines For Evaluating Organic and Inorganic Analyses", USEPA 1988. Compliance criteria for the evaluation were provided by the "Analytical Services Protocol", NYSDEC, 1991 revised 1993.

Quality Assurance and Quality Control (QA/QC) analyses performed as part of the remedial investigation included field trip blanks, field equipment rinsate samples, field duplicate samples, matrix spike and matrix spike duplicate analyses, laboratory control and method blank sample analysis. QA/QC samples were analyzed concurrently with project samples for each target analyte of the prescribed analytical methodology to assess the precision and accuracy of the field and laboratory procedures performed during the investigation.

Holding time for the preparation and analysis of each project sample during the investigation met NYSDEC ASP method-specific requirements of seven (7) days of verified time of sample receipt (VTSR) without exception.

Field trip blanks were provided by the laboratory with each set of sample containers used during the investigation. Trip blanks were analyzed concurrently with project samples for each target analyte using NYSDEC ASP Method 91-1. Field equipment rinsate samples were collected in the field by passing ASTM Type II water over sampling equipment and collected directly into sample containers. The equipment blanks were analyzed for TCL analytes by NYSDEC ASP 91-1.

Target analytes were not detected above the Practical Quantitation Limits (PQL) in trip blank or equipment blank samples associated with each round of sampling and analysis of soil and groundwater during investigation activities.

A field duplicate sample was collected during each round to assess the precision of the soil and groundwater sampling procedures and to determine sample representativeness. The replicate percent difference (RPD) for the compounds detected above quantitation limits in the duplicate samples exhibited an average RPD of <30%. Given the concentrations of the target compounds detected in each sample aliquot, the calculated precision and variability is acceptable and indicative of representative environmental samples.

Matrix spike and matrix spike duplicate (MS/MSD) analysis was performed as part of each batch of project samples for each analytical method. Target analytes for the MS/MSD analysis were prescribed by the respective analytical method completed (i.e. NYSDEC ASP 91-1). The recovery of each MS/MSD analyte fell within laboratory specific quality control limits with one exception. MS/MSD analysis for one sample (7883SUP) during the August 1995 sampling event exhibited non-compliant recovery for TCE. These data otherwise indicate that the analyses were accurate and the results are representative of site conditions.

Surrogate compound recoveries for organic analyses were within laboratory specific quality control limits without exception.

Method blank sample analyses were performed with each batch of project samples and analyzed by the analytical methods and for each target analyte. Target analytes were not detected above the practical quantitation limit (PQL) in laboratory method blank samples.

Generally, the QA/QC sample analyses performed as part of the Enarc-O Remedial Investigation meet or exceed the accepted precision and accuracy requirements of high quality environmental analysis data. The field, intra-laboratory QA/QC analyses performed indicate that the data presented for the analysis of soil and groundwater are representative of site conditions at the time of sample collection.

V. COMPOUND FATE AND TRANSPORT

The environmental persistence and properties of site compounds of concern, and potential migration routes are discussed in this section.

5-01. COMPOUND PERSISTENCE AND MIGRATION

Organic chemical mobility is a function of several criteria, briefly summarized below:

- Water Solubility - is the maximum concentration of a chemical that dissolves in pure water at a specific temperature and pH.

- Vapor Pressure - is a relative measure of the volatility of a chemical in its pure state and is determinant of the rate of vaporization from a given media.

- Henry's Law Constant - is used in evaluating air exposure pathways. Values for Henry's Law Constant (H) can be calculated using the following equation, and the values for the following parameters; solubility, vapor pressure and molecular weight (MW):

$$H\ (atm\text{-}m^3) = \frac{Vapor\ Pressure\ (atm)\ x\ MW(g/mole)}{Water\ Solubility\ (g/m^3)}$$

- Organic Carbon Partition Coefficient - (K_{oc}) is a measure of the tendency for organics to be adsorbed by soil and sediment and is expressed as:

$$K_{oc} = \frac{mg\ chemical\ adsorbed/kg\ organic\ carbon}{mg\ chemical\ dissolved/liter\ of\ solution}$$

  The K_{oc} is chemical-specific and is largely independent of soil properties.

- Octanol-Water Partition Coefficient - (K_{ow}) is a measure of how a chemical is distributed at equilibrium between octanol and water. It is often used in the assessment of environmental fate and transport for organic chemicals. Additionally, K_{ow} is a key variable used in the estimation of other properties.

- Diffusion - refers to the molecular movement of compounds in the absence of any general movement of the solution. Contaminant transport into the soil or rock matrix or into zones of stagnant flow may occur by diffusion, thereby possibly rendering the contaminant inaccessible. Diffusion is primarily driven by concentration gradients .

- Dispersion - is the mechanism by which a solute spreads out from the flow path that would be expected based on the system's advective (bulk transport motion) hydraulics. Dispersion causes solute dilution and is a result of mechanical mixing and diffusion.

- (Bio)degradation - is the general process of microbial action on contaminants which serves to break down the (solute) compounds into less complex constituents. (Bio)degradation acts to retard solute migration.

- Retardation factors - provide an estimate of the degree to which compounds are retarded in their movement through the subsurface relative to the groundwater velocity and sorption to soil particles. For unconsolidated porous media, estimated retardation factors can be calculated using the formula:

$$R = (1 + \frac{P}{O} K_d)$$

Where P = Bulk density
O = Effective porosity
$K_d = K_{oc}$ x (soil organic carbon fraction)

The vapor pressures and Henry's Law Constants of the principal chlorinated hydrocarbon VOCs detected in the courtyard soils indicate that they will generally be preferentially present in the sorbed and vapor phases within the soil. Solubilities and moderate to low octanol-water partition coefficients indicate these compounds will be retarded somewhat from prevailing groundwater flow rates. Estimated K_d values for the major compounds detected in shallow bedrock groundwater onsite are listed below (assuming an organic carbon content in soil of 1% and K_{oc} values from Fetter, 1994 and Howard, 1990) (10,11). Values for P/O typically range from 4 to 10, therefore estimated retardation factors are:

Compound	Organic Carbon	K_{oc}	Kd	High R	Low R
1,2-DCE	0.01	36	0.36	4.6	2.4
Acetone	0.01	1	0.01	1.10	1.04
1,1,1-TCA	0.01	155	1.55	16.5	7.2
1,1-DCA	0.01	45	0.45	5.5	2.8
1,1-DCE	0.01	217	2.17	22.7	9.7
TCE	0.01	152	1.52	16.2	7.1
PCE	0.01	303	3.03	31.3	13.1

Therefore, of the compounds present, acetone would likely migrate the most rapidly due to its miscibility, with a retardation factor of approximately 1.1. Remaining compounds would migrate at lesser rates due to their higher retardation factors.

In a limestone bedrock aquifer, there would be almost no retardation due to the substantially lower organic carbon fraction values.

5-02. POTENTIAL ROUTES OF MIGRATION

5.2.1 Soil

Compounds of concern can migrate into site groundwater through the action of infiltrating surface water (precipitation and snowmelt). Based on the observations that groundwater elevations on the Enarc-O property lie in the shallow bedrock, and the overburden is generally unsaturated, it appears groundwater in soil overburden is not acting as a lateral migration route at the Enarc-O site. Infiltrating water that might contact source- area contaminated soil enters the subsurface in the courtyard area. The majority of source area soils underlie the Enarc-O building and therefore should not have significant contact with infiltrating water.

5.2.2 Groundwater

Contaminant compounds in shallow bedrock groundwater at this site are not likely to be released to surface water unless groundwater discharges to the ground surface. This condition has not been observed in the study area, although it is possible that it may occur offsite and further downgradient. However, historical basement sump samples from 7883 Martin Road have shown detected VOC concentrations suggesting limited migration to this location within the study area.

Groundwater flow data indicate shallow bedrock groundwater flows generally toward the 7883 residence only seasonally. There is reportedly no pump present in the sump, thus no discharge of water from the sump occurs, and groundwater apparently passes slowly through it. The sump does not act as a collection or drain for the house foundation. Based on historical sump water analyses, it appears the sump experiences variable groundwater inflow.

Analysis of two surface soil samples (one sample behind 7883 Martin Road and one just south of Martin Road on the 7880 Martin Road property) from this vicinity indicated that there were no volatile organic compounds detected in the soils. This suggests that contaminated groundwater, which could release VOCs to the soil vapor, is not present at or near the surface in these areas.

Soluble compounds will migrate with the groundwater at rates that depend on the groundwater flow velocity and the degree of retardation of compounds associated with individual chemical properties, such as octanol-water coefficients, as described previously. As shown in the analytical results, some groundwater transport of TCE and 1,1,1-TCA (the primary compounds detected at the Enarc-O supply well) may have occurred from the apparent source area. However, retardation and degradation of the TCE and 1,1,1-TCA as a result of the removal of the source(s) has acted to reduce the concentration of TCE and 1,1,1-TCA and total VOCs in the deep offsite residential wells with respect to distance from the source and with respect to time.

Notably, breakdown products of TCE and 1,1,1-TCA have historically been detected in the Enarc-O supply well. These breakdown products (1,2-DCE, 1,1-DCA, 1,1,-DCE) have not been detected at elevated concentrations since the 1985 sampling events at the residential offsite wells. Therefore, it is reasonable that there still exists some source area residue in soil, although the contribution of the source area to groundwater may have been reduced through natural and anthropogenic measures.

5-03. CALCULATED RATES OF MIGRATION

Groundwater flow velocities were calculated for the shallow onsite bedrock (the overburden is unsaturated in the source area). Velocity, which is a function of gradient and permeability, was calculated using gradients taken from the groundwater contour plans (Figures 10 and 11) and the calculated permeability ranges presented in Section 3.5.2.1 of this report. Calculated groundwater velocities for shallow bedrock at the site ranged from 0.1 feet per year to 9.4 x 10^5 feet per year, based on:

$$V = \frac{KI}{N_e}$$

where: V = Velocity
K = Hydraulic Conductivity
I = Gradient
N_e = effective porosity (1-20% assumed)

The large groundwater velocity range for the onsite shallow bedrock is due to the highly variable hydraulic conductivity observed at the monitoring well locations. The variation in permeability (and therefore velocity) is a function of the apparent degree of bedrock fracturing and degree of connection among fractures.

VI. RISK ASSESSMENT

6-01. ECOLOGICAL ASSESSMENT

6.1.1 Exposure Assessment

Based on data obtained during the RI investigation, little to no possibility exists of fish or wildlife being exposed to site compounds onsite. Onsite soils containing compounds of concern are underlying the Enarc-O Building (in the source area) and parking lot areas, and site groundwater occurs tens of feet below ground surface.

Contact with shallow bedrock groundwater which might make its way to the surface offsite appears to be the only way that flora or fauna could encounter site compounds. Given that it appears Honeoye Creek feeds the surrounding shallow bedrock zone, at least near the site, it would be reasonable that such contact could occur within the study area only in low-lying off-site areas. However, again, based on available data there is no evidence that such exposure is occurring.

6.1.2 Discussion of Results

The primary conclusions of the Ecological Assessment are as follows:

- No significant habitats or habitats supporting endangered, threatened, or rare species are present within a two-mile radius of the site.
- Honeoye Creek is designated as a Class B stream in the vicinity of the site by NYSDEC, indicating it is suitable for primary contact recreation such as swimming. The creek appears suitable for light fishing in its deeper portions.
- Comparison of the maximum COC concentrations from 1995 sampling events (Table 8) to Ambient Water Quality Criteria indicates no AWQC have been exceeded.

6-02. HUMAN HEALTH EVALUATION

This baseline risk assessment (RA) evaluates potential impacts on human health from compounds of concern identified in onsite soils, soil vapor and offsite groundwater at the Enarc-O Site. The assessment was prepared in accordance with USEPA's Risk Assessment Guidance (RAG) documents as recommended by NYSDEC.

The primary objective of the assessment was to evaluate the risks associated with soil and groundwater contamination detected at the site. The Reasonable Maximum Exposure (RME) scenarios considered included migration pathways of soil contaminants to adult workers onsite through soil ingestion, vapor inhalation or soil particulate inhalation, and offsite through groundwater exposure. Current and future use of the site and study area were assumed to be consistent with current use. The RME scenarios were established using default exposure factors for adult residents/workers (15).

The four components of the baseline RA included:

- Identification of Compounds of Concern (COCs)
- Exposure Assessment
- Toxicity Assessment
- Risk Characterization

6.2.1 Identification of Compounds of Concern

Compounds of concern (COCs), as defined by USEPA's RAG, are chemicals potentially related to the site for which analytical data of sufficient quality exists. Current and historic site data were reviewed to identify compounds of concern for the Enarc-O Facility.

Several soil and groundwater investigations have occurred at the Enarc-O site from 1985 to 1995. Data from each investigation were selected for the risk assessment as representative of current site conditions. Each organic compound identified by laboratory analysis was included in the RA.

The COCs included in the RA are presented in Table 8 and below.

- 1,1-DCE, 1,2 DCE, TCE, 1,1,1-TCA and PCE in site soils.
- DCE, 1,2 DCE, and TCE, in offsite groundwater.
- Vinyl Chloride, DCE, 1,2 DCE, TCE, 1,1,1-TCA and PCE in soil vapor potentially emanating from impacted site soils.

6.2.2 Exposure Assessment

For the exposure assessment, compounds identified at the site were evaluated in terms of complete pathways by which humans may come in contact with them. The magnitude of exposure, frequency and duration of potential exposures were evaluated consistent with the scenarios presented above. These scenarios were derived from current site use and setting, and predicted reasonable future conditions.

Potentially Exposed Populations

Potentially exposed populations for the RA were characterized by review of the nature and location of constituents identified at the site, presence of potential pathways of contaminant migration, and the land use and demographics surrounding the site.

The potential areas of concern are described as:

- Soils beneath and adjacent to the manufacturing facility.

- Groundwater present in monitoring and other sampled wells located along Martin Road, Ideson Road, and Bragg Street, and the sump at 7883 Martin Road.

Potential Current/Future Exposure Scenarios

- Inhalation of ambient air by current onsite workers indoors.
- Incidental ingestion of site soils by current onsite workers.
- Inhalation of soil particulates during excavation activities by future onsite workers.
- Exposure to groundwater by offsite residents.

Conservative approaches have been built into the exposure scenarios. The reasonable maximum exposure (RME) determined for each potential exposure scenario used average intake parameters and the 95% upper confidence limit concentration of COCs detected in the site soils and off-site groundwater.

Source Media Contaminant Concentrations

The COC exposure point concentration values were determined by calculating the 95% upper confidence limit (UCL) on the arithmetic average (16). For COC exposure point concentration for on-site soils, data presented for samples collected at depths less than 15 feet from ground surface were used. For soil vapor exposure point concentrations, each soil vapor sample collected within impacted soils at a depth of less than 5 feet were used. For groundwater exposure point concentrations of COCs, data provided by the August 1995 sampling of the former offsite water supply wells/sumps was used.

Tables 1, 2, 3, and 5 present the database used in the determination of the exposure point concentration for each COC.

Excessive lifetime cancer risks and noncarcinogenic hazard indices were calculated for each RME scenario with the premise that if background or acceptable risks were not exceeded in the RME case, they would not be exceeded under site-specific exposure conditions.

Exposure Intake Estimation Methods

Exposure estimation integrates populations, activities and exposure pathways into exposure scenarios representing RME conditions for the evaluation of human health risks.

$$Absorbed\ Dose = \frac{(Conc.)\ (Inh\ Rate \lor Ing\ Rate)\ (Exp\ Freq)\ (Exp\ Dur)\ (Abs\ Fraction)}{(Body\ Weight)\ (Averaging\ Time)}$$

As presented, absorbed dose is directly proportional to the product of contaminant concentration, contact rate [i.e. inhalation rate (Inh) or ingestion rate (Ing)], frequency of exposure (Exp Freq) and exposure duration (Exp Dur) and absorption fraction (1.0), divided by the product of body weight and averaging time. In accordance with USEPA guidance, the scenarios assumed an absorption fraction of 1.0 for each contaminant.

Calculated absorbed doses for each contaminant in each scenario were used to estimate both lifetime average daily doses (LADDs) for potential carcinogenic risks, and pathway specific chronic daily intake (CDI) for potential noncarcinogenic risks.

Specific parameters for each of the exposure scenarios were as follows:

Scenario 1 - On-Site Worker Exposure - Ambient Air

Scenario 1 addresses the potential exposure of on-site workers to ambient air conditions above the contaminated soils within the manufacturing facility. Key Parameters Values (15) are shown in Table 9.

Compound concentrations were provided from the 95% upper confidence level contaminant concentrations determined from soil vapor samples collected from the upper 5 feet of soil in the impacted area. The following conditions were assumed:

- Contaminant concentrations within the breathing zone of the receptor population were estimated using a heuristic model for air infiltration into the work space (Tables 10a through 10e).

- Ambient air conditions and other assumptions used in the model are presented in Table 10a.

Scenario 2 - On-Site Worker Exposure - Soil

Scenario 2 addresses the potential exposure of on-site workers via contaminated soils during routine operation maintenance (ie. trenching) and/or construction within the contaminated area.

Key parameter values for this scenario are presented in Table 11.
Exposure point concentrations for soil contaminants were established by using each COC detected in samples collected at depths less than 15 feet in site soils. The 95% UCL of the data set was determined as prescribed by USEPA (16).

Scenario 3 - On-Site Worker Exposure - Soil Particulates

Scenario 3 addresses the potential exposure of on-site workers via inhalation of contaminated subsurface soil particles during excavation activities in and around the impacted area.

Key parameter values for this scenario are presented in Table 12.

Exposure point concentrations for soil particulate contaminants were the values utilized in Scenario 2.

Scenario 4 - Off-Site Residential Exposure - Groundwater

Scenario 4 addresses the potential exposure of off-site residents to groundwater conditions within the sampled former supply wells near the facility fence line, or contact with sump water.

Key Parameters Values (15) are shown on Table 13.

Compound concentrations were provided from the 95% upper confidence level contaminant concentrations detected in water supply wells during the August 1995 sampling event.

Exposure Estimates

Estimates of potential exposure to site compounds that could occur were prepared by combining the source media contaminant concentrations with the exposure estimation methods discussed previously. The exposure estimates obtained by this process are given as chronic daily intake (CDI) values for each complete pathway and exposure case in the risk estimation equations.

6.2.3 Toxicity Assessment

The toxicity assessment identifies human health toxicity and carcinogenicity data for the compounds identified at the site through a hazard identification and dose-response evaluation in accordance with USEPA guidance.

Tables 14 and 15 present the potential toxicity effects of the COCs evaluated for the Enarc-O Machine Facility.

6.2.3.1. Hazard Identification

The hazard identification as defined by USEPA is a qualitative description of the potential toxic properties of selected compounds of concern at the site. Toxicity and compound use data were obtained from the Agency for Toxic Substances and Disease Registry (ATSDR), Toxicity Profiles, Integrated Risk Information System (IRIS), Health Effects Assessment Summary Tables (HEAST), and other references regarding occupational health and safety. See the list of additional Risk Assessment references for further information. Hazard Identification descriptions for each COC are listed below:

1,2-Dichloroethene (Cis-, Trans-1,2-DCE)

1,2-Dichloroethene (1,2-DCE) is an industrial solvent and extractant used in organic compound synthesis and the manufacture of perfumes, lacquers and thermoplastics. It is a man-made chemical that is not found naturally in the environment. 1,2-DCE will evaporate from soil and surface water and based on its water solubility, would migrate in groundwater. 1,2-DCE will undergo slow biodegration in soil and groundwater and photochemical reactions with hydroxide radicals in the atmosphere.

Occupational Safety and Health Administration (OSHA) has set a Permissible Exposure Limit (PEL) of 200 ppm based on an eight-hour Time Weighted Average (TWA) exposure period. 1,2-DCE can be absorbed through the lungs as an air contaminant, or through the digestive tract as a contaminant of food and water. Inhalation exposure to high dose causes damage to the respiratory system and central nervous system.

1,1-Dichloroethene (1,1-DCE)

1,1-Dichloroethene (1,1-DCE, vinylidene chloride, VDC) is used in the manufacture of methyl chloroform (1,1,1-TCA), adhesives, plastic wrap and synthetic fibers of polymer VDC. It is a manmade chemical and is not known to occur as a natural product. 1,1-DCE can be formed by the anaerobic biodegradation of 1,1,1-TCA and as a thermal decomposition product of 1,1,1-TCA. 1,1-DCE will rapidly evaporate from soils and surface water with little absorption to sediments. 1,1-DCE is photochemically reactive and can rapidly oxidize to phosgene under limited specific environmental conditions (burning).

American Conference of Governmental Industrial Hygienists (ACGIH) has adopted a threshold limit value (TLV) of 10 ppm and a Short Term Exposure Limit (STEL) of 20 ppm. The literature indicates that prolonged inhalation exposure caused angiosarcoma of the liver, and adenosarcomas of the kidney in test animals.

Vinyl Chloride

Vinyl Chloride (chloroethene, VC) is used as a feed stock for the production of poly-vinyl chloride (PVC) polymer. VC is not known to occur naturally. Vinyl Chloride will rapidly volatilize from surface sediments and surface water and may not biodegrade in aerobic systems. VC is suspected to be a breakdown product of several halogenated solvents (eg: 1,1,1-TCA, TCE).

OSHA has established a PEL of 1.0 ppm and a STEL of 5.0 ppm. VC is a known skin and eye irritant and may cause frostbite from rapid evaporation from direct dermal contact with the liquid phase. ACGIH lists VC as a human carcinogen and evidence indicates that exposure depresses the CNS and may cause nausea.

1,1,1-Trichloroethane (1,1,1-TCA)

1,1,1-TCA is a man-made chemical which has many industrial and household uses including as a cleaning solvent to remove oil and grease from manufactured metal parts, dry cleaning and as a solvent to dissolve other substances such as glue and paint. 1,1,1-TCA is readily absorbed into the body following exposure by inhalation of air containing the vapor and ingestion of water or food containing 1,1,1-TCA. It is readily excreted from the body through exhalation of air.

Research has indicated that inhalation of high levels of 1,1,1-TCA for a short time period by human subjects resulted in effects such as dizziness, lightheadedness, and loss of balance and coordination. Studies in animals have shown that mild liver effects resulted from long term exposure. The effects of low level exposure in humans has not been established. OSHA has established a Permissible Exposure Limit (PEL) value of 350 PPM for an 8-hour Time Weighted Average worker exposure.

Trichloroethene (TCE)

TCE is used as a cleaning agent and solvent for degreasing operations. TCE may cause adverse health effects following exposure via inhalation, ingestion, or skin or eye contact. TCE may cause drowsiness, dizziness, headache, blurred vision, lack of coordination, mental confusion, flushed skin, tremors, nausea, vomiting, fatigue, and heart arrhythmia. Exposure of laboratory animals to TCE has been associated with an increased incidence of a variety of tumors and TCE is considered a probable human carcinogen. An occupational PEL-TWA of 50 ppm has been set by OSHA.

6.2.3.2. Dose-Response Assessment

For the dose-response assessment, quantitative indices of toxicity were compiled for estimating the relationship between the extent of potential exposure to a contaminant and the potential increased likelihood and/or severity of adverse effects. The methods for deriving indices of toxicity and estimating potential adverse effects are presented below. The indices of toxicity for the chemicals of concern are presented in Tables 14 and 15.

Categorization of Chemicals as Carcinogens or Noncarcinogens

As recommended by the USEPA RAG and in accordance with standard risk assessment practice, chemicals of concern were divided into two groups: potential carcinogens and noncarcinogens. The risks posed by these two types of compounds are assessed differently because noncarcinogens generally exhibit a threshold dose below which no adverse effects occur, while no such threshold is thought to exist for carcinogens.

As used here, the term carcinogen refers to any chemical for which there is sufficient evidence that exposure may result in continuing uncontrolled cell division (cancer) in humans and/or animals. Conversely, the term noncarcinogen refers to any chemical for which the carcinogen evidence is negative or insufficient.

It should be noted that definitions are not static; rather, compounds may be reclassified when additional evidence becomes available. Chemicals of concern have been classified as carcinogens or noncarcinogens, based on weight-of-evidence criteria contained in the USEPA Carcinogenicity Evaluation Guidelines.

According to these USEPA guidelines, chemicals in the first three groups, A, B and C, are classified as carcinogens, probable human carcinogens and possible human carcinogens, respectively, and are subjected to non-threshold carcinogenic risk estimation procedures. The remaining chemicals, in groups D and E, are defined as noncarcinogens and are not classified as to carcinogenicity and are subjected to threshold-based toxicological risk estimation procedures.

Assessment of Noncarcinogens

For this risk assessment, USEPA RAG document recommended methods were used to evaluate potential noncarcinogenic effects of chemicals of concern. Specifically, risks associated with noncarcinogenic effects (e.g., organ damage, immunological effects, skin irritation) were assessed by comparing the estimated average exposure to the reference dose (RfD/RfC) derived by the USEPA. The RfDs/RfCs are derived by literature searches to obtain no observed or lowest observed adverse effects level (NOAEL or LOAEL). A suitable uncertainty factor (usually ranging from 10 to 1,000) to allow for differences between the study conditions and the human exposure situation is then applied. NOAELs and LOAELs are usually based on laboratory experiments on animals in which relatively high doses are used. Consequently, uncertainty or safety factors and modifying factors (MF) are required when deriving RfDs/RfCs to compensate for experimental data limitation and the lack of precision in extrapolating from high doses in animals to lower doses in humans.

RfDs are generally calculated using the formula:

$$Rfd\ (\in mg/kg/day) = \frac{NOAEL \vee LOAEL\ (\in mg/kg/day)}{(Uncertainty\ Factor(s))\ (MF)}$$

If the estimated exposure exceeds the estimated acceptable intake, some adverse effects are presumed to be possible, and the exposure level may be of potential concern. Conversely, if the estimated exposure is less than the estimated acceptable intake, no adverse affects would be expected, and the exposure level is considered acceptable.

Noncarcinogenic risks were assessed by calculating a hazard index which is the ratio of the estimated exposure to the RfD as follows:

$$HI = \frac{CDI}{RfD}$$

where:

HI = Hazard Index
RfD = Reference Dose
CDI = Chronic Daily Intake

A hazard index greater than 1 indicates that adverse effects may occur, while a value less than 1 means that adverse effects would not be expected. Chronic oral RfDs and chronic inhalation RfCs for the chemicals of concern (COC) at the Enarc-O Facility are presented in Table 14.

Assessment of Carcinogens

In contrast to noncarcinogenic effects, for which thresholds are thought to exist, scientists have been unable to experimentally demonstrate a threshold for carcinogenic effects. For carcinogens, USEPA assumes that a small number of molecular events can evoke changes in a single cell that can lead to uncontrolled cellular proliferation and eventually to clinical state of disease. This hypothetical mechanism for carcinogenesis is referred to as "non-threshold" because there is believed to be essentially no level of exposure to such a chemical that does not pose some probability of generating a carcinogenic response.

For evaluating carcinogenic effects, USEPA uses a two-part evaluation in which the substance first is assigned a weight-of-evidence classification, and then a slope factor

(SF) (formerly called carcinogenic potency factor) is calculated. The weight-of-evidence classification as discussed previously (Categorization of Chemicals as Carcinogens or Noncarcinogens) are typically calculated for potential carcinogens categorized as A, B, and C based on mathematical models and assumptions on dose, current theories on carcinogenesis, and confidence limits from human and animal studies.

By using these procedures the regulatory agencies have indicated they are unlikely to underestimate the actual slope factors for humans. The SF is a plausible upper-bound estimate of the probability of a response per unit intake of a chemical over a lifetime. Using SFs, lifetime excess cancer risks can be estimated by:

Risk = (LADDj x SFj)

where:

LADDj = Exposure route-specific lifetime average daily dose
Sfj = Route-specific slope factor

Following this method, the carcinogenic risks for the ingestion and inhalation routes of exposure are calculated as follows:

$$Risk = LADD_{ig_{V_{ih}}} \; SF_{ig_{V_{ih}}}$$

Subscript "ig" indicates the ingestion route and subscript "ih" the inhalation route. SFs for the chemicals of concern for the oral exposure route are presented in Table 15. USEPA's weight-of-evidence classification for the chemical is included.

Once substances have been absorbed by the ingestion or inhalation routes, their distribution, metabolism, and elimination patterns (pharmacokinetics) are usually similar. For this reason, and because inhalation route RfCs and SFs were not always available, oral route RfDs and SFs were used to evaluate exposures to substances when inhalation route specific values were not available.

Exposure to some chemicals may result in both carcinogenic and noncarcinogenic effects. In these cases, both the carcinogenic and noncarcinogenic effects were evaluated and considered in the risk assessment process.

6.2.4 Risk Characterization

The risk characterization is the final step of the baseline health risk assessment process. Potential carcinogenic risks were assessed by multiplying an estimated Chronic Daily Intake (CDI) (LADD for carcinogens, EE for noncarcinogens) for a compound by its estimated slope factor (SF) to obtain the estimated risk. Estimated risk is expressed as the probability of that exposure resulting in an excess incidence of cancer. The risk range of 10^{-4} to 10^{-6} (1 in 10,000 to 1 in 1,000,000 probability of risk of an increased incidence of cancer) is used by USEPA to evaluate cancer risk estimates. USEPA generally considers that acceptable exposures to known or suspected carcinogens are those that represent an excess upper bound lifetime cancer risk less than 10^{-4} to 10^{-6}.

As stated previously, noncarcinogenic compounds were evaluated by comparing the CDI of a substance to its chronic RfD or RfC. The hazard index obtained by dividing the CDI by the RfD or RfC is compared to unity (1.0). Following USEPA guidelines, significant risks are assumed likely if the index exceeds 1.0. The hazard index is not a measure of risk, but rather a measure of whether the exposure dosage exceeds an acceptable level.

The cancer risk estimates or the hazard index (HI) for exposure to each chemical by each route of exposure, exposure pathway, category of receptor (onsite worker or offsite resident) are initially estimated separately. The separate cancer risk estimates and hazard indices for non-carcinogen effects are then summed across chemicals and across exposure routes to obtain the total excess cancer risk and noncarcinogenic effects for that population.

Tables 16 and 17 summarize cancer risk estimates and hazard indexes for chemicals of concern by exposure pathway, exposed population and exposure case.

6-03. RISK SUMMARY

Results of the risk characterization are summarized in Tables 18 and 19 with exposure routes and chemicals primarily responsible for the derived risk.

Noncarcinogenic Risk

In summary, noncarcinogenic hazard indices were less than 1 for each RME scenario. Hazard indices ranged from 1.2×10^{-2} to 1.5×10^{-5} .

Carcinogenic Risk

Carcinogenic risk estimates for Scenario 1, Onsite Worker Ambient Air Inhalation, was determined to be 1.7×10^{-7}, which is lower than the acceptable risk range of 10^{-4} to 10^{-6} recognized by the NYSDEC/USEPA.

Risk estimates for Scenario 2, On-Site Worker Ingestion of Surface Soils, and for Scenario 3, Soil Particulate Inhalation by Onsite Workers, were 3.5×10^{-8} and 7.2×10^{-8}, respectively, which are acceptable as defined by the NYSDEC/USEPA.

Risk Estimates for Scenario 4 Off-site Resident Groundwater Exposure was 2.0×10^{-9} for contact, which is lower than the acceptable risk-range as defined by the NYSDEC/USEPA.

6-04. LEVEL OF CONFIDENCE/UNCERTAINTY IN THE RISK ESTIMATE

The nature of the risk assessment process strongly favors overestimating the true risks. Accordingly, the risk estimates presented here are likely to overestimate the true risks and unlikely to underestimate them. Because the risk characterization combines and integrates the information developed in the exposure and toxicity assessment, uncertainties associated with these assessments also affect the degree of confidence that can be placed in risk characterization results. The primary factors contributing to exposure and toxicity uncertainties include, but are not limited to:

- The use of steady state assumptions for source concentration estimates. For example, the 95% UCL concentrations of compounds present on site were used in estimating risk. Changing concentrations such as decreases due to breakdown and dilution, which are expected to occur in soil and/or groundwater, are not known and are therefore not considered in the risk assessment.

- Uncertainties arising from design, execution or relevance of the scientific studies that form the basis of risk assessments.

- Uncertainties involved in extrapolating from the underlying scientific studies to the exposure situation being evaluated, variable responses to chemical exposures within human and animal populations, between species and between routes of exposure.

Conservative assumptions used in deriving exposure scenarios can also contribute to overestimation of risk and lead to uncertainties in the final risk characterization process.

VII. SUMMARY AND CONCLUSIONS

7.1 SUMMARY

The Enarc-O Machine Products Remedial Investigation (RI) has been performed to evaluate the presence of volatile organic compounds (VOCs) at the Enarc-O facility. The limits of the study area included the Enarc-O property and adjacent and nearby residential areas. The residential areas were included because of VOC presence detected in several private water supply wells during previous studies by the United States Environmental Protection Agency (USEPA) and New York State Department of Health (NYSDOH). As described in this RI report, several investigative techniques and laboratory analytical methods were used to evaluate the study area, including:

- test borings;
- soil sampling;
- soil vapor sampling;
- onsite monitoring well installation and groundwater sampling;
- borehole geophysical logging; and
- residential well groundwater sampling.

7.1.1 Nature and Extent of Compounds of Concern

The Compounds of Concern (COCs) on the Enarc-O property include several solvent-related VOCs, most notably trichloroethene (TCE) and 1,1,1-trichloroethane (1,1,1-TCA). Other compounds include breakdown products of 1,1,1-TCA. These COCs are present in both soil and groundwater on the Enarc-O property. COC concentrations are highest in soils in the source area, which was the location of a former solvent degreaser and storage tank. Soils in the source area are unsaturated, with the exception of a localized perched zone of groundwater in the courtyard area.

COC concentrations in shallow onsite groundwater appear to remain relatively consistent, with some seasonal variation. COCs in groundwater offsite have diminished significantly since the 1985 investigations. Groundwater sampling during this RI indicate VOC concentrations in offsite residential wells are generally below drinking water standards, with some exceptions in wells in close proximity to the Enarc-O property. These exceptions were few (at 1167 Bragg St.-13 ppb TCE; and at 7880 Martin Rd.-13 ppb TCE and 10 ppb cis-1,2-DCE), with low values slightly above the laboratory's detection limit. VOCs in the Enarc-O supply well are over an order of magnitude lower than the 1985 values. These data indicate a significant decrease in contaminant presence has occurred in the ten to twelve years that have passed since the initial investigations.

7.1.2 Compound Fate and Transport

Groundwater flow evaluation indicates two bedrock groundwater regimes exist in the study area. Shallow bedrock monitoring wells on the Enarc-O property have water levels approximately 60 feet higher than most of the offsite residential wells. Groundwater in the shallow bedrock exhibits northerly or westerly flow offsite, depending on the season. Deeper groundwater, in close proximity to the Enarc-O property, exhibits a southerly flow toward the Enarc-O property.

The groundwater flow and quality data for deeper bedrock in the offsite areas indicate offsite migration of contaminants has diminished significantly, and, in fact, migration back toward the Enarc-O property may be occurring.

A review of available data did not indicate subsurface utilities to be acting as preferred pathways for significant contaminant migration. However, analytical data indicate a continued, but diminished presence of COCs in the sump located in the basement of the 7883 Martin road residence. The configuration of the sump's inlet and drainage elements may contribute to this continued presence of contaminants. The presence of COCs in the sump water does not represent a health risk based on the risk assessment performed.

7.1.3 Risk Assessment

The Health Risk Assessment was performed for the Enarc-O Remedial Investigation by evaluating the compounds present, the media in which they occur, the range of concentrations detected in those media, and potential exposure routes by which humans may be exposed to these materials. USEPA Risk Assessment guidance dictates that compounds known to be associated with site activities be included in the risk assessment, as well as other detected compounds even if they are likely associated with other anthropogenic point or non-point sources. Therefore, health risks reported for this site result from both chemical compounds that may have been associated with Enarc-O site activities, as well as from compounds that may result from other anthropogenic sources.

Four potential Reasonable Maximum Exposure (RME) route scenarios were determined to be possible for the study area: (1) onsite workers exposed to ambient air; (2) onsite workers exposed to site soils; (3) onsite workers exposed to soil particulates; and (4) offsite residents exposed to groundwater. Results of the assessment indicate both noncarcinogenic and carcinogenic risks for scenarios 1 through 4 were within acceptable ranges as defined by USEPA.

7.2 CONCLUSIONS

Haley & Aldrich has conducted a Remedial Investigation at the Enarc-O Machine Products site, on behalf of Kaddis Manufacturing Corporation, in accordance with the approved RI Work Plan dated 30 December 1993, as amended by aforementioned approved submittals. Results of the RI indicate the subsurface presence of contaminants of concern appears to be limited primarily to overburden soils in the apparent source area on Enarc-O property and in onsite bedrock groundwater. Offsite groundwater also contains COCs but at significantly diminished concentrations compared to onsite and to historical (1985) values. Additional offsite migration of contaminants in groundwater does not appear to be occurring to any significant degree, nor does significant loading of COCs to groundwater for offsite migration.

Usage of solvents containing the COCs at the site has been discontinued, and chemical handling practices have been improved. Usage of the site in the future is anticipated to continue as industrial. Groundwater usage in the study area was precluded by the 1988 installation of a water main to affected residences in the study area. No specific uses of groundwater are known to be pending in the study area in the future.

7.3 RECOMMENDATIONS

COC concentrations in soil exceed NYSDEC recommended soil clean up targets (listed in NYSDEC TAGM 4046) in the apparent source area soils, and onsite groundwater concentrations exceed NYSDEC's ambient water quality criteria (NYSDEC T.O.G.S. 1.1.1). These concentrations are not producing noncarcinogen or carcinogenic risk above thresholds established by USEPA, based on the reasonable maximum exposure scenarios evaluated for the study area's conditions.

Considering the results of this RI, the absence of health and ecologic risk, and possible plans for IRM implementation to address source area soil, we have no recommendations for further RI investigation at this time. Evaluation of further remediation, if necessary, in a form consistent with the Order on Consent for this project is recommended.

VIII. CERTIFICATION

Haley & Aldrich of New York hereby states that, to the best of its knowledge and opinion, the activities, sampling and analyses, described by this report, entitled " Remedial Investigation Report, Enarc-O Machine Products, Inc., Lima New York, NYSDEC Hazardous Waste Site Registry No. 8-26-011", have been performed in accordance with the "Final Remedial Investigation Work Plan, Enarc-O Machine Products, Inc., NYSDEC Registry No. 8-26-011, Lima, New York," dated December 1993, and its approval amendments dated 28 April and 10 October 1994 and 3 February 1995. This report is an accounting of the work performed. The conclusions provided are based solely on scope of work conducted and sources of information referenced in the report. This work has been undertaken in accordance with generally accepted environmental engineering consulting practices. No other warranty, express or implied, is made.

REFERENCES CITED

1. O'Brien & Gere, "Site Assessment, Enarc-O Machine Products, Division of Kaddis Manufacturing Corp., North Bloomfield, New York," May 1991.

2. City of Rochester, New York, Department of Environmental Services, Standard Construction Contract Documents, November 1991.

3. Haley & Aldrich, personal communication with National Fuel Corp., December 1995.

4. U.S. Environmental Protection Agency, "On-Scene Coordinator's Report, North Bloomfield Groundwater Contamination Site, Lima Township, Livingston/Monroe County, New York" 1991.

5. New York State Museum & Science Service Surficial Geologic Map of New York, finger Lakes Sheet, edited by E.H. Muller and D.H. Cadwell, 1986.

6. New York State Museum & Science Service, Bedrock Geologic Map of New York State, 1970.

7. Mack, F.K. and Digman, R.E., "The Groundwater Resources of Ontario County, New York," U.S. Geological Survey Water Resources Bulletin GW-48, 1962.

8. U.S. Geological Survey, Water-Resources Investigations, Report 86-4317, "Geology and Hydrogeology of the Onondaga Aquafer in Eastern Erie County, New York--with emphasis on groundwater declines since 1982," 1987.

9. Haley & Aldrich, personal communication with Charles Ver Straetten, University of Rochester, December 1994.

10. Fetter, C.W., Applied Hydrogeology, 3rd Ed., Macmillan College Publishers, New York, 1994.

11. Environmental Fate and Exposure Data, Howard, P., Syracuse Research Corporation, 1990.

12. Environmental Protection Agency, 1989, Exposure Factors Handbook, Office of Health and Environmental Assessment.

13. Supplemental Guidance to RAGS Calculating the Concentration Term, OSWER 9285.7-08I, May 1992.

ADDITIONAL REFERENCES

Environmental Protection Agency, 1989, Risk Assessment Guidance for Superfund Volume I, Part A Human Health Evaluation Manual, Part B Environmental Evaluation Manual, Interim Final. (EDA 540/1/89, December 1989).

Environmental Protection Agency, 1988, Exposure Assessment Manual.

Agency for Toxic Substances and Disease Registry (ATSDR), 1988, 1989, Toxicological Profiles for Compounds Listed in Hazard Identification.

Environmental Protection Agency, 1985, Chemical, Physical and Biological Properties of Compounds Present at Hazardous Waste Sites, Prepared by Clement Association, Inc.

Parmeggiani, L. (Editor), 1983, Encyclopedia of Occupational Health and Safety Volume 2, International Labor Organization, Geneva, Switzerland.

Environmental Protection Agency, 1989, Health Effects Assessment Summary Tables, FY 1994.

Environmental Protection Agency, 1994, Intergrated Risk Information Service (IRIS) Computer Database Search.

Environmental Protection Agency, 1986, Superfund Public Health Evaluation Manual, Office of Emergency and Remedial Response.

USEPA, 1986, USEPA Carcinogenicity Evaluation Guidelines, Federal Register, 51: 33992-34012, September 22, 1986.

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Tables

TABLE 3

ENARC-O MACHINE PRODUCTS, INC.
REMEDIAL INVESTIGATION
LIMA, NEW YORK

SUMMARY OF ANALYTICAL RESULTS – SOIL

EXPLORATION LOCATION	DEPTH (ft.)	DATE	SAMPLED BY	DETECTED COMPOUNDS – CONCENTRATIONS IN PARTS PER BILLION (ppb)														TOTAL VOCs
				TCE	1,1,1-TCA	1,2-DCE	1,2-DCA	1,1-DCE	1,1-DCA	ACETONE	PCE	CHLORO-FORM	ETHYL-BENZENE	XYLENE	1,1,2-TCA	MEK	TOL.	
B-1	4-6	11/29/90	OBG	--	--	--	--	--	--	--	--	--	--	4700J	--	--	210J	4910J
B-1	6-8	11/29/90	CDM-FPC	--	--	--	--	--	--	--	--	100J	690J	12000J	--	--	--	12790J
B-1	6-8	11/29/90	OBG	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
B-2	6-8	11/29/90	OBG	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
B-2	10-11	11/29/90	OBG	1200J	--	200J	--	--	--	--	30J	--	--	--	--	--	--	1430J
B-3	2-4	11/28/90	OBG	1700J	860J	480	--	76	--	--	490J	--	--	--	--	--	29J	3635J
B-3	4-6	11/28/90	OBG	74J	--	150	--	--	--	--	--	--	--	--	--	--	--	224J
B-3	4-6	11/28/90	CDM-FPC	490	100	89	--	--	--	--	100	--	--	--	3J	--	--	779
B-3	6-8	11/28/90	OBG	81J	--	24	--	--	--	--	24J	--	--	--	--	--	--	129J
B-4	8-10	11/29/90	CDM-FPC	880	21J	630	--	--	9J	--	5J	--	--	--	--	--	--	1510
B-4	6-8	11/29/90	OBG	--	--	--	--	--	--	--	13J	--	--	--	--	--	--	13J
B-4	8-10	11/29/90	OBG	1400J	41J	900	--	--	16	--	--	--	--	--	--	--	--	2357J
B-5A	4-6	11/27/90	OBG	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
B-5A	12-14	11/27/90	OBG	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
B-5B	0-2	11/28/90	OBG	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
B-5B	2-4	11/28/90	OBG	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
B-5B	2-4	11/28/90	CDM-FPC	4J	--	0.8J	--	--	--	--	--	--	--	--	--	--	--	0
B-5C	6-8	11/27/90	OBG	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
B-5C	14-16	11/27/90	OBG	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
B-5D	0-2	11/27/90	OBG	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
B-5D	10-12	11/27/90	OBG	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
B-5E	12-14	11/28/90	OBG	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
B-6	4-6	11/26/90	OBG	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
B-6	6-8	11/26/90	OBG	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
BUILDING INTERIOR																		
SS101	3.3-4.3	05/09/94	H&A	190	45	4J	--	4J	--	--	2J	--	--	--	--	--	--	235
SS102	3.3-4.3	05/09/94	H&A	1500	670	8J	27	130	83	--	59	--	--	--	--	--	--	2469
SS105	3.3-4.3	05/09/94	H&A	200	71	--	--	5J	--	--	--	--	--	--	--	--	--	271
SS107	3.3-4.3	05/09/94	H&A	160	29	52	--	--	--	--	--	--	--	--	--	--	--	241
OFFSITE SAMPLES																		
SS1	0.5	05/31/94	H&A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
SS2	0.5	05/31/94	H&A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
SS3	0.5	05/31/94	H&A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
SS4	0.5	05/31/94	H&A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
SEPTIC TANK	--	05/31/94	H&A	--	--	--	--	--	--	14000	--	--	--	--	--	13000	14000	41000

NOTES:

1. '--' indicates analyte not detected or not analyzed for.
2. Compound abbreviations: TCE: Trichloroethene; TCA: Trichloroethane; DCE: Dichloroethene; DCA: Dichloroethane; PCE: Perchloroethene; MEK-2-Butanone or methyl ethyl ketone; TOL: Toluene; VOCs: Volatile Organic Compounds.
3. OBG = O'Brien & Gere; CDM-FPC= CDM Federal Programs Corporation.
4. 'J' indicates an estimated value.
5. Unidentified, "unknown compounds" are not included in Total VOCs values.

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TABLE 4

ENARC-O MACHINE PRODUCTS, INC.
REMEDIAL INVESTIGATION
LIMA, NEW YORK

FINAL LIST OF RESIDENTIAL WELLS PROPOSED FOR SAMPLING

ADDRESS	WELL IN USE ?	PUMP PRESENT ?	TOTAL DEPTH (ft.)	DEPTH TO WATER (ft.)
MARTIN RD.				
7750	Yes	Yes	89	40.7
7820	No	No	125	60.3
7852	No	Yes	140	24.7
7873	No	No	110	49.2
7880	No	Yes	150	64.5
BRAGG ST.				
1167	No	No	130	76.0
1175	No	No	180	76.7
1191	No	No	77	24.8
IDESON RD.				
1081	No	Yes	82	41.7
1090	No	Yes	122	53.5
1116	No	No	125	53.9
1121	No	Yes	120	47.7
1146	No	No	125	59.6

NOTES:
1. Water levels obtained by H&A in December 1994.

TABLE 8

ENARC-O MACHINE PRODUCTS, INC.
REMEDIAL INVESTIGATION
LIMA, NEW YORK

EXPOSURE POINT CONCENTRATIONS

Compound	95% UCL Concentration in ug/m^3 Air, ug/l GW, or mg/kg Soil
Scenarios 1. <u>On-Site Worker (Air)</u>	
1,2-Dichloroethene (DCE)	8.9E-05
Trichloroethene (TCE)	4.1E-04
Tetrachloroethene (PCE)	3.3E-06
1,1-Dichloroethene	2.6E-04
Vinyl Chloride	1.1E-06
1,1,1-Trichloroethane	4.5E-04
Scenario 2. <u>On-Site Worker (Soil)</u>	
1,2-Dichloroethene (DCE)	1.41
Trichloroethene (TCE)	2.0
Tetrachloroethene (PCE)	0.414
1,1,1-Trichloroethane	1.03
1,1-Dichloroethene	0.218
Scenario 3. <u>On-Site Worker (Soil Particulates)</u>	
1,2-Dichloroethene (DCE)	1.41
Trichloroethene (TCE)	2.0
Tetrachloroethene (PCE)	0.414
1,1,1-Trichloroethane	1.03
1,1-Dichloroethene	0.218
Scenario 4. <u>Off-Site Resident (Groundwater)</u>	
1,2-Dichloroethene (DCE)	10
Trichloroethene (TCE)	25
1,1,1-Trichloroethane	3.5

TABLE 9

ENARC-O MACHINE PRODUCTS, INC.
REMEDIAL INVESTIGATION
LIMA, NEW YORK

ON-SITE WORKER EXPOSURE SCENARIO
INHALATION OF VAPORS (INDOORS)

Equation:

$$Absorbed\ dose\ (mg/kg\text{-}day) = \frac{(CA)\ (ABS)\ (IR)\ (ET)\ (EF)\ (ED)}{(BW)\ (AT)}$$

where:

Ca = Contaminant Concentration in Air (ug/m^3)

ABS = Fraction Absorbed (unitless)

IR = Inhalation Rate (m3/hr)

ET = Exposure Time (hours/day)

EF = Exposure Frequency (days/years)

ED = Exposure Duration (years)

BW =Body Weight

AT = Averaging Time (days)

Variable	Value Rationale/Source
Ca	Air Model Value (4.1E-04 ug/m$^{3\ \text{for TCE}}$)
ABS	1.0 (assumed, by convention)
IR	2.0 m^3/hr (moderate activity, EPA 1989)
ET	10 hours/day
EF	250 days/year (5 days/week, 50 weeks)
ED	25 years
BW	70 kg (adult average EPA 1989)
AT	ED x 365 days/year for carcinogens = 70 yr x 365 days/year noncarcinogens = 30 yr x 365 days/year

TABLE 10a

ENARC-O MACHINE PRODUCTS, INC.
REMEDIAL INVESTIGATION
LIMA, NEW YORK

HEURISTIC MODEL FOR
INTRUSION RATE OF CONTAMINANT VAPORS INTO BUILDINGS

I. INPUT SOIL AND BUILDING CHARACTERISTICS:

A. SOIL CHARACTERISTICS	SOIL
MOISTURE CONTENT	0.15
SOIL DENSITY (g/cm3)	1.7
TOTAL SOIL POROSITY	0.4
SOIL PERMEABILITY (cm2)	5E-10

B. BUILDING CHARACTERISTICS	
BASEMENT HEIGHT (ft.)	13
BASEMENT LENGTH (ft.)	140
BASEMENT WIDTH (ft.)	125
BASEMENT FLOOR TO GROUNDSURFACE DISTANCE (ft.	0.5
BASEMENT FLOOR TO CONTAMINATION DISTANCE (ft.)	1.67
BASEMENT FOUNDATION THICKNESS (ft.)	1
RATIO OF CRACK (DEFAULT 0.001)	0.001
BUILDING AIR EXCHANGE RATE (volume/hr)	1
PRESSURE DIFFERENCE (g/cm s2)	10

II. INPUT COMPOUND OF CONCERN IN COLUMN 1 OF PAGE 1.

III. INPUT COMPOUND DIFFUSION COEFFICIENT IN WATER IN COLUMN 6 OF PAGE 1.

IV: INPUT COMPOUND CONCENTRATION IN COLUMN 2 OF PAGE 4.

TABLE 10b

ENARC-O MACHINE PRODUCTS, INC.
REMEDIAL INVESTIGATION
LIMA, NEW YORK

HEURISTIC MODEL FOR
INTRUSION RATE OF CONTAMINANT VAPORS INTO BUILDINGS

COMPOUND	MOISTURE CONTENT q(M)	SOIL DENSITY (g/cm^3) r	**MOISTURE POROSITY e (M) (Eq. 1)**	TOTAL SOIL POROSITY e (T)	D(water) cm^2/s	**VAPOR POROSITY e (u) (Eq. 2)**	**D(m) (Eq. 3)**	D(air) cm^2/s	**D(v) (Eq. 4)**	HENRY'S LAW CONSTANT H (cm^3/cm^3)	**OVERALL DIFFUSION COEFFICIENT D(T) (Eq. 5)**	**CRACK DIFFUSION COEFFICIENT D(crack) (Eq. 6)**
SOIL												
cis-1,2-Dichloroethylene	0.15	1.7	0.255	0.4	1.13E-05	0.145	7.5E-07	8.37E-02	8.43E-04	1.67E-01	8.48E-04	8.48E-04
Trichloroethylene	0.15	1.7	0.255	0.4	9.10E-06	0.145	6E-07	7.19E-02	7.24E-04	4.39E-01	7.26E-04	7.26E-04
Tetrachloroethylene	0.15	1.7	0.255	0.4	8.20E-06	0.145	5.4E-07	6.40E-02	6.45E-04	1.17E+00	6.45E-04	6.45E-04
1,1-Dichloroethylene	0.15	1.7	0.255	0.4	1.09E-05	0.145	7.2E-07	8.37E-02	8.43E-04	6.09E-01	8.44E-04	8.44E-04
Vinyl chloride	0.15	1.7	0.255	0.4	1.23E-05	0.145	8.1E-07	1.04E-01	1.05E-03	1.14E+00	1.05E-03	1.05E-03
1,1,1-Trichloroethane	0.15	1.7	0.255	0.4	8.80E-06	0.145	5.8E-07	7.13E-02	7.18E-04	1.67E-01	7.22E-04	7.22E-04

NOTES:

Columns in bold indicate values calculated from the designated equations.

Eq. 1: e(M)=q(M) * r

Eq. 2: e(u)=e(T)-e(M)

Eq. 3: D(m)=D(water)*e(M)^3.33/e(T)^2

Eq. 4: D(v)=D(air)*e(u)^3.33/e(T)^2

Eq. 5: D(T)=D(v)+D(m)/H

Eq.6: D(crack)=D(T)

TABLE 10c

ENARC-O MACHINE PRODUCTS, INC.
REMEDIAL INVESTIGATION
LIMA, NEW YORK

HEURISTIC MODEL FOR
INTRUSION RATE OF CONTAMINANT VAPORS INTO BUILDINGS

COMPOUND	BASEMENT HEIGHT L1 (cm)	BASEMENT LENGTH L2(cm)	BASEMENT WIDTH L3(cm)	AIR EXCHANGE RATE R(air) (Volume/hr)	BUILDING VENTILATION Q(building) (cm^3/s) (Eq. 7)	BASEMENT -GROUND DISTANCE LP (cm)	Ab (Eq. 8)	Xcrack (cm) (Eq. 9)	Acrack/ Ab h	r(crack) (cm) (Eq. 10)	PRESSURE DIFFERENC dP (g/cm s2)	VAPOR VISCOSITY (use air) u (g/cm s)	SOIL PERMEABILITY kv (cm2)	Q(soil) (cm^3/s) (Eq. 11)
SOIL														
cis-1,2-Dichloroethylene	396.24	4267.2	3810	1	1.8E+06	15.24	1.7E+07	1.6E+04	0.001	1.0E+00	10	1.83E-04	5E-10	8.2E-01
Trichloroethylene	396.24	4267.2	3810	1	1.8E+06	15.24	1.7E+07	1.6E+04	0.001	1.0E+00	10	1.83E-04	5E-10	8.2E-01
Tetrachloroethylene	396.24	4267.2	3810	1	1.8E+06	15.24	1.7E+07	1.6E+04	0.001	1.0E+00	10	1.83E-04	5E-10	8.2E-01
1,1-Dichloroethylene	396.24	4267.2	3810	1	1.8E+06	15.24	1.7E+07	1.6E+04	0.001	1.0E+00	10	1.83E-04	5E-10	8.2E-01
Vinyl chloride	396.24	4267.2	3810	1	1.8E+06	15.24	1.7E+07	1.6E+04	0.001	1.0E+00	10	1.83E-04	5E-10	8.2E-01
1,1,1-Trichloroethane	396.24	4267.2	3810	1	1.8E+06	15.24	1.7E+07	1.6E+04	0.001	1.0E+00	10	1.83E-04	5E-10	8.2E-01

NOTES

Columns in bold indicate values calculated from the designated equations.

Eq. 7: Q(building)=L1*L2*L3*R(air)/3600

Eq. 8: Ab=L1*Lp*2+L2*Lp*2+L2*L3

Eq. 9: Xcrack=2*(L2+L3)

Eq. 10: r(crack)=Ab*h/Xcrack

Eq. 11: Q(soil)=2*3.14*dP*kv*Xcrack/[u*ln(2*Lp/r(crack))]

TABLE 10d

ENARC-O MACHINE PRODUCTS, INC.
REMEDIAL INVESTIGATION
LIMA, NEW YORK

HEURISTIC MODEL FOR
INTRUSION RATE OF CONTAMINANT VAPORS INTO BUILDINGS

COMPOUND	FOUNDATION THICKNESS L(crack) (cm)	Q(soil) (cm^3/s) Page 2 (Eq. 11)	Ab Page 2 (Eq. 8)	Acrack/ Ab h	CRACK DIFFUSION COEFFICIENT D(crack) Page 1 (Eq.6)	**A (Eq. 12)**	CONTAMINANT -BASEMENT DISTANCE LT (cm)	BUILDING VENTILATION Q(building) Page 1 (Eq.7)	OVERALL DIFFUSION COEFFICIENT D(T) Page 1 (Eq.5)	**B (Eq. 13)**	**C (Eq. 14)**	**C(building)/ C(source) a (Eq. 15)**
SOIL												
cis-1,2-Dichloroethylene	30	8.2E-01	1.7E+07	0.001	8.5E-04	1.8E+00	51	1.8E+06	8.5E-04	1.5E-04	3.4E+02	5.47E-07
Trichloroethylene	30	8.2E-01	1.7E+07	0.001	7.3E-04	2.1E+00	51	1.8E+06	7.3E-04	1.3E-04	2.9E+02	5.20E-07
Tetrachloroethylene	30	8.2E-01	1.7E+07	0.001	6.5E-04	2.3E+00	51	1.8E+06	6.5E-04	1.2E-04	2.6E+02	5.03E-07
1,1-Dichloroethylene	30	8.2E-01	1.7E+07	0.001	8.4E-04	1.8E+00	51	1.8E+06	8.4E-04	1.5E-04	3.4E+02	5.46E-07
Vinyl chloride	30	8.2E-01	1.7E+07	0.001	1.0E-03	1.4E+00	51	1.8E+06	1.0E-03	1.9E-04	4.2E+02	5.96E-07
1,1,1-Trichloroethane	30	8.2E-01	1.7E+07	0.001	7.2E-04	2.1E+00	51	1.8E+06	7.2E-04	1.3E-04	2.9E+02	5.19E-07

NOTES:

Columns in bold indicate values calculated from the designated equations.

Eq. 12: A=Qsoil*L(crack)/[D(crack)*Ab*h]

Eq. 13: B=D(T)*Ab/[Q(building)*LT

Eq. 14: C=D(T)*Ab/[Q(soil)*LT]

Eq. 15: a=C(building)/(C(source)=[B*exp(A)]/{exp(A)+B+C*[exp(A)-1]}

TABLE 10e

ENARC-O MACHINE PRODUCTS, INC.
REMEDIAL INVESTIGATION
LIMA, NEW YORK

HEURISTIC MODEL FOR
INTRUSION RATE OF CONTAMINANT VAPORS INTO BUILDINGS

COMPOUND	VAPOR CONCENTRATION C(source) (mg/m3)	C(building)/ C(source) a page 3 (Eq. 1	INDOOR CONCENTRATION C(building) (Eq. 16) (ug/m3)
SOIL (ug/kg)			
cis-1,2-Dichloroethylene	1.63E+02	5.47E-07	8.92E-05
Trichloroethylene	7.89E+02	5.20E-07	4.10E-04
Tetrachloroethylene	6.64E+00	5.03E-07	3.34E-06
1,1-Dichloroethylene	4.68E+02	5.46E-07	2.56E-04
Vinyl chloride	1.89E+00	5.96E-07	1.13E-06
1,1,1-Trichloroethane	8.62E+02	5.19E-07	4.47E-04

NOTES:
Columns in bold indicate values calculated from the designated equations.
Eq. 16: C(building)=SV*a

TABLE 11

ENARC-O MACHINE PRODUCTS, INC.
REMEDIAL INVESTIGATION
LIMA, NEW YORK

ONSITE WORKER EXPOSURE SCENARIO
INGESTION OF CHEMICALS IN SOIL

Equation:

$$Intake\ (mg/kg\text{-}day) = \frac{CS \times IR \times CF \times FI \times EF \times ED}{BW \times AT}$$

where:

CS = Chemical Concentration in Soil (mg/kg)

IR = Ingestion Rate (mg soil/day)

CF = Conversion Factor (10^{-6} kg/mg)

FI = Fraction Ingested from Contaminated Source (unitless)

EF = Exposure Frequency (days/years)

ED = Exposure Duration (years)

BW = Body Weight (kg)

AT = Averaging Time (period over which exposure is averaged--days)

Variable	**Value Rationale/Source**
CS	Upper 95th CI from site soil chemical database
IR	50 mg/day (adult worker; EPA 1989g)
CF	10^{-6} mg/kg
FI	1.0 (by convention: EPA 1989)
EF	250 days/year
ED	25 years (maximum worker career, by convention)
BW	70 kg (adult average EPA; 1989d)
AT	70 years x 365 days/year; 30 years x 365 days/year for non-carcingenic effects (EPA 1991)

TABLE 12

ENARC-O MACHINE PRODUCTS, INC.
REMEDIAL INVESTIGATION
LIMA, NEW YORK

ON-SITE WORKER EXPOSURE SCENARIO
INHALATION OF SOIL PARTICULATES WITH CHEMICALS

Equation:

$$Lifetime Avg.Exp.\ (mg/kg\text{-}day) = \frac{IR\ x\ RF\ x\ PC\ x\ ED\ x\ CF}{BW\ x\ LTx365}$$

or PC = D x C x 1.0E-06 kg/ug

Where:

IR = Inhalation Rate (m3/hr)

RF = Respirable fraction of particulates (0.73 by convention)

PC = Particulate concentration in air (ug/m3)

ED = Exposure Duration (hrs\year)

C = Concentration of contaminant in the particulate (ug/kg)

LT = Lifetime (yr)

CF = Volumetric Conversion Factor (mg/ug)

BW = Body Weight (kg)

D = Dust Concentration in air (ug/m3)

Variable	Values
C	Concentration 95th UCL of Soil Database
IR	1.67 m^3/hr (EPA 1989)
PC	Calculated value
RF	0.73 (by convention; EPA 1989)
ED	1440 hours (EPA 1989)
BW	70 kg (95th percentile; EPA 1989)
LT	70 Lifetime (years)
D	75 ug/m^3 (EPA 1989)

dmc:70372-40:TABLE 12

TABLE 13

ENARC-O MACHINE PRODUCTS, INC.
REMEDIAL INVESTIGATION
LIMA, NEW YORK

OFF-SITE RESIDENT EXPOSURE SCENARIO
DERMAL CONTACT OF CHEMICALS IN GROUNDWATER

Equation:

$$\text{Absorbed dose (mg/kg-day)} = \frac{(CA)\ (ABS)\ (BA)\ (ET)\ (EF)\ (ED)\ (PC)\ (CF)}{(BW)\ (AT)}$$

where:

Ca = Contaminant Concentration in GW (mg/L)

ABS = Fraction Absorbed (unitless)

BA = Surface Area of Body (cm^2)

ET = Exposure Time (hours)
CF = Conversion Factor (liter/cc)

PC = Permeability Constant (Chemical Specific)

EF = Exposure Frequency (days/year)

ED = Exposure Duration (years)

BW =Body Weight (kg)

AT = Averaging Time (days)

Variable	Value Rationale/Source
Ca	Modeled Value
ABS	1.0 (assumed, by convention)
PC	Permeability Constant (0.08 ug/cm^2)
CF	Conversion Factor 0.001 liter/cubic centimeter
ET	0.20 hr. (EPA 1989)
EF	12 days/year (1 day/month, 12 months)
ED	30 years
BW	70 kg (adult average EPA 1989)
AT	ED x days/year for carcinogens = 70 yr 365 days/year for noncarcinogens = 30 yr 350 days/year
BA	2280 cm^2 Adult "Full Arms" (EPA 1989)

TABLE 14

ENARC-O MACHINE PRODUCTS, INC.
REMEDIAL INVESTIGATION
LIMA, NEW YORK

TOXICITY VALUES: POTENTIAL NON-CARCINOGENIC EFFECTS

Chemical	Chronic Rfd (mg/kg/day) Oral	Chronic Rfd (mg/kg/day) Inhalation	Confidential Level	Critical Effect	RfD/Basis/Source	**Uncertainity Modifying Factors**
Tetrachloroethene	1E-02	3.5E-02	NS	Hepatotoxicity	Inh/Heast	UF = 1000, MF = 1
1,1,1-Trichloroethane	9E-02	1.0E+00	NS	CNS Depression	Oral/IRIS	UF = 1000, MF = 1
1,1-Dichloroethene	9E-03	NA	NS	CNS Depression	Oral/HEAST	UF = 1000, MF = 1
Trichloroethene	1E-02	2E-02	NS	Liver Damage	Inh/IRIS	UF = 1000, MF = 1
1,2-Dichloroethene	1E-02	1E-02	NS	Decreased Hemoglobin	Inh/Heast	UF = 3000, MF = NS

Notes:

RfD = Reference Dose
NA = Not Available
NS = Not Specified
IRIS = Integrated Risk Information System
HEAST = Health Effects Assessment Summary Tables

TABLE 15

ENARC-O MACHINE PRODUCTS, INC.
REMEDIAL INVESTIGATION
LIMA, NEW YORK

TOXICITY VALUES: POTENTIAL CARCINOGENIC
EFFECTS, WEIGHT OF EVIDENCE
CLASSIFICATION AND SLOPE FACTOR (SF)

Chemical	Slope Factor (SF) $(mg/kg\text{-}day)^{-1}$		Weight-of-Evidence Classification	Target Organ	SF Source
	Oral	Inhalation			
1,1-Dichloroethene	6.0E-01	5.0E-05	C	Inhalation-Lung Ingestion-Kidney	IRIS
Trichloroethene	1.1E-02	6.0E-03	B2	Inhalation-Lung Ingestion-Liver	IRIS
Vinyl Chloride	1.9E+00	8.4E-05	A	Inhalation-Lung Ingestion-Liver	HEAST
Tetrachloroethene	5.1E-02	5.2E-07	B2	Ingestion-Liver nhalation-Leukemia, Liver	HEAST

Notes:

SF = Slope Factor.
IRIS = Integrated Risk Information System.
HEAST = Health Effects Assessment Summary Tables.

DMC:70372-40:TABLE15

TABLE 16

ENARC-O MACHINE PRODUCTS, INC.
REMEDIAL INVESTIGATION
LIMA, NEW YORK

REASONABLE MAXIMUM EXPOSURE (RME) CASE
POTENTIAL NONCARCINOGENIC EFFECTS

Chemical	CDI mg/kg-day	RfD/RfC mg/kg-day	Compound Specific Hazard Index	Pathway Specific Hazard Index
Exposure Pathway: Inhalation of Volatiles - Adult Site Worker (indoors)				
1,1-Dichloroethene	4.2E-05	1.0E-02	4.3E-03	
1,1,1-Trichloroethane	7.3E-05	1.0E+00	7.3E-05	
Trichloroethene	6.9E-05	1E-02	6.7E-03	
1,2-Dichloroethene	1.4E-05	1E-02	1.4E-03	
Tetrachloroethene	5.4E-07	3.5E-02	1.5E-05	1.2E-02
Exposure Pathway: Ingestion of Soil - Adult Site Worker				
1,1,1-Trichloroethane	1.4E-06	9.0E-02	1.56E-05	
1,1-Dichloroethene	3.0E-07	9.0E-03	3.33E-05	
1,2-Dichloroethene	1.9E-06	9.0E-03	2.11E-04	
Trichloroethene	2.9E-06	1E-02	2.9E-04	
Tetrachloroethene	5.7E-07	1E-02	5.7E-05	6.1E-04
Exposure Pathway: Soil Particulate Inhalation - Adult Site Worker				
1,1-Dichloroethene	1.2E-08	9.0E-02	1.3E-07	
1,1,1-Trichloroethane	2.3E-08	1E+00	2.3E-08	
Trichloroethene	1.1E-07	2E-02	5.5E-06	
Tetrachloroethene	5.5E-08	3.5E-02	1.6E-06	
1,2-Dichloroethene	7.7E-08	1E-02	7.7E-06	1.5E-05
Exposure Pathway: Groundwater Dermal Contact - Adult Off-Site Resident				
1,2-Dichloroethene	1.7E-07	1.0E-02	1.7E-05	
1,1,1-Trichloroethane	6.0E-08	9.0E-02	6.7E-07	
Trichloroethene	4.3E-07	1.0E-02	4.3E-05	6.1E-05

Notes:

CDI = Chronic Daily Intake
RfD = Reference Dose
RfC = Reference Concentration

DMC:70372-40:TABLE16

TABLE 17

ENARC-O MACHINE PRODUCTS, INC.
REMEDIAL INVESTIGATION
LIMA, NEW YORK

REASONABLE MAXIMUM EXPOSURE CASE
POTENTIAL CARCINOGENIC EFFECTS

Chemical	LADD mg/kg-day	SF mg/kg-day	Chemical Specific Risk	Total Pathway Risk
Exposure Pathway: Inhalation of Volatiles - On-Site Adult Worker				
Vinyl Chloride	7.9E-08	8.4 E-05	6.4E-12	
1,1-Dichloroethene	1.8E-05	5.0E-05	9.1E-10	
Trichloroethene	2.9E-05	6.0E-03	1.7E-07	
Tetrachloroethene	2.3E-07	5.2E-07	6.7E-14	1.7E-07
Exposure Pathway: Ingestion of Soil - On-Site Adult Worker				
1,1-Dichloroethene	1.0E-07	5.0E-05	5E-12	
Trichloroethene	9.9E-07	1.1E-02	1.1E-08	
Tetrachloroethene	4.7E-07	5.2E-02	2.4E-08	3.5E-08
Exposure Pathway: Soil Particulate Inhalation - On-Site Adult Worker				
1,1-Dichloroethene	1.2E-06	5.0E-05	6.0E-12	
Trichloroethene	1.2E-05	6.0E-03	7.2E-08	
Tetrachloroethene	5.6E-06	5.2E-02	2.9E-12	7.2E-08
Exposure Pathway: Groundwater Dermal Contact - Off-Site Adult Resident				
Trichloroethene	1.8E-07	1.1E-02	2.0 E-09	2.0E-09

Notes:

LADD = Lifetime Average Daily Dose
SF = Slope Factor

dmc:70372-40:TABLE17

TABLE 18

ENARC-O MACHINE PRODUCTS, INC.
REMEDIAL INVESTIGATION
LIMA, NEW YORK

SUMMARY OF ESTIMATED NONCARCINOGENIC
HAZARD INDICES FOR POTENTIAL
EXPOSURE PATHWAYS EVALUATED

Exposure Scenario	Receptor Adult	Exposure Route	Chemicals Primarily Responsible for Risks
On-site Worker - Ambient Air	1.2E-02	Inhalation	Trichloroethene Dichloroethenes
On-site Worker - Soil	6.1E-04	Ingestion	Trichloroethene
Off-site Resident - Groundwater	6.1E-05	Absorption	Trichloroethene
On-site Worker - Particulates	1.5E-05	Inhalation	Trichloroethene

Notes:

1. NA - Not applicable for this scenario.

dmc:70372-40:TABLE18

TABLE 19

ENARC-O MACHINE PRODUCTS, INC.
REMEDIAL INVESTIGATION
LIMA, NEW YORK

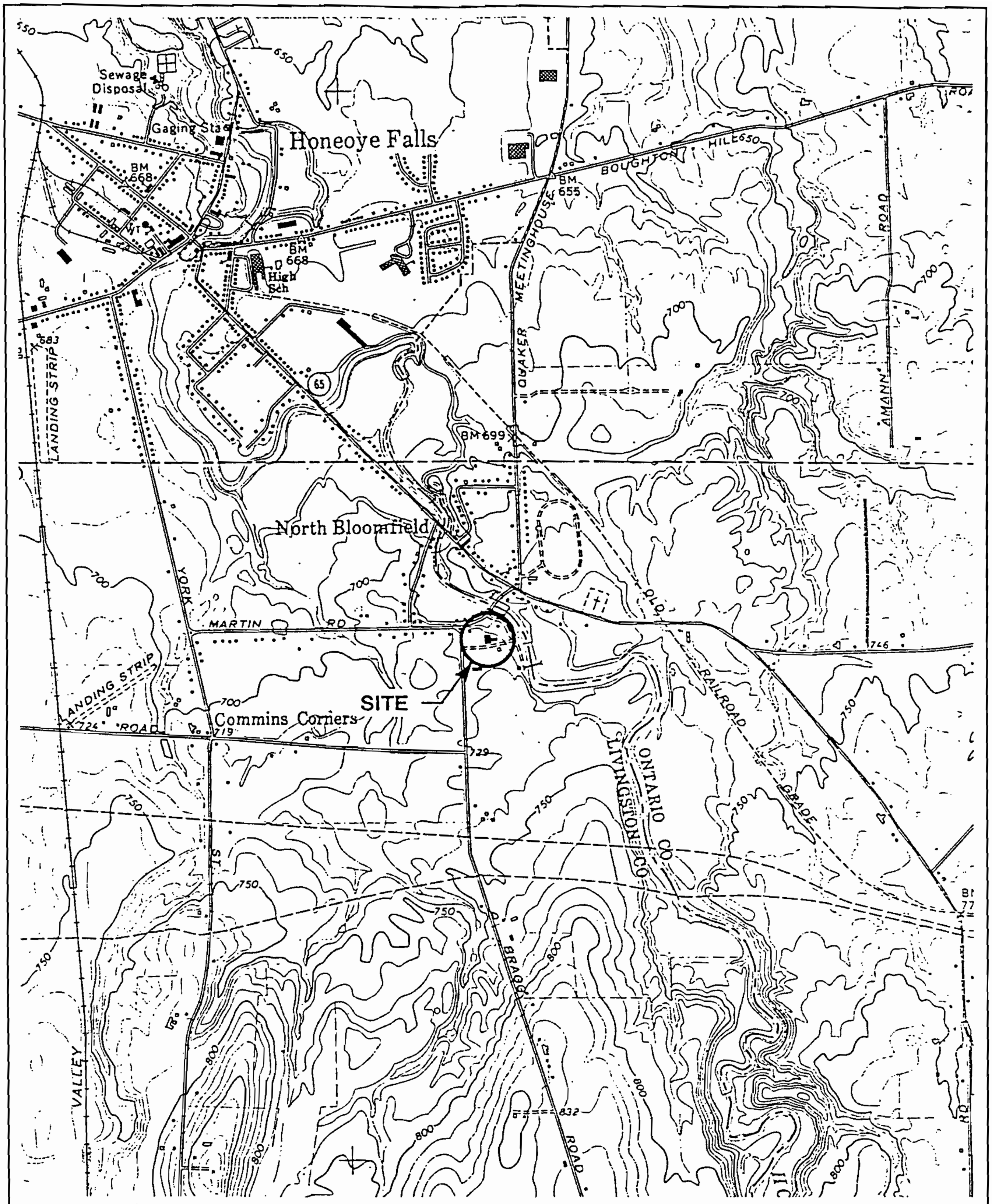
SUMMARY OF ESTIMATED LIFETIME
CANCER RISKS FOR POTENTIAL
EXPOSURE PATHWAYS EVALUATED

	Receptor Risk Estimate		
Exposure Scenario	**Adult**	**Exposure Routes in Order of Importance**	**Chemicals Primarily Responsible for Risks**
On-site Worker - Vapor	1.7E-07	Inhalation	Trichloroethene
On-site Worker - Soil	3.5E-08	Ingestion	Trichloroethene
Off-site Resident - Groundwater	2.0E-09	Absorption	Trichloroethene
On-site Worker - Soil	7.2E-08	Inhalation	Trichloroethene

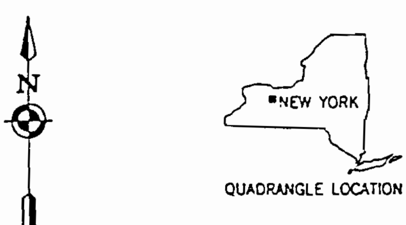
dmc:70372-40:TABLE19

Figures

Figures



LATITUDE: 42° 56' 13"N LONGITUDE: 77° 34' 33"W



QUADRANGLE LOCATION

U.S.G.S. QUADRANGLE: HONEOYE FALLS, N.Y.

H&A OF NEW YORK

Geotechnical Engineers & Environmental Consultants

ENARC-O MACHINE PRODUCTS
LIMA, NEW YORK

PROJECT LOCUS

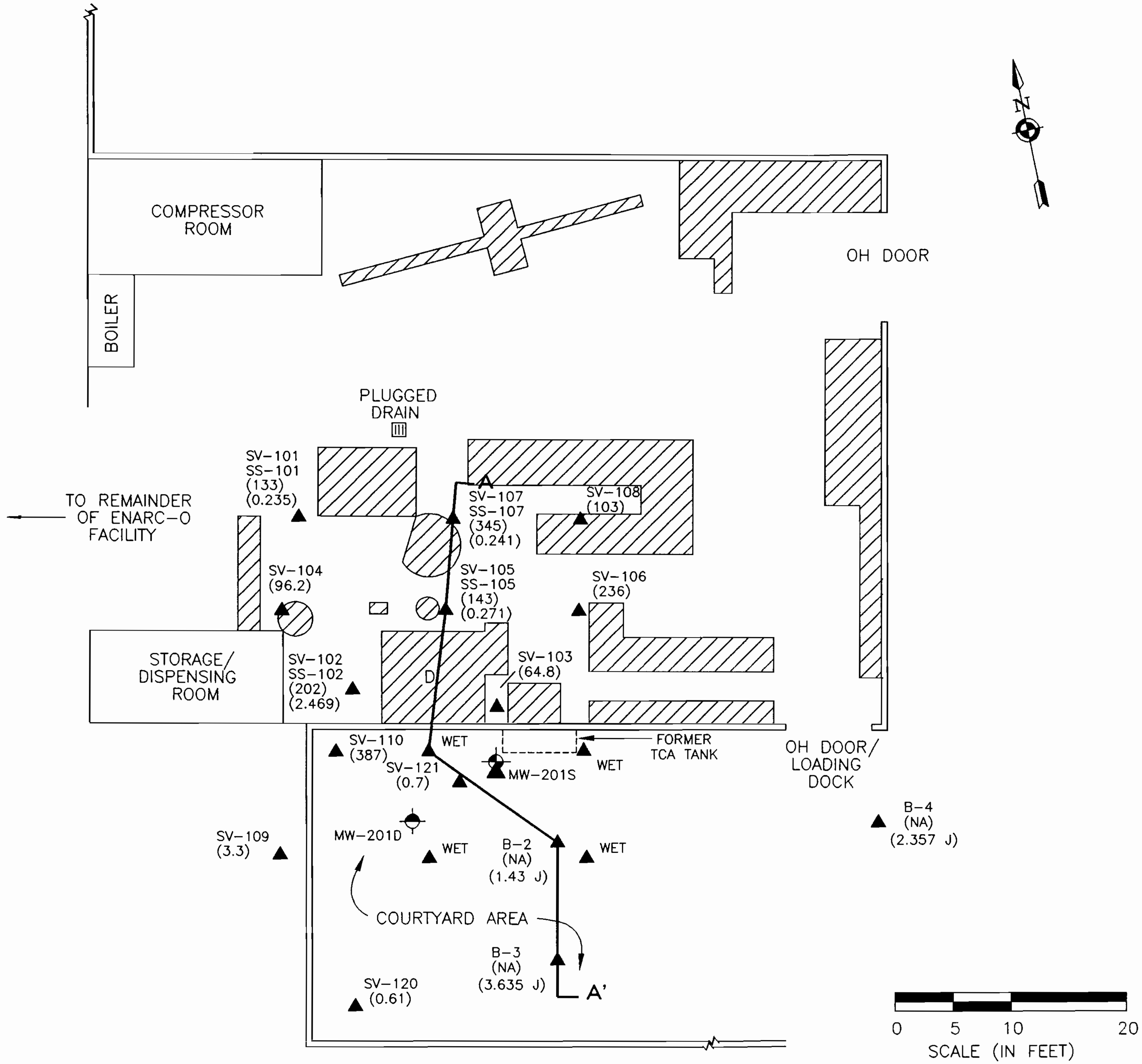
SCALE: 1 IN. = 2000 FT.

FEBRUARY 1993

FILE NO. 70372-40

MAKEPEACE

FIGURE 1



LEGEND:

SV-102 SS-102 (202) (2.469) ▲	APPROXIMATE LOCATION OF SOIL VAPOR SAMPLE (SV-102) SOIL SAMPLE (SS-102 OR B-2) TOTAL VOCS (PPMV) IN VAPOR TOTAL VOCS (PPM) IN SOIL
(hatched area)	FLOOR AREA OBSTRUCTED BY EQUIPMENT, STORAGE OR OTHER, (DIMENSIONS APPROXIMATE). "D" DESIGNATES DEGREASER LOCATED IN CONCRETE PIT
MW-201S	OVERBURDEN MONITORING WELL
MW-201D	BEDROCK MONITORING WELL
A A'	SUBSURFACE PROFILE LINE

NOTES:

1. ALL LOCATIONS AND DIMENSIONS APPROXIMATE, BASED ON TAPE PLAN OF FACILITY. MONITORING WELL LOCATIONS AND SV-120, SV-121 WERE SURVEYED.

2. SOURCE AREA SAMPLE LOCATIONS SHOWN. SOIL SAMPLE DEPTH IS 40-52 INCHES. SOIL VAPOR SAMPLES DEPTH IS TO 40 INCHES. SOIL SAMPLES VALUES DO NOT INCLUDE UNKNOWN VOCS.

4. SOIL VAPOR SAMPLE IN SV-121 TAKEN FROM DEPTH OF 0.5-2.5 FEET BELOW GROUND SURFACE.

5. SEE TEXT FOR ADDITIONAL INFORMATION. REFER TO FIGURE 6 FOR SUBSURFACE PROFILE A-A'.

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ENARC-O MACHINE PRODUCTS, INC.
REMEDIAL INVESTIGATION
LIMA, NEW YORK

SOURCE AREA SOIL AND SOIL VAPOR VOC CONCENTRATION PLAN

SCALE AS SHOWN REVISED AUGUST 1996

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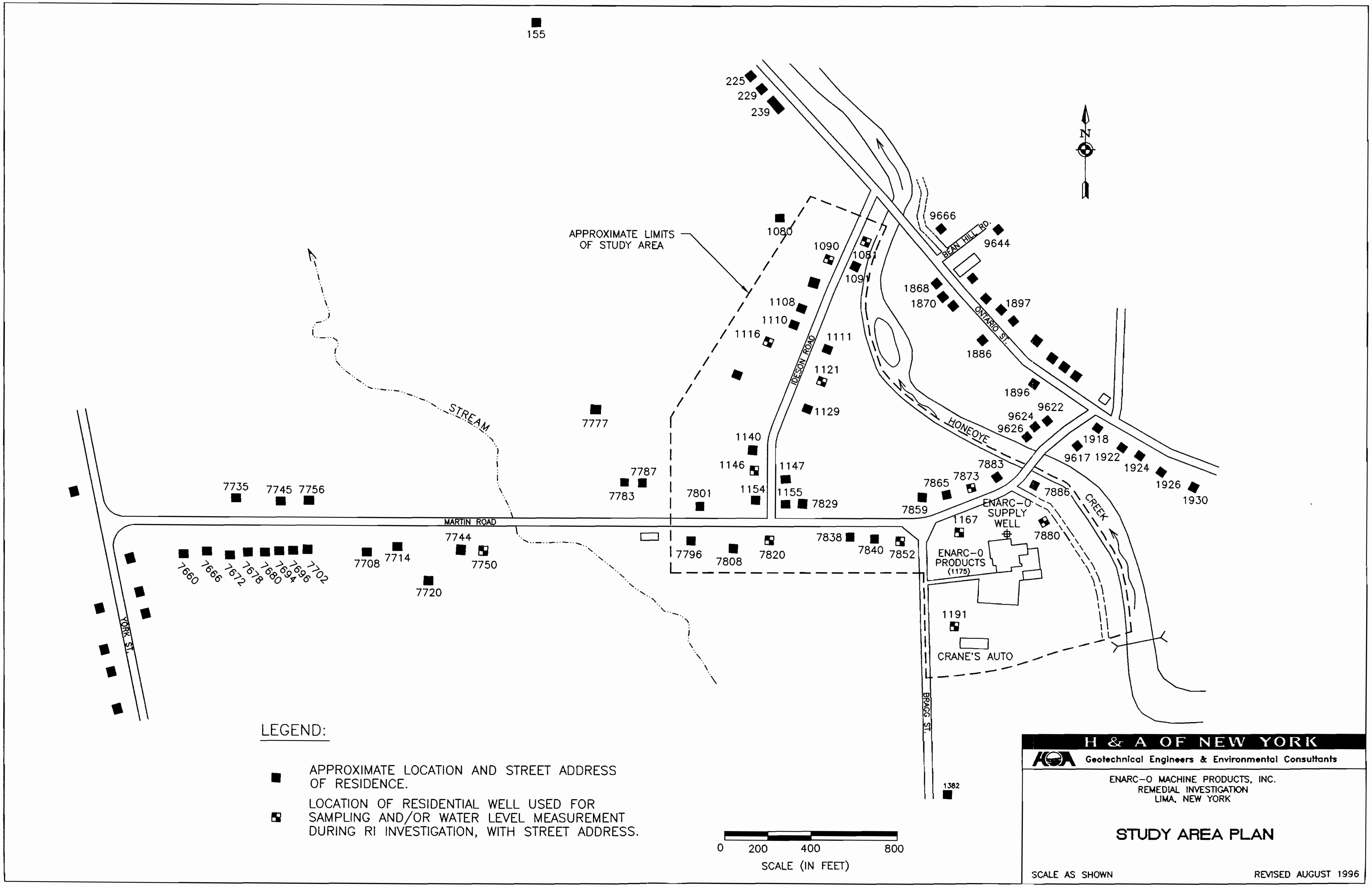
FIGURE 3

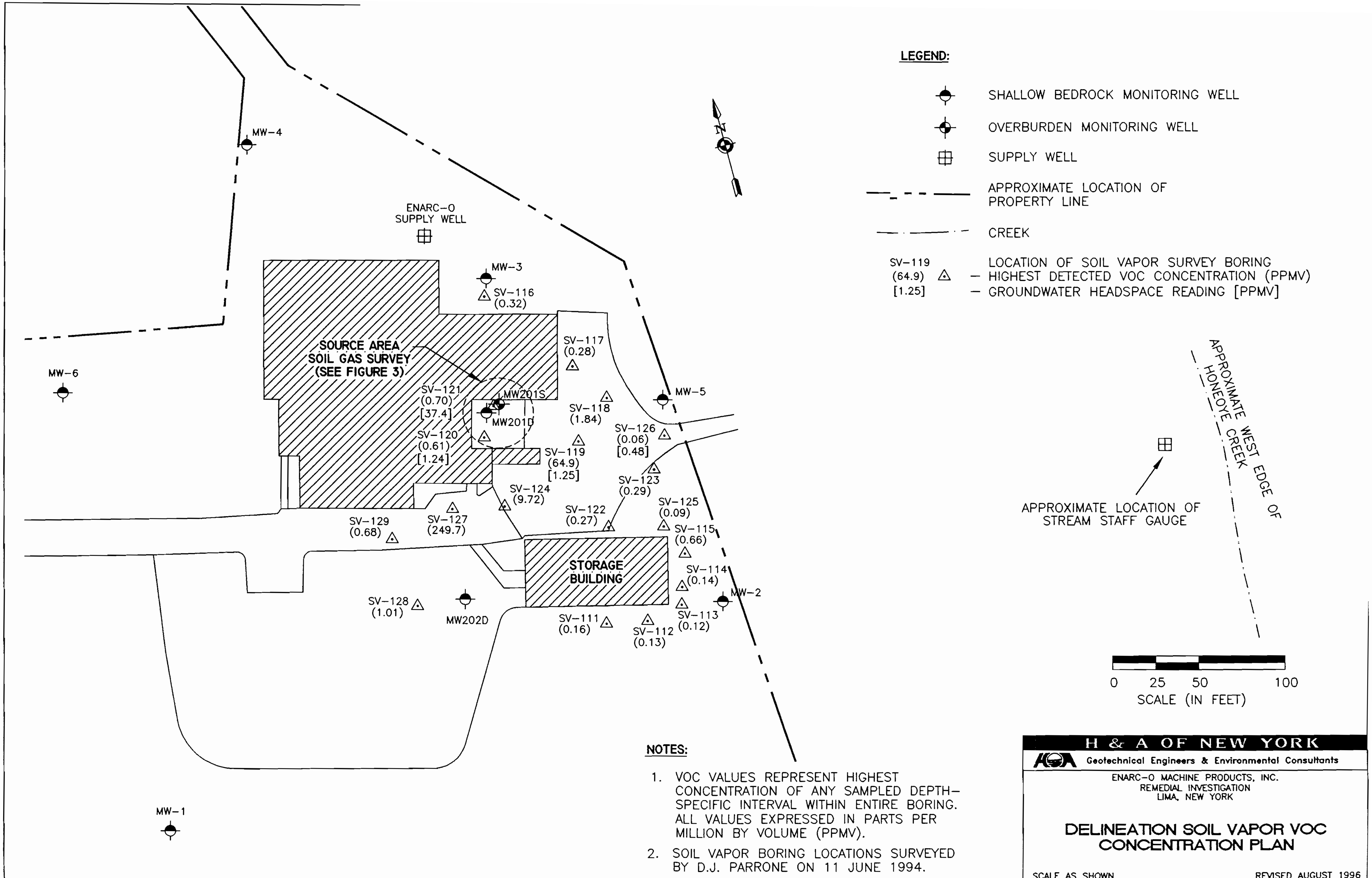
FILE No. 70372-047

FILE No. 70372-047



FILENAME: 70372-047:RIW007D.DWG

FIGURE 4



NOTES:

1. VOC VALUES REPRESENT HIGHEST CONCENTRATION OF ANY SAMPLED DEPTH-SPECIFIC INTERVAL WITHIN ENTIRE BORING. ALL VALUES EXPRESSED IN PARTS PER MILLION BY VOLUME (PPMV).
2. SOIL VAPOR BORING LOCATIONS SURVEYED BY D.J. PARRONE ON 11 JUNE 1994.

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REMEDIAL INVESTIGATION
LIMA, NEW YORK

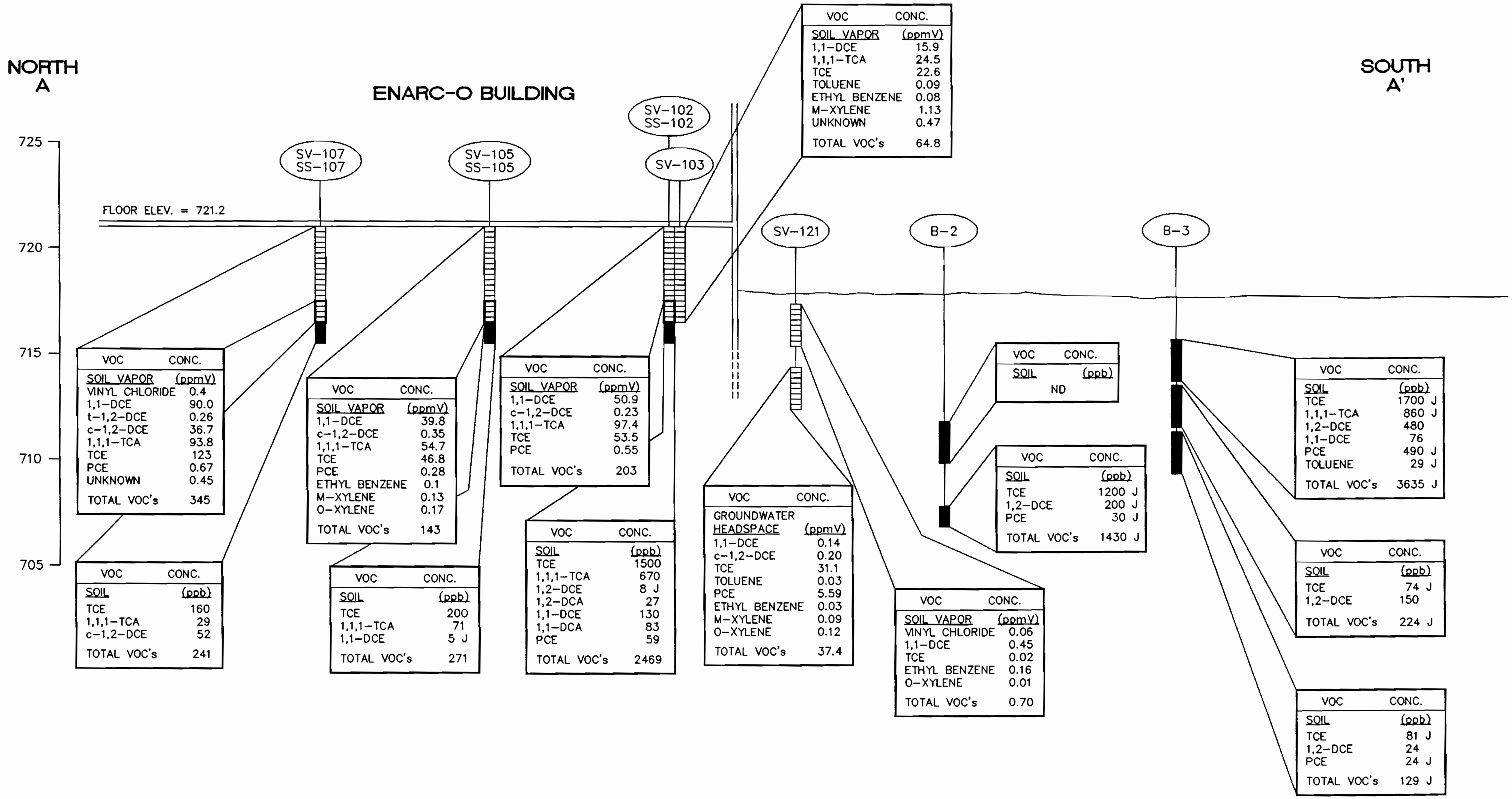
DELINEATION SOIL VAPOR VOC CONCENTRATION PLAN

SCALE AS SHOWN — REVISED AUGUST 1996

FILENAME: 70372-048:RIW007B.DWG

FIGURE 5

FILE No. 70372-047



VOC	CONC.
SOIL VAPOR	(ppmV)
1,1-DCE	15.9
1,1,1-TCA	24.5
TCE	22.6
TOLUENE	0.09
ETHYL BENZENE	0.08
M-XYLENE	1.13
UNKNOWN	0.47
TOTAL VOC's	64.8

VOC	CONC.
SOIL VAPOR	(ppmV)
VINYL CHLORIDE	0.4
1,1-DCE	90.0
t-1,2-DCE	0.26
c-1,2-DCE	36.7
1,1,1-TCA	93.8
TCE	123
PCE	0.67
UNKNOWN	0.45
TOTAL VOC's	345

VOC	CONC.
SOIL	(ppb)
TCE	160
1,1,1-TCA	29
c-1,2-DCE	52
TOTAL VOC's	241

VOC	CONC.
SOIL VAPOR	(ppmV)
1,1-DCE	39.8
c-1,2-DCE	0.35
1,1,1-TCA	54.7
TCE	46.8
PCE	0.28
ETHYL BENZENE	0.1
M-XYLENE	0.13
O-XYLENE	0.17
TOTAL VOC's	143

VOC	CONC.
SOIL	(ppb)
TCE	200
1,1,1-TCA	71
1,1-DCE	5 J
TOTAL VOC's	271

VOC	CONC.
SOIL VAPOR	(ppmV)
1,1-DCE	50.9
c-1,2-DCE	0.23
1,1,1-TCA	97.4
TCE	53.5
PCE	0.55
TOTAL VOC's	203

VOC	CONC.
SOIL	(ppb)
TCE	1500
1,1,1-TCA	670
1,2-DCE	8 J
1,2-DCA	27
1,1-DCE	130
1,1-DCA	83
PCE	59
TOTAL VOC's	2469

VOC	CONC.
GROUNDWATER HEADSPACE	(ppmV)
1,1-DCE	0.14
c-1,2-DCE	0.20
TCE	31.1
TOLUENE	0.03
PCE	5.59
ETHYL BENZENE	0.03
M-XYLENE	0.09
O-XYLENE	0.12
TOTAL VOC's	37.4

VOC	CONC.
SOIL VAPOR	(ppmV)
VINYL CHLORIDE	0.06
1,1-DCE	0.45
TCE	0.02
ETHYL BENZENE	0.16
O-XYLENE	0.01
TOTAL VOC's	0.70

VOC	CONC.
SOIL	(ppb)
ND	

VOC	CONC.
SOIL	(ppb)
TCE	1200 J
1,2-DCE	200 J
PCE	30 J
TOTAL VOC's	1430 J

VOC	CONC.
SOIL	(ppb)
TCE	1700 J
1,1,1-TCA	860 J
1,2-DCE	480
1,1-DCE	76
PCE	490 J
TOLUENE	29 J
TOTAL VOC's	3635 J

VOC	CONC.
SOIL	(ppb)
TCE	74 J
1,2-DCE	150
TOTAL VOC's	224 J

VOC	CONC.
SOIL	(ppb)
TCE	81 J
1,2-DCE	24
PCE	24 J
TOTAL VOC's	129 J

NOTES:

1. SEE FIGURE 3 FOR PROFILE LOCATION.
2. ALL SOIL VAPOR VALUES IN PARTS PER MILLION BY VOLUME (ppmV).
3. ALL SOIL VALUES IN UG/KG OR PARTS PER BILLION (ppb).
4. SV-102, 103, 105 AND 107 VAPOR SAMPLES OBTAINED DURING SOURCE AREA SOIL VAPOR SURVEY WORK ON 5 MAY 1994. SV-121 WAS SAMPLED DURING SITEWIDE SURVEY WORK ON 10-11 MAY 1994. B-2 AND B-3 SAMPLED NOVEMBER 1990.
5. REFER TO TEXT FOR ADDITIONAL INFORMATION.

LEGEND:

SV-107 — SOIL VAPOR LOCATION
SAMPLED INTERVAL
PERMANENT SOIL VAPOR MONITORING POINT
SOIL SAMPLE

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SOURCE AREA SOIL VAPOR SURVEY SUBSURFACE PROFILE A-A'

SCALE: 1" = 5'
REVISED AUGUST 1996

FILENAME: PRFL2.DWG

FIGURE 6

FILE No. 70372-047

1081 MILLER

JUL - AUG 1985	
	ND
APR 1995	
CHLOROFORM	2J
	ND

1090 COLAVITO

JUL - AUG 1985	
TCE	2
APR 1995	
	ND
BENZENE	1J

1116 MALOY

JUL - AUG 1985	
TCE	8
CIS 1, 2 DCE	1
APR 1995	
CHLOROFORM	3J
ACETONE	82
UNKNOWNS	71J

1121 COOPER

JUL - AUG 1985		
TCE	24	
1,1,1-TCA	1	
CIS 1, 2 DCE	8	
1, 1 DCA	1	
	APR 1995	**AUG 1995**
TCE	2J	ND
ACETONE	9J	3J
TCE	2J	NS

1146 REANO

JUL - AUG 1985		
TCE	46	
1,1,1-TCA	2	
CIS 1, 2 DCE	8	
	APR 1995	**AUG 1995**
	ND	NS
TCE	ND	3J

7873 YEARS

JUL - AUG 1985		
TCE	72	
1,1,1-TCA	1	
CIS 1, 2 DCE	19	
	APR 1995	**AUG 1995**
TCE	4J	NS
CIS 1, 2 DCE	5J	
TCE	9J	6J
CIS 1, 2 DCE	3J	2J

1167 WILDMAN

JUL - AUG 1985		
TCE	98	
1,1,1-TCA	1	
CIS 1, 2 DCE	17	
	APR 1995	**AUG 1995**
TCE	6J	NS
TCE	13	9J
CIS 1, 2 DCE	3J	2J
CHLOROFORM	ND	1J
ACETONE	ND	2J

7880 HANSON

JUL - AUG 1985		
TCE	197	
1,1,1-TCA	2	
CIS 1, 2 DCE	43	
1,2 DCA	2	
	APR 1995	**AUG 1995**
TCE	6J	6J
CIS 1, 2 DCE	16	8J
CHLOROFORM	2J	ND
ACETONE	ND	5J
TCE	12	NS
CIS 1, 2 DCE	10	
TCE	13	NS
CIS 1, 2 DCE	10	

7820 JOHNSON

JUL - AUG 1985	
TCE	31
CIS 1, 2 DCE	4
APR 1995	
	ND
TCE	4J

7852 HOPKINS

JUL - AUG 1985		
TCE	80	
1,1,1-TCA	1	
CIS 1, 2 DCE	4	
	APR 1995	**AUG 1995**
TCE	7J	NS
TCE	7J	1J
CHLOROFORM	ND	2J
ACETONE	ND	9J

1191 TONDRYK

JUL - AUG 1985	
TCE	3
APR 1995	
	ND
TCE	1J
BENZENE	2J
CHLOROBENZENE	2J
TOLUENE	2J

1175 ENARC-O

JUL - AUG 1985		
TCE	8-1800	
1,1,1-TCA	22-560	
CIS 1, 2 DCE	4	
PCE	68	
1,1,2,2 TCA	100	
	APR 1995	**AUG 1995**
TCE	42	160
1,1-DCE	ND	2J
1,1,1-TCA	6J	ND
1,1-DCA	ND	4J
CIS 1, 2 DCE	2J	3J
PCE	1J	4J
CHLOROFORM	ND	3J
TCE	6J	NS
CIS 1, 2 DCE	6J	
TRANS 1, 2 DCE	2J	
TCE	4J	NS
CIS 1, 2 DCE	7J	
TRANS 1, 2 DCE	3J	

LEGEND:

- APPROXIMATE LOCATION AND STREET ADDRESS OF RESIDENCE. NR INDICATES NO RESPONSE RECEIVED TO SURVEY QUESTIONNAIRE OR OTHER ATTEMPTS TO CONTACT.
- LOCATION OF RESIDENTIAL WELL PROPOSED FOR SAMPLING, WITH NAME OF HOMEOWNER
- LOCATION OF RESIDENTIAL WELL PROPOSED FOR WATER LEVEL READING ONLY
- INDICATES WELL INACCESSIBLE DUE TO BEING BURIED, PLUGGED, LOST, ETC.
- APPROXIMATE SURFACE SOIL SAMPLE LOCATION
- W 8" APPROXIMATE LOCATION OF 1 INCH WATER MAIN INSTALLED BY RWW IN 1987

ANALYTICAL RESULTS LEGEND:

COMPOUND NAMES — SAMPLED DATE — SAMPLED WELL — DETECTED CONCENTRATION (ug/L) — SAMPLED DATE — UPPER SAMPLE — +/- MIDDLE SAMPLE — LOWER SAMPLE

JUL-AUG 1985	
TCE	197
1,1,1-TCA	2
APR 1995	
TCE	6J
CIS 1, 2 DCE	16
TCE	12
CIS 1, 2 DCE	10
TCE	13
CIS 1, 2 DCE	10

NOTE:

1. WELLS WERE SAMPLED BY NYSDOH/LCHD IN JULY-AUGUST 1985 AND BY H&A OF NEW YORK ON 10-14 APRIL 1995 AND 22-23 AUGUST 1995.
2. ABBREVIATIONS ARE AS FOLLOWS:
   - NS - NOT SAMPLED
   - ND - NONE DETECTED
   - TCE - TRICHLOROETHENE
   - TCA - TRICHLORETHANE
   - DCE - DICHLOROETHENE
   - DCA - DICHLOROETHANE
   - PCE - TETRACHLOROETHENE
   - "J" - INDICATES COMPOUND CONCENTRATION AT OR BELOW THE PRACTICAL QUANTITATION LIMIT (PQL).

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OFFSITE WELL PLAN AND SAMPLING RESULTS

SCALE: AS SHOWN

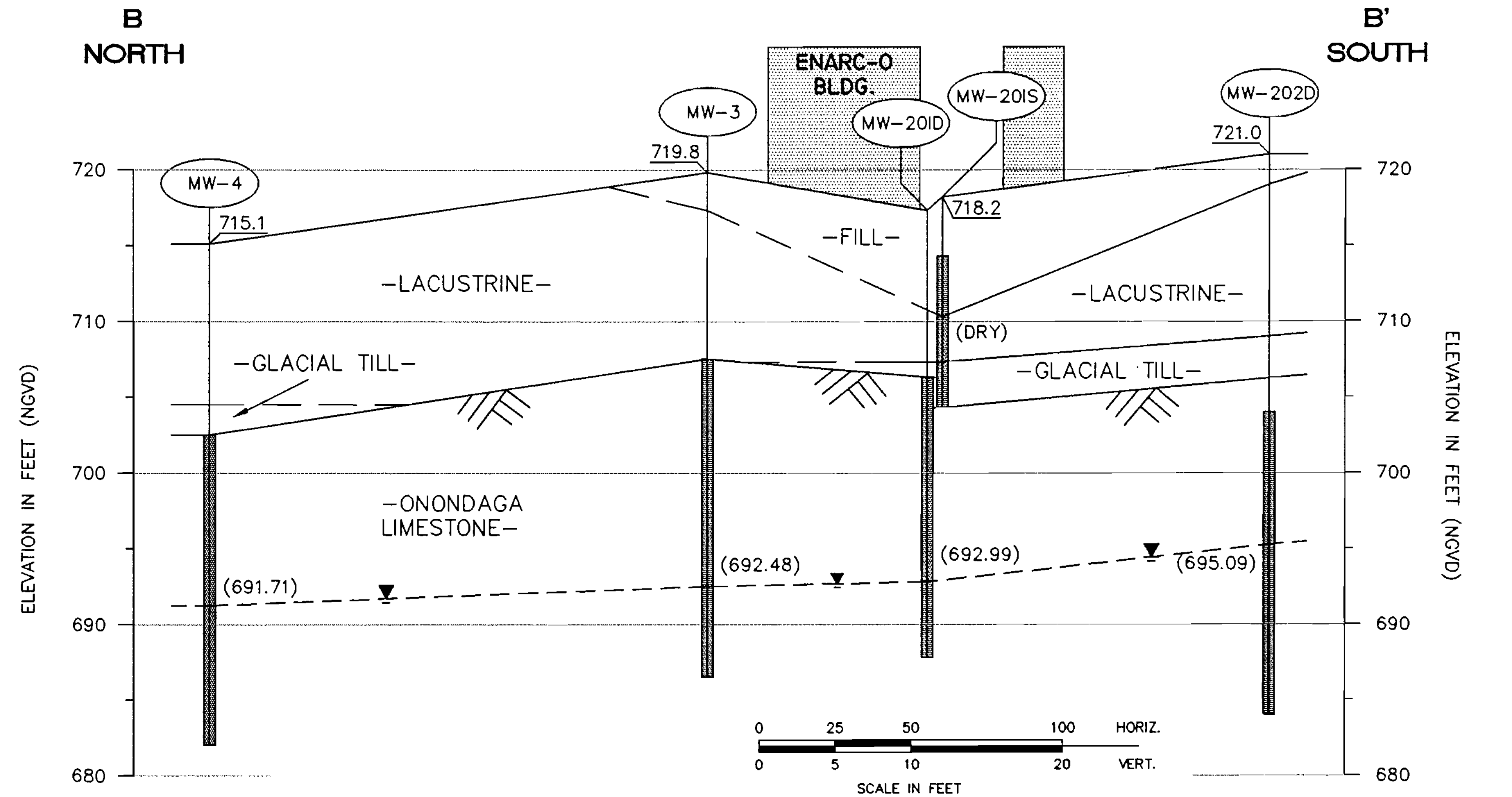
DECEMBER 1995

FILENAME: 70372-047:RIR05D .DGN

FIGURE 7

FILE No. 70372-047

FILE No. 70372-047



NOTES:

1. SEE FIGURE 2 FOR PROFILE LOCATION.
2. WELL LOCATIONS ARE BASED ON SURVEY PLAN PROVIDED BY D.J. PARRONE & ASSOCIATES.
3. WATER LEVEL ELEVATIONS ARE BASED ON GROUNDWATER LEVEL MEASUREMENTS TAKEN ON 13 JULY 1994 BY H&A.
4. STRATA LINES ARE ESTIMATED BETWEEN DATA POINTS. ACTUAL VALUES BETWEEN DATA POINTS MAY VARY.
5. SEE TEXT FOR ADDITIONAL INFORMATION

LEGEND:

MW-4 — MONITORING WELL NUMBER
715.1 — GROUND SURFACE ELEVATION
TOP OF BEDROCK
(691.71) — MONITORING INTERVAL AND GROUNDWATER ELEVATION
GROUNDWATER ELEVATION

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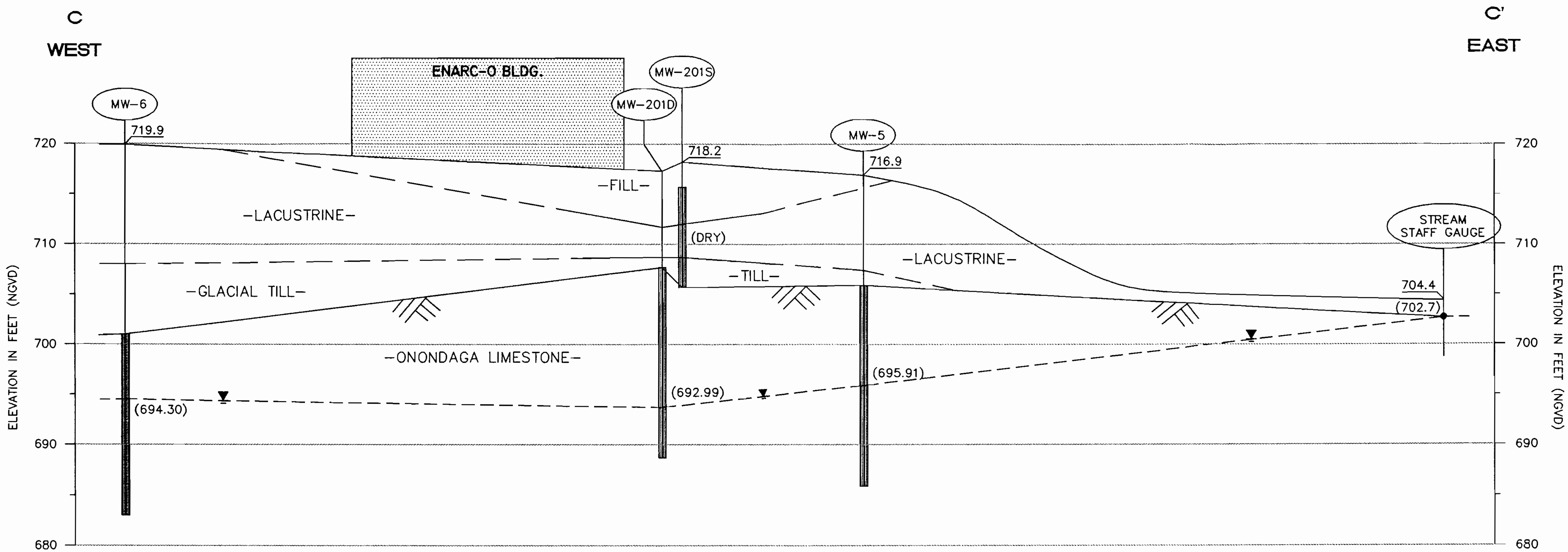
SUBSURFACE PROFILE B-B'

SCALE AS SHOWN

REVISED AUGUST 1996

FILENAME: 70372-047:RIG001A.DWG

FIGURE 8



NOTES:

1. SEE FIGURE 2 FOR PROFILE LOCATION.
2. WELL LOCATIONS ARE BASED ON SURVEY PLAN PROVIDED BY D.J. PARRONE & ASSOCIATES.
3. WATER LEVEL ELEVATIONS ARE BASED ON GROUNDWATER LEVEL MEASUREMENTS TAKEN ON 13 JULY 1994 BY H&A.
4. STRATA LINES ARE ESTIMATED BETWEEN DATA POINTS. ACTUAL VALUES BETWEEN DATA POINTS MAY VARY.
5. SEE TEXT FOR ADDITIONAL INFORMATION.

LEGEND:

MW-5 — MONITORING WELL NUMBER
716.9 — GROUND SURFACE ELEVATION
TOP OF BEDROCK
(695.91) — MONITORING INTERVAL AND GROUNDWATER ELEVATION
GROUNDWATER ELEVATION

0 25 50 100 HORIZ.
0 5 10 20 VERT.
SCALE IN FEET

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SUBSURFACE PROFILE C-C'

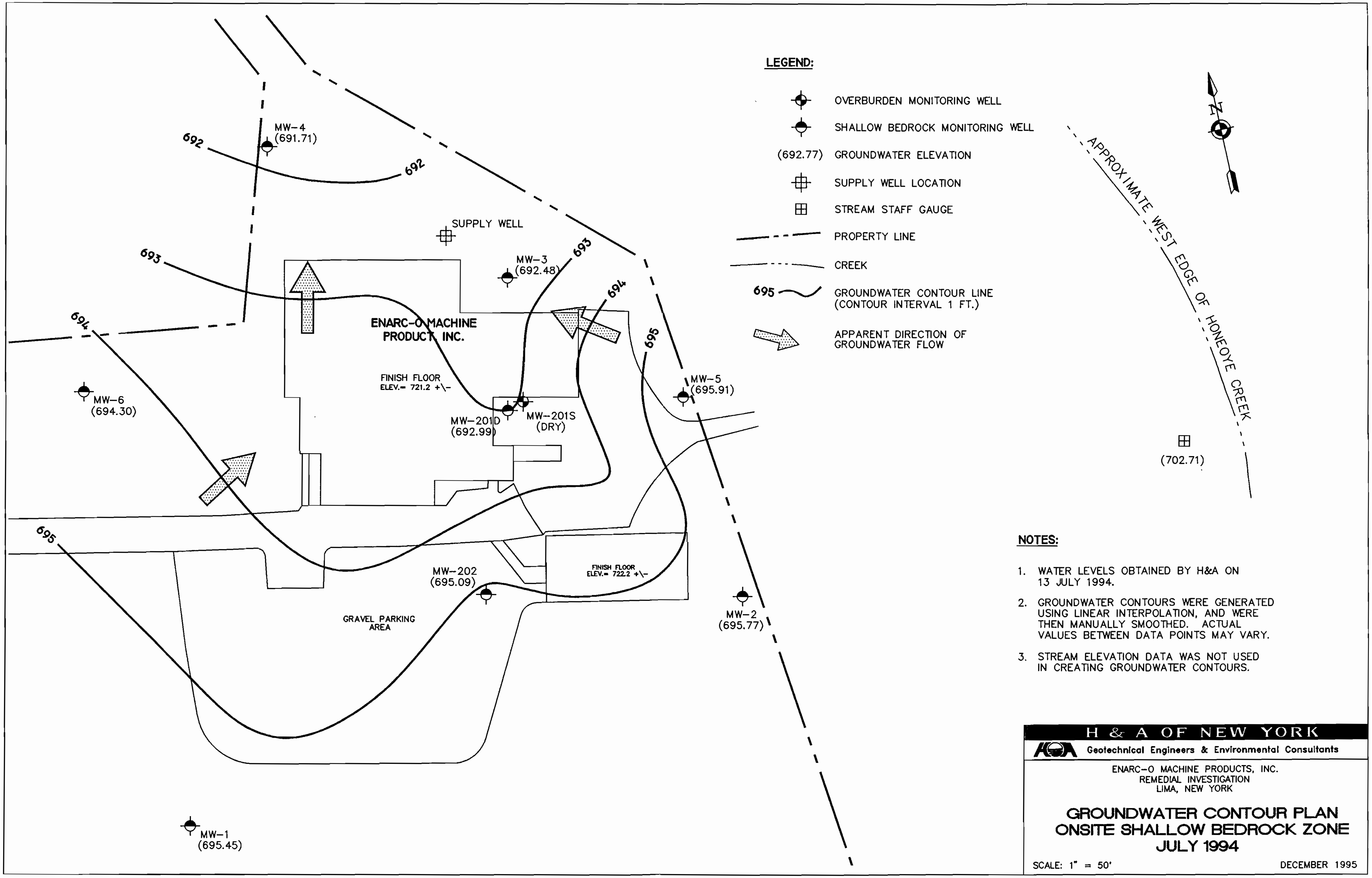
SCALE AS SHOWN

REVISED AUGUST 1996

FILENAME: 70372-047:R1G002B.DWG

FIGURE 9

FILE No. 70372-047



NOTES:

1. WATER LEVELS OBTAINED BY H&A ON 13 JULY 1994.
2. GROUNDWATER CONTOURS WERE GENERATED USING LINEAR INTERPOLATION, AND WERE THEN MANUALLY SMOOTHED. ACTUAL VALUES BETWEEN DATA POINTS MAY VARY.
3. STREAM ELEVATION DATA WAS NOT USED IN CREATING GROUNDWATER CONTOURS.

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LIMA, NEW YORK

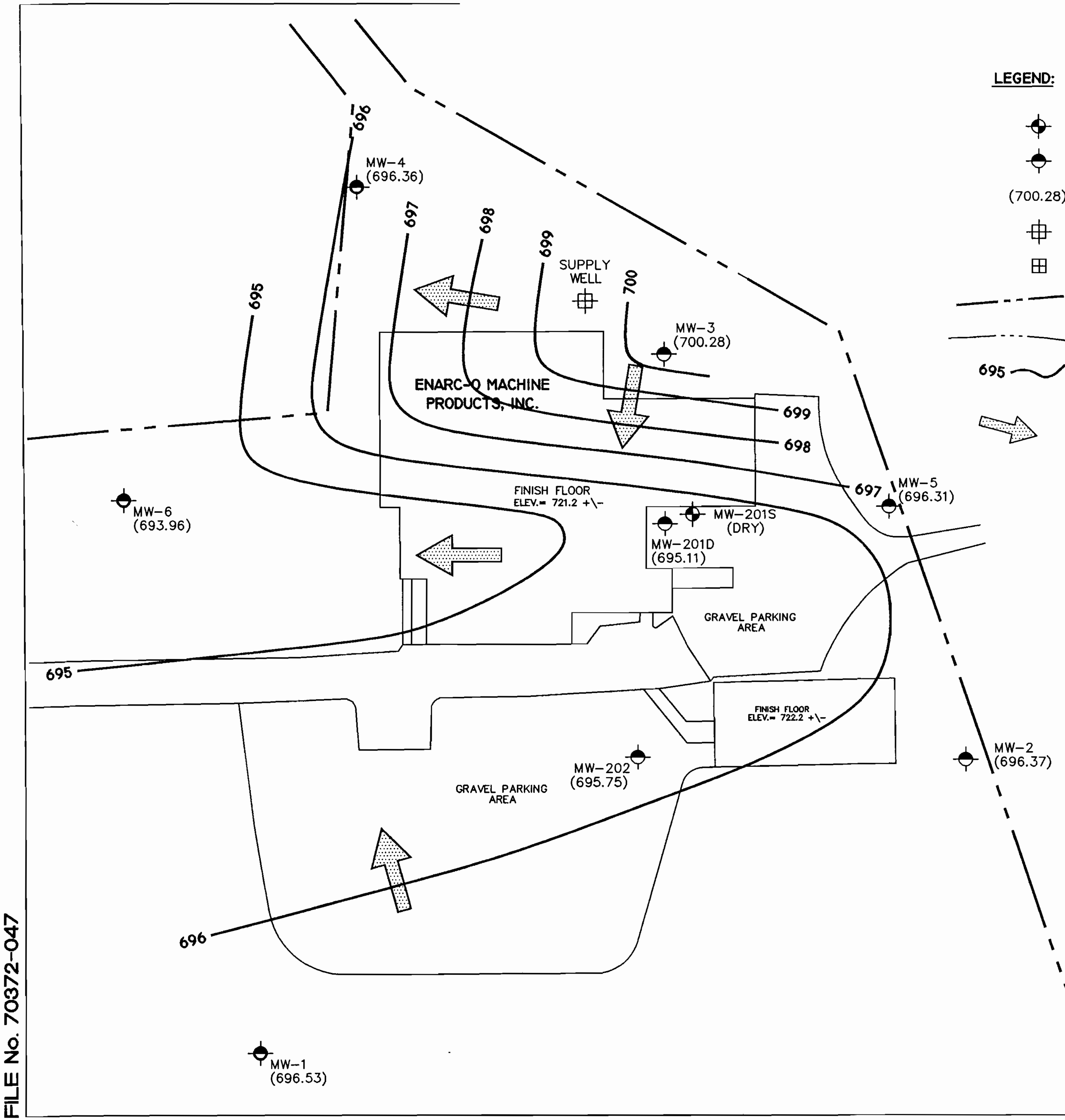
GROUNDWATER CONTOUR PLAN
ONSITE SHALLOW BEDROCK ZONE
JULY 1994

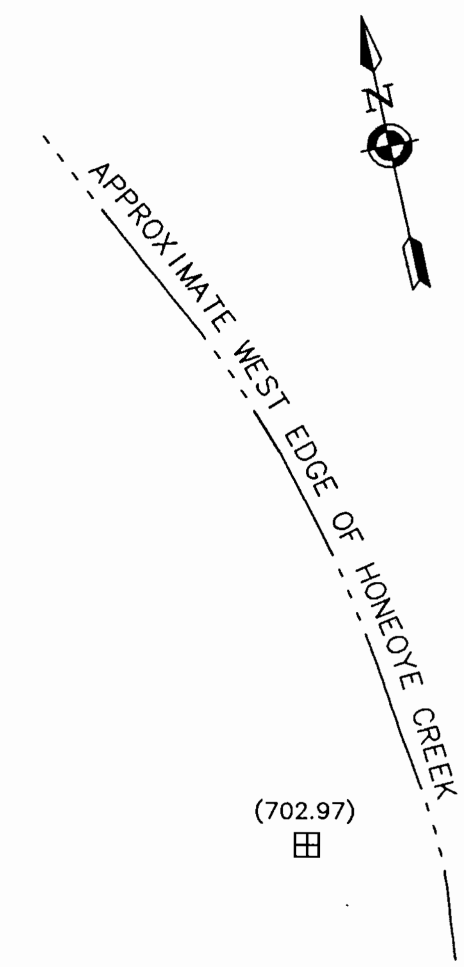
SCALE: 1" = 50'   DECEMBER 1995

FILENAME: 70372-047:RW003B.DWG

FIGURE 10

FILE No. 70372-047





LEGEND:

- OVERBURDEN MONITORING WELL
- SHALLOW BEDROCK MONITORING WELL
- (700.28) GROUNDWATER ELEVATION
- SUPPLY WELL LOCATION
- STREAM STAFF GAUGE
- PROPERTY LINE
- CREEK
- 695 GROUNDWATER CONTOUR LINE (CONTOUR INTERVAL 1 FT.)
- APPARENT DIRECTION OF GROUNDWATER FLOW

NOTES:

1. WATER LEVELS OBTAINED BY H&A ON 21 DECEMBER 1994.
2. GROUNDWATER CONTOURS WERE GENERATED USING LINEAR INTERPOLATION, AND WERE THEN MANUALLY SMOOTHED. ACTUAL VALUES BETWEEN DATA POINTS MAY VARY.
3. STREAM ELEVATION DATA WAS NOT USED IN CREATING GROUNDWATER CONTOURS.

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ENARC-O MACHINE PRODUCTS, INC.
REMEDIAL INVESTIGATION
LIMA, NEW YORK

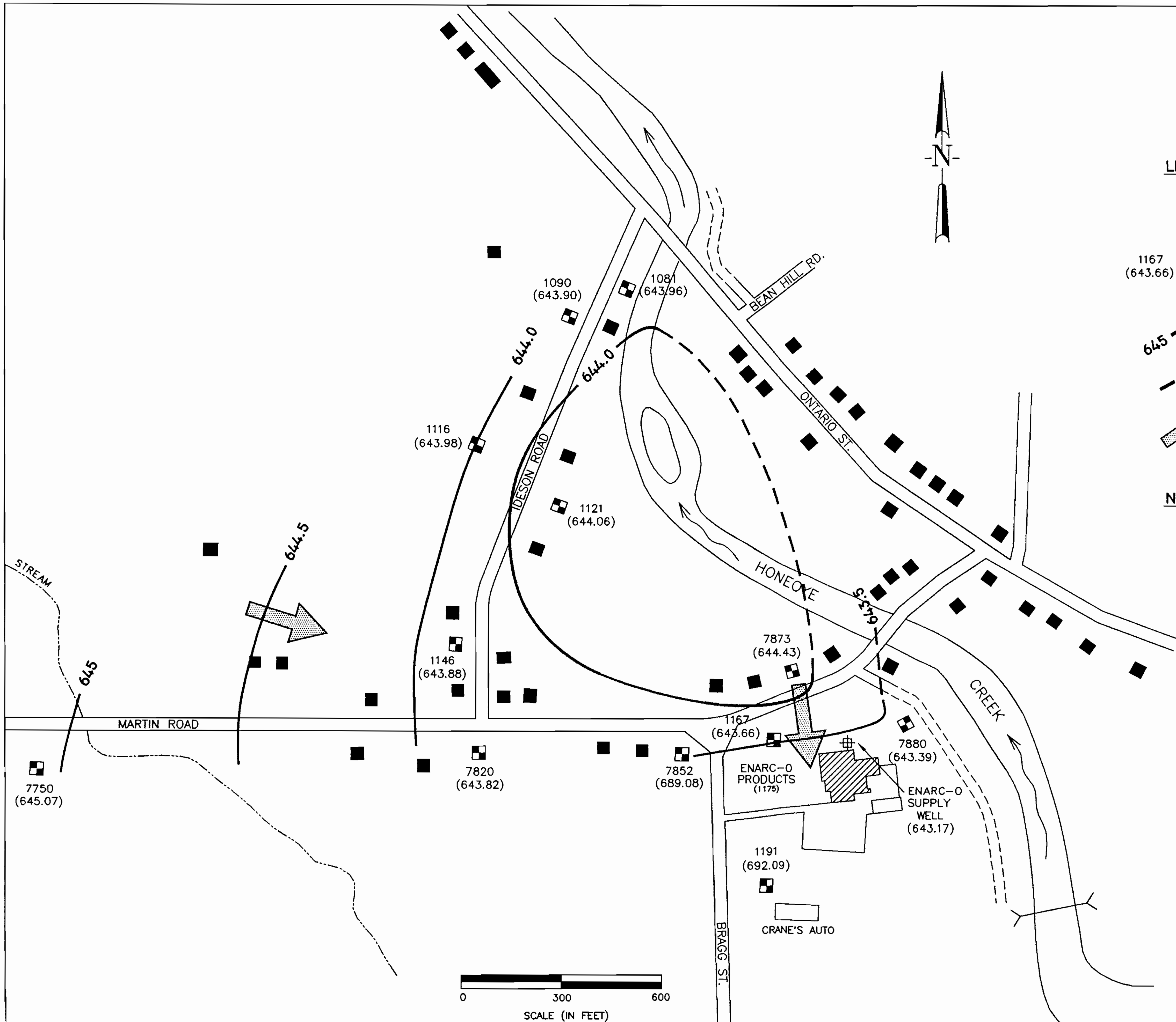
GROUNDWATER CONTOUR PLAN
ONSITE SHALLOW BEDROCK ZONE
DECEMBER 1994

SCALE: 1" = 50'   DECEMBER 1995

FILENAME: 70372-047:RIW004B.DWG

FIGURE 11

FILE No. 70372-047



LEGEND:

■ APPROXIMATE LOCATION OF RESIDENCE

1167 (643.66) LOCATION OF RESIDENTIAL WELL MEASURED FOR GROUNDWATER CONTOURING (WATER LEVEL ELEVATION IN PARENTHESES)

645 GROUNDWATER CONTOUR LINE (CONTOUR INTERVAL 0.5 FT.)

INFERRED GROUNDWATER CONTOUR LINE

APPARENT DIRECTION OF GROUNDWATER FLOW

NOTES:

1. WATER LEVELS OBTAINED BY H&A ON 22 DECEMBER 1994. GROUNDWATER CONTOURS WERE CREATED USING LINEAR INTERPOLATION, THEN WERE MANUALLY SMOTHED. ACTUAL VALUES BETWEEN DATA POINTS MAY VARY.
2. WELLS AT 7852 MARTIN ROAD AND 1191 BRAGG STREET HAVE WATER LEVELS THAT ARE INCONSISTENT WITH OTHER OFF SITE RESIDENTIAL WELLS. THESE WATER LEVELS ARE NOT REPRESENTATIVE OF THE EQUIPOTENTIAL SURFACE PRESENTED HERE BASED ON THE REMAINING OFFSITE WELLS. THESE TWO WELLS WERE THEREFORE NOT INCLUDED WHEN CONTOURING. SEE TEXT FOR DISCUSSION.
3. FOR ONSITE CONTOUR PLANS SEE FIGURES 10 AND 11.

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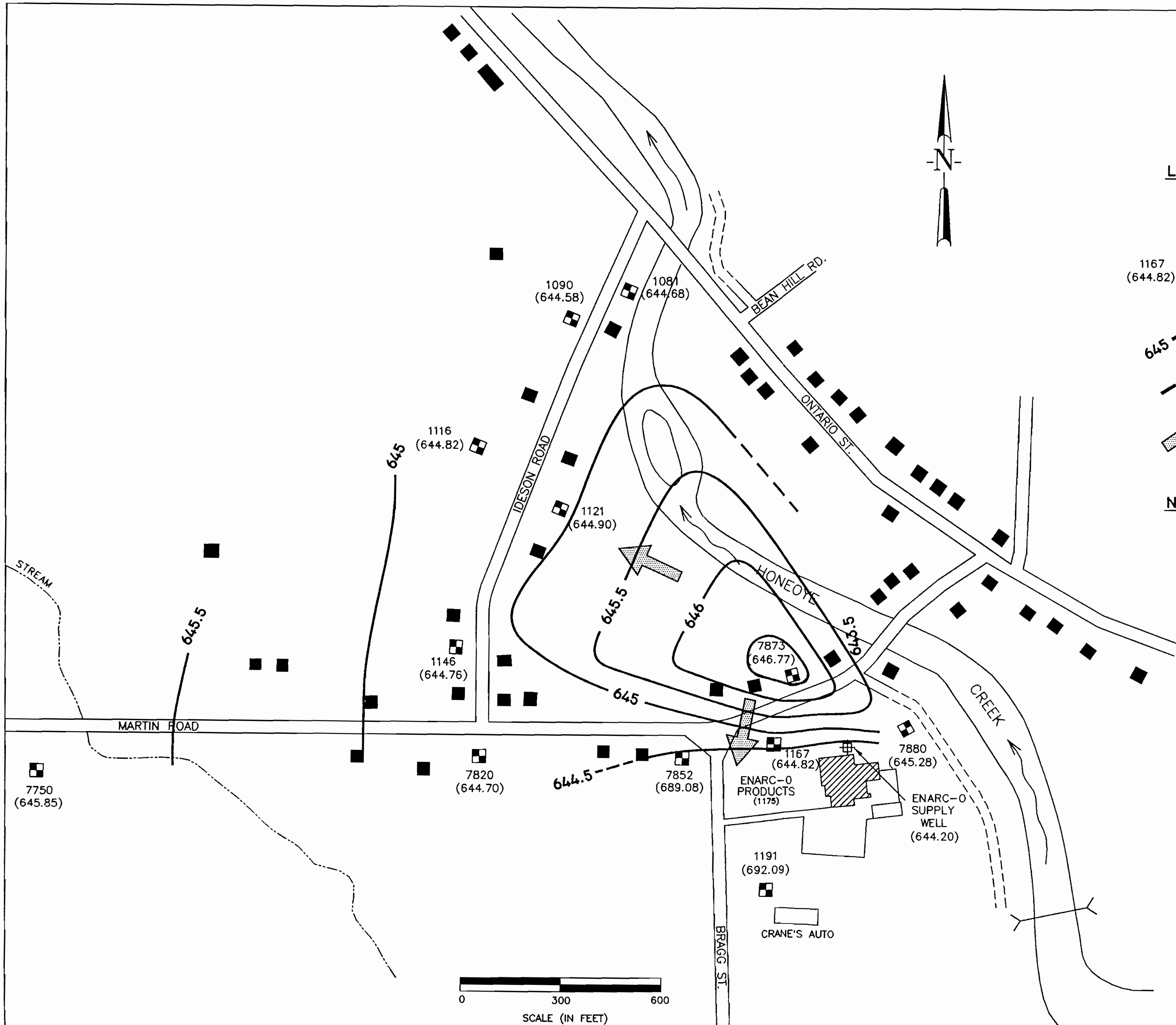
ENARC-O MACHINE PRODUCTS, INC.
REMEDIAL INVESTIGATION
LIMA, NEW YORK

GROUNDWATER CONTOUR PLAN
OFF-SITE RESIDENTIAL WELLS
DECEMBER 1994

SCALE AS SHOWN REVISED AUGUST 1996

FILENAME: RIC001B.DWG **FIGURE 12**

FILE No. 70372-047



LEGEND:

- APPROXIMATE LOCATION OF RESIDENCE
- 1167 (644.82) — LOCATION OF RESIDENTIAL WELL MEASURED FOR GROUNDWATER CONTOURING (WATER LEVEL ELEVATION IN PARENTHESES)
- 645 — GROUNDWATER CONTOUR LINE (CONTOUR INTERVAL 0.5 FT.)
- INFERRED GROUNDWATER CONTOUR LINE
- APPARENT DIRECTION OF GROUNDWATER FLOW

NOTES:

1. WATER LEVELS OBTAINED BY H&A ON 22 DECEMBER 1994. GROUNDWATER CONTOURS WERE CREATED USING LINEAR INTERPOLATION, THEN WERE MANUALLY SMOTHED. ACTUAL VALUES BETWEEN DATA POINTS MAY VARY.
2. WELLS AT 7852 MARTIN ROAD AND 1191 BRAGG STREET HAVE WATER LEVELS THAT ARE INCONSISTENT WITH OTHER OFFSITE RESIDENTIAL WELLS. THESE WATER LEVELS ARE NOT REPRESENTATIVE OF THE EQUIPOTENTIAL SURFACE PRESENTED HERE BASED ON THE REMAINING OFFSITE WELLS. THESE TWO WELLS WERE THEREFORE NOT INCLUDED WHEN CONTOURING. SEE TEXT FOR DISCUSSION.
3. FOR ONSITE CONTOUR PLANS SEE FIGURES 10 AND 11.

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ENARC-O MACHINE PRODUCTS, INC.
REMEDIAL INVESTIGATION
LIMA, NEW YORK

GROUNDWATER CONTOUR PLAN OFF-SITE RESIDENTIAL WELLS APRIL 1995

SCALE AS SHOWN — REVISED AUGUST 1996

FILENAME: APR95.DWG — FIGURE 13

FILE No. 70372-047

Appendix A

APPENDIX A

Test Boring Reports

HALEY & ALDRICH

O'BRIEN & GERE ENGINEERS, INC.	TEST BORING LOG	Report of Boring No. MW-1 Sheet 1 of 2
Project Location: Honeoye Falls, New York Client: Enarc-o Machines	SAMPLER Type: Split Spoon Hammer: 140 lbs. Fall: 30 inches	Ground Water Depth Date Depth Date File No.:

Boring Co.: Parratt-Wolff, Inc, Foreman: Mark Beck OBG Geologist: Paul Gottler	Boring Location: South West corner of site Ground Elevation: Dates: Started: 12/4/90 Ended: 12/4/90

Depth	Sample No	Sample Depth	Sample Blows /6"	Sample Penetr/ Recovry	Sample "N" Value	Sample Description	Stratum Change General Descript	Equipment Installed	Field Testing pH	Field Testing Sp Cond	Field Testing HNU	Rmks*
0	1	0-2'	1-1-8-4	2'/1.1'	9	Moist sod to 0.3' Moist, dark gray and brown SAND with organics, grading to damp, sandy gravel with silt and clay, brown and tan SAND, some brown clay, coarse to very fine gneissic gravel and limestone						
2	2	2-4'	4-8-20-21	2'/1.2'	28	Damp, red brown CLAY, with silt, minor gravel and little medium to fine orange sand, white gray precipitate in fractures, parallel laminations						
4	3	4-6'	10-18- 35-40	2'/1.2'	53	As above with many factures, very fine to medium gravel, parallel laminations approximately 30 cm. apart						
6	4	6-8'	24-35- 50/0.4'	2'/1.5'	—	As above, with coarse limestone gravel, fractures filled with $CaCO_3$ and FeO, light brown-maroon precipitate					<1	
8	5	8-10'	13-45- 50/0.3'	2'/1.7'	—	Damp, as above, with increasing FeO precipitate, also (MnO) black precipitate to 9.6' Damp, light brown-brown SAND diamict					<1	
10	6	10-12'	15-23- 33-38	2'/1.5'	56	Damp, brown-brown red CLAY and SILT, minor gravel. Black and FeO yellow-orange precipitate (Black precipitate in vertical fractures)						
12	7	12-14'	5-10- 18-23	2'/1.4'	28	Damp, as above, parallel laminations, yellow in precipitate to 13.6' Moist-wet, gray SILT with minor clay, minor gravel, parallel laminations					<1	
14	8	14-16'	10-26- 40-35	2'/1.7'	66	Wet, as above, large limestone pebbles to 14.7' Damp, brown-red brown, CLAY and SILT with minor gravel and sand to 15.8' Wet gray gravel with sand, silt and clay to 16.3'						

Casing set at 18.5'

1MW1.KJF

O'BRIEN & GERE ENGINEERS, INC.	TEST BORING LOG	Report of Boring No. MW-1 Sheet 2 of 2
Project Location: Honeoye Falls Client: Enarc-O Machine Products, Inc.	SAMPLER Type: Core Barrel Hammer: Fall:	Ground Water Depth Date Depth Date File No.:

Boring Co.: Parratt-Wolff, Inc.
Foreman: Mark Beck
OBG Geologist: Paul Gottler

Boring Location: SW corner of site
Ground Elevation:
Dates: Started: 12/4/90 0730 Ended: 12/4/90

Depth	Sample No	Sample Depth	Blows /6"	Penetr/ Recovry	"N" Value	Sample Description	Stratum Change General Descript	Equipment Installed	Field Testing pH	Sp Cond	HNU	Rmks
		18.5 to 23.5		5.0/4.9		Gray-dark gray LIMESTONE						
18.6			RQD=97%			Naturally occurring horizontal fractures						
19.2						Flow deposits	19.4'					
21.9						Dark gray-black CHERT	22.1'					
						LIMESTONE as above						
22.3						Flow deposits	22.5'					
22.5						Gray-light gray CLAY and SILT						
22.6		23.5 to 28.5		5.0/4.9		LIMESTONE as above						
23.1			RQD=97%			Natural horizontal fractures						
24.5						Solution cavity	24.9'					
27.0						Gray-light gray CLAY and SILT	27.1'					
27.1						LIMESTONE as above						
29.8		28.5 to 33.5		5.0/5.0		Dark gray-gray green CHERT	30.1'					
30.1			RQD=95%			LIMESTONE as above						
30.4						Gray, light gray CLAY, trace silt						
30.5						LIMESTONE as above						
31.5						Gray-light gray CLAY, trace silt						
31.6						LIMESTONE as above						
							32.3'					
32.1						Gray-gray green CHERT	34.0'					
34.0						Bottom of boring at 34.0 ft.						
						Fossils throughout include: Brachiopods, Crinoids, Bryozoans, Mollusks (silica replaced)						
						Flow deposits are gray-light gray Limestone but contain flow features.						

RQD = Rock Quality Density
Average RQD = 96%

MW1.cmb

O'BRIEN & GERE ENGINEERS, INC.	TEST BORING LOG	Report of Boring No. MW-2 Sheet 1 of 2
Project Location: Honeoye Falls, New York Client: Enarc-o Machines	SAMPLER Type: Split Spoon Hammer: 140 lbs. Fall: 30 inches	Ground Water Depth Date Depth Date File No.:

Boring Co.: Parratt-Wolff, Inc,
Foreman: Mark Beck
OBG Geologist: Paul Gottler

Boring Location:
Ground Elevation:
Dates: Started: 12/7/90 Ended: 12/7/90

Depth	Sample No	Sample Depth	Blows /6"	Penetr/ Recovry	"N" Value	Sample Description	Stratum Change General Descript	Equipment Installed	Field Testing pH	Sp Cond	HNU	Rmks
0	1	0-2'	1-1-2-4	2'/1'	3	Moist sod to 0.4' Moist, brown-red brown medium to fine SAND and red CLAY, parallel laminations, organics and roots to 1.1'	FILL					
2	2	2-4'	2-4-9-11	2'/1.6'	13	Moist, brown-red brown CLAY and SILT with fine to medium well rounded gravel to 2.8' Moist SAND with gravel to 2.9' As above, parallel laminations, fine pebbles, increasing silt	3.0					
4	3	4-6'	8-18-22-26	2'/1'	40	Damp, as above, (A axis pebbles vertical and horzontal), light brown and white-gray precipitate						
6	4	6-8'	16-50/0.4	2'/0.6'	—	Damp to dry, as above (Fine pebbles A axis horizontal, Medium pebbles A axis vertical)	LACUS					
8	5	8-10'	16-35-45-55	2'/1.3'	80	Damp, as above with dark red and rust-orange FeO stain in vertical and horizontal fractures to 9.7' (Sand with pebbles)						
10	6	10-12'	18-29-33-42	2'/1.1'	62	Damp to dry, as above with increased gravel, less clay, slightly lighter color to base	12.0					
12	7	12-14'	13-14-13-83	2'/1.6'	27	Damp, brown CLAY with trace silt and gravel to 13.4' Damp, appears massive, gray-brown gray mud with gravel Dry, gray LIMESTONE bedrock Augered ~1' into rock	TILL					
14						Casing set at 14.7 ft.	14.5'					

1MW2.KJF

O'BRIEN & GERE ENGINEERS, INC.	TEST BORING LOG	Report of Boring No. MW-2 Sheet 2 of 2
Project Location: Honeoye Falls Client: Enarc-O Machine Products, Inc.	SAMPLER Type: Core Barrel Hammer: Fall:	Ground Water Depth Date Depth Date File No.:

Boring Co.: Parratt-Wolff, Inc.
Foreman: Mark Beck
OBG Geologist: Paul Gottler

Boring Location:
Ground Elevation:
Dates: Started: 12/10/90 0953 Ended: 12/10/90

Depth	Sample No	Sample Depth	Blows /6"	Penetr/ Recovry	"N" Value	Sample Description	Stratum Change General Descript	Equipment Installed	Field Testing pH	Sp Cond	HNU	Rmks*
		14.7	to 18.5	3.8/3.6		Gray-light gray LIMESTONE						
14.8			RQD=55%			White-gray CHERT with FeO stain	14.9'					
14.9						LIMESTONE as above	18.5'					
15.3						Fracture approximately 20 degrees off horizontal	15.7'					
17.7						Highly fractured LIMESTONE and CHERT	18.2'					
		18.5	to 22.8	4.3/4.0								
18.5			RQD=79%			White-gray CHERT with FeO stain	18.6'					
18.6						LIMESTONE as above	22.9'					
		22.8	to 27.8	5.0/4.8								
22.9			RQD=75%			Dark gray-light gray CHERT	23.2'					
23.2						Gray BENTONITE layer Tio2s bentonite	23.3'					
23.3						LIMESTONE as above	27.8'					
						Horizontal fracture	@ 23.5'					
						As above	@ 23.8'					
						As above	@ 24.1'					
						As above	@ 24.3'					
27.8						Gray-light gray CHERT	28.1'					
28.1						LIMESTONE as above	32.0'					
		29.0	to 32.2	3.2/3.2		Horizontal fracture	@ 29.0'					
			RQD=88%			As above	@ 29.5'					
						As above	@ 30.1'					
						As above	@ 30.7'					
32.0						Gray-dark gray CHERT	32.1'					
32.1						LIMESTONE as above	36.0'					
		32.2	to 36.0	3.8/3.8		Horizontal fracture	@ 32.3'					
			RQD=70%			As above	@ 32.7'					
						As above	@ 34.6'					
						As above	@ 34.7'					
						As above	@ 34.8'					
34.9						Vertical fracture	35.1'					

RQD = Rock Quality Density
Average RQD = 75%
Fossils as per MW-1

Bottom of boring at 36.0 ft.

MW2.cmb

O'BRIEN & GERE ENGINEERS, INC.	TEST BORING LOG	Report of Boring No. MW-3 Sheet 1 of 2
Project Location: Honeoye Falls, New York Client: Enarc-o Machines	SAMPLER Type: Split Spoon Hammer: 140 lbs. Fall: 30 inches	Ground Water Depth Date Depth Date File No.:

Boring Co.: Parratt-Wolff, Inc, Foreman: Mark Beck OBG Geologist: Paul Gottler	Boring Location: Ground Elevation: Dates: Started: 12/5/90 Ended: 12/6/90

Depth	Sample No	Sample Depth	Sample Blows /6"	Sample Penetr/ Recovry	Sample "N" Value	Sample Description	Stratum Change General Descript	Equipment Installed	Field Testing pH	Field Testing Sp Cond	Field Testing HNU	Rmks*
0	1	0-2'	2-4-3-3	2'/1.1'	7	Damp sod to 0.4' Moist, brown-light brown, coarse to fine SAND, fine, with rounded gravel, some clay, little silt, parallel laminations	-FILL-					
2	2	2-4'	2-2-4-8	2'/0.7'	6	Damp, as above, large red sandstone pebble to 2.7' Damp, red-red brown CLAY and SILT with minor gravel						
4	3	4-6'	7-13-23-26	2'/1.1'	36	Damp, as above with FeO staining in fractures (95% horizontal), medium to very fine gravel (A axis vertical on most pebbles)						
6	4	6-8'	21-27-50/0.4'	2'/1.1'	—	Damp, clayey silt with minor gravel Fractures more common, random alignment of pebbles	LAC.					
8	5	8-10'	10-25-38-47	2'/1.1'	63	Damp, as above, trace of fine gravel coarse sand, increasing silt						
10	6	10-12'	10-19-33-38	2'/1'	52	Damp, as above with gravel, very faintly laminated	- - ? - -					
12	7	12-14'	28-50/0.1	2'/0.2'	—	Dry gneissic boulder/pebble	TILL					
						Casing set at 12.5 ft.						
14												

1MW3.KJF

O'BRIEN & GERE ENGINEERS, INC.	TEST BORING LOG	Report of Boring No. MW-3 Sheet 2 of 2
Project Location: Honeoye Falls Client: Enarc-O Machine Products, Inc.	SAMPLER Type: Rock Cover Hammer: Fall:	Ground Water Depth Date Depth Date File No.:

Boring Co.: Parratt-Wolff, Inc.
Foreman: Mark Beck
OBG Geologist: Paul Gottler

Boring Location: NE side of site
Ground Elevation:
Dates: Started: 12/6/90 Ended: 12/12/90

Depth	Sample No	Sample Depth	Sample Blows /6"	Sample Penetr/ Recovry	Sample "N" Value	Sample Description	Stratum Change General Descript	Equipment Installed	Field Testing pH	Field Testing Sp Cond	Field Testing HNU	Rmks*
12.6		12.7	to 16.0	2.3/2.1		Gray-dark gray LIMESTONE						
12.7			RQD=65%			Gray-light gray CLAY, trace silt	12.8'					
		13.0	to 16.0	1.0/1.0		LIMESTONE as above						
13.1			RQD=33%			Flow deposit						
13.3						Light gray-gray green CHERT	13.5'					
13.5						LIMESTONE as above	14.1'					
13.8						Flow deposit	13.9'					
14.1						Dark gray-black CHERT	14.3'					
14.3						LIMESTONE as above						
		16.0	to 21.0	5.0/5.0								
16.1			RQD=87%			Dark gray-black CHERT	16.3'					
16.3						LIMESTONE as above	16.3'					
18.3						Light gray-gray CLAY, trace silt	18.4'					
18.4						LIMESTONE as above						
19.1						Light gray-gray CLAY, trace SILT LIMESTONE as above	19.2'					
20.6						Solution cavity with quartz crystals	20.7'					
		21.0	to 26.0	5.0/5.0								
22.1			RQD=80%			Vertical fracture	22.4'					
23.0						Dark gray-black CHERT	23.2'					
						LIMESTONE as above						
24.1		26.0	to 28.0	2.0/2.0		Natural horizontal fracture						
24.8			RQD=0%			As above						
24.9						Natural vertical fracture at 45 degrees	26.1'					
26.1						Gray-gray green CHERT	26.2'					
26.2		28.0	to 33.1	5.1/5.0		LIMESTONE as above	33.1'					
28.1			RQD=65%			Vertical fracture	28.3'					
28.1						Horizontal fracture	29.3'					
33.1							33.1'					
						Bottom of boring at 33.1 ft.						

RQD = Rock Quality Density
Average RQD = 65%
Fossils as per MW-1

MW3.cmb

O'BRIEN & GERE ENGINEERS, INC.	TEST BORING LOG	Report of Boring No. MW-4 Sheet 1 of 2
Project Location: Honeoye Falls, New York Client: Enarc-o Machines	SAMPLER Type: Split Spoon Hammer: 140 lbs. Fall: 30 inches	Ground Water Depth Date Depth Date File No.:

Boring Co.: Parratt-Wolff, Inc, Foreman: Mark Beck OBG Geologist: Paul Gottler	Boring Location: North West portion of site Ground Elevation: Dates: Started: 12/10/90 Ended: 12/10/90

Depth	Sample No	Sample Depth	Blows /6"	Penetr/ Recovry	"N" Value	Sample Description	Stratum Change General Descript	Equipment Installed	Field Testing pH	Sp Cond	HNU	Rmks*
0	1	0-2'	1-2-2-3	2'/0.7'	4	Sod to 0.4' Damp, dark brown red SANDY SILT, with minor gravel, red brown-brown clay with well rounded gravel, some coarse to fine sand, faint parallel laminations						
2	2	2-4'	3-2-2-3	2'/0.6'	4	Damp, as above with increasing clay towards bottom	LAC FAL					
4	3	4-6'	2-12-18-22	2'/1.1'	30	Damp, brown-red brown CLAY and SILT with rounded to angular pebbles, dark red FeO staining in vertical and horizontal fractures, massive appearance	4.5					
6	4	6-8'	40-50/0.4	2'/0.7'	—	Damp, as above with white/gray and dark red precipitate in vertical and horizontal fractures, increasing silt, very faintly laminated approximately 60/cm	LAC.					
8	5	8-10'	23-37-35-46	2'/1.6'	42	Damp, as above with laminations more obvious, moist sand and clay pods at 8.5' and 9.6' (rafted?)	10.0					
10	6	10-12'	10-15-60/0.3'		—	Damp, as above with sand pods (rafted?) (Pebbles A axis ~ 45° to 11.0') Moist, gray CLAY with limestone chips, FeO orange rust stain in fracture Augered into limestone bedrock 0.5 ft.	TILL					
12						Casing set at 12.6 ft.	12.6'					
14												

1MW4.KJF

O'BRIEN & GERE ENGINEERS, INC. | TEST BORING LOG | Report of Boring No. MW-4 Sheet 2 of 2

Project Location: Honeoye Falls
Client: Enarc-O Machine Products, Inc.

SAMPLER
Type: Core Barrel
Hammer: Fall:

Ground Water Depth Date
Depth Date
File No.:

Boring Co.: Parratt-Wolff, Inc.
Foreman: Mark Beck
OBG Geologist: Paul Gottler

Boring Location:
Ground Elevation:
Dates: Started: 12/ Ended: 12/

Depth	Sample No	Sample Depth	Blows /6"	Penetr/ Recovry	"N" Value	Sample Description	Stratum Change General Descript	Equipment Installed	Field Testing pH	Sp Cond	HNU	Rmks*
		12.6 to 17.6		5.0/4.8		Gray-light gray LIMESTONE						
13.8			RQD=80%			Gray-dark gray CHERT	13.9'					
13.9						LIMESTONE as above	15.3'					
15.1						Vertical fracture	15.3'					
15.3						Gray-dark gray CHERT	15.4'					
15.4						LIMESTONE as above	20.4'					
17.8		17.6 to 22.6		5.0/5.0		Vertical fracture	17.9'					
19.0			RQD=70%			As above	19.2'					
20.4						Gray-dark gray CHERT	20.6'					
20.6						Gray-green gray BENTONITE	21.1'					
21.1						LIMESTONE as above	22.6'					
21.6		22.6 to 27.6		5.0/4.9		Flow deposit						
22.6			RQD=93%			Gray-dark gray CHERT	23.1'					
23.1						LIMESTONE as above	27.6'					
						Horizontal fractures	@ 23.2'					
						As above	@ 25.1'					
						As above	@ 25.2'					
27.6						Dark gray-gray CHERT	27.7'					
27.7						LIMESTONE as above	32.6'					
		27.6 to 32.6		5.0/5.0		Horizontal fracture	@ 29.7'					
			RQD=85%									
							32.6'					
32.6						Bottom of boring at 32.6 ft.						

RQD = Rock Quality Density
Average RQD = 85%
Fossils as per MW-1

MW4.cmb

O'BRIEN & GERE ENGINEERS, INC.	TEST BORING LOG	Report of Boring No. MW-5 Sheet 1 of 2
Project Location: Honeoye Falls, New York Client: Enarc-o Machines	SAMPLER Type: Split Spoon Hammer: 140 lbs. Fall: 30 inches	Ground Water Depth Date Depth Date File No.:

Boring Co.: Parratt-Wolff, Inc, Foreman: Mark Beck OBG Geologist: Paul Gottler	Boring Location: Ground Elevation: Dates: Started: 12/5/90 Ended:

Depth	Sample No	Sample Depth	Sample Blows /6"	Sample Penetr/ Recovry	Sample "N" Value	Sample Description	Stratum Change General Descript	Equipment Installed	Field Testing pH	Field Testing Sp Cond	Field Testing HNU	Rmks*
0	1	0-2'	3-6-12-14	2'/1.4'	18	Damp sod with fine gravel to 0.4' Moist, brown-dark brown SAND and GRAVEL to 0.8' Damp, light brown-red brown silt with gravel, trace very fine sand and clay, parallel laminations	0.8' FILL 0.5				<1	
2	2	2-4'	18-37- 50/0.5'	2'/1'	—	Damp, as above, well rounded to angular, fine, faceted, gravel, increasing sand, FeO in most horizontal fractures					<1	
4	3	4-6'	21-50/0.4	2'/0.9'	—	Damp, as above with fewer and finer gravel to 5.2' Wet coarse to medium SAND to 5.3' Damp, red-brown CLAY and SILT trace gravel						
6	4	6-8'	47-37- 22-34	2'/1.1'	59	Damp, brown-light brown moderately sorted, coarse to medium SAND with gravel, parallel laminations to 7.5' Damp, red-red brown CLAY with SILT and GRAVEL, parallel laminations	LACUSTI					
8	5	8-10'	11-31- 50/0.3'	2'/1.2'	—	Damp, as above with MgO dark red in fractures to 9.3' Sharp contact Moist gray-green gray diamict 80% gravel, 10% sand, 10% medium limestone pebbles, gray-dark gray	9.3					
10		10-11.1	19-37- 50/0.1	2'/0.7'	—	Moist, as above with large limestone pebbles, weathered rock at 11'	TILL 11.1'					
						Casing set at 11.1 ft.						

1MW5.KJF

O'BRIEN & GERE ENGINEERS, INC.	TEST BORING LOG	Report of Boring No. MW-5 Sheet 2 of 2
Project Location: Honeoye Falls Client: Enarc-O Machine Products, Inc.	SAMPLER Type: Core Barrel Hammer: Fall:	Ground Water Depth Date Depth Date File No.:

Boring Co.: Parratt-Wolff, Inc. Foreman: Mark Beck OBG Geologist: Paul Gottler	Boring Location: Ground Elevation: Dates: Started: 12/8/90 Ended: 12/11/90

Depth	Sample No	Sample Depth	Blows /6"	Penetr/ Recovry	"N" Value	Sample Description	Stratum Change General Descript	Equipment Installed	Field Testing pH	Sp Cond	HNU	Rmks#
11.7		11.7	to 13.0	1.3/1.0		Gray-light gray LIMESTONE						
11.9			RQD=0%			Horizontal fracture						
12.1						As above						
12.5		13.0	to 16.7	3.7/3.0		As above						
12.9			RQD=30%			Gray-dark gray CHERT	13.0'					
13.0						LIMESTONE as above	13.4'					
13.4		16.7	to 21.7	5.0/4.9		Gray-dark gray CHERT	13.5'					
13.5			RQD=79%			LIMESTONE as above	13.7'					
13.7						Gray-dark gray CHERT	13.8'					
13.8						LIMESTONE as above	14.8'					
14.8						Gray CLAY with trace silt	14.9'					
14.9						LIMESTONE as above	16.7'					
		21.7	to 26.2	4.5/4.5		Flow deposit	@ 15.5'					
			RQD=100%			As above	@ 15.8'					
						As above	@ 16.0'					
16.7						Gray-dark gray CHERT	16.9'					
16.9		26.2	to 30.8	4.6/4.6		LIMESTONE as above	21.7'					
			RQD=66%			Natural horizontal fracture	@ 17.1'					
						As above	@ 18.3'					
						Bryozoan colony	@ 21.0'					
21.7						Gray-dark gray CHERT	21.8'					
21.8						LIMESTONE as above	22.7'					
22.7						Gray CLAY with trace silt	22.8'					
22.8						LIMESTONE as above	23.7'					
23.7						Gray-dark gray CHERT in cavity	24.0'					
24.0						LIMESTONE as above						
25.8						Vertical fracture	26.2'					
26.2						Gray-dark gray CHERT	26.6'					
26.6						LIMESTONE as above	30.8'					
						Horizontal fracture	@ 26.9'					
						As above	@ 30.1'					

RQD = Rock Quality Density
Average RQD = 55%
Fossils as per MW-1

Bottom of boring at 30.8 ft.

MW5.cmb

O'BRIEN & GERE ENGINEERS, INC.	TEST BORING LOG	Report of Boring No. MW-6 Sheet 1 of 2
Project Location: Honeoye Falls, New York Client: Enarc-o Machines	SAMPLER Type: Split Spoon Hammer: 140 lbs. Fall: 30 inches	Ground Water Depth Date Depth Date File No.:

Boring Co.: Parratt-Wolff, Inc, Foreman: Mark Beck OBG Geologist: Paul Gottler	Boring Location: Ground Elevation: Dates: Started: 12/4/90 Ended:

Depth	Sample No	Sample Depth	Blows /6"	Penetr/ Recovry	"N" Value	Sample Description	Stratum Change General Descript	Equipment Installed	Field Testing pH	Field Testing Sp Cond	Field Testing HNU	Rmks*
0	1	0-2'	2-2-2-4	2'/1.2'	4	Damp sod to 0.4' Moist, brown-light brown medium to fine SAND and SILT with minor clay, some gray to brown clay						
2	2	2-4'	4-8-13-19	2'/1'	21	Moist to wet SAND and SILT with minor clay, as above						
4	3	4-6'	11-19- 25-27	2'/1.3'	44	Moist, as above to 4.3' Damp, red brown-brown CLAY and SILT with medium to fine, well rounded, faceted and striated pebbles, increasing silt at bottom					<1	
6	4	6-8'	17-24- 37-34	2'/1.2'	61	Damp, as above to 6.4' Damp, brown CLAY and SILT with MnO and FeO precipitate, more massive looking, fractures horizontal and vertical (precipitate filled)	LACUST				<1	
8	5	8-10'	11-20- 37-48	2'/1.4'	57	Same, brown-red brown, trace gravel FeO yellow-red, MnO black, some sand						
10	6	10-12'	7-20- 34-40	2'/1'	54	Damp, as above, (FeO only), massive						
12	7	12-12.9	3-7- 50/0.4'	2'/0.3'	—	Dry, gray CLAY with sand and gravel, trace silt, limestone, gneissic gravel, brown sand	12.0					
	8	13-14'				Gneissic, amplibolite boulder	TILL					
14	9	14-17'		2'/1.6'		Damp, red brown CLAY with trace gravel, massive to 16.6' Moist, gray CLAY with sand, some silt, trace gravel						
		17-18.2		2'/0.9'		As above						

Casing set at 18.7 ft.

1MW6.KJF

O'BRIEN & GERE ENGINEERS, INC.	TEST BORING LOG	Report of Boring No. MW-6 Sheet 2 of 2
Project Location: Honeoye Falls Client: Enarc-O Machine Products, Inc.	SAMPLER Type: Core Barrel Hammer: Fall:	Ground Water Depth Date Depth Date File No.:

Boring Co.: Parratt-Wolff, Inc.
Foreman: Mark Beck
OBG Geologist: Paul Gottler

Boring Location:
Ground Elevation:
Dates: Started: 12/6/90 1243 Ended: 12/

Depth	Sample No	Sample Depth	Blows /6"	Penetr/ Recovry	"N" Value	Sample Description	Stratum Change General Descript	Equipment Installed	Field Testing pH	Sp Cond	HNU	Rmks*
18.7		18.7 to 23.7		5.0/4.9		Gray-light gray LIMESTONE						
			RQD=66%									
21.0						Gray-green gray CHERT	21.1'					
21.4						LIMESTONE as above						
						Natural horizontal fracture						
22.4						Gray CLAY with trace silt	22.5'					
		23.7 to 28.7		5.0/4.8								
23.8			RQD=95%			Gray-light gray CHERT	24.0'					
24.0						LIMESTONE as above with vertical fracture	24.3'					
24.3						Gray-light gray CHERT	24.4'					
24.4						LIMESTONE as above						
		28.7 to 33.7		5.0/4.9								
27.3			RQD=60%			Vertical fracture	27.6'					
27.7						Gray-light gray CLAY	27.8'					
27.8						LIMESTONE as above	29.2'					
29.2						Gray-dark gray CHERT	29.3'					
29.3						LIMESTONE as above	32.7'					
32.7						Gray-dark gray CHERT	32.9'					
		33.7 to 36.7		3.0/2.2		LIMESTONE as above						
			RQD=62%									
33.1						Vertical fracture	33.5'					
33.7						As above	34.9'					
34.9						Gray-light grayCLAY with trace silt	35.0'					
35.0						Gray-dark gray CHERT	35.7'					
35.7						LIMESTONE as above	36.7'					
36.7						Bottom of boring at 36.7 ft.						

RQD = Rock Quality Density
Average RQD = 71%
Fossils as per MW-1

MW6.cmb

O'BRIEN & GERE ENGINEERS, INC.

TEST BORING LOG

Report of Boring No. B-1
Sheet 1 of 1

Project Location: Honeoye Falls

Client: Enarc-o Machines

SAMPLER
Type: Split Spoon
Hammer: 140 lbs. Fall: 30"

Ground Water Depth Date
Depth Date
File No.:

Boring Co.: Parratt-Wolff, Inc.
Foreman: Mark Beck
OBG Geologist: Paul Gottler

Boring Location: Site of former gasoline UST
Ground Elevation:
Dates: Started: 11/29/90 Ended: 11/29/90

Depth	Sample No	Sample Depth	Blows /6"	Penetr/ Recovry	"N" Value	Sample Description	Stratum Change General Descript	Equipment Installed	pH	Sp Cond	HNU	Rmks
0	1	0-2'	3-3-2-1	2'/0.5'	5	Moist, brown GRAVEL with sand, some brown clay and silt					1.5	
	2	2-4'	2-2-1-3	2'/0.4'	3	Same as above					2.	
	3	4-6'	1-1-5-9	2'/1'	6	Wet, as above to 5.3' Moist, brown-red brown CLAY and SILT, faintly laminated with fine to coarse gravel, trace sand					250.	
5												
	4	6-8'	14-26-53	2'/1.3'		Same as above					NA	
	5	8-10'	20-23-50/0.4'	2'/0.9'	---	Damp, as above, massive					220.	
10	6	10-12'	23-26-40-50/0.4'	2'/1.5'	---	Same as above, with sandstone gravel					165.	
	7	12-14'	23-35-38-50/0.4'	2'/1.6'	---	Same with red clay around gravelly sand to 12.8' Damp, red-red brown CLAY with silt and gravel					80.	
	8	14-14.4	50/0.4'	2'/0.4'	---	Wet, gray, gravel, sand, silt and clay with round to angular gravel, gray-green clay	14.4'				195.	
						Bottom of boring 14.4 ft.						

NA - Not analyzed, insuffient sample.

B1.KJF

O'BRIEN & GERE ENGINEERS, INC.	TEST BORING LOG	Report of Boring No. B-2 Sheet 1 of 1
Project Location: Honeoye Falls Client: Enarc-o Machines	SAMPLER Type: Split Spoon Hammer: 140 lbs. Fall: 30"	Ground Water Depth Date Depth Date File No.:

Boring Co.: Parratt-Wolff, Inc. Foreman: Mark Beck OBG Geologist: Paul Gottler	Boring Location: At former solvent tank site Ground Elevation: Dates: Started: 11/29/90 Ended: 11/29/90

Depth	Sample No	Sample Depth	Sample Blows /6"	Sample Penetr/ Recovry	Sample "N" Value	Sample Description	Stratum Change General Descript	Equipment Installed	Field Testing pH	Field Testing Sp Cond	Field Testing HNU	Rmks
0	1	0-2'	2-7-8-11	2'/1.1'	15	Wet, brown SAND, some clay and silt to 0.7' Moist black ~~tar~~ to 1.1' Wet, brown GRAVEL with sand and silt, trace trace clay to 1.5' Moist, brownish red CLAY and SILT with fine gravel, parallel laminations, white-gray (CaCo3) precipitate in fractures					120.	
2	2	2-4'	12-26-28-42	2'/1'	54	Same as above, increasing silt, medium to fine, round to angular gravel, light brown precipitate					280.	
4	3	4-6'	17-30-50/0.4'	2'/1.1'	—	Damp, as above (with A axis pebbles vertical) and maroon-red black FeO in fractures (precipitate)					300.	
6	4	6-8'	12-28-40-50/0.4'	2'/1.1'	—	Damp, as above to 6.2' Damp, reddish brown CLAY with some silt, few very fine gravel to 6.6' Damp, brownish red SILT and CLAY with gravel					450.	
8	5	8-10'	12-12-18-24	2'/1.1'	30	Damp, as above with very few gravel, (<10% gravel all very fine), increased clay at bottom of spoon					420.	
10	6	10-10.8	15-50-50/0.3'	2'/0.8'	—	Damp, as above to 10.5' Wet, gray diamictite	10.8'				600.	
						Bottom of boring 10.8 ft.						

B2.KJF

where is B-7?

O'BRIEN & GERE ENGINEERS, INC.	TEST BORING LOG	Report of Boring No. B-4 Sheet 1 of 1
Project Location: Honeoye Falls Client: Enarc-o Machines	SAMPLER Type: Split Spoon Hammer: 140 lbs. Fall: 30"	Ground Water Depth Date Depth Date File No.:

Boring Co.: Parratt-Wolff, Inc.
Foreman: Mark Beck
OBG Geologist: Paul Gottler

Boring Location: At loading dock
Ground Elevation:
Dates: Started: 11/29/90 Ended: 11/29/90

Depth	Sample No	Sample Depth	Blows /6"	Penetr/ Recovry	"N" Value	Sample Description	Stratum Change General Descript	Equipment Installed	Field Testing pH	Field Testing Sp Cond	Field Testing HNU	Rmks*
0	1	0-2'	12-8-	2'/1.1'	19	Dry GRAVEL to 0.7' Dry GRAVEL with clay to 1.3'					38.	
			11-13			Damp, reddish brown CLAY and SILT with coarse to very fine gravel laminated						
2	2	2-4'	23-28-	2'/1'	—	Damp, as above, increasing silt grading to fine sand, FeO in fractures, yellow sand					12.	
			50/0.4'			throughout						
4	3	4-6'	20-50/0.4	2'/0.8'	—	Damp, SILT, some well rounded, coarse to very fine gravel, little sand, medium					14.	
						light brown-brown color						
6	4	6-8'	28-28-	2'/1.4'	63	Damp to dry SANDY GRAVEL with silt and clay (gravel A-axis horizontal), some parallel					104.	
			41-35			lamination increasing silt to bottom of spoon to 7.6'. Damp SILT with clay and						
						gravel, dark brown to brown (parallel laminations)						
8	5	8-10'	12-14-	2'/1.5'	40	Damp, as above with few gravel grades to increasing clay, color grades to reddish					20.	
			26-26			brown to 9.7' Damp, sandy gravel with little silt,						
						trace clay						
10	6	10-10.5	9-50/0'	2'/0.5'	—	Damp, as above to 10.1' Damp CLAY and SILT with gravel, dark brown					4.	
						to brown laminations to 10.4' Damp, gray gravel with sand, little silt,						
						trace clay	10.5'					
						Bottom of boring 10.5 ft.						

B4.KJF

O'BRIEN & GERE ENGINEERS, INC.	TEST BORING LOG	Report of Boring No. B-5A Sheet 1 of 1
Project Location: Honeoye Falls Client: Enarc-o Machines	SAMPLER Type: Split Spoon Hammer: 140 lbs. Fall: 30"	Ground Water Depth Date Depth Date File No.:

Boring Co.: Parratt-Wolff, Inc.
Foreman: Mark Beck
OBG Geologist: Paul Gottler

Boring Location: NW corner parking lot
Ground Elevation:
Dates: Started: 11/27/90 Ended: 11/27/90

Depth	Sample No	Sample Depth	Sample Blows /6"	Sample Penetr/ Recovry	Sample "N" Value	Sample Description	Stratum Change General Descript	Equipment Installed	Field Testing pH	Field Testing Sp Cond	Field Testing HNU	Rmks*
0	1	0-2'	17-16-	2'/1.1'	28	Dry, medium dense GRAVEL to 1.6' Dry, red diamicton					0.3	
			12-10									
	2	2-4'	9-15-	2'/1.3'	36	Dry, CLAY, little medium gravel, sandstone, trace sand					0.7	
			21-27									
	3	4-6'	16-32-	2'/1.2'	79	Dry, hard, as above Fractures filled with FeO precipitate					0.7	
5			47-43									
	4	6-8'	16-32-	2'/1.1'	79	Same as above					0.4	
			47-55									
	5	8-10'	15-35-	2'/0'	—	Same					NR	
			50/0.4'									
10	6	10-12'		2'/1.3'	—	Same					0.6	
							12.2'					
	7	12-14'	10-18-	2'/1.1'	28	Dry, medium brown SAND and GRAVEL, trace clay					6.1	
			10-24									
	8	14-16'	7-15-	2'/1.2'	—	Damp, as above to 14.2' Damp to wet, red SILT and CLAY, massive fractures no sand or gravel to 15' Wet, gray gravel with sand, little silt, trace clay					0.3	
			50/0.2'									
							15.2'					
						Bottom of boring 15.2 ft.						

NR - No recovery

B5A.KJF

O'BRIEN & GERE ENGINEERS, INC.	TEST BORING LOG	Report of Boring No. B-5C Sheet 1 of 1
Project Location: Honeoye Falls Client: Enarc-o Machines	SAMPLER Type: Split Spoon Hammer: 140 lbs. Fall: 30"	Ground Water Depth Date Depth Date File No.:

Boring Co.: Parratt-Wolff, Inc. Foreman: Mark Beck OBG Geologist: Paul Gottler	Boring Location: Center of parking lot Ground Elevation: Dates: Started: 11/27/90 Ended: 11/27/90

Depth	Sample No	Sample Depth	Blows /6"	Penetr/ Recovry	"N" Value	Sample Description	Stratum Change General Descript	Equipment Installed	Field Testing pH	Sp Cond	HNU	Rmks*
0	1	0-2'	17-18-9-5	2'/1.1'	27	Dry gravel to 0.8' Damp, red-orange CLAY and SILT with gravel, laminated					0.5	
	2	2-4'	5-6-18-21	2'/0.7'	24	Same as above					0.4	
	3	4-6'	11-18-	2'/0.9'	63	Dry, CLAY and SILT brownish red with white-gray mottling, fine, large gravel suspended throughout mottling in fractures, laminated throughout					0.2	
5			45-42									
	4	6-8'	17-25-	2'/1.7'	70	Same as above to 6.7' Moist, gravel seam to 6.9' Damp, brownish red CLAY with silt, fractured FeO stained parallel laminations					0.6	
			45-47									
	5	8-10'	17-28-	2'/1.7'	---	Same as above					0.5	
			50/0.4'									
10	6	10-12'	15-27-	2'/1.5'	67	Same with orange-yellow precipitate in fractures, fewer gravel, deformed laminations throughout					0.5	
			40-45									
	7	12-14'	12-15-	2'/0.2'	42	Moist, as above					NR	
			27-27									
	8	14-14.8	20-50/0.8	2'/0.7'	---	Very moist, gray gravel with sand, little silt, trace clay, gray clay, silt and sand	14.8'				0.5	
						Bottom of boring 14.8 ft.						

NR - No recovery

ESC.KJF

O'BRIEN & GERE ENGINEERS, INC.	TEST BORING LOG	Report of Boring No. B-5D Sheet 1 of 1
Project Location: Honeoye Falls Client: Enarc-o Machines	SAMPLER Type: Split Spoon Hammer: 140 lbs. Fall: 30"	Ground Water Depth Date Depth Date File No.:

Boring Co.: Parratt-Wolff, Inc.
Foreman: Mark Beck
OBG Geologist: Paul Gottler

Boring Location: SW corner of parking lot
Ground Elevation:
Dates: Started: 11/27/90 Ended: 11/27/90

Depth	Sample No	Sample Depth	Blows /6"	Penetr/ Recovry	"N" Value	Sample Description	Stratum Change General Descript	Equipment Installed	Field Testing pH	Sp Cond	HNU	Rmks
0	1	0-2'	10-8-6-5	2'/1.1'	14	Dry gravel to 1.7' Dry, medium stiff, red clay and silt with gravel, trace sand					2.0	
	2	2-4'	4-5-11-13	2'/1'	16	Same as above to 2.6' Moist, red CLAY and SILT, massive to 3.6' Damp, round-sub-rounded, medium to fine GRAVEL, reddish brown clay					1.5	
	3	4-6'	8-11-	2'/1.3'	26	Moist, as above Moist, sand laminations to 4.7'					0.4	
5			15-27			Weathered green/white rock/clay to 5.5' Moist, sandy diamicton to 6.0'						
	4	6-8'	11-16-	2'/1.3'	—	Same as above to 6.3' Wet, diamicton 90%, gravel to 6.5'					1.0	
			50/0.4'			Wet SAND and CLAY, massive						
	5	8-10'	16-27-	2'/1.6'	64	Wet, diamicton as above with gravel to 8.1' Moist, diamicton laminated, no sand, fine,					0.6	
			37-40			angular-rounded gravel, red clay, laminations, faint, beds deformed						
10	6	10-12'	11-20-	2'/1.6'	55	Dry laminations, PEBBLEY red red-brown CLAY with black silt laminations, some fine to					2.2	
			35-37			medium angular-rounded gravel						
	7	12-14'		2'/1.6'		Damp, as above					0.7	
	8	14-16'	8-20-	2'/1.8'	—	Damp, as above with large gravel to 14.5' Damp, CLAY with red red-brown silt, trace					1.1	
15			50/0.4'			fine sand, massive, mottled to 15.2' Damp, gray diamict, angular gravel, gray-gray brown clay						
						Bottom of boring 15.4 ft.	15.4'					

B5D.KJF

O'BRIEN & GERE ENGINEERS, INC.

TEST BORING LOG

Report of Boring No. B-5E
Sheet 1 of 1

Project Location: Honeoye Falls
Client: Enarc-o Machines

SAMPLER
Type: Split Spoon
Hammer: 140 lbs. Fall: 30"

Ground Water Depth Date
Depth Date
File No.:

Boring Co.: Parratt-Wolff, Inc.
Foreman: Mark Beck
OBG Geologist: Paul Gottler

Boring Location: SE Corner of Parking Lot
Ground Elevation:
Dates: Started: 11/28/90 Ended: 11/28/90

Depth	Sample No	Sample Depth	Blows /6"	Penetr/ Recovry	"N" Value	Sample Description	Stratum Change General Descript	Equipment Installed	Field Testing pH	Field Testing Sp Cond	Field Testing HNU	Rmks
0	1	0-2'	4-4-4-6	2'/0.1'	8	Gravel					0.6	
	2	2-4'	10-10-	2'/1.2'	24	Damp, brown-red brown coarse to fine GRAVEL with brown sand, trace silt and red-brown					0.5	
			14-16			coarse to fine brown sand, 10% mud, some clay (ablation till?)						
	3	4-6'	15-20-	2'/1.2'	53	Same to 5.1 ft. Damp CLAY and SILT with gravel, parallel					0.4	
5			33-42			laminations and deformed lamination ~30/cm, white to tan precipitate in vertical frac-						
	4	6-8'	17-25-	2'/1.7'	65	tures gravel A axis vertical. Same to 6.6 ft.					0.4	
			40-47			Same with FeO in fractures						
	5	8-10'	28-24-	2'/0.4'	---	Same					0.5	
			50/0.4'									
10	6	10-12'	12-24-	2'/1.4'	66	Same with gneissic gravel					0.2	
			42-48									
	7	12-14'	24-42-	2'/1.2'	82	Same with little gravel to 12.7 ft. Same, increasing well rounded gravel and					0.8	
			40-36			sand						
	8	14-16'	4-50	2'/1'	---	Same with less, finer gravel, more massive and more red to 14.8 ft.					0.4	
15						Moist gray limestone GRAVEL with sand, trace gray-green clay and silt						
							15.5'	/				
						Bottom of boring 15.5 ft.						

B5E.KJF

O'BRIEN & GERE ENGINEERS, INC.	TEST BORING LOG	Report of Boring No. B-6 Sheet 1 of 1
Project Location: Honeoye Falls Client: Enarc-o Machines	SAMPLER Type: Split Spoon Hammer: 140 lbs. Fall: 30"	Ground Water Depth Date Depth Date File No.:

Boring Co.: Parratt-Wolff, Inc.
Foreman: Mark Beck
OBG Geologist: Paul Gottler

Boring Location: SW Corner of Storage Shed
Ground Elevation:
Dates: Started: 11/26/90 Ended: 11/26/90

Depth	Sample No	Sample Depth	Blows /6"	Penetr/ Recovry	"N" Value	Sample Description	Stratum Change General Descript	Equipment Installed	Field Testing pH	Sp Cond	HNU	Rmks*
0	1	0-2'	1-1-1-1	2'/1.1'	2	Sod to 0.4' Round to sub-round GRAVEL with dark gray medium to fine SAND, little brown-red silt, trace clay					57.3	
	2	2-4'	1-1-1-1	2'/0.2'	2	Low recovery, wet fine gravel					61.1	
	3	4-6'	7-17-	2'/1.6'	37	Same, wet to 4.6 ft. Dry, medium dense, red CLAY with trace silt, massive, deformed to 5.8 ft.					90.1	
5			20-23			Dry fine SAND and CLAY lense, laminated with fine gravel						
	4	6-8'	10-19-	2'/1.1'	50	Moist, medium dense, diamicton medium to fine gravel, gray sub-round limestone SAND, red brown clay, massive					82.5	
			31-47									
	5	8-10'	9-19-	2'/2'	51	Same, dry, overcompact nature, gravel not aligned					68.3	
			32-33									
10	6	10-11.5	33-47-53	2'/1.5'		Same, with large dark gray limestone GRAVEL still overcompact, gravel more aligned and flat laying					65.0	
	7	12-14'	12-16-	2'/0	59	Hard, sample from borehole fall in, gravel at spoon tip					59.7	
			43-47									
	8	14-16'	24-47-	2'/1.6'	—	Same to 14.4 ft. Wet, gray GRAVEL with sand, minor silt and clay					66.2	
15			50/0.2'				15.6'					
						Bottom of boring 15.6 ft.						

B6.KJF

H&A OF NEW YORK, ROCHESTER, NEW YORK Consulting Geotechnical Engineers, Geologists and Hydrogeologists	TEST BORING REPORT	BORING NO. B201-S

PROJECT: ENARC-O MACHINE PRODUCTS RI/FS CLIENT: KADDIS MANUFACTURING CORP. CONTRACTOR: NOTHNAGLE DRILLING CO.	FILE NO. 70372-44 SHEET NO. 1 OF 1 LOCATION: See Plan

ITEM	CASING	DRIVE SAMPLER	CORE BARREL
TYPE	Auger	---	---
INSIDE DIAMETER (IN)	4-1/4	---	---
HAMMER WEIGHT (LB)	---	---	---
HAMMER FALL (IN)	---	---	---

DRILLING EQUIPMENT & PROCEDURES

RIG TYPE: CME-75, Truck-Mounted
BIT TYPE: ---
DRILL MUD: ---
OTHER: Advanced 6-1/4 in. I.D. hollow stem augers to 12.5 ft., without split spoon sampling.

ELEVATION: 718.2
DATUM: NGVD
START: 26 May 1994
FINISH: 27 May 1994
DRILLER: S. Loranty
H&A REP: M. Corrigan

DEPTH (FT)	CASING BLOWS PER FT	SAMPLER BLOWS PER 6 IN	SAMPLE NUMBER & RECOVERY	SAMPLE DEPTH (FT)	STRATA CHANGE (FT)	VISUAL CLASSIFICATION AND REMARKS
						Advanced 6-1/4 in. I.D. hollow stem augers to 12.5 ft. without split spoon sampling.
5						
10						
						Bottom of Boring at 12.5 ft. Apparent Top of Rock at 12.5 ft.
15						Notes: 1. See Test Boring report for B201-D for description of soil. 2. Installed 4.0 in. Schedule 40 PVC well in completed borehole. See Groundwater Monitoring Well Installation Report.
20						
25						

WATER LEVEL DATA

DATE	TIME	ELAPSED TIME (HR)	DEPTH (FT) TO: BOTTOM OF CASING	BOTTOM OF HOLE	WATER

SAMPLE IDENTIFICATION

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon

SUMMARY

OVERBURDEN (LIN FT): 12.0
ROCK CORED (LIN FT): ---
SAMPLES: ---
BORING NO. B201-S

H&A OF NEW YORK, ROCHESTER, NEW YORK Consulting Geotechnical Engineers, Geologists and Hydrogeologists	TEST BORING REPORT	BORING NO. B201-D

PROJECT: ENARC-O MACHINE PRODUCTS RI/FS
CLIENT: KADDIS MANUFACTURING CORP.
CONTRACTOR: NOTHNAGLE DRILLING CO.

FILE NO. 70372-44
SHEET NO. 1 OF 2
LOCATION: See Plan

ITEM	CASING	DRIVE SAMPLER	CORE BARREL
TYPE	Auger	S	NX
INSIDE DIAMETER (IN)	4-1/4	1-3/8	2-7/8
HAMMER WEIGHT (LB)	---	140	---
HAMMER FALL (IN)	---	30	---

DRILLING EQUIPMENT & PROCEDURES

RIG TYPE: CME-75, Truck Mounted
BIT TYPE: 5-7/8 in. Tri-cone roller bit
DRILL MUD: ---
OTHER: Advanced 4-1/4 in. I.D. hollow stem augers to 10.5 ft., while continuous split spoon sampling.

ELEVATION: 717.3
DATUM: NGVD
START: 23 May 1994
FINISH: 23 May 1994
DRILLER: S. Loranty
H&A REP: M. Corrigan

DEPTH (FT)	CASING BLOWS PER FT	SAMPLER BLOWS PER 6 IN	SAMPLE NUMBER & RECOVERY	SAMPLE DEPTH (FT)	STRATA CHANGE (FT)	VISUAL CLASSIFICATION AND REMARKS
		1 1 1 1	S1 6"/24"	0.0 – 2.0	0.2	Very loose brown clayey fine SAND, some roots, little silt, wet. -TOPSOIL-
						Very loose brown silty fine SAND, wet. -FILL-
		1 1 1 1	S2 1"/24"	2.0 – 4.0		Very loose brown silty fine SAND, wet.
5		2 2 2 2	S3 15"/24"	4.0 – 6.0		Very loose brown silty fine SAND, trace clay, wet. Same, except loose. -FILL-
		3 5 16 22	S4 24"/24"	6.0 – 8.0	7.0	Hard red-brown silty CLAY, trace gravel and medium sand, damp. -GLACIOLACUSTRINE-
		9 16 20 39	S5 24"/24"	8.0 – 10.0		Hard red-brown silty CLAY, trace gravel and medium sand, moist.
10		100/0.5	S6 6"/6"	10.0 – 10.5	10.0	Very dense gray-brown fine sandy GRAVEL, little coarse to medium sand, moist. -GLACIAL TILL-
						Apparent Top of Rock at 10.5 ft.
15						
20						
25						

Notes:

1. Reamed with 5-7/8 in. tri-cone rollerbit to 12.5., lost approximately 250 gallons of water.
2. Grouted 4.0 in. Schedule 80 PVC casing to 12.5 ft.
3. See Core Boring Report, Page 2.

WATER LEVEL DATA

DATE	TIME	ELAPSED TIME (HR)	DEPTH (FT) TO: BOTTOM OF CASING	BOTTOM OF HOLE	WATER

SAMPLE IDENTIFICATION

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon

SUMMARY

OVERBURDEN (LIN FT): 10.5
ROCK CORED (LIN FT): 16.3
SAMPLES: 6S

BORING NO. B201-D

H & A OF NEW YORK, ROCHESTER, NEW YORK Consulting Geotechnical Engineers, Geologists and Hydrogeologists	CORE BORING REPORT	BORING NO. B201-D FILE NO. 70372-44 SHEET NO. 2 OF 2

DEPTH (FT)	DRILLING RATE (MIN./FT.)	CORE NO. / DEPTH (FT)	RECOVERY/RQD IN.	RECOVERY/RQD %	WEATHERING	STRATA CHANGE (FT)	VISUAL CLASSIFICATION AND REMARKS
							Began Coring at 12.7 ft.
		12.7 R1 14.2	14 / 0	78 / 0	MOD		Moderately hard, gray-brown, fine-grained LIMESTONE, with fossils, mudboils and chert throughout. -ONONDAGA LIMESTONE-
15		15.0 R2 17.7	33 / 33	100 / 100	SL		
		17.7 R3 22.5	58 / 51	100 / 88	SL		Rough, horizontal partings at 16.3 ft., 19.3 ft., 19.4 ft., 19.6 ft. 20.8 ft., 28.2 and 28.4 ft. Smooth horizontal partings at 22.8 ft. Smooth vertical joint from 20.8 ft. to 20.9 ft. Pit at 20.4 ft. Stylolites at 17.4 ft. and 19.4 ft.
20							
		22.5 R4 23.5	12 / 12	100 / 100	SL		
25		24.0 R5 24.5	6 / 6	100 / 100	SL		
		24.5 R6 29.0	53 / 50	102 / 94*	FR		*RQD based on rock core recovered.
							Bottom of Boring at 29.0 ft.
30							
35							
40							
45							

Notes:

1. Lost 2300 gallons of water during all core runs.

H&A OF NEW YORK, ROCHESTER, NEW YORK Consulting Geotechnical Engineers, Geologists and Hydrogeologists	TEST BORING REPORT	BORING NO. B202

PROJECT: ENARC-O MACHINE PRODUCTS RI/FS
CLIENT: KADDIS MANUFACTURING CORP.
CONTRACTOR: NOTHNAGLE DRILLING CO.

FILE NO. 70372-44
SHEET NO. 1 OF 2
LOCATION: See Plan

ITEM	CASING	DRIVE SAMPLER	CORE BARREL
TYPE	Auger	S	NX
INSIDE DIAMETER (IN)	4-1/4	1-3/8	2-7/8
HAMMER WEIGHT (LB)	---	140	---
HAMMER FALL (IN)	---	30	---

DRILLING EQUIPMENT & PROCEDURES

RIG TYPE: CME-75, Truck Mounted
BIT TYPE: 5-7/8 in. tri-cone roller bit
DRILL MUD: ---
OTHER: Advanced 4-1/4 in. I.D. hollow stem augers to 14.7 ft., while continuous split spoon sampling.

ELEVATION: 721.0
DATUM: NGVD
START: 23 May 1994
FINISH: 26 May 1994
DRILLER: S. Loranty
H&A REP: M. Corrigan

DEPTH (FT)	CASING BLOWS PER FT	SAMPLER BLOWS PER 6 IN	SAMPLE NUMBER & RECOVERY	SAMPLE DEPTH (FT)	STRATA CHANGE (FT)	VISUAL CLASSIFICATION AND REMARKS
		13 7 5 6	S1 18"/24"	0.0 2.0	0.5	Medium dense gray-brown silty GRAVEL, little coarse to fine sand, dry.
					2.0	Medium dense brown silty fine sand, trace clay, damp. -FILL-
		5 6 20 13	S2 24"/24"	2.0 4.0		Very stiff red-brown silty CLAY, little medium sand, damp to moist. -GLACIOLACUSTRINE-
5		7 12 16 25	S3 24"/24"	4.0 6.0		Same, except damp.
		8 14 18 25	S4 10"/24"	6.0 8.0		Same, except damp.
		5 20 32 50	S5 10"/24"	8.0 10.0		Hard red-brown silty CLAY, some gravel, little coarse to fine sand, damp.
10		7 21 33 19	S6 24"/24"	10.0 12.0		Same, except fine sand seam from 10.5 ft. to 11.0 ft., damp. -GLACIOLACUSTRINE-
		5 77 36 55	S7 18"/24"	12.0 14.0	12.0	Very dense gray fine sandy GRAVEl, some silt, trace coarse to medium sand, damp to dry. -GLACIAL TILL-
15		12 100/0.2	S8 7"/7"	14.0 14.7		Same.
						Top of Rock at 14.7 ft.
20						
25						

Notes:

1. Reamed with 5-7/8 in. tri-cone rollerbit to 16.5 ft. Lost approximately 70 gallons of water.
2. Grouted 4.0 in. Schedule 80 PVC casing to 16.5 ft.
3. See Core Boring Report, Page 2.

WATER LEVEL DATA

DATE	TIME	ELAPSED TIME (HR)	DEPTH (FT) TO: BOTTOM OF CASING	BOTTOM OF HOLE	WATER

SAMPLE IDENTIFICATION

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon

SUMMARY

OVERBURDEN (LIN FT): 14.7
ROCK CORED (LIN FT): 20.0
SAMPLES: 8S
BORING NO. B202

H & A OF NEW YORK, ROCHESTER, NEW YORK Consulting Geotechnical Engineers, Geologists and Hydrogeologists	CORE BORING REPORT	BORING NO. B202 FILE NO. 70372-44 SHEET NO. 2 OF 2

DEPTH (FT)	DRILLING RATE (MIN./FT.)	CORE NO. / DEPTH (FT)	RECOVERY/RQD IN.	RECOVERY/RQD %	WEATH-ERING	STRATA CHANGE (FT)	VISUAL CLASSIFICATION AND REMARKS
15							
							Began Coring at 16.8 ft.
	5	16.8			MOD		Moderately hard, gray-brown, fine-grained LIMESTONE with fossils, mudboils and chert throughout. -ONONDAGA LIMESTONE-
	5						
	5						Lost all wash water return at approximately 20.8 ft.
20	5	R1	81 / 67	94 / 83	SL		Came back at 21.5 ft.
	5						
	5						
	5	24.0					
	5	24.0					Core block at 24.0 ft.
25	5	R2	39 / 35	87 / 90	SL		Lost all wash water return at approximately 23.8 ft. Came back at 23.9 ft.
	6	26.8					Lost wash water return at 24.0 ft.
	6	26.8					Rough horizontal partings 18.8 ft., 19.6 ft., 20.6 ft., 21.2 ft., 21.9 ft., 22.0 ft., 22.8 ft., 23.2 ft., 24.3 ft., 27.4 ft., 29.7 ft., 32.6 ft., 36.5 ft.
	6						
	6						
30	6						
	6	R3	119 / 110	99 / 92	SL-FR		Stylolites at 31.0 ft., 35.1 ft.
	6						Pits at 24.6 ft. and 27.0 ft.
	6						Smooth, low angled, stepped joint at 27.7 ft.
	6						
35	6						
	6	36.8					
							Bottom of Boring at 36.8 ft.
40							
45							

Notes:

1. Lost approximately 1200 gallons total of water during all coring runs.

Appendix B

APPENDIX B

Monitoring Well Completion Reports

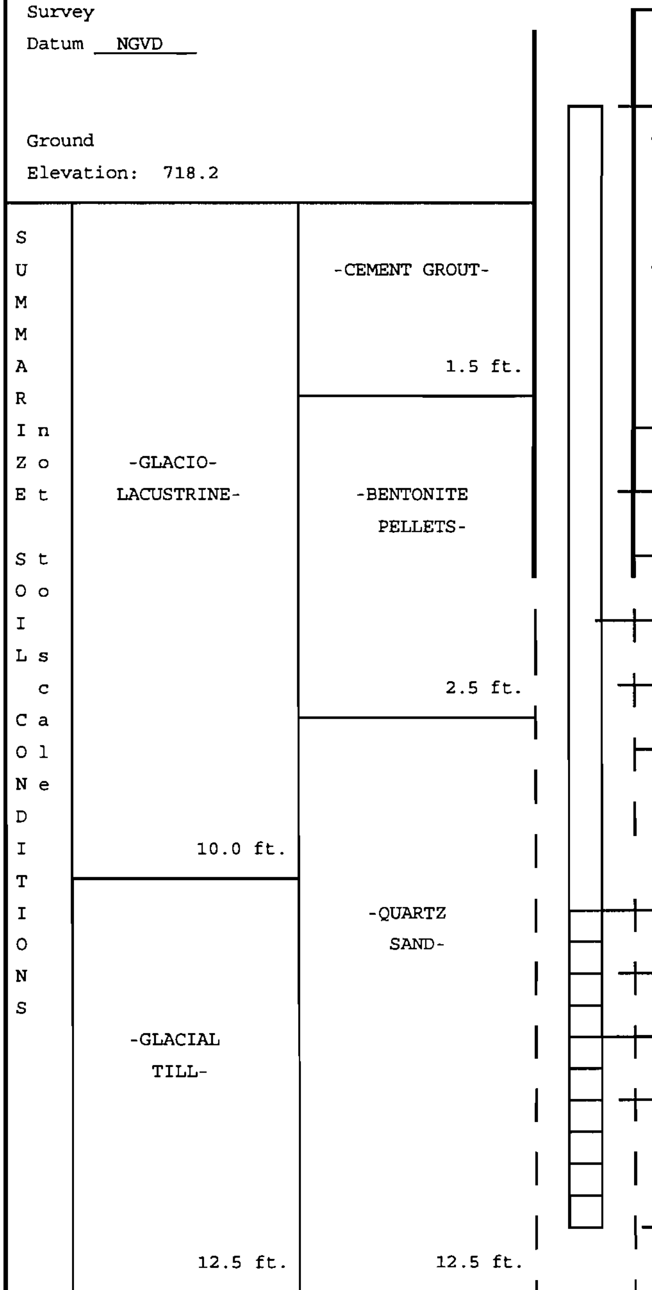
HALEY & ALDRICH

H&A OF NEW YORK CONSULTING GEOTECHNICAL ENGINEERS GEOLOGISTS AND HYDROGEOLOGISTS	OVERBURDEN GROUNDWATER MONITORING WELL REPORT

PROJECT:	ENARC-O MACHINE PRODUCTS RI/FS	FILE NO.:	70372-44
LOCATION:	HONEOYE FALLS, NEW YORK	WELL NO.:	MW201-S
CLIENT:	KADDIS MANUFACTURING CORP.	LOCATION:	See Plan
CONTRACTOR:	NOTHNAGLE DRILLING CO.		
DRILLER:	S. Loranty RIG TYPE: CME-75, Truck-Mounted	SHEET:	1 OF 1
INSTALLATION DATE:	26 May 1994	INSPECTOR:	M. Corrigan

Survey
Datum NGVD

Ground
Elevation: 718.2



Stickup above ground surface of protective casing.	2.5 ft.
Stickup above ground surface of riser pipe.	2.0 ft.
Thickness of Surface Seal	2.5 ft.
Type of Surface Seal [indicated all seals showing depth, thickness and type]	Cement Grout
Type of Protective Casing	Anodized Zinc
Inside Diameter of Protective Casing	6.0 in.
Depth of Bottom of Protective Casing	1.0 ft.
Inside Diameter of Riser Pipe	4.0 in.
Type of Backfill Around Riser	Bentonite Pellets
Diameter of Borehole	10.0 in. +/-
Type of coupling (threaded, welded, etc.)	Threaded
Depth of Bottom of Riser	3.9 ft.
Type of Wellscreen	Slotted PVC
Screen Slot Size	0.010 in.
Diameter of Wellscreen	4.0 in.
Type of Backfill Around Wellscreen	Quartz Sand
Depth of Bottom of Wellscreen	11.9 ft.
Depth of Bottom of Borehole	12.5 ft.

Remarks:

Well No. MW201-S

H&A OF NEW YORK CONSULTING GEOTECHNICAL ENGINEERS GEOLOGISTS AND HYDROGEOLOGISTS	BEDROCK MONITORING WELL REPORT

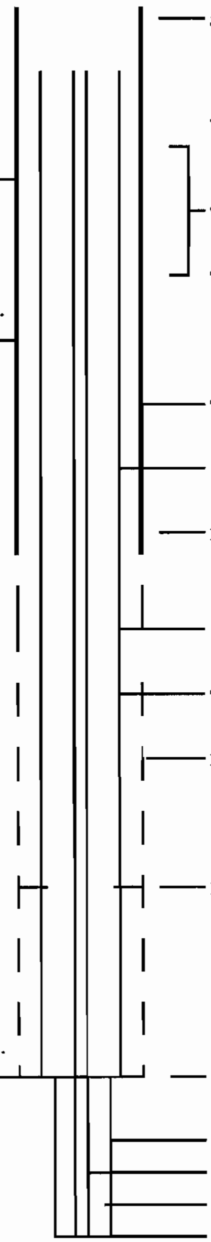
PROJECT:	ENARC-O MACHINE PRODUCTS RI/FS	FILE NO.:	70372-44
LOCATION:	HONEOYE FALLS, NEW YORK	WELL NO.:	MW201-D
CLIENT:	KADDIS MANUFACTURING CORP.	LOCATION:	See Plan
CONTRACTOR:	NOTHNAGLE DRILLING CO.		
DRILLER:	S. Loranty RIG TYPE: CME-75, Truck-Mounted	SHEET:	1 OF 1
INSTALLATION DATE:	26 May 1994	INSPECTOR:	M. Corrigan

Survey
Datum NGVD

Ground
Elevation: 717.3

SUMMARY SOIL CONDITIONS / Zone Stools Scale

-TOPSOIL-	0.2 ft.	-CEMENT GROUT-	3.0 ft.
-FILL-	7.0 ft.	-CEMENT/ BENTONITE GROUT-	12.5 ft.
-GLACIO- LACUSTRINE-	10.0 ft.		
-GLACIAL TILL-	10.5 ft.		
-ONONDAGA LIMESTONE-	29.0 ft.		



Stickup above ground surface of protective casing.	3.0 ft.
Stickup above ground surface of well casing.	2.65 ft.
Thickness of Surface Seal	3.0 ft.
Type of Surface Seal [indicated all seals showing depth, thickness and type]	Cement Grout
Type of Protective Casing	Anodized Zinc
Inside Diameter of Protective Casing	6.0 in.
Depth of Bottom of Protective Casing	2.0 ft.
Inside Diameter of Well Casing	4.0 in.
Type of Backfill Around Casing	Cement/Bentonite Grout
Diameter of Borehole	10.0 in.
Depth of Top of Bedrock	10.5 ft.
Elevation/Depth of Bottom of Casing	12.5 ft.
Diameter of Open Rock Hole	3.0 in. +/-
Inside Diameter of Well Screen	2.0 in.
Type of Backfill around Well Screen	None
Depth of Bottom of Open Rock Hole	29.0 ft.

Method and Materials used to grout casings:

Remarks: Installed 20.0 feet of 2-in. PVC screen and 10.0 feet of 2-in. PVC riser in the open rock hole to prevent caving; no sandpack.

Well No. MW201-D

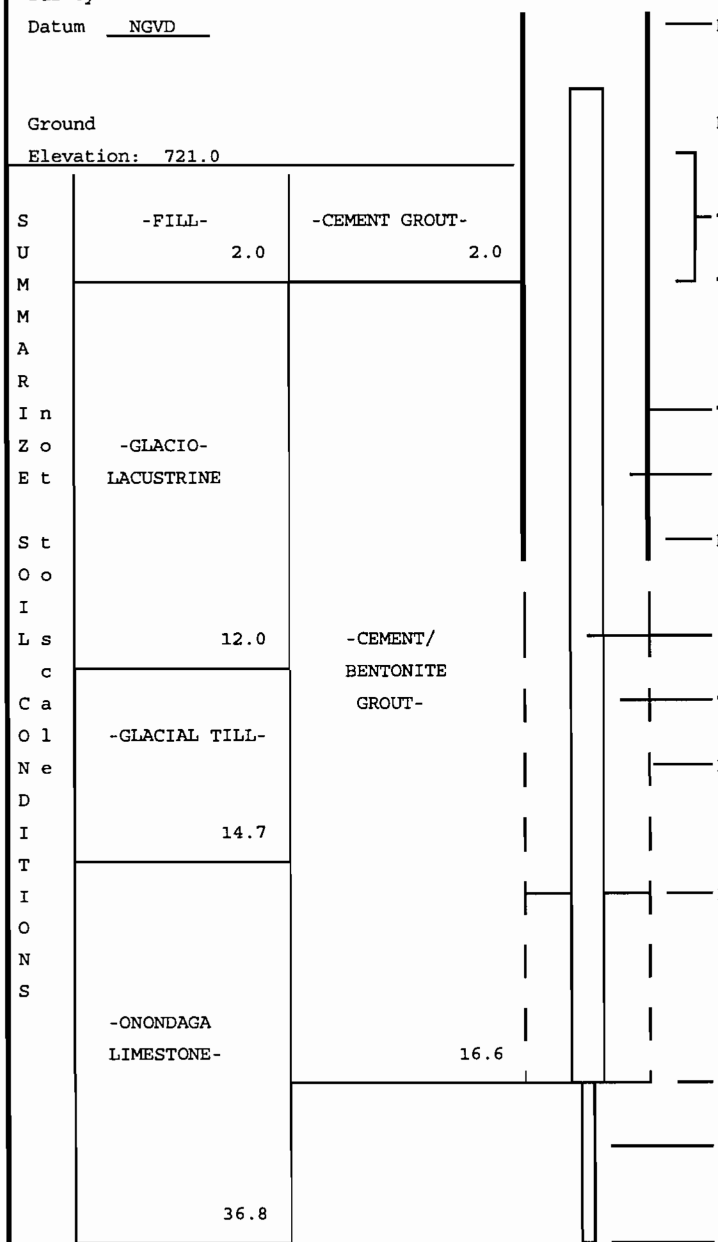
H&A OF NEW YORK CONSULTING GEOTECHNICAL ENGINEERS GEOLOGISTS AND HYDROGEOLOGISTS	BEDROCK MONITORING WELL REPORT

PROJECT: ENARC-O MACHINE PRODUCTS RI/FS
LOCATION: HONEOYE FALLS, NEW YORK
CLIENT: KADDIS MANUFACTURING CORP.
CONTRACTOR: NOTHNAGLE DRILLING CO.
DRILLER: S. Loranty RIG TYPE: CME-75, Truck-Mounted
INSTALLATION DATE: 26 May 1994

FILE NO.: 70372-44
WELL NO.: MW-202
LOCATION: See Plan
SHEET: 1 OF 1
INSPECTOR: M. Corrigan

Survey Datum NGVD

Ground Elevation: 721.0



Depth/Stickup above/below ground surface of protective casing.	0.0 ft.
Depth/Stickup above/below ground surface of well casing.	0.29 ft.
Thickness of Surface Seal	2.0 ft.
Type of Surface Seal [indicated all seals showing depth, thickness and type]	Cement Grout
Type of Protective Casing	Roadway Box
Inside Diameter of Protective Casing	10.0 in.
Depth of Bottom of Protective Casing	1.0 ft.
Inside Diameter of Well Casing	4.0 in.
Type of Backfill Around Casing	Cement/Bentonite Grout
Diameter of Borehole	10.0 in. +/-
Depth of Top of Bedrock	14.7 ft.
Elevation/Depth of Bottom of Casing	16.6 ft.
Diameter of Open Rock Hole	3.0 in. +/-
Depth of Bottom of Open Rock Hole	16.8 ft.

Method and Materials used to grout casings:

Remarks:

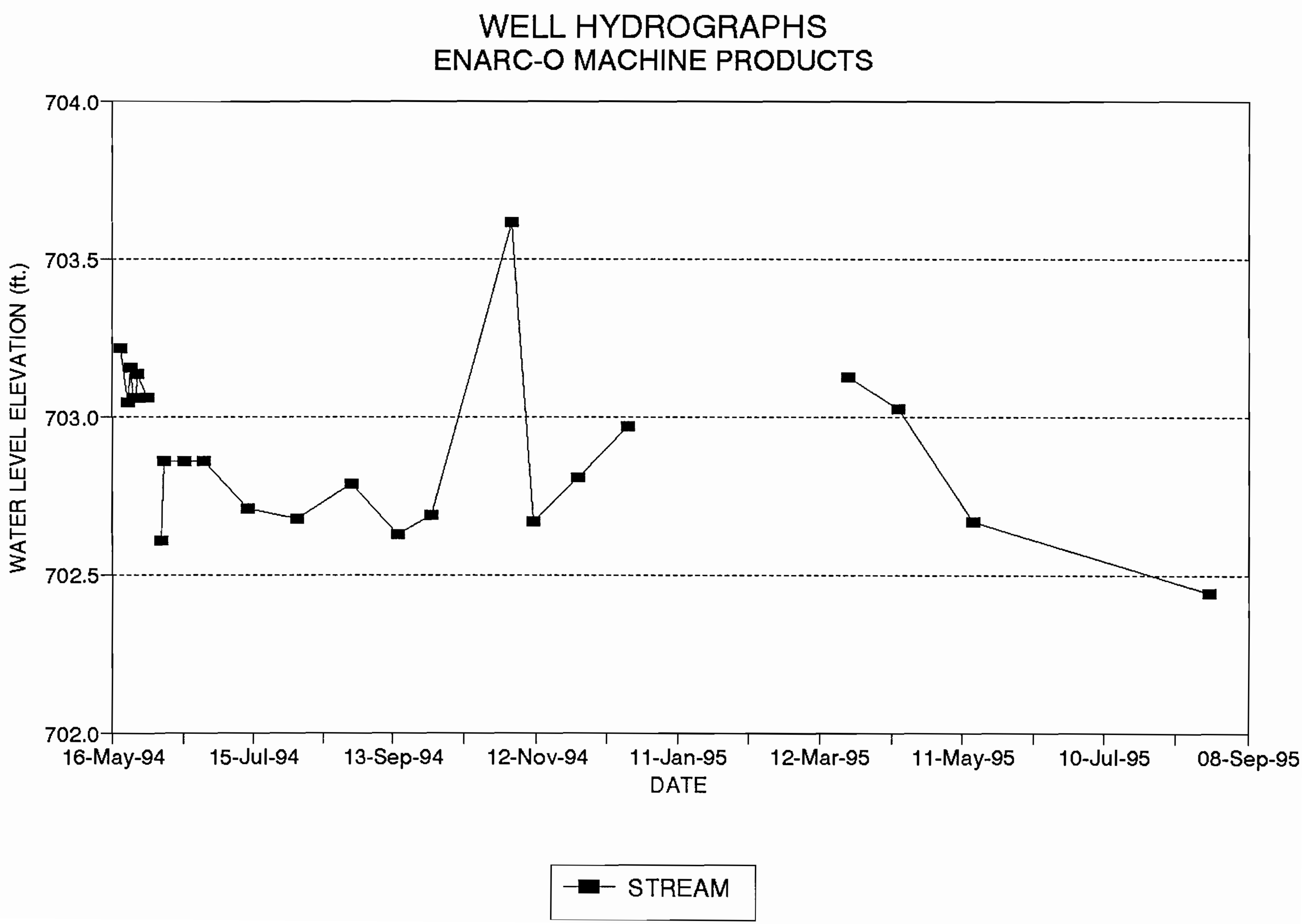
Well No. MW-202

Appendix C

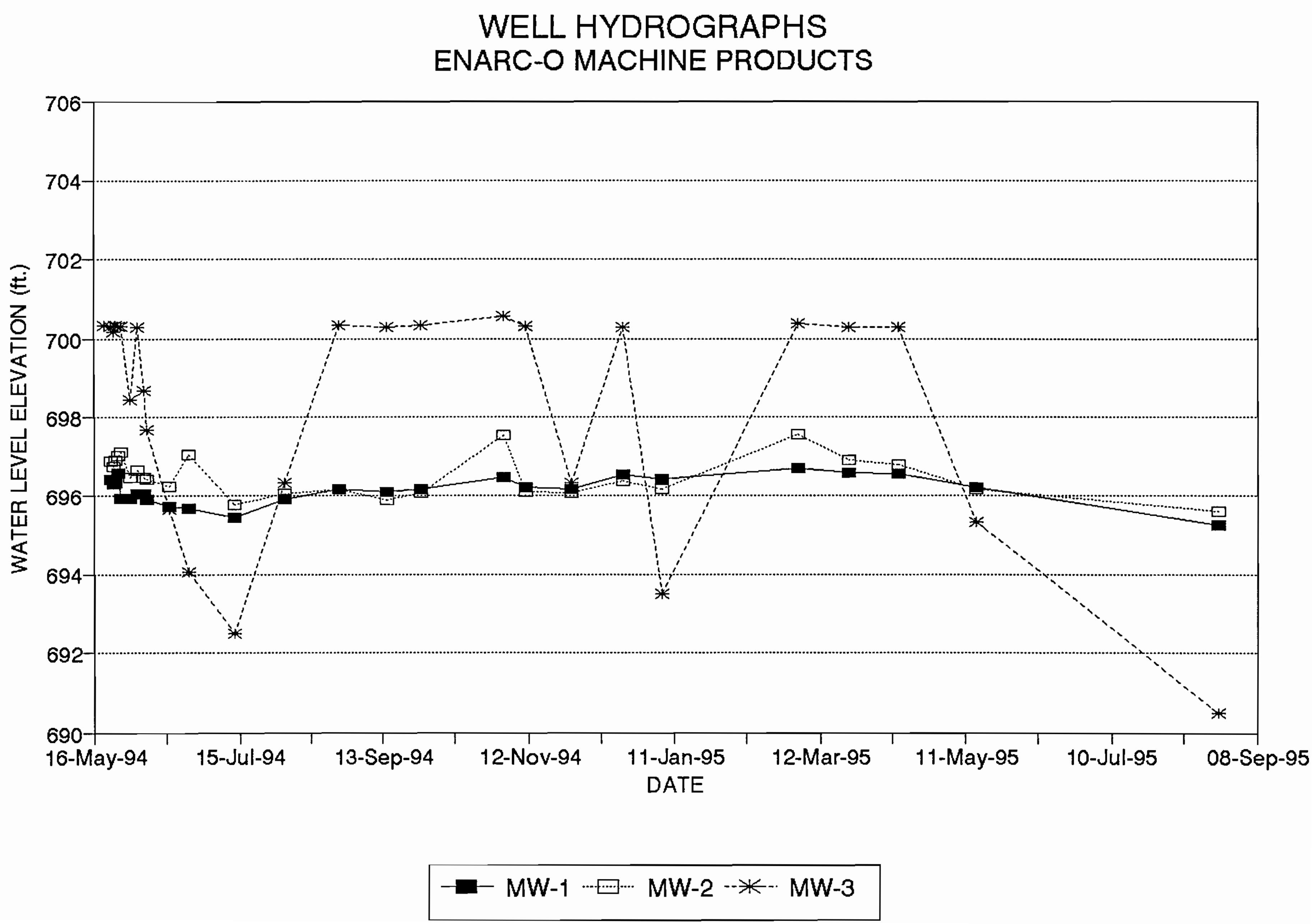
APPENDIX C

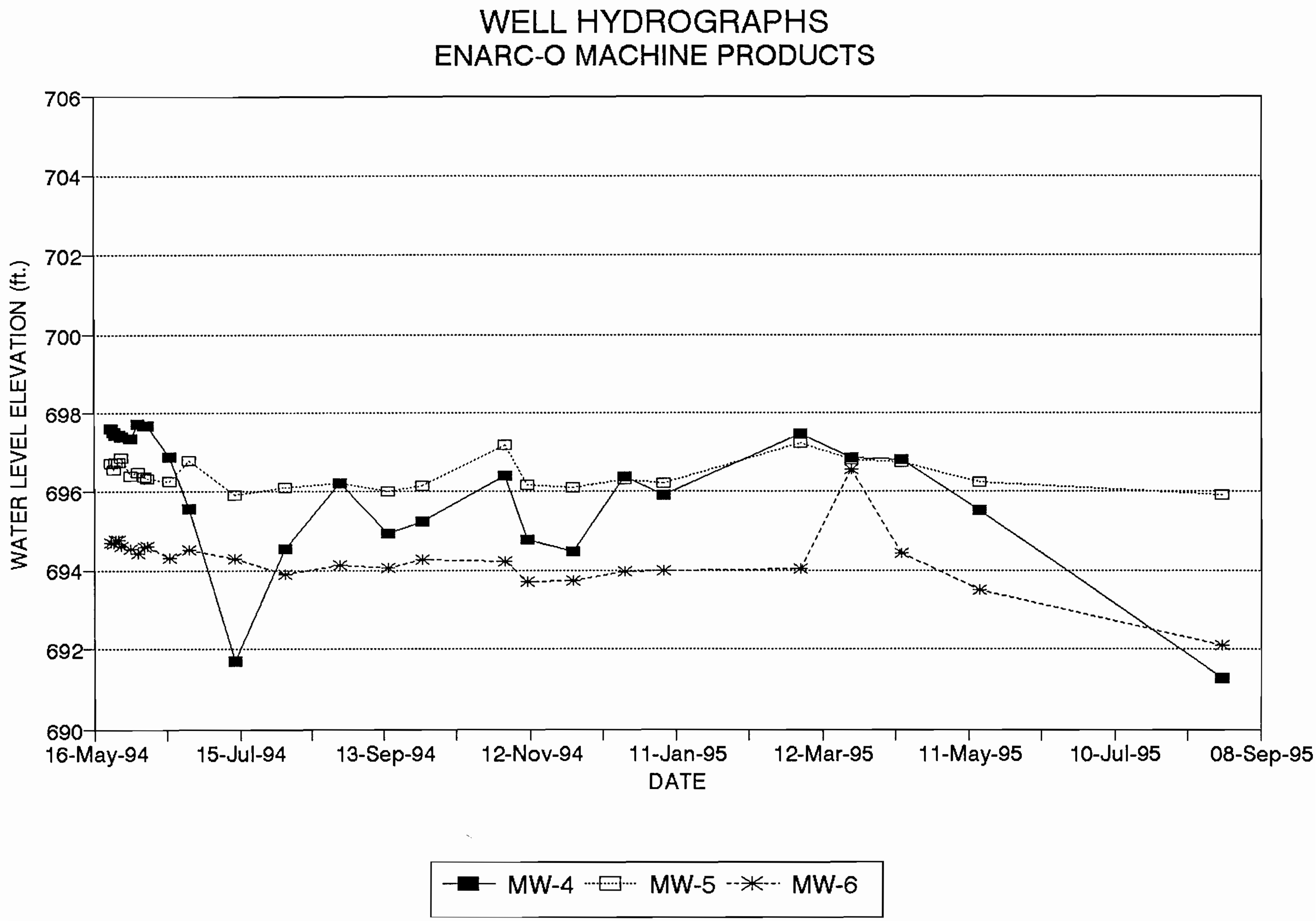
Montioring Well and Honeoye Creek Hydrographs and Water Levels

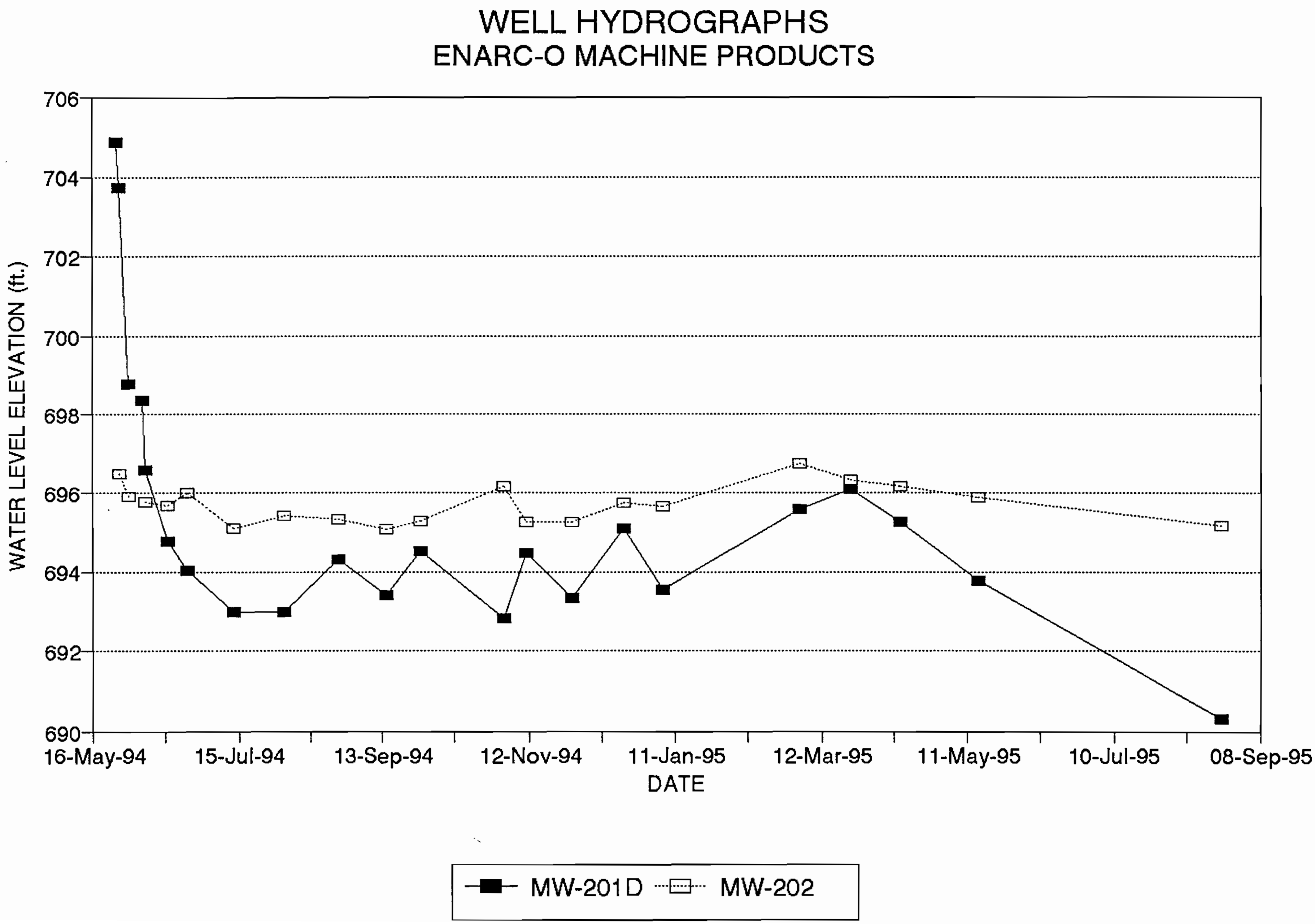
HALEY & ALDRICH



WELL HYDROGRAPHS
ENARC-O MACHINE PRODUCTS
WATER LEVEL ELEVATION (ft.)
704.0
703.5
703.0
702.5
702.0
16-May-94
15-Jul-94
13-Sep-94
12-Nov-94
11-Jan-95
12-Mar-95
11-May-95
10-Jul-95
08-Sep-95
DATE
STREAM


WELL HYDROGRAPHS
ENARC-O MACHINE PRODUCTS
WATER LEVEL ELEVATION (ft.)
706
704
702
700
698
696
694
692
690
16-May-94
15-Jul-94
13-Sep-94
12-Nov-94
11-Jan-95
12-Mar-95
11-May-95
10-Jul-95
08-Sep-95
DATE
MW-1
MW-2
MW-3


WELL HYDROGRAPHS
ENARC-O MACHINE PRODUCTS
WATER LEVEL ELEVATION (ft.)
706
704
702
700
698
696
694
692
690
16-May-94
15-Jul-94
13-Sep-94
12-Nov-94
11-Jan-95
12-Mar-95
11-May-95
10-Jul-95
08-Sep-95
DATE
MW-4
MW-5
MW-6



WELL HYDROGRAPHS
ENARC-O MACHINE PRODUCTS
WATER LEVEL ELEVATION (ft.)
706
704
702
700
698
696
694
692
690
16-May-94
15-Jul-94
13-Sep-94
12-Nov-94
11-Jan-95
12-Mar-95
11-May-95
10-Jul-95
08-Sep-95
DATE
MW-201D
MW-202

	MW-1		MW-2		MW-3		MW-4		MW-5		MW-6		MW-201D		MW-202		STREAM GAUGE	
Refer. Elev.	719.95		723.88		722.10		717.89		719.68		722.34		720.08		720.71		707.36	
DATE	DTW	GWElev	DTW	GWElev	DTW	GWElev	DTW	GWElev	DTW	GWElev	DTW	GWElev	DTW	GWElev	DTW	GWElev	DTW	GWElev
20-May-94					21.77	700.33											4.14	703.22
23-May-94	23.53	696.42	26.98	696.90	21.80	700.30	20.28	697.61	22.96	696.72	27.62	694.72					4.31	703.05
24-May-94	23.64	696.31	27.13	696.75	21.91	700.19	20.38	697.51	23.10	696.58	27.67	694.67					4.20	703.16
25-May-94	23.62	696.33	26.97	696.91	21.77	700.33	20.46	697.43	22.93	696.75	27.58	694.76					4.30	703.06
26-May-94	23.35	696.60	26.86	697.02	21.79	700.31	20.44	697.45	22.92	696.76	27.55	694.79	15.20	704.88			4.30	703.06
27-May-94	24.01	695.94	26.77	697.11	21.79	700.31	20.49	697.40	22.63	696.85	27.74	694.60	16.35	703.73	24.20	696.51	4.22	703.14
31-May-94	24.00	695.95	27.40	696.48	23.63	698.47	20.53	697.36	23.27	696.41	27.79	694.55	21.30	698.78	24.78	695.93	4.30	703.06
03-Jun-94	23.90	696.05	27.20	696.68	21.83	700.27	20.14	697.75	23.17	696.51	27.91	694.43						
06-Jun-94	23.89	696.06	27.42	696.46	23.40	698.70	20.22	697.67	23.30	696.38	27.75	694.59	21.73	698.35			4.75	702.61
07-Jun-94	24.04	695.91	27.46	696.42	24.41	697.69	20.20	697.69	23.33	696.35	27.74	694.60	23.48	696.60	24.93	695.78	4.50	702.86
16-Jun-94	24.23	695.72	27.65	696.23	26.44	695.66	21.00	696.89	23.42	696.26	28.01	694.33	25.32	694.76	25.01	695.70	4.50	702.86
24-Jun-94	24.25	695.70	26.82	697.06	28.04	694.06	22.33	695.56	22.90	696.78	27.84	694.50	26.04	694.04	24.70	696.01	4.50	702.86
13-Jul-94	24.50	695.45	28.11	695.77	29.62	692.48	26.18	691.71	23.77	695.91	28.04	694.30	27.09	692.99	25.62	695.09	4.65	702.71
03-Aug-94	24.04	695.91	27.83	696.05	25.76	696.34	23.33	694.58	23.56	696.12	28.43	693.91	27.11	692.97	25.29	695.42	4.68	702.68
26-Aug-94	23.77	696.18	27.72	696.16	21.74	700.36	21.68	696.21	23.46	696.20	28.22	694.12	25.76	694.32	25.38	695.33	4.57	702.79
15-Sep-94	23.83	696.12	27.99	695.89	21.83	700.27	22.94	694.95	23.68	696.00	28.27	694.07	26.66	693.42	25.63	695.08	4.73	702.63
29-Sep-94	23.77	696.18	27.81	696.07	21.75	700.35	22.65	695.24	23.54	696.14	28.08	694.26	25.58	694.50	25.43	695.28	4.67	702.69
02-Nov-94	23.49	696.46	26.33	697.55	21.54	700.56	21.50	696.39	22.48	697.20	28.12	694.22	27.27	692.81	24.54	696.17	3.74	703.62
11-Nov-94	23.75	696.20	27.77	696.11	21.78	700.32	23.13	694.76	23.52	696.16	28.63	693.71	25.61	694.47	25.44	695.27	4.69	702.67
30-Nov-94	23.76	696.19	27.81	696.07	25.77	696.33	23.41	694.48	23.56	696.12	28.61	693.73	26.73	693.35	25.46	695.25	4.55	702.81
21-Dec-94	23.42	696.53	27.51	696.37	21.82	700.28	21.53	696.36	23.37	696.31	28.38	693.96	24.97	695.11	24.96	695.75	4.39	702.97
06-Jan-95	23.53	698.42	27.71	696.17	28.60	693.50	21.99	695.90	23.48	696.20	28.35	693.99	26.56	693.52	25.05	695.66	frozen	
03-Mar-95	23.24	696.71	26.30	697.58	21.72	700.38	20.41	697.48	22.44	697.24	28.30	694.04	24.49	695.59	23.96	696.75	frozen	
24-Mar-95	23.34	696.61	26.96	696.92	21.82	700.28	21.04	696.85	22.85	696.83	25.78	696.56	23.96	696.12	24.38	696.33	4.23	703.13
14-Apr-95	23.38	696.57	27.07	696.81	21.81	700.29	21.06	696.83	22.93	696.75	27.94	694.40	24.83	695.25	24.54	696.17	4.33	703.03
16-May-95	23.75	698.20	27.89	696.19	26.77	695.33	22.38	695.51	23.44	696.24	28.84	693.50	26.33	693.75	24.83	695.68	4.69	702.67
23-Aug-95	24.70	695.25	28.26	695.62	31.61	690.49	26.60	691.29	23.76	695.92	30.23	692.11	29.78	690.30	25.56	695.15	4.92	702.44
17-Nov-95	23.80	696.15	27.41	696.47	21.61	700.49	22.41	695.48	23.34	696.34	29.22	693.12	25.82	694.26	25.11	695.60	not read	

Appendix D

Appendix D

APPENDIX D

Fish and Wildlife Impact Analysis Report
as Prepared by TPC Environmental Consulting of Buffalo, New York

HALEY & ALDRICH

Fish and Wildlife Impact Analysis

for the

Enarc-O Machine Products Site

Provided by: Thomas P. Connare, TPC Environmental Consulting

INTRODUCTION

This report presents a habitat-based analysis of fish and wildlife usage of the area surrounding the Enarc-O Machine Products site in Lima, Livingston County, New York. The analysis follows the guidelines established in Step One in the document prepared by the New York State Department of Environmental Conservation (NYSDEC) Division of Fish and Game entitled Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites (FWIA), (1991). The objective of Step One of the FWIA is to identify fish and wildlife resources that may potentially be impacted by site-related contaminants. Step One requires such resource information be provided in the form of site maps and descriptions of site covertypes and utilization of site covertypes by fish and wildlife.

The analysis was conducted by TPC Environmental of Buffalo, New York. Site information was collected during both an on-site field investigation on July 24, 1994 and a review of NYSDEC files in Avon, New York. Historic aerial photography of the site was obtained at the Soil and Water Conservation District Office for Livingston County in Leicester, New York.

TOPOGRAPHIC MAP

A topographic map showing the site location and significant water resources and New York State regulated wetlands within a two mile radius of the site is presented as Figure 1. The village of Lima is located just over two miles southwest of the Enarc-O site. The Town of Honeoye Falls is located about one mile northwest of the site. Honeoye Creek flows northwesterly through the site area and is located adjacent to the site to the east. Spring Brook is located approximately two miles west of the site.

New York State Natural Heritage Program maps indicate that there are no NYSDEC significant habitats or habitats supporting endangered, threatened or rare species within a two mile radius of the site. Similarly, there are no wild and scenic rivers located within two miles of the site.

NYSDEC freshwater wetland maps for Monroe, Livingston and Ontario Counties indicate that state regulated wetland HF-4 is located approximately one mile southwest of the site and state regulated wetland HF-1 is located approximately 7000 feet southwest of the site.

NYSDEC deer wintering maps for the same three counties indicate that the closest deer wintering area to the site is just over two miles north of the site, north of Cheese Factory Road and west of Quaker Meetinghouse Road.

COVERTYPE MAP

A covertype map of the study area is presented as Figure 2. The study area is the area described by a circle within a 0.5 mile radius of the site. The covertype map identifies the location of significant vegetative communities, agricultural fields and aquatic resources. Identification of significant covertypes and fish and wildlife resources in the study area was made by Thomas P. Connare (biologist) during the on-site field investigation on July 24, 1994.

COVERTYPES AND FISH AND WILDLIFE RESOURCES

Most of the general area including the site study area has historically been a rural farming community. Much of the area is still being farmed. The site is actually located in the small township of North Bloomfield. The study area north of the Enarc-O site is largely residential, especially along Ideson Road, Bean Hill Road, Martin Road, Quaker Meetinghouse Road and State Route 65. Most of the study area south of the site is agricultural. At the time of the field investigation, the main crops being grown were beans, corn and wheat. An agricultural area east of the site and immediately north of Route 65 was in corn and wheat. The old race track grounds were being used for hay and pasture.

When land used for farming and pasture shifted to commercial and residential development, most of the abandoned fields began to undergo ecological succession. Ecological succession is a fairly predictable sequence where an area disturbed by farming or logging will revert back to the climax vegetative community characteristic of the area. This process is characterized by a series of developing plant communities in which various plant species populations are usually replaced by others over time.

Many of the vegetative communities present in the study area represent different stages in this process. Areas of poor drainage and areas along stream courses, hedgerows and boundary lines typically represent the most advanced stages of succession. These stages are dominated by woody vegetation including both trees and shrubs. Younger stages in the successional process are dominated by herbaceous annuals and perennials. Species composition of the developing stages will depend on moisture regime, drainage and seed source. Covertypes identified in the study area include both upland and wetland vegetative communities. Plant species identified in these communities during the field investigation are listed in Table 1. Wetland plant communities were only identified along the immediate banks of portions of Honeoye Creek. .

UPLAND COVERTYPES

OLD FIELD

The old field plant community is an early stage in succession where recently abandoned agricultural fields are being colonized by an aggressive pioneer herbaceous community and seedlings of woody shrubs and trees. Plant species identified as common in old field communities in the study area include the grasses tall fescue, timothy and hairgrass along with Canada goldenrod, Canada thistle, Virginia creeper, poison ivy, staghorn sumac and green ash.

SHRUBLAND

Shrublands represent old field communities typically greater than ten years old where woody vegetation including shrub and saplings have become dominant. Shrublands are typically patchy in appearance with large clumps of shrubs mixed with saplings and open areas of persistent herbaceous species. There were no significant shrublands observed in the study area. What shrub areas there were tended to be along the margins of woodlots. A small shrubland was identified between two woodlot areas immediately north of a large wheat field east of Bragg Road. Plant species common in this shrubland include staghorn sumac, tartarian honeysuckle, green ash, scotch pine, black walnut, reed canary grass, Virginia creeper and summer grape. Typical woodlot edge plant species common in the study area include arrowwood, dogwoods, staghorn sumac, poison ivy, Virginia creeper, pokeweed, Canada thistle, raspberry and grape.

WOODLOT

Woodlots common to the study area are of several different types. The most common woodlot type observed is an upland forest community representing an advanced stage of old field succession. Tree species common in these woodlots include shagbark hickory, basswood, box elder, green ash, sugar maple, hawthorn and buckhorn. Other species common in these communities include tartarian honeysuckle, Virginia creeper, white avens, enchanter's nightshade and grape.

Older, mature forested areas were observed along the upper banks and sloping areas associated with much of Honeoye Creek. Tree species identified in these areas include black walnut, black locust, basswood, sugar maple and beech. Other species include honeysuckle, Virginia creeper, garlic mustard, mayapple and enchanter's nightshade.

A small woodlot in the southwest portion of the study area, immediately west of a large bean field is dominated by conifers. This woodlot was apparently planted by man and includes many mature specimens of Norway spruce, scotch pine and red pine as well as green ash, white oak, staghorn sumac, poison ivy, Virginia creeper and grape.

WETLAND COVERTYPES

No significant wetland areas were identified in the study area except immediately adjacent to Honeoye Creek. The wetter, less well drained sections of some of the woodlots in the study area had greater percentages of green ash, shagbark hickory and basswood.

The riparian wetlands bordering Honeoye Creek in the study area were mostly associated with the lower level of the bank close to the level of the creek bed. Tree species identified as common along the creek include black willow, green ash, eastern cottonwood, basswood and box elder. Vegetation growing along the creek bottom and waters edge included lizard tail, cattail, buttonbush, joe pye weed, reed canary grass, green bulrush, Phragmites, white vervain, intermediate dogbane, silky dogwood and fowl manna grass.

AQUATIC HABITATS

Honeoye Creek is the only major aquatic resource in the study area. Honeoye Creek flows northwesterly through the study area, ultimately discharging into the Genesee River which flows to Lake Ontario.

Honeoye Creek, as observed in the study area, is a relatively wide and shallow, slow moving warm water stream. The primary substrate is sedimentary rock, principally limestone and shale. Throughout much of the summer and fall months, much of the stream bed lies above water except following heavy rains. A series of small falls are common along the stream's length and are typically associated with weathered joints in the bedrock. Deeper pool areas are found where sections of bedrock have weathered away in the vicinity of the falls. Algal growth is common along the shallower, slower moving sections of the creek. Beds of lizard tail, reed canary grass and cattail occur where suitable substrate is available.

No physical or chemical measurements were taken in the creek during the site investigation. At that time the water level was low with much of the bedrock substrate exposed above the water level.

WILDLIFE USAGE

TERRESTRIAL BIOTA

The variety of covertypes in the study area support a diverse yet common wildlife community. The most common species in this community are those whose populations have flourished since human settlement. The proximity to active agricultural fields in the study area permits access to a readily available food source during much of the year for several wildlife species. The many woodlot habitats in the area provide ideal daily and seasonal cover for these species.

A list of mammal, reptile and amphibian species potentially present in the study area are presented in Tables 1-5. This species list was generated based on a field assessment of available wildlife habitat and on resource information indicating the mapped range for each species. During the field survey, several deer were observed in the agricultural fields. Numerous woodchuck burrows were also observed. Local residents indicated that red fox, eastern cottontail and raccoon are also common in the area including the site.

Bird species potentially breeding in the study area are listed in table 3. This list was generated based on a field survey of suitable breeding habitat and on a recent breeding status report for New York State (1988). Birds display wide-spread migration and localized movement patterns and it would be difficult to assess passing versus territorial usage of the study area by different species. Birds observed during the field survey included migrant as well as permanent residents. Probable permanent resident species in the study area include American crow, starling, bluejay, black-capped chickadee, goldfinch, northern cardinal, house finch, house sparrow, song sparrow, brown creeper, white-breasted nuthatch, mourning dove, downy woodpecker, redtail hawk, American kestrel and dark sided junco. Other birds observed during the survey included northern flicker, redeyed vireo, eastern wood pewee, catbird, purple martin, barn swallow, kingfisher, pectoral sandpiper, great blue heron, killdeer, house wren, turkey vulture, northern oriole, robin, common grackle, cedar waxwing and indigo bunting.

The successional old field, shrubland and second growth woodlot covertypes in the study area, in combination with the agricultural fields and riparian corridor of Honeoye Creek, are patchy environments that provide ideal habitat for white tail deer, eastern cottontail, striped skunk, raccoon, woodchuck and numerous small rodents, especially gray and red squirrel, chipmunk and meadow vole. Numerous bird species utilize these habitats on a year-round basis due to the bountiful supply of insects, berries and seeds common in the shrub and herbaceous vegetation. Predator species such as weasel, fox, shrew, redtail hawk, screech owl and American kestrel prey on the many small mammals and birds in these areas.

The more mature woodlots and wooded areas along portions of Honeoye Creek provide food, shelter and nesting sites for a variety of wildlife species including eastern gray squirrel, white tail deer, raccoon and small rodents such as deer mice, vole and chipmunk. Resident bird species utilizing these areas include bluejay, chickadee, brown creeper, white-breasted nuthatch, downy woodpecker, northern flicker, junco and American crow. Seasonal migrants commonly breeding here include northern oriole, eastern wood pewee, redeyed and warbling vireos, hooded warbler and wood thrush. The fragmentation of woodland habitat in most rural farming areas has resulted in the elimination or sharp reduction of many mammal and bird species that require forest interior habitat characteristic of large, unbroken tracts of woodland.

In addition to providing habitat for resident populations of mammals and birds, riparian habitat also serves as dispersal corridors for many species. Dispersal corridors provide long strips of protective habitat bordering relatively unsuitable habitat making it possible for species to colonize other fragmented habitats. Honeoye Creek provides such a corridor.

AQUATIC BIOTA

Honeoye Creek is categorized as a warm water stream and as such is able to support a limited warm water fishery. Although no fish sampling has been conducted by NYSDEC fishery biologists in recent years, collections from the 1950's and the 1970's yielded the following species: northern hogsucker, rock bass, smallmouth bass, bluegill, pumpkinseed, black nose dace, common shiner, stoneroller, white sucker, creek chub, brown bullhead, several darters, logperch, golden shiner, crappie, carp, fat head minnow, redhorse and largemouth bass. A fishery biologist with the NYSDEC indicated that walleye and chain pickerel are resident in the Genesee River and may occasionally enter Honeoye Creek; he added that the creek does not provide a suitable environment for salmonids.

It is unlikely that Honeoye Creek supports a diverse fish community in the study area due to low water flow and the generally shallow nature of the creek in summer. Local residents indicated that some smallmouth bass are found in some of the deeper pool areas and that there is a good crayfish population in the creek.

In addition to a fishery, Honeoye Creek provides feeding and shelter habitat for a variety of mammal, reptile, amphibian and bird species. Raccoon, mink, muskrat and shrews would be expected to feed here. Birds observed feeding in the creek during the survey included kingfisher, great blue heron, mallard, killdeer and pectoral sandpiper. A local resident observed that killdeer had nested on the dry creek bottom. Other species utilizing the creek habitat would include redwing blackbird, common grackle, swamp sparrow, marsh wren, common yellowthroat, song sparrow, green back heron, black crown night heron, eastern kingbird and several swallow species.

VALUE OF RESOURCES TO HUMANS

Human use of fish and wildlife resources within the study area include hunting, fishing and primary contact recreation in portions of Honeoye Creek. Local ordinances prohibit hunting within a specified distance of structures such as buildings, roads and railroad tracks. Deer are plentiful in the general region including the study area but it is not known if hunting actually occurs in the study area, given the proximity to residences and roads. Hunting of woodchuck, squirrel and certain bird species is possible within the study area.

Although sections of Honeoye Creek probably support a relatively diverse warm water fish community, fishing pressure is probably light within the study area. According to local residents, there is some fishing for smallmouth bass and perhaps sunfish and bullhead in a few of the deeper "holes" in the creek. Youths were observed collecting crayfish in the creek during the field survey. Aside from these occasions of casual fishing, there probably is very little sport fishing in the creek in the study area.

Much of Honeoye Creek, especially in the areas of higher density human inhabitance, has been designated as Class B by New York State. Class B waters are classified as suitable for primary contact recreation such as swimming and wading. There was ample evidence during the stream survey that local residents utilize the creek for recreational activity such as wading, hiking and collecting.

REFERENCES

Andrle, Robert F. and Janet R. Carroll. 1988. The Atlas of Breeding Birds in New York State. Cornell University Press.

Bishop, Shermon C. 1927. Amphibians and Reptiles of Allegany State Park. New York State Museum Handbook 3

Britton, Nathaniel and Addison Brown. 1970 An Illustrated Flora of the Northern United States and Canada. Three Volumes. Dover Publications, Inc., New York

Burt, William H. 1980 A Field Guide to the Mammals of North America. Houghton Mifflin Company, Boston

Burt, William H. The Mammals of the Great Lakes. The University of Michigan Press

Conant, Roger. 1975 A Field Guide to Reptiles and Amphibians of Eastern and Central North American. Houghton Mifflin Company, Boston

Hamilton Jr., William J. and John O. Whitaker, Jr. 1975. Mammals of the Eastern United States. Second Edition. Cornell University Press

Miller Jr., Gerrit S. 1899. Preliminary List of the Mammals of New York. Bulletin of the New York State Museum, No. 29. University of the State of New York

Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites. 1991. New York State Department of Environmental Conservation, Division of Fish and Wildlife.

Strausbaugh, P.D. and Earl L. Core. 1977. Flora of West Virginia. Second Edition. Seneca Books, Gransville, Virginia

TABLE 1

COMMON AND SCIENTIFIC NAMES OF PLANT SPECIES IDENTIFIED AT THE ENARCO-O MACHINE PRODUCTS SITE

TREES	
COMMON NAME	SCIENTIFIC NAME
Green Ash	Fraxinus pennsylvanica
Black Locust	Robinia pseudoacacia
Black Willow	Salix nigra
Black Walnut	Juglans nigra
Eastern Cottonwood	Populus deltoides
Shagbark Hickory	Carya ovata
Sugar Maple	Acer saccharum
American Beech	Fagus grandifolia
American Basswood	Tilia americana
Box Elder	Acer negundo
Buckthorn	Rhamnus cathartica
Hawthorn	Crataegus sp.
Apple	Malus sp.
Black Cherry	Prunus serotina
American Elm	Ulmus americana
Red Maple	Acer rubrum
Scotch Pine	Pinus sylvestris
Red Pine	Pinus resinosa
Norway Spruce	Picea abies
Swamp White Oak	Quercus bicolor
SHRUBS AND VINES	
Silky Dogwood	Cornus amomum
Staghorn Sumac	Rhus typhina
Tartarian Honeysuckle	Lonicera tatarica
Northern Arrowwood	Viburnum dentatum

TABLE 1-CONTINUED COMMON AND SCIENTIFIC NAMES OF PLANT SPECIES IDENTIFIED AT THE ENARCO-O MACHINE PRODUCTS SITE	
Buttonbush	Cephalanthus occidentalis
Multifloral Rose	Rosa multiflora
Raspberry	Rubus alleganiensis
Poison Ivy	Toxicodendron radicans
Virginia Creeper	Parthenocissus quinquefolia
Summer Grape	Vitis aestivalis
Currant	Ribes sp.
HERBACEOUS	
Lizardtail	Saururey cernuus
Joe-pye Weed	Eupatorium maculatum
Reed Canary Grass	Phalaris arundinacea
Pokeweed	Phytolacca americana
Tall Fescue	Fescue elatior
Timothy	Phleum pratense
Hairgrass	Deschampsia flexuosa
Canada Goldenrod	Solidago canadensis
Canada Thistle	Cirsium arvense
Garlic Mustard	Alliaris officinalis
Moneywort	Lyoimachin numularia
White Avens	Geum laciniatum
Touch-me-not	Impatiens capensis
Mayapple	Podophyllum peltatum
Wild Bergamot	Monarda fistulosa
Daisy Fleabane	Erigeron annuus
Wild Ginger	Asarum canadense
Lance-leaved Goldenrod	Euthamia graminifolia
Cattail	Typha latifolia
Enchanter's Nightshade	Circe quadrisulcata
Agrimony	Agrimonia sp.

TABLE 1-CONTINUED

COMMON AND SCIENTIFIC NAMES OF PLANT SPECIES
IDENTIFIED AT THE
ENARCO-O MACHINE PRODUCTS SITE

Green Bulrush	Scirpus atrovirens
Fowl Manna Grass	Glyceria striata
Intermediate Dogbane	Apocynum medium
Common Reed	Phragmites communis
White Vervain	Verbena urticifolia

TABLE 2
MAMMAL SPECIES POTENTIALLY PRESENT AT THE
ENARC-O MACHINE PRODUCTS SITE

COMMON NAME	SCIENTIFIC NAME
Northern water shrew	Sorex palustris
Masked shrew	Sorex cinereus
Short-tailed shrew	Blarina brevicauda
Least shrew	Crypototis parva
Hairy-tailed mole	Parascalops breweri
Star-nosed mole	Condylura cristata
Little brown bat	Myotis lucifugus
Big brown bat	Eptesicus fuscus
Eastern cottontail rabbit	Sylvilagus floridanus
Opossum	Didelphis virginiana
Eastern chipmunk	Tamias striatus
Woodchuck	Marmota monax
Gray squirrel	Sciurus carolinensis
Red squirrel	Tamiasciurus hudsonicus
Deer mouse	Peromyscus maniculatus
White-footed mouse	Peromyscus leucopus
Meadow vole	Microtus pennsylvanicus
Muskrat	Ondotra zibethica
Norway rat	Rattus norvegicus
House mouse	Mus musculus
Meadow jumping mouse	Zapus hudsonicus
Woodland jumping mouse	Napaeozapus insignis
Coyote	Canis latrans
Red fox	Vulpes fulva
Eastern raccoon	Procyon lotor
Ermine	Mustela erminea

TABLE 2 - CONTINUED
MAMMAL SPECIES POTENTIALLY PRESENT AT THE
ENARC-O MACHINE PRODUCTS SITE

COMMON NAME	SCIENTIFIC NAME
Long-tailed weasel	Mustela frenata
Mink	Mustela vison
Striped skunk	Mephitis mephitis
White-tailed deer	Odocoileus virginianus

TABLE 3
BIRD SPECIES POTENTIALLY PRESENT AT THE
ENARC-O MACHINE PRODUCTS SITE

Mallard duck	Wood thrush
Killdeer	Northern shrike
Upland sandpiper	Mockingbird
Northern harrier	Brown thrasher
Red-tailed hawk	Cedar waxwing
American kestrel	Starling
Ring-necked pheasant	Warbling vireo
Mourning dove	Blue-winged warbler
Yellow-billed cuckoo	golden-winged warbler
Great horned owl	Yellow warbler
Eastern screech owl	Chestnut-sided warbler
Common nighthawk	Belted kingfisher
Chimney swift	Common yellowthroat
Ruby-throated hummingbird	American redstart
Northern flicker	Rose-breasted grosbeak
Downy woodpecker	Northern cardinal
Red-headed woodpecker	Indigo bunting
Eastern kingbird	Rufous-sided towhee
Great crested flycatcher	Savannah sparrow
Eastern wood pewee	Song sparrow
Eastern phoebe	Field sparrow
Least flycatcher	Chipping sparrow
Tree swallow	Dark-sided junco
Barn swallow	Bobolink
Bluejay	Eastern meadowlark
American crow	Red-winged blackbird

TABLE 3 - CONTINUED
BIRD SPECIES POENTIALLY PRESENT AT THE
ENARC-O MACHINE PRODUCTS SITE

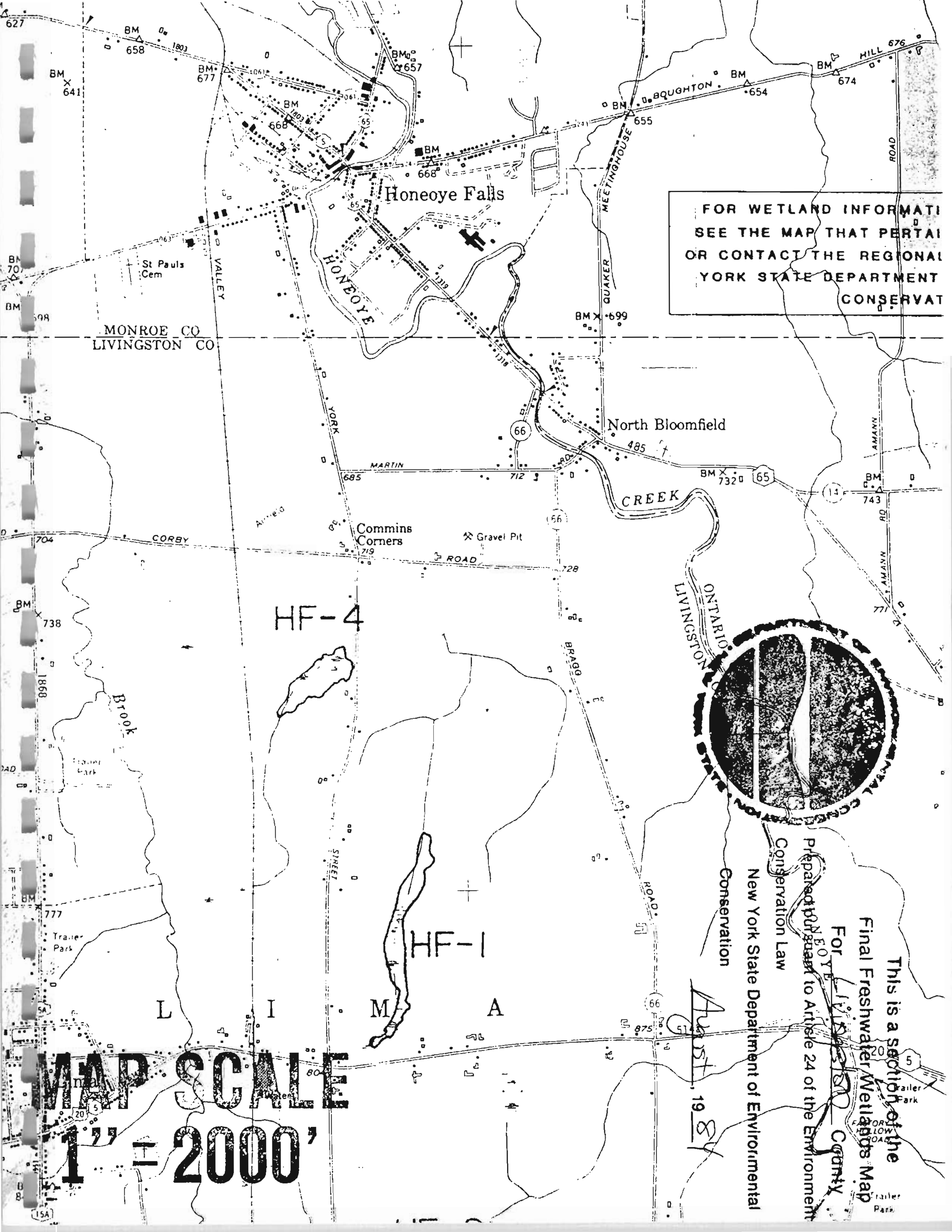
Cooper's hawk	Sharp-shinned hawk
Common grackle	Brown-headed cowbird
Tufted titmouse	Orchard oriole
Black-capped chickadee	Northern oriole
White-breasted nuthatch	House sparrow
Brown creeper	American goldfinch
House wren	House finch
Eastern bluebird	American robin

TABLE 4
AMPHIBIAN SPECIES POTENTIALLY PRESENT AT THE ENARC-O MACHINE PRODUCTS SITE

COMMON NAME	SCIENTIFIC NAME
Newt	Notophthalmus viridescens
American toad	Bufo americanus
Northern spring peeper	Hyla crucifer
Western chorus frog	Pseudacris triseriata
Gray treefrog	Hyla versicolor
Bullfrog	Rana catesbeiana
Green frog	Rana clamitans
Pickerel frog	Rana palustris
Leopard frog	Rana pipiens
Wood frog	Rana sylvatica

TABLE 5
REPTILE SPECIES POTENTIALLY PRESENT AT THE
ENARC-O MACHINE PRODUCTS SITE

COMMON NAME	SCIENTIFIC NAME
Northern ring-neck snake	Diadophis punctatus
Eastern smooth green snake	Opheodrys vernalis
Milk snake	Lampropeltis triangulum
Water snake	Natrix sipedon
Northern brown snake	Storeria dekayi
Northern red-bellied snake	Storeria occipitomaculata
Northern ribbon snake	Thamnophis sauritus
Garter snake	Thamnophis sirtalis
Northern black racer	Coluber constrictor
Snapping turtle	Chelydra serpentina
Midland painted turtle	Chrysemys picta



FOR WETLAND INFORMATI
SEE THE MAP THAT PERTAI
OR CONTACT THE REGIONAL
YORK STATE DEPARTMENT
CONSERVAT
Honeoye Falls
HONEOYE
St Pauls Cem
VALLEY
MONROE CO
LIVINGSTON CO
YORK
QUAKER
MEETINGHOUSE
BOUGHTON
HILL
ROAD
North Bloomfield
MARTIN
CREEK
Commins Corners
Gravel Pit
CORBY
ROAD
ONTARIO
LIVINGSTON
BRAGG
AMANN
RD
Brook
Trailer Park
HF-4
HF-1
STREET
L I M A
MAP SCALE
1" = 2000'
This is a section of the
Final Freshwater Wetlands Map
For Livingston County
Prepared pursuant to Article 24 of the Environmental
Conservation Law
New York State Department of Environmental
Conservation
August, 1984

KEY TO "COVER-TYPE" MAP

1. Agricultural (Ag) Field

2. Old Field

3. Shrubland

4 Woodlot

5. Riparian Wetland (follows Honeoye Creek - immediately adjacent to stream bank; a narrow strip of woodland)

Note: The remainder of the land area is residential and commercial.

COVER TYPE MAP

FIGURE 2


Non ag
PC
T2131
3237
1
27.1
PC
PC
4
19.5
2
8.2
PC
T2135
3237
1
17.5
PC
PC
2
32.7
8
21.0
T2136
11
42.6

KADDIS MANUFACTURING
ENARC-O MACHINE PRODUCTS
LIMA, NEW YORK

ENVIRONMENTAL RISK ASSESSMENT
STUDY AREA MAP

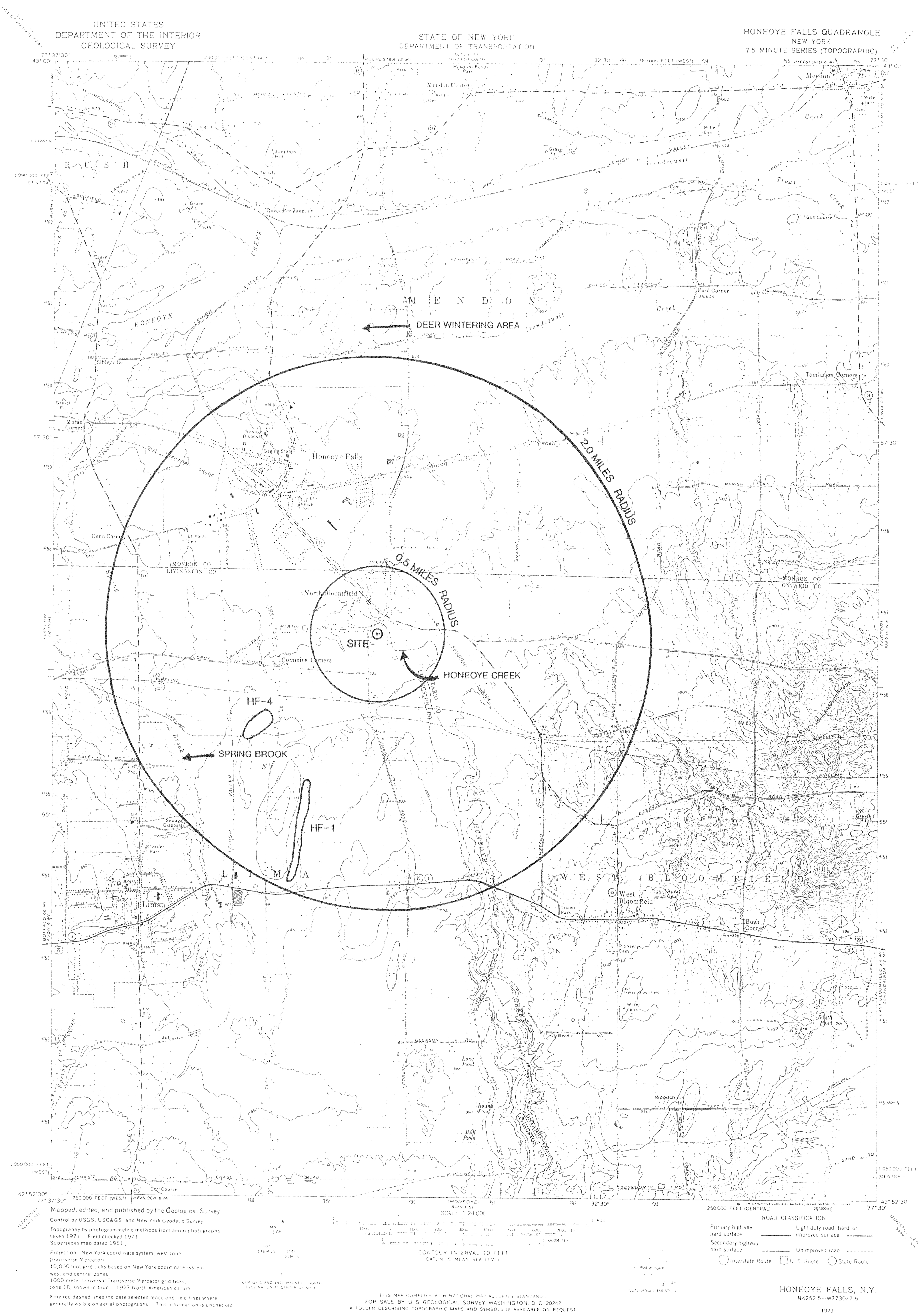


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FIGURE 1

Appendix E

APPENDIX E

Borehole Geophysical Logging Report
as Prepared by Gartner Lee, Inc. of Niagara Falls, New York

HALEY & ALDRICH

Gartner Lee, Inc.

105 Main Street
Niagara Falls, NY 14303
Fax (716) 285-8275

(716) 285-5448

Professional Services in Environmental Management

January 8, 1994 GLI-94841

Mr. Robert Mahoney
Project Manager
H & A of NY, Inc.
189 North Water Street
Rochester, NY 14604

Dear Mr. Mahoney:

Re: Geophysical Logging Results
ENARCO Plant and Vicinity
Honeoye Falls, NY

We are pleased to provide you with this letter report summarizing the results from our geophysical logging investigation at the ENARCO Plant site and vicinity.

1.0 Introduction

On December 21 and 22, 1994 Gartner Lee geophysically logged five abandoned water wells at the above site. The purpose of the investigation was to assist in identifying the presence of potential fractured zones within the bedrock for subsequent ground water sampling.

The water wells geophysically logged were located at the following locations:

1. 1081 Ideson Road (Figure 2)
2. 1121 Ideson Road (Figure 3)
3. 7820 Martin Road (Figure 4)
4. The ENARCO Plant Supply Well (Figure 5)
5. 7873 Martin Road (Figure 6)

Fluid temperature, fluid resistivity and caliper data were collected at each of the five water well locations. A video inspection of the water wells was also attempted at this site but was incomplete as a result of equipment failure. The site geology consists of glacial soils overlying the Onondaga Limestone. Geologic and drillers logs of the water wells were not available at this site.

2.0 Methodology

2.1 Geophysical Logging Techniques

A Mount Sopris MGX-200 was used to geophysically log the monitors at the site. The Mount Sopris MGX-200 is a digital, computer driven, portable logging device. The unit is equipped with a winch, 650 feet of cable, a laptop computer and console box.

Each geophysical log was referenced to the top of the steel casing for the ground water monitoring wells. Logging depths were adjusted to compensate for the distance between the top of the casing and the measuring point of a particular logging tool. Each tool was decontaminated with Liquinox detergent and rinsed with potable water at the designated site decontamination area upon completion of data collection at a water well location. Decontamination procedures were followed to help minimize the possibility for cross-contamination of the water wells. The following geophysical logging probes and techniques were utilized at the site:

Fluid Temperature/ Fluid Resistivity

Each monitor was initially logged with the combination fluid temperature/fluid resistivity tool to minimize any disturbance to borehole fluid stratification. Data were collected at approximately six feet per minute below the water table. Air temperature data were also collected within the borehole at a rate of seven to eight feet per minute at this site. Temperature data were collected in units of degrees Celsius and fluid resistivity data were collected in units of Ohm-meters..

Fluid temperature and fluid resistivity logs are commonly used to assess the presence of fracture flow and water quality. In a thermally stable borehole, temperature will increase linearly with depth. A non-linear temperature change with depth can indicate the presence hydrophysical disturbances such as ground water entering or exiting the borehole through a fracture. Deviations in fluid conductivity values are often due to changes in the amount of total dissolved solids present, electrolytes present and fluid temperature changes. Anomalous values of fluid resistivity can be indicative of fluids with different chemical or physical properties entering or exiting a borehole when measured in an undisturbed well.

Three-Arm Caliper

A motorized three-arm caliper tool was utilized at this site to measure the borehole smoothness in units of inches. The caliper tool used for this investigation had a diameter of investigation of 2 to 24 inches. Anomalous responses observed with the caliper tool may be indicative of incompetent zones of bedrock, bedrock fractures, bedrock voids or rough areas due to drilling. Caliper data were collected at a rate of approximately eight feet per minute at this site.

Video Inspection Logging

A Marks Products Geovision Borehole Video System was utilized to inspect the boreholes. The Geovision system was equipped with a high resolution solid state color video camera housed in a 0.75-inch outside diameter waterproof case. The system is equipped with 750 feet of PVC coated cable, a digital depth encoder, a PVC borehole centralizer, an active matrix color monitor and an 8-mm VCR.

A power problem with the units VCR and color monitoring system resulted in an inability to data collection at the ENARCO supply well and the water well at 7873 Martin Road. The power problem was thought to have been corrected by the equipment supplier prior to the devices mobilization. The water wells at 1081 Ideson, 1121 Ideson and 7820 Martin roads were inspected with the video system and reviewed using the systems color monitor prior to the development of the power problem. Unknown to the on-site geophysicist, faulty video recording heads on the VCR resulted in a very poor quality tape recording. Notes recorded during the inspection were used in the interpretation of the geophysical logging data; however, a detailed discussion of the video inspection results are unavailable. A VHS copy of the original tape recording is attached for your review.

3.0 Results

The results are presented at the same depth (vertical) scale and at their relative elevations in Figure 1. It should be noted that the logs of Figure 1 are presented at an ambiguous horizontal scale. Individual logs are presented at the same vertical scale in Figures 2 through 6. Anomalous responses are annotated on the figures and discussed herein. Table 1 shows the relative depths to the observed anomalies in feet below top of casing for each water well.

Figure 1 demonstrated that the anomalous features observed during this investigation are most likely localized. Correlation of anomalies between boreholes was not apparent.

1081 Ideson Road (Figure 2)

The water well located at 1081 Ideson exhibited the highest near surface water temperatures (approximately 10.1°C) relative to the other water wells in the vicinity (8.5

to 9.5 °C). Near surface fluid resistivities were also observed to be higher at this location than the other water well locations surveyed.

Anomaly “A” was observed as an increase in fluid resistivity values. This response was noted from an elevation of approximately 615 feet above sea level (ft ASL) to 606 Ft ASL. Fluid temperatures values decrease across the upper portion of this response and with an abrupt change noted at 611 ft ASL. An increase in borehole diameter was observed at 607 ft ASL with the caliper tool.

The fluid resistivity response suggests that this zone may contain lower amounts of TDS or electrolytes than the fluid of the upper regions of the borehole. The temperature response indicated that colder waters are present in the borehole at this location. The caliper response may represent the presence of a fracture or an increase in borehole diameter as a result of drilling or reaming. The fluid resistivity response and the anomalous temperature response suggest that the borehole fluids are stratified at this well location. The borehole fluid stratification may be the result of fluids entering/exiting the borehole at different rates at different zones. These responses can be indicative of localized changes in the bedrock permeability as a result of fracturing.

1121 Ideson Road (Figure 3)

The ground water at this location was observed to be cascading from a perched zone to the water table below. The cascading water was audibly identified and visually identified during the video inspection of this monitor. The cascading water resulted in an anomalous response observed in the fluid resistivity data at anomaly zone “B”. Anomaly “B” was observed from 673.65 to the water table at 644.25 ft ASL.

Anomalies “C” and “D” were observed in the caliper and fluid resistivity data. Zones of increased borehole diameter correlated with decreases in the fluid resistivity values (Table 1). These responses can be indicative of localized changes in the bedrock permeability as a result of fracturing.

7820 Martin Road (Figure 4)

The water well at location 7820 Martin Road was observed with the video inspection equipment to have ground water cascading from the base of the casing to the water table. The rate of flow of the cascading water was less than that observed at the water well at 1121 Ideson. Anomaly “E” was observed as an abrupt change in the fluid resistivity and temperature logs at an elevation of approximately 626 to 623 ft ASL. A response in the caliper log was also observed at this location. This response may represent the presence of a flowing fracture with some stratification of the water in the borehole due to the presence of the possibly warmer cascading water from near surface.

Table 1. Table showing relative depths of anomalies as measured from the top of each wells steel casing. Depths of caliper anomalies are also included as they may represent incompetent bedrock zones, fractures, voids or are the result of drilling.

Boring Location	Anomaly	Anomaly Depth (ft below steel casing)
1086 Ideson Rd	A	70.6-80.0
Caliper Anomalies	---	46.5, 57, 68, 79.6
1121 Ideson Rd	B	18.1 to 47.5
	C	70, 77.1, 81.3, 87
	D	100.5, 107.6
7820 Martin Rd	E	78.1 to 81.2
Caliper Anomaly	---	77.2 to 78.8
Caliper Anomaly	---	120.6 to 121.7
ENARCO Supply Well	F	123.8 to 131.2
	G	173.1 to 176.6
Caliper Anomalies	---	85.5, 105, 112.4, 120.9, 136.9, 141.2, 161.4 169.5
7873 Martin Rd	H	52.6 to 58.6
	I	100.9 to Bottom of Hole

<u>ENARCO Supply Well (Figure 5)</u>

Two anomalous responses, anomalies "F" and "G", were observed at the ENARCO Supply well. These anomalies were both observed in the fluid resistivity logs. Anomaly "F" was observed as a broad reduction in fluid resistivity values from approximately 596 to 589 ft ASL. Anomaly "G" was observed as a localized abrupt reduction in fluid resistivity values from 547 to 543 ft ASL. These anomalies may be the result of the presence of increased total dissolved solids or electrolytes in the ground water possibly due to the presence of flowing fractures. Several caliper anomalies were also observed at this location and are identified in Table 1.

7873 Martin Road (Figure 6)

Two anomalies "H" and "I" were observed at the water well at 7873 Martin Road. Anomaly "H" was observed as a decrease in temperature with two associated caliper anomalies (Table 1). Localized decreases in fluid resistivity values were noted at the same elevation as the caliper responses. Anomaly "H" was observed at an elevation of 641 to 635 ft ASL. This anomaly may represent an area of bedrock that exhibits a greater permeability as a possible result of the presence of bedrock fractures. Anomaly "H" may also be due to local stratification of the borehole water caused by leakage down the borehole wall from the unsaturated zone.

Anomaly "I" was observed as a sharp decrease in fluid resistivity values with an associated caliper anomaly. This anomaly was observed at an elevation of approximately 593 ft ASL. Values of fluid resistivity remained relatively low from 593 ft ASL to the bottom of the water well. This anomaly may represent an area of bedrock that exhibits a greater permeability as a possible result of the presence of bedrock fractures.

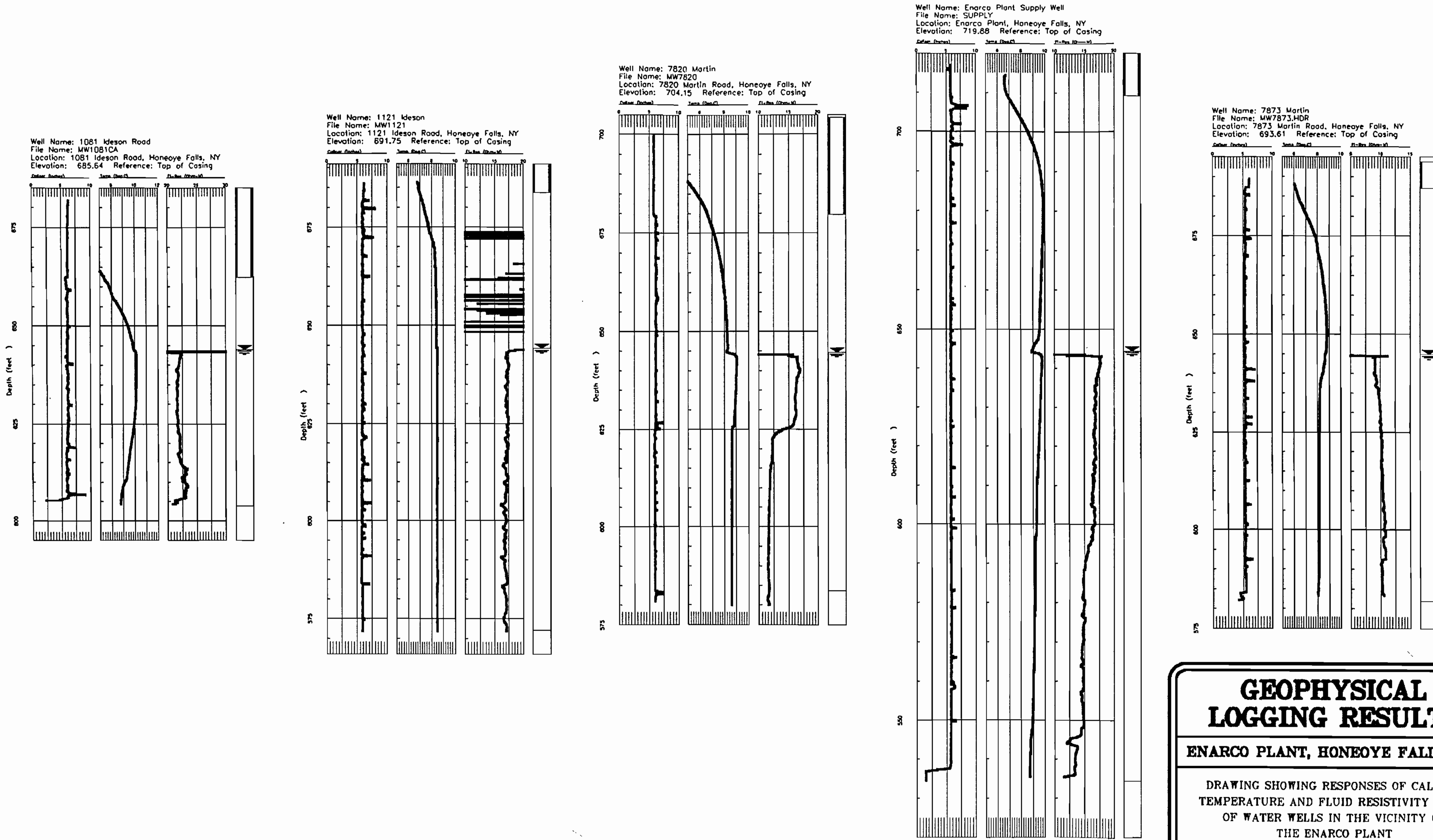
We would like to take this opportunity to thank H & A for involving us in this interesting study. If there are any questions or comments regarding this report, please do not hesitate to contact our office.

Yours very truly,

GARTNER LEE, INC.

Thomas E. Jordan, C.P.G.
Sr. Hydrogeologist/Geophysicist

David D. Slaine, C.G.W.P.
Principal
Hydrogeologist/Geophysicist



GEOPHYSICAL LOGGING RESULTS

ENARCO PLANT, HONEOYE FALLS, NY

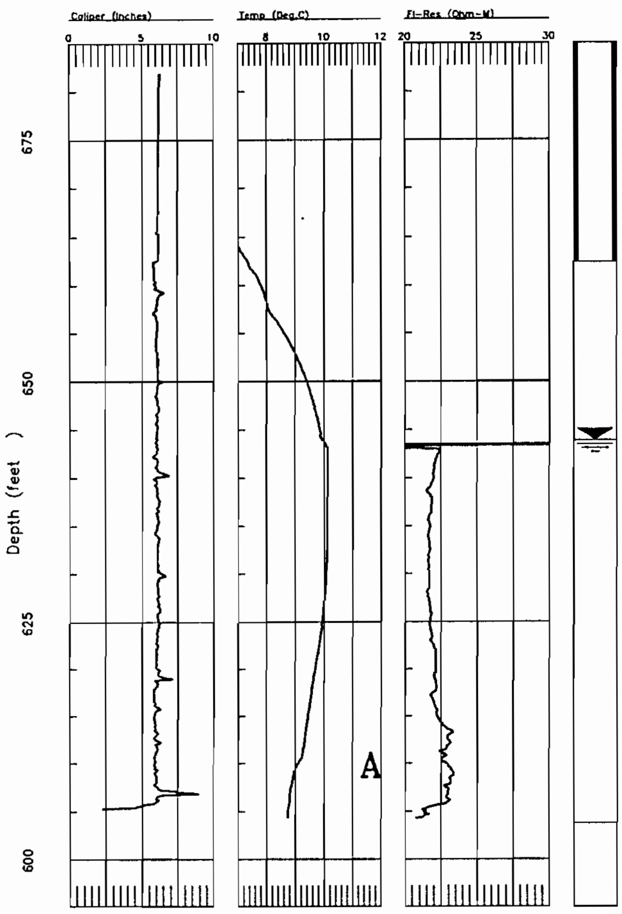
DRAWING SHOWING RESPONSES OF CALIPER, TEMPERATURE AND FLUID RESISTIVITY TOOLS OF WATER WELLS IN THE VICINITY OF THE ENARCO PLANT

PROJECT No: 94-841 DATE: DECEMBER 1994 FILENAME: IDESON.GCD

Gartner Lee
Niagara Falls, NY

FIGURE 1

Well Name: 1081 Ideson Road
File Name: MW1081CA
Location: 1081 Ideson Road, Honeoye Falls, NY
Elevation: 685.64 Reference: Top of Cosing



GEOPHYSICAL LOGGING RESULTS

ENARCO PLANT, HONEOYE FALLS, NY

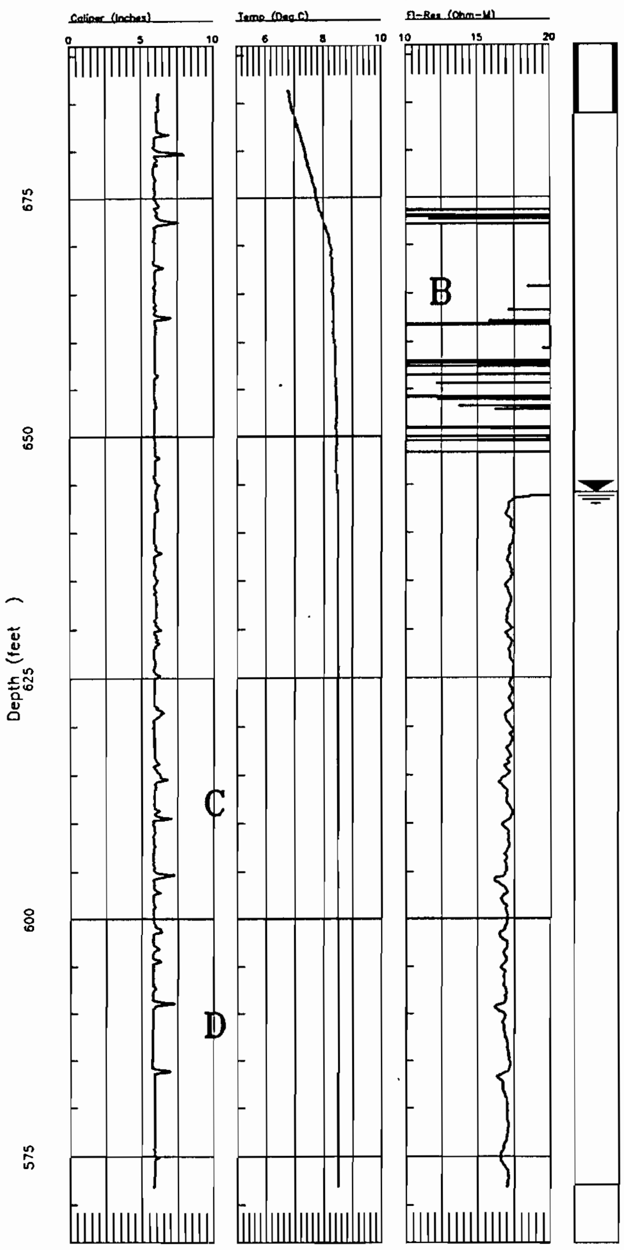
DRAWING SHOWING RESPONSES OF CALIPER, TEMPERATURE AND FLUID RESISTIVITY TOOLS FROM A WATER WELL AT 1081 IDESON ROAD

PROJECT No: 94-641 DATE DECEMBER 1994 FILENAME FIG2.GCD

Gartner Lee
Niagara Falls, NY

FIGURE 2

Well Name: 1121 Ideson
File Name: MW1121
Location: 1121 Ideson Road, Honeoye Falls, NY
Elevation: 691.75 Reference: Top of Casing



GEOPHYSICAL LOGGING RESULTS

ENARCO PLANT, HONEOYE FALLS, NY

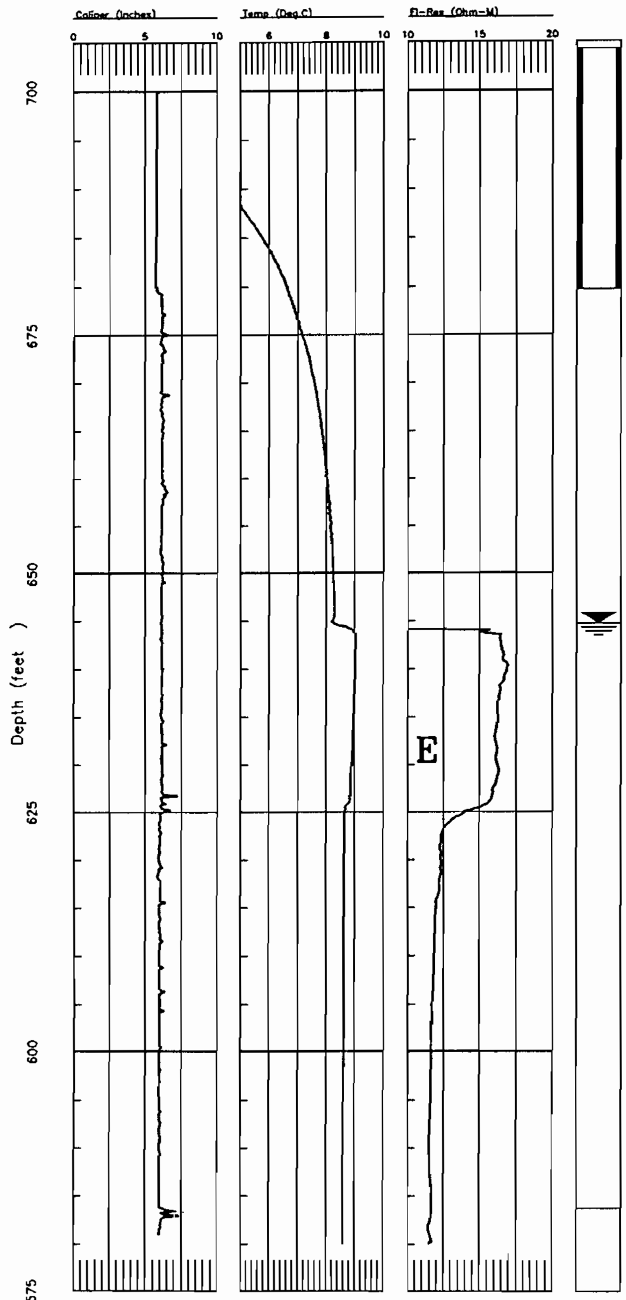
DRAWING SHOWING RESPONSES OF CALIPER, TEMPERATURE AND FLUID RESISTIVITY TOOLS FROM A WATER WELL AT 1121 IDESON ROAD

PROJECT No.: 94-641 DATE: DECEMBER 1994 FILENAME: FIG3OCD

Gartner Lee
Niagara Falls, NY

FIGURE 3

Well Name: 7820 Martin
File Name: MW7820
Location: 7820 Martin Road, Honeoye Falls, NY
Elevation: 704.15 Reference: Top of Casing



GEOPHYSICAL LOGGING RESULTS

ENARCO PLANT, HONEOYE FALLS, NY

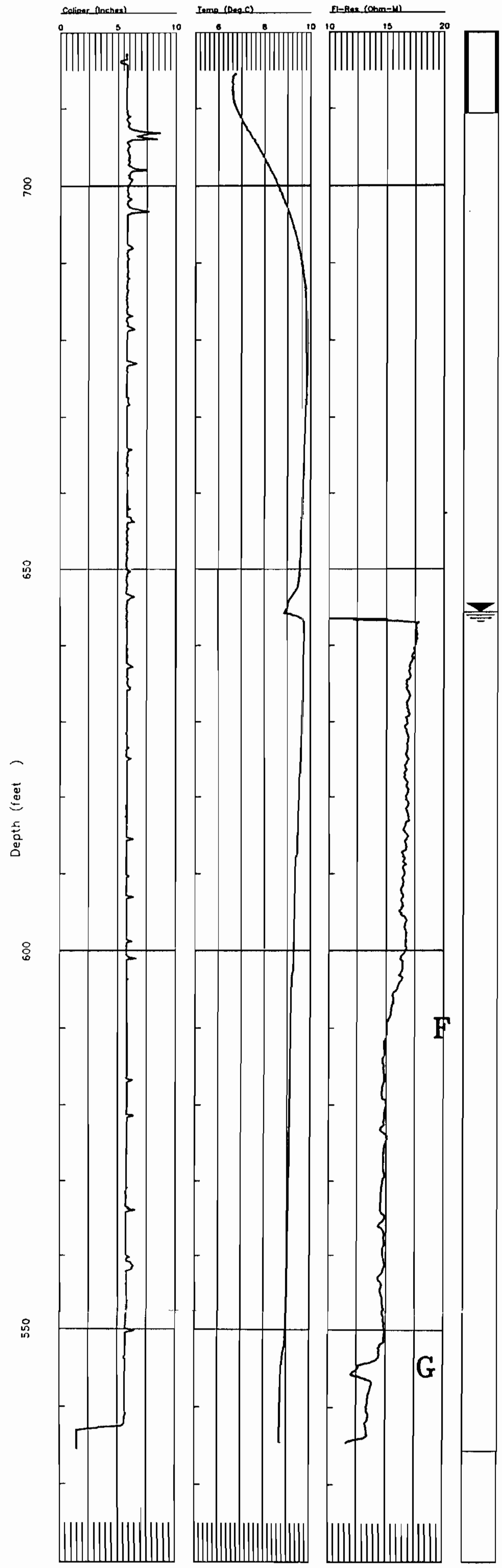
DRAWING SHOWING RESPONSES OF CALIPER, TEMPERATURE AND FLUID RESISTIVITY TOOLS FROM A WATER WELL AT 7820 MARTIN ROAD

PROJECT No: 94-841 DATE: DECEMBER 1994 FILENAME: FIG4CCD

Gartner Lee
Niagara Falls, NY

FIGURE 4

Well Name: Enarco Plant Supply Well
File Name: SUPPLY
Location: Enarco Plant, Honeoye Falls, NY
Elevation: 719.88 Reference: Top of Casing



GEOPHYSICAL LOGGING RESULTS

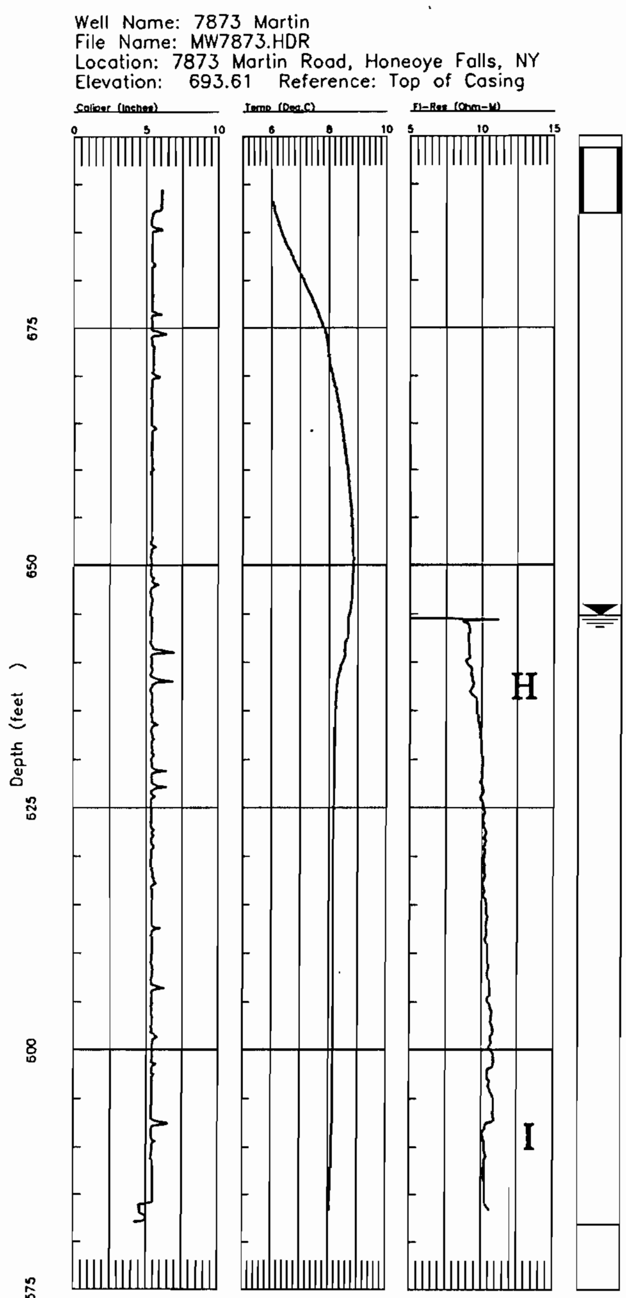
ENARCO PLANT, HONEOYE FALLS, NY

DRAWING SHOWING RESPONSES OF CALIPER, TEMPERATURE AND FLUID RESISTIVITY TOOLS FROM A SUPPLY WELL AT THE ENARCO PLANT

PROJECT No: 94-841 DATE: DECEMBER 1994 FILENAME: F05GCD

Gartner Lee
Niagara Falls, NY

FIGURE 5



GEOPHYSICAL LOGGING RESULTS

ENARCO PLANT, HONEOYE FALLS, NY

DRAWING SHOWING RESPONSES OF CALIPER, TEMPERATURE AND FLUID RESISTIVITY TOOLS FROM A WATER WELL AT 7873 MARTIN ROAD

PROJECT No. 94-841 DATE DECEMBER 1994 FILENAME FIG6CD

Gartner Lee
Niagara Falls, NY

FIGURE 6

Appendix F

PROJECT: ENARC-O MACHINES
WELL NUMBER: MW-4
DATE: 12/28/90

EVACUATION METHOD: BAILER
PERSONNEL: PAUL GOTTLER
DATUM FOR H: Well Bottom

METHOD USED: BAILER

STATIC HEAD (H) = 9.84 ft

PIPE RADIUS (r) = 0.13 ft

SCREEN RADIUS (R) = 0.13 ft

SCREEN LENGTH (L) = 9.84 ft

INITIAL HEAD (Ho) = 7.63 ft

To (from graph) = 58 min
3480 sec

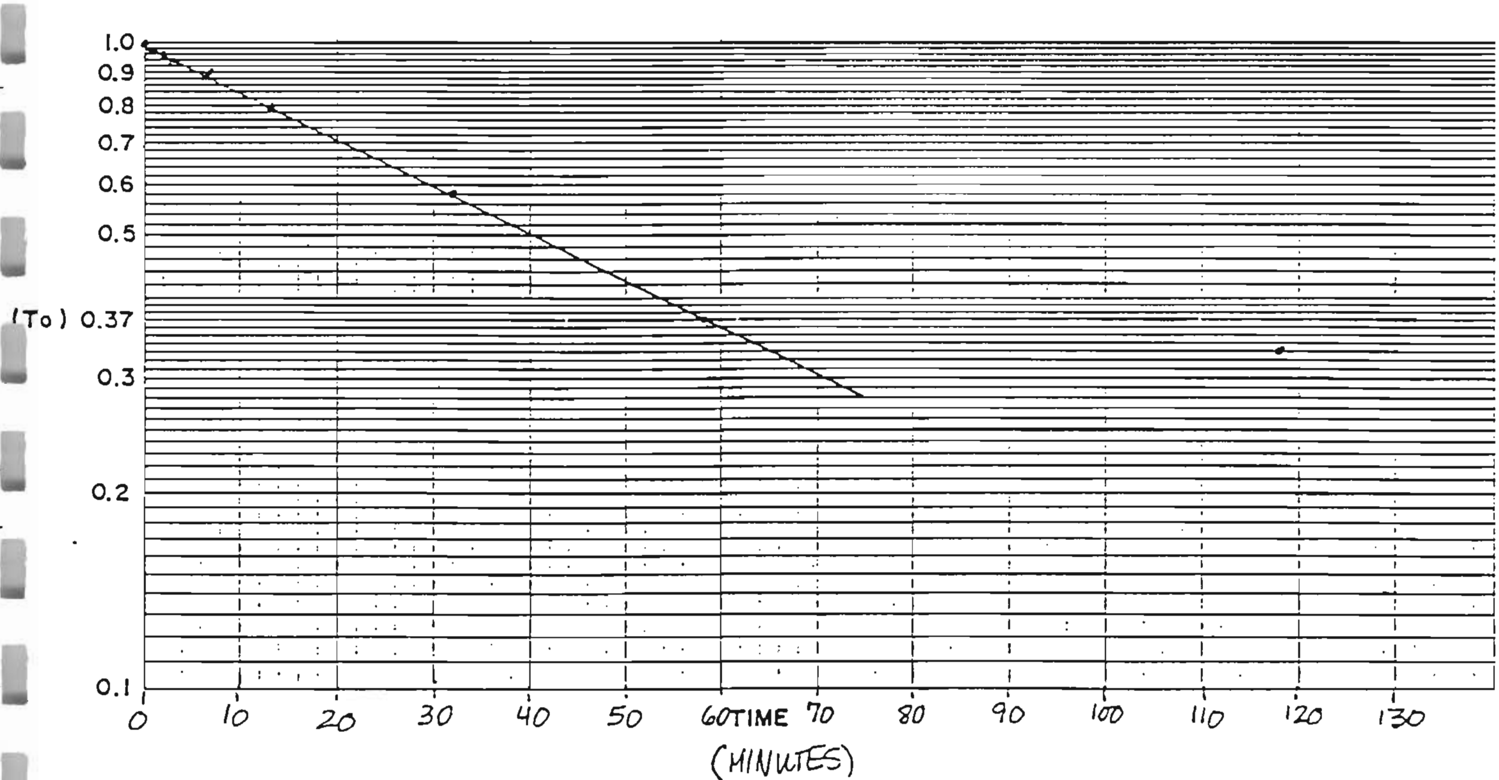
TIME (MIN.)	DEPTH TO WATER	h	$\frac{H-h}{H-Ho}$
0	26.54	7.63	1.00
0.5	26.48	7.69	0.97
2	26.46	7.71	0.96
3	26.40	7.77	0.94
7	26.31	7.86	0.90
13	26.07	8.10	0.79
32	25.62	8.55	0.58
118	25.05	9.12	0.33
150	24.41	9.76	0.04

WELL TOT. DEPTH = 34.17 ft (BTOC)

HYDRAULIC CONDUCTIVITY

$$K = \frac{r^2 \ln(L/R)}{2LTo} = 1.1E-06 \text{ ft/sec}$$

3.3E-05 cm/sec



PROJECT: ENARC-O MACHINES
WELL NUMBER: MW-5
DATE: 12/13/90
METHOD USED: ENVIROLABS

EVACUATION METHOD: NONE
PERSONNEL: PAUL GOTTLER
DATUM FOR H: Transducer

STATIC HEAD (H) = 7.10 ft

PIPE RADIUS (r) = 0.13 ft

SCREEN RADIUS (R) = 0.13 ft

SCREEN LENGTH (L) = 9.11 ft

INITIAL HEAD (Ho) = 6.48 ft

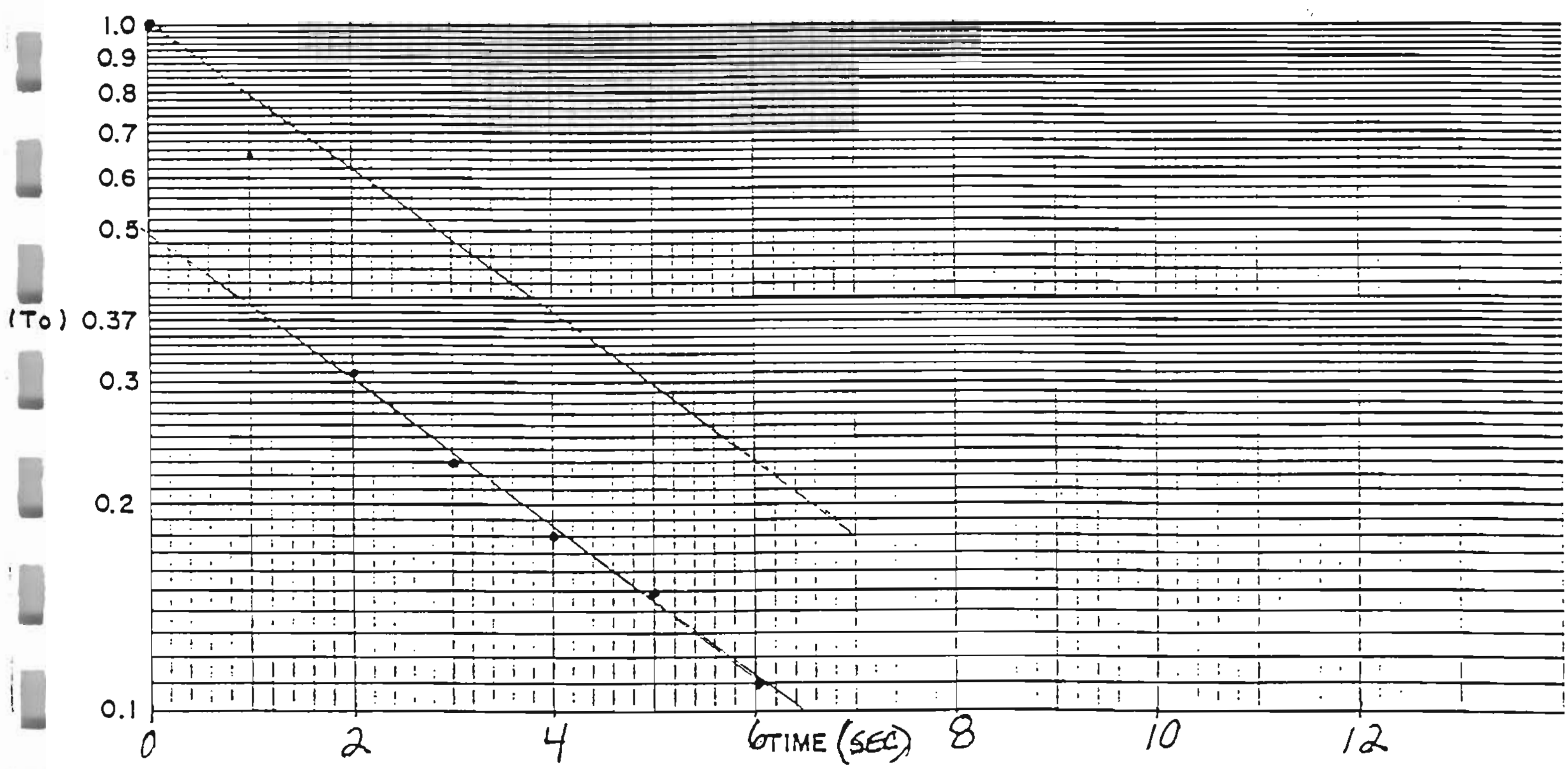
To (from graph) = 0.07 min
4.2 sec

WELL TOT. DEPTH = 32.59 ft BTOC

TIME (SEC.)	h	$\frac{H-h}{H-Ho}$
0	6.48	1.00
1	6.70	0.65
2	6.91	0.31
3	6.96	0.23
4	6.99	0.18
5	7.01	0.15
6	7.03	0.11
7	7.04	0.10
8	7.06	0.06
9	7.07	0.05
10	7.08	0.03
11	7.09	0.02
13	7.10	0.00

HYDRAULIC CONDUCTIVITY

$$K = \frac{r^2 \ln(L/R)}{2LTo} = \begin{array}{l} 9.4E-04 \text{ ft/sec} \\ 2.9E-02 \text{ cm/sec} \end{array}$$



PROJECT: ENARC-O MACHINES
WELL NUMBER: MW-6
DATE: 12/28/90

EVACUATION METHOD: BAILER
PERSONNEL: PAUL GOTTLER
DATUM USED FOR CALCULATIONS:
TOP OF CASING

METHOD USED: ENVIROLABS

STATIC HEAD (H) = 8.80 ft

PIPE RADIUS (r) = 0.13 ft

SCREEN RADIUS (R) = 0.13 ft

SCREEN LENGTH (L) = 8.80 ft

INITIAL HEAD (Ho) = 5.62 ft

To (from graph) = 190 min
11400 sec

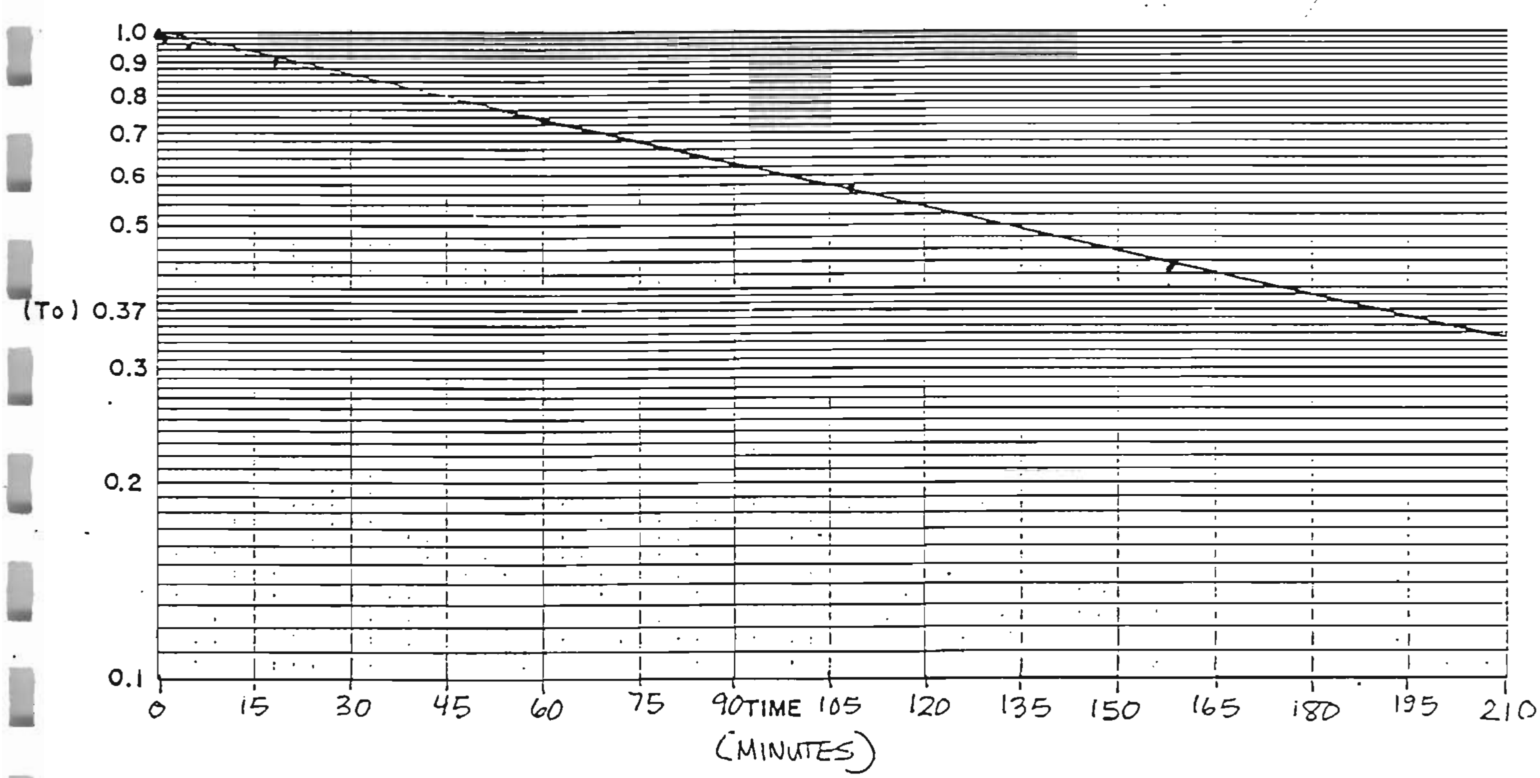
TIME (MIN.)	DEPTH TO WATER	h	$\frac{H-h}{H-Ho}$
0	31.17	5.62	1.00
0.5	31.11	5.68	0.98
1	31.08	5.71	0.97
2	31.07	5.72	0.97
5	31.04	5.75	0.96
18	30.84	5.95	0.90
60	30.30	6.49	0.73
108	29.80	6.99	0.57
158	29.36	7.43	0.43
235	28.89	7.90	0.28

WELL TOT. DEPTH = 36.79 ft

HYDRAULIC CONDUCTIVITY

$$K = \frac{r^2 \ln(L/R)}{2LTo} = 3.6E\text{-}07 \text{ ft/sec}$$

1.1E-05 cm/sec



APPENDIX F

Rising Head Permeability Testing Reports

HALEY & ALDRICH

RISING HEAD TEST SUMMARY

WELL NAME: MW-1

DATE OF TEST: 7-JUN-94

Rising Head Permeability Calculation

Hvorslev Method

Kh=[((d*d)ln((2*m*L)/D))ln(H1/H2)] / 8L(t2-t1)

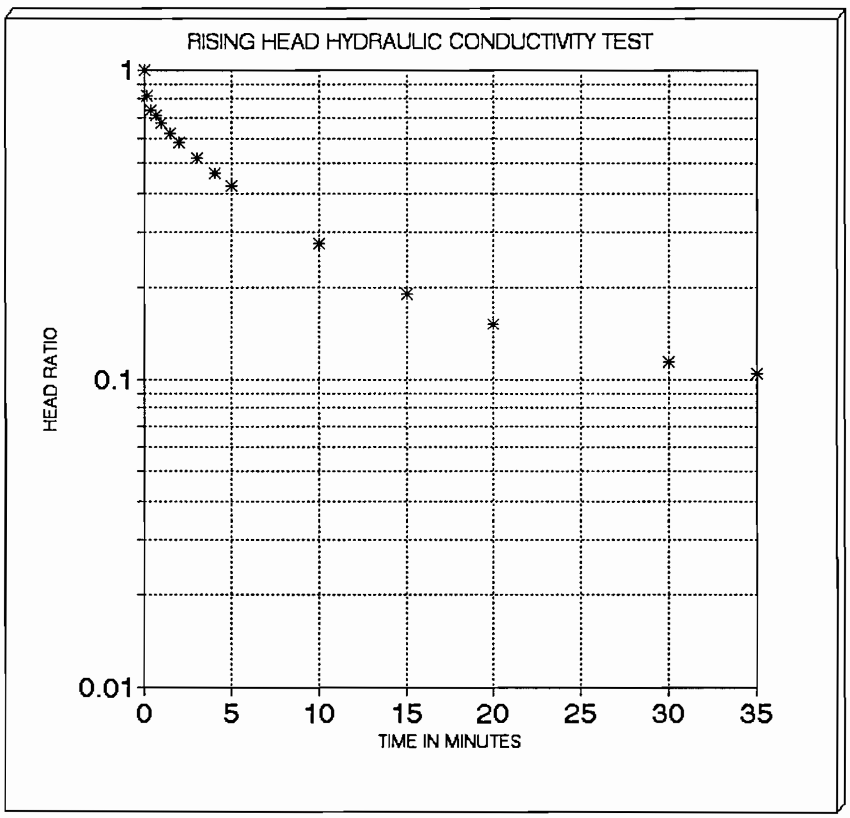
Test Section Diameter (D), in ft.:	0.25
Casing Diameter (d), in ft.:	0.25
Test Length Section (L),in ft.:	12.1
m = (Kh/Kv)**0.5:	3.16
t1 in min.:	10
t2 in min.:	20
H1:	0.27
H2:	0.15
Kh (cm/sec) =	1.1E-04
Kh (ft/min) =	2.2E-04
Kh (ft/day) =	3.1E-01

Rising Head Test Field Data Static Water 24.04

Depth Water (ft)	Elapsed Time (min)	Head Ratio	Residual Head (ft)
25.10	0.0	1.00	1.06
24.91	0.17	0.82	0.87
24.82	0.42	0.74	0.78
24.79	0.67	0.71	0.75
24.75	1	0.67	0.71
24.70	1.5	0.62	0.66
24.66	2	0.58	0.62
24.59	3	0.52	0.55
24.53	4	0.46	0.49
24.49	5	0.42	0.45
24.33	10	0.27	0.29
24.24	15	0.19	0.20
24.20	20	0.15	0.16
24.16	30	0.11	0.12
24.15	35	0.10	0.11

NOTES

1. m is the square root of the ratio of horizontal to vertical permeability.
2. Test Section Diameter (D) is equal to the borehole diameter.
3. Method taken from Hvorslev, 1951.



mgb-m:\qpro5\70372\MW-1

RISING HEAD TEST SUMMARY

WELL NAME: MW-2

DATE OF TEST: 7-JUN-94

Rising Head Permeability Calculation

Hvorslev Method

Kh=[((d*d)ln((2*m*L)/D))ln(H1/H2)] / 8L(t2-t1)

Test Section Diameter (D), in ft.:	0.25
Casing Diameter (d), in ft.:	0.25
Test Length Section (L),in ft.:	10.9
m = (Kh/Kv)**0.5:	3.16
t1 in min.:	1
t2 in min.:	1.5
H1:	0.37
H2:	0.25
Kh (cm/sec) =	1.6E-03
Kh (ft/min) =	3.2E-03
Kh (ft/day) =	4.6E+00

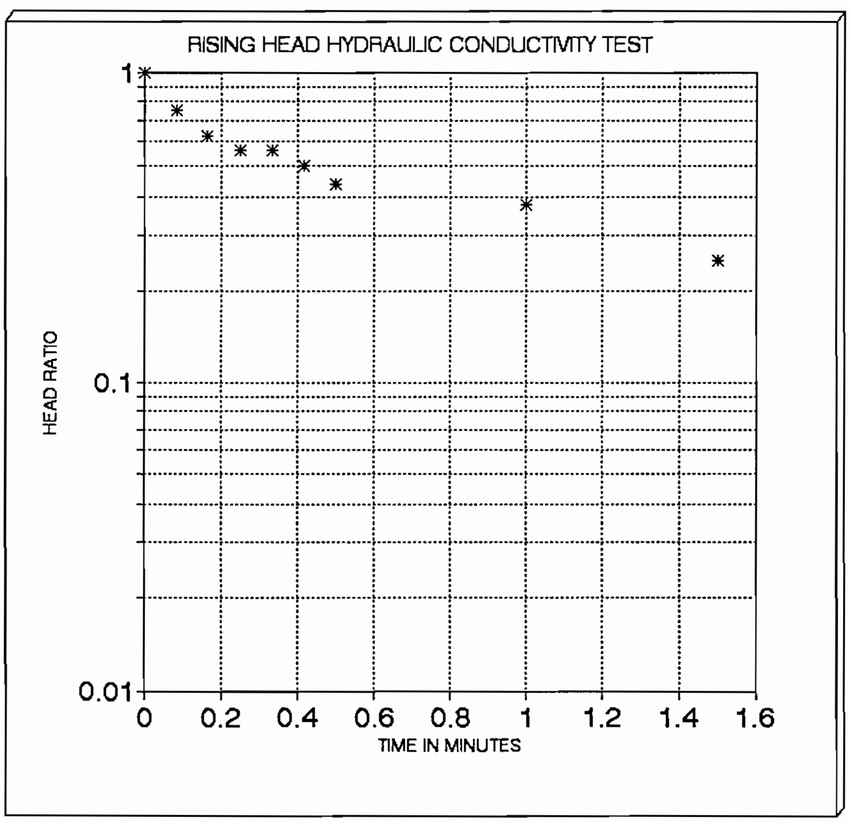
Rising Head Test Field Data

Static Water
27.46

Depth Water (ft)	Elapsed Time (min)	Head Ratio	Residual Head (ft)
27.62	0.0	1.00	0.16
27.58	0.08	0.75	0.12
27.56	0.17	0.62	0.10
27.55	0.25	0.56	0.09
27.55	0.33	0.56	0.09
27.54	0.42	0.50	0.08
27.53	0.5	0.44	0.07
27.52	1	0.37	0.06
27.50	1.5	0.25	0.04

NOTES

1. m is the square root of the ratio of horizontal to vertical permeability.
2. Test Section Diameter (D) is equal to the borehole diameter.
3. Method taken from Hvorslev, 1951.



mgb-m:\qpro5\70372\MW-2

RISING HEAD TEST SUMMARY

WELL NAME: MW-3

DATE OF TEST: 16-JUN-94

Rising Head Permeability Calculation

Hvorslev Method

Kh=[((d*d)ln((2*m*L)/D))ln(H1/H2)] / 8L(t2-t1)

Test Section Diameter (D), in ft.:	0.25
Casing Diameter (d), in ft.:	0.25
Test Length Section (L),in ft.:	9.0
m = (Kh/Kv)**0.5:	3.16
t1 in min.:	240
t2 in min.:	338
H1:	0.49
H2:	0.44
Kh (cm/sec) =	2.6E-06
Kh (ft/min) =	5.2E-06
Kh (ft/day) =	7.5E-03

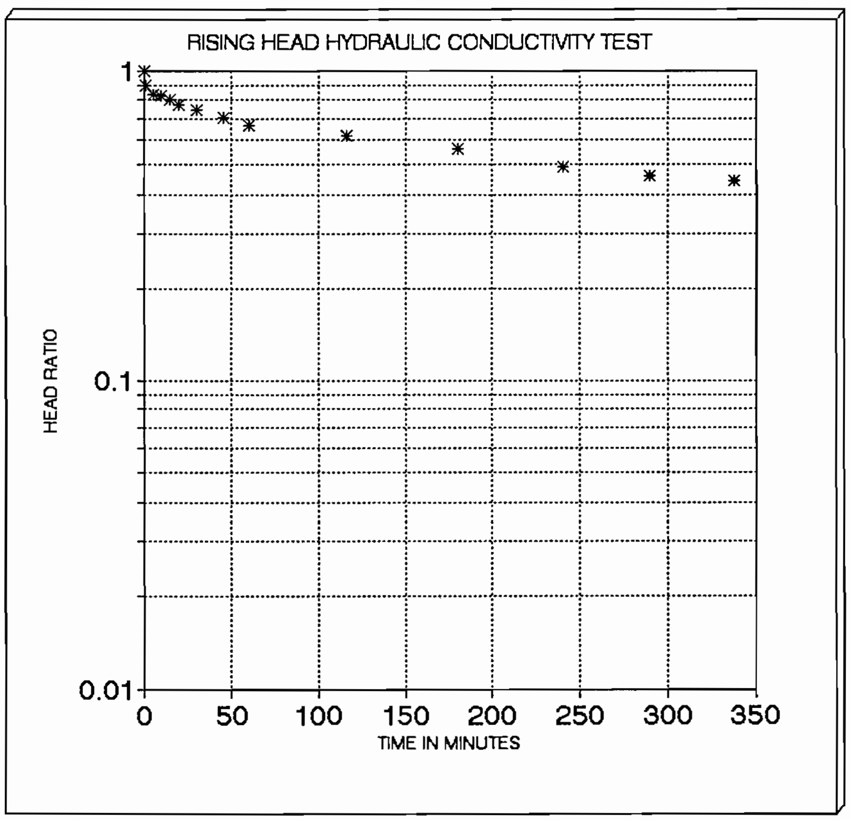
Rising Head Test Field Data

Static Water 26.44

Depth Water (ft)	Elapsed Time (min)	Head Ratio	Residual Head (ft)
27.42	0.0	1.00	0.98
27.31	1.00	0.89	0.87
27.26	5.00	0.84	0.82
27.25	10.00	0.83	0.81
27.23	15.00	0.81	0.79
27.20	20.00	0.78	0.76
27.17	30	0.74	0.73
27.13	45	0.70	0.69
27.09	60	0.66	0.65
27.04	116	0.61	0.60
26.99	180	0.56	0.55
26.92	240	0.49	0.48
26.89	290	0.46	0.45
26.87	338	0.44	0.43

NOTES

1. m is the square root of the ratio of horizontal to vertical permeability.
2. Test Section Diameter (D) is equal to the borehole diameter.
3. Method taken from Hvorslev, 1951.



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RISING HEAD TEST SUMMARY

WELL NAME: MW-4

DATE OF TEST: 16-JUN-94

Rising Head Permeability Calculation

Hvorslev Method

Kh=[((d*d)ln((2*m*L)/D))ln(H1/H2)] / 8L(t2-t1)

Test Section Diameter (D), in ft.:	0.25
Casing Diameter (d), in ft.:	0.25
Test Length Section (L),in ft.:	14.4
m = (Kh/Kv)**0.5:	3.16
t1 in min.:	180
t2 in min.:	240
H1:	0.31
H2:	0.17
Kh (cm/sec) =	1.6E-05
Kh (ft/min) =	3.2E-05
Kh (ft/day) =	4.6E-02

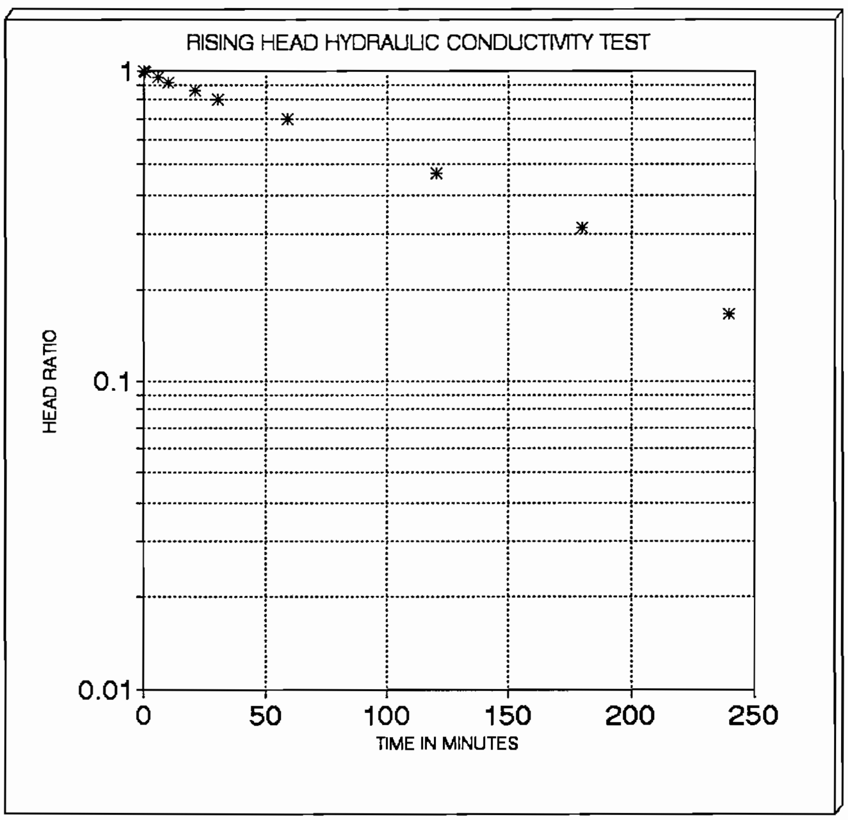
Rising Head Test Field Data

Static Water
21.00

Depth Water (ft)	Elapsed Time (min)	Head Ratio	Residual Head (ft)
22.15	0.0	1.00	1.15
22.13	1	0.98	1.13
22.09	6	0.95	1.09
22.05	10	0.91	1.05
21.99	21	0.86	0.99
21.93	30	0.81	0.93
21.80	59	0.70	0.80
21.54	120	0.47	0.54
21.36	180	0.31	0.36
21.19	240	0.17	0.19

NOTES

1. m is the square root of the ratio of horizontal to vertical permeability.
2. Test Section Diameter (D) is equal to the borehole diameter.
3. Method taken from Hvorslev, 1951.



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RISING HEAD TEST SUMMARY

WELL NAME: MW-5

DATE OF TEST: 7-JUN-94

Rising Head Permeability Calculation

Hvorslev Method

Kh=[((d*d)ln((2*m*L)/D))ln(H1/H2)] / 8L(t2-t1)

Test Section Diameter (D), in ft.:	0.25
Casing Diameter (d), in ft.:	0.25
Test Length Section (L),in ft.:	10.3
m = (Kh/Kv)**0.5:	3.16
t1 in min.:	0.08
t2 in min.:	0.25
H1:	0.31
H2:	0.10
Kh (cm/sec) =	1.4E-02
Kh (ft/min) =	2.8E-02
Kh (ft/day) =	4.1E+01

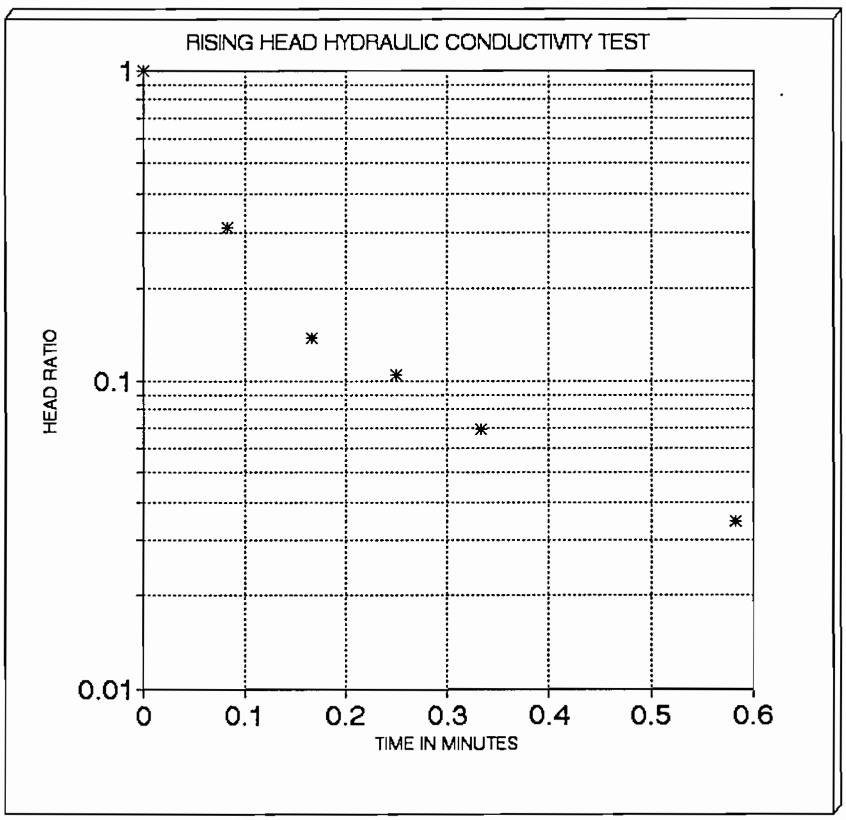
Rising Head Test Field Data

Static Water 23.33

Depth Water (ft)	Elapsed Time (min)	Head Ratio	Residual Head (ft)
23.62	0.0	1.00	0.29
23.42	0.08	0.31	0.09
23.37	0.17	0.14	0.04
23.36	0.25	0.10	0.03
23.35	0.33	0.07	0.02
23.34	0.58	0.03	0.01

NOTES

1. m is the square root of the ratio of horizontal to vertical permeability.
2. Test Section Diameter (D) is equal to the borehole diameter.
3. Method taken from Hvorslev, 1951.



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RISING HEAD TEST SUMMARY

WELL NAME: MW-6

DATE OF TEST: 16-JUN-94

Rising Head Permeability Calculation

Hvorslev Method

Kh=[((d*d)ln((2*m*L)/D))ln(H1/H2)] / 8L(t2-t1)

Test Section Diameter (D), in ft.:	0.25
Casing Diameter (d), in ft.:	0.25
Test Length Section (L),in ft.:	11.4
m = (Kh/Kv)**0.5:	3.16
t1 in min.:	243
t2 in min.:	360
H1:	0.54
H2:	0.40
Kh (cm/sec) =	5.1E-06
Kh (ft/min) =	1.0E-05
Kh (ft/day) =	1.4E-02

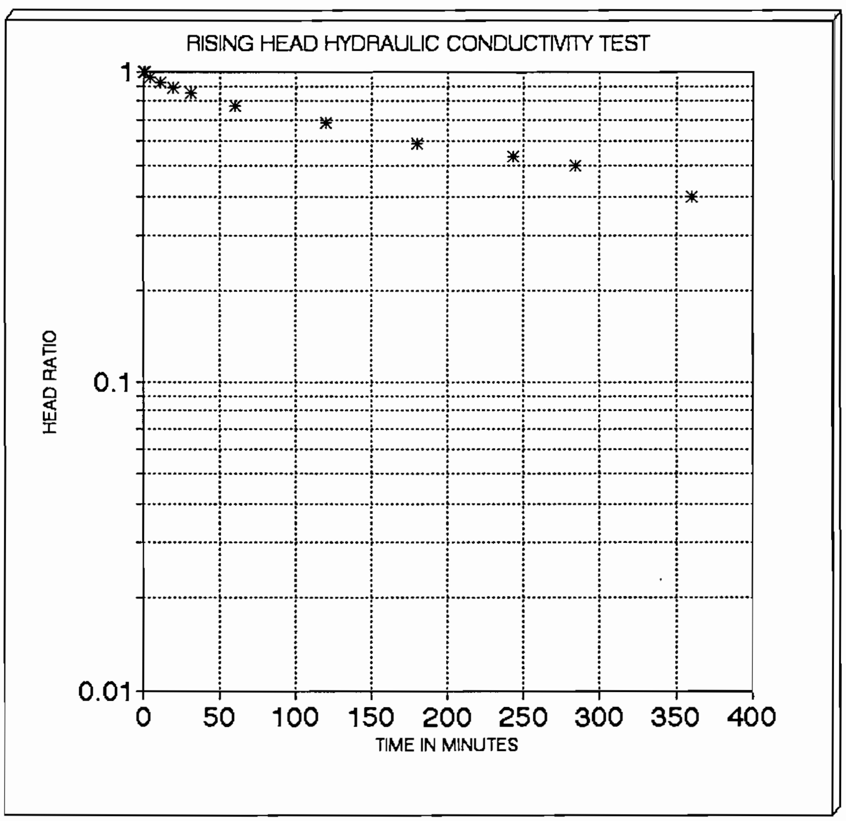
Rising Head Test Field Data

Static Water 28.01

Depth Water (ft)	Elapsed Time (min)	Head Ratio	Residual Head (ft)
29.11	0.0	1.00	1.10
29.10	1.00	0.99	1.09
29.06	5.00	0.95	1.05
29.02	11.00	0.92	1.01
28.98	20.00	0.88	0.97
28.95	31.00	0.85	0.94
28.86	60	0.77	0.85
28.76	120	0.68	0.75
28.66	180	0.59	0.65
28.60	243	0.54	0.59
28.56	284	0.50	0.55
28.45	360	0.40	0.44

NOTES

1. m is the square root of the ratio of horizontal to vertical permeability.
2. Test Section Diameter (D) is equal to the borehole diameter.
3. Method taken from Hvorslev, 1951.



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RISING HEAD TEST SUMMARY

WELL NAME: MW-201D

DATE OF TEST: 16-JUN-94

Rising Head Permeability Calculation

Hvorslev Method

Kh=[((d*d)ln((2*m*L)/D))ln(H1/H2)] / 8L(t2-t1)

Test Section Diameter (D), in ft.:	0.25
Casing Diameter (d), in ft.:	0.25
Test Length Section (L),in ft.:	6.3
m = (Kh/Kv)**0.5:	3.16
t1 in min.:	25
t2 in min.:	65
H1:	0.70
H2:	0.57
Kh (cm/sec) =	1.6E-05
Kh (ft/min) =	3.2E-05
Kh (ft/day) =	4.6E-02

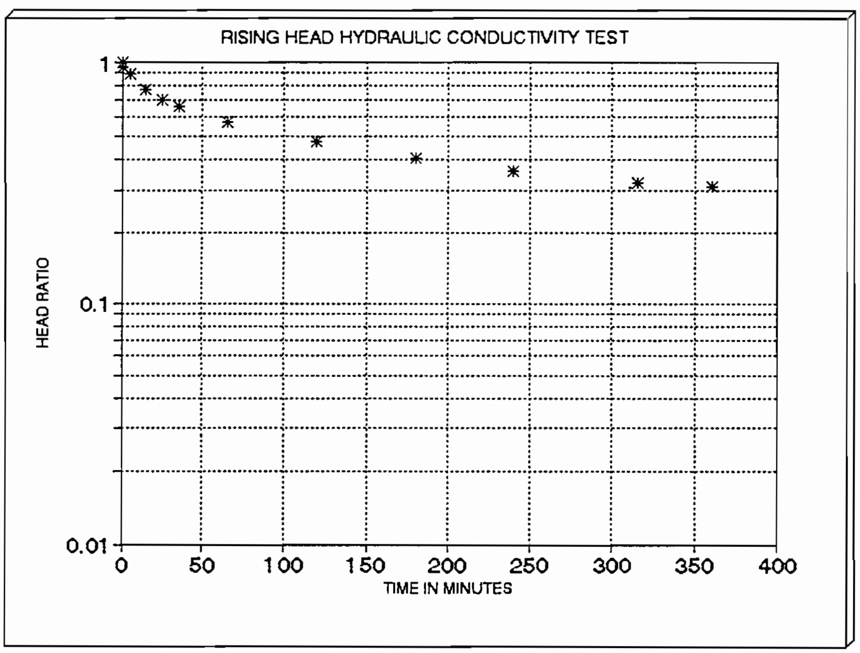
NOTES

1. m is the square root of the ratio of horizontal to vertical permeability.
2. Test Section Diameter (D) is equal to the borehole diameter.
3. Method taken from Hvorslev, 1951.

Rising Head Test Field Data

Static Water 25.32

Depth Water (ft)	Elapsed Time (min)	Head Ratio	Residual Head (ft)
26.16	0.0	1.00	0.84
26.12	1	0.95	0.80
26.07	5	0.89	0.75
25.97	15	0.77	0.65
25.91	25	0.70	0.59
25.87	35	0.65	0.55
25.80	65	0.57	0.48
25.72	120	0.48	0.40
25.66	180	0.40	0.34
25.62	240	0.36	0.30
25.59	316	0.32	0.27
25.58	360	0.31	0.26



MGB-M:\QPRO5\70372MW-201Dx

RISING HEAD TEST SUMMARY

WELL NAME: MW-202

DATE OF TEST: 16-JUN-94

Rising Head Permeability Calculation

Hvorslev Method

Kh=[((d*d)ln((2*m*L)/D))ln(H1/H2)] / 8L(t2-t1)

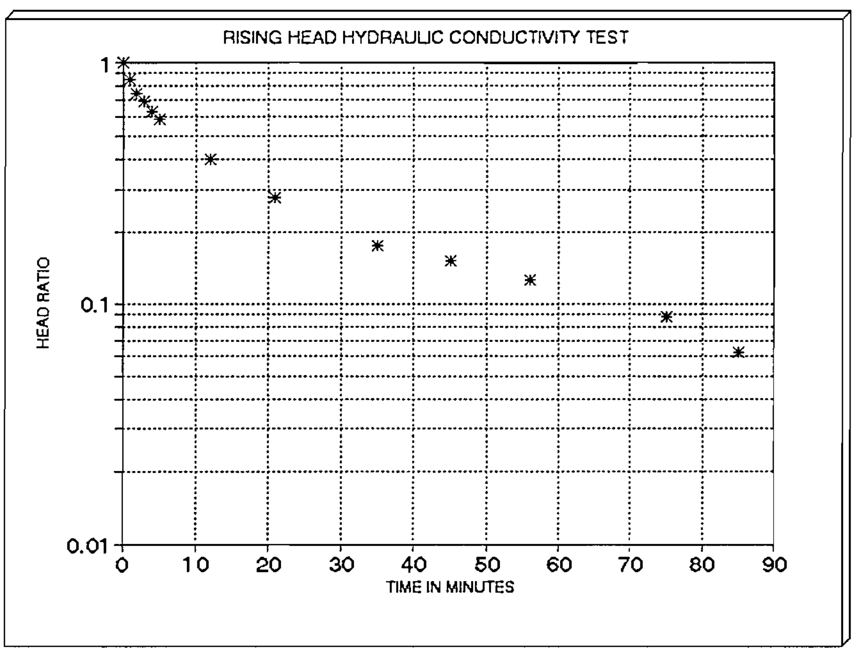
Test Section Diameter (D), in ft.:	0.25
Casing Diameter (d), in ft.:	0.25
Test Length Section (L),in ft.:	11.3
m = (Kh/Kv)**0.5:	3.16
t1 in min.:	12
t2 in min.:	35
H1:	0.40
H2:	0.18
Kh (cm/sec) =	6.9E-05
Kh (ft/min) =	1.4E-04
Kh (ft/day) =	2.0E-01

NOTES

1. m is the square root of the ratio of horizontal to vertical permeability.
2. Test Section Diameter (D) is equal to the borehole diameter.
3. Method taken from Hvorslev, 1951.

Rising Head Test Field Data Static Water 25.21

Depth Water (ft)	Elapsed Time (min)	Head Ratio	Residual Head (ft)
26.01	0.0	1.00	0.80
25.89	1	0.85	0.68
25.81	2	0.75	0.60
25.76	3	0.69	0.55
25.71	4	0.62	0.50
25.68	5	0.59	0.47
25.53	12	0.40	0.32
25.43	21	0.27	0.22
25.35	35	0.18	0.14
25.33	45	0.15	0.12
25.31	56	0.12	0.10
25.28	75	0.09	0.07
25.26	85	0.06	0.05



Appendix G

APPENDIX G

Soils Analytical Results

- O'Brien & Gere
  - Borings B-1 through B-6 (November 1990)
- Haley & Aldrich of New York
  - SS-101, -102, -105,-107 (May 1994)
  - SS-1 through SS-4 and Septic Tank (May 1994)

- O'Brien & Gere

- Borings B-1 through B-6 (November 1990)

OBG LABORATORIES, INC.

Volatile Organics
Method 8010/8020

CLIENT: HARTER, SECREST & EMERY — JOB NO. 2387.006.517

DESCRIPTION: Enarc-O Machine Products, Honeoye Falls, NY

MATRIX: Soils

DATE COLLECTED: 11-26-90 — DATE RECEIVED: 11-27-90 — DATE ANALYZED: 12-3-90

DESCRIPTION:	B-6 4'-6'	B-6 6'-8'				
SAMPLE NO.:	L4380	L4381				
1,1-Dichloroethane	<11.	<12.				
1,2-Dichloroethane						
1,1-Dichloroethylene						
1,2-Dichloroethylene (total)						
Dichloromethane						
1,2-Dichloropropane						
cis-1,3-Dichloropropylene						
trans-1,3-Dichloropropylene						
Ethylbenzene						
1,1,2,2-Tetrachloroethane						
1,1,1,2-Tetrachloroethane						
Tetrachloroethylene						
Toluene						
1,1,1-Trichloroethane						
1,1,2-Trichloroethane						
Trichloroethylene						
Trichlorofluoromethane						
1,2,3-Trichloropropane						
Vinyl chloride						
Xylene (total)	<34.	<36.				

Comments:

Methodology: USEPA,SW-846, November 1986, 3rd Edition

Certification No.: 10155

Units: µg/kg dry weight

Authorized: [signature]

Date: January 17, 1991

OBG Laboratories, Inc., *an O'Brien & Gere Limited Company*
5000 Brittonfield Parkway / Suite 300, Box 4942 / Syracuse, NY 13221 / (315) 437-0200

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OBG LABORATORIES, INC.

Volatile Organics
Method 8010/8020

CLIENT: HARTER, SECREST & EMERY JOB NO. 2387.006.517

DESCRIPTION: Enarc-O Machine Products, Honeoye Falls, NY

MATRIX: Soils

DATE COLLECTED: 11-26-90 DATE RECEIVED: 11-27-90 DATE ANALYZED: 12-3-90

DESCRIPTION:	B-6 4'-6'	B-6 6'-8'				
SAMPLE NO.:	L4380	L4381				
Benzene	<11.	<12.				
Benzyl chloride	<110.	<120.				
Bis (2-chloroethoxy) methane	<5700.	<6000.				
Bromobenzene	<57.	<60.				
Bromodichloromethane	<11.	<12.				
Bromoform	<110.	<120.				
Bromomethane	<110.	<120.				
Carbon tetrachloride	<11.	<12.				
– Chlorobenzene	↓	↓				
Chloroethane	↓	↓				
2-Chloroethylvinyl ether	<110.	<120.				
Chloroform	<11.	<12.				
1-Chlorohexane	<110.	<120.				
Chloromethane	<110.	<120.				
Chloromethylmethyl ether	<1100.	<1200.				
2-Chlorotoluene	<57.	<60.				
4-Chlorotoluene	<57.	<60.				
Dibromochloromethane	<11.	<12.				
Dibromomethane	<110.	<120.				
1,2-Dichlorobenzene	<57.	<60.				
1,3-Dichlorobenzene	↓	↓				
1,4-Dichlorobenzene	↓	↓				
Dichlorodifluoromethane	<110.	<120.				

Authorized: [signature]

LABORATORIES, INC.

Volatile Organics
Method 8010/8020

CLIENT: HARTER, SECREST & EMERY JOB NO. 2387.006.517

DESCRIPTION: Enarc-O Machine Products, Honeoye Falls, NY

MATRIX: Soil, Water

DATE COLLECTED: 11-28,29-90 DATE RECEIVED: 12-4-90 DATE ANALYZED: 12-6,7-90

DESCRIPTION:	B-1 4'-6'	B-1 6'-8'	B-1 Rinseate Blank	B-3 0'-2'	B-3 4'-6'	B-3 6'-8'
SAMPLE NO.:	L4966*	L4967*	L4968**	L4969*	L4970*	L4971*
Benzene	<120.	<110.	<1.	<12.	<11.	<11.
Benzyl chloride	<1200.	<1100.	<10.	<120.	<110.	<110.
Bis (2-chloroethoxy) methane	<58,000.	<57,000.	<500.	<5800.	<5600.	<5700.
Bromobenzene	<580.	<570.	<5.	<58.	<56.	<57.
Bromodichloromethane	<120.	<110.	<1.	<12.	<11.	<11.
Bromoform	<1200.	<1100.	<10.	<120.	<110.	<110.
Bromomethane	<1200.	<1100.	<10.	<120.	<110.	<110.
Carbon tetrachloride	<120.	<110.	<1.	<12.	<11.	<11.
Chlorobenzene	↓	↓	↓	↓	↓	↓
Chloroethane	↓	↓	↓	↓	↓	↓
2-Chloroethylvinyl ether	<1200.	<1100.	<10.	<120.	<110.	<110.
Chloroform	<120.	<110.	<1.	<12.	<11.	<11.
1-Chlorohexane	<1200.	<1100.	<10.	<120.	<110.	<110.
Chloromethane	<1200.	<1100.	<10.	<120.	<110.	<110.
Chloromethylmethyl ether	<12,000.	<11,000.	<100.	<1200.	<1100.	<1100.
2-Chlorotoluene	<580.	<570.	<5.	<58.	<56.	<57.
4-Chlorotoluene	<580.	<570.	<5.	<58.	<56.	<57.
Dibromochloromethane	<120.	<110.	<1.	<120.	<11.	<11.
Dibromomethane	<1200.	<1100.	<10.	<120.	<110.	<110.
1,2-Dichlorobenzene	<580.	<570.	<5.	<58.	<56.	<57.
1,3-Dichlorobenzene	↓	↓	↓	↓	↓	↓
1,4-Dichlorobenzene	↓	↓	↓	↓	↓	↓
Dichlorodifluoromethane	<1200.	<1100.	<10.	<120.	<110.	<110.

Authorized: [signature]

Date: January 18, 1991

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OBG LABORATORIES, INC.

Volatile Organics
Method 8010/8020

CLIENT: HARTER, SECREST & EMERY   JOB NO. 2387.006.517

DESCRIPTION: Enarc-O Machine Products, Honeoye Falls, NY

MATRIX: Soil, Water

DATE COLLECTED 11-28,29-90   DATE RECEIVED 12-4-90   DATE ANALYZED 12-6,7-90

DESCRIPTION:	B-1 4'-6'	B-1 6'-8'	B-1 Rinseate Blank	B-3 0'-2'	B-3 4'-6'	B-3 6'-8'
SAMPLE NO.:	L4966*	L4967*	L4968**	L4969*	L4970*	L4971*
1,1-Dichloroethane	<120.	<110.	<1.	<12.	<11.	<11.
1,2-Dichloroethane				<12.		
1,1-Dichloroethylene				76.		
1,2-Dichloroethylene (total)				480.	150.	24.
Dichloromethane				<12.	<11.	<11.
1,2-Dichloropropane				<120.		
cis-1,3-Dichloropropylene						
trans-1,3-Dichloropropylene						
Ethylbenzene				<12.		
1,1,2,2-Tetrachloroethane						
1,1,1,2-Tetrachloroethane						
Tetrachloroethylene				490.J		24.J
Toluene	210.J			29.J		<11.
1,1,1-Trichloroethane	<120.			860.J		
1,1,2-Trichloroethane				<120.		
Trichloroethylene				1700.J	74.J	81.J
Trichlorofluoromethane				<12.	<11.	<11.
1,2,3-Trichloropropane						
Vinyl chloride						
Xylene (total)	4700.J	<340.	<3.	<35.	<34.	<34.

Comments:

Methodology: USEPA,SW-846, November 1986, 3rd Edition

Certification No.: 10155

Units: *µg/kg dry weight
**µg/l

Authorized: [signature]

OBG LABORATORIES, INC.

Volatile Organics
Method 8010/8020

CLIENT: HARTER, SECREST & EMERY JOB NO. 2387.006.517

DESCRIPTION: Enarc-O Machine Products, Honeoye Falls, NY

MATRIX: Soil, Water

DATE COLLECTED: 11-27,28,29-90 DATE RECEIVED: 12-4-90 DATE ANALYZED: 12-6,7-90

DESCRIPTION:	B-3 Rinseate Blank	B-4 6'-8'	B-4 8'-10'	B-5A 4'-6'	B-5A 12'-14'	B-5B 0'-2'
SAMPLE NO.:	L4972*	L4973**	L4974**	L4975**	L4976**	L4977**
Benzene	<1.	<11.	<12.	<11.	<11.	<12.
Benzyl chloride	<10.	<110.	<120.	<110.	<110.	<120.
Bis (2-chloroethoxy) methane	<500.	<5400.	<6000.	<5700.	<5600.	<5900.
Bromobenzene	<5.	<54.	<60.	<57.	<56.	<59.
Bromodichloromethane	<1.	<11.	<12.	<11.	<11.	<12.
Bromoform	<10.	<110.	<120.	<110.	<110.	<120.
Bromomethane	<10.	<110.	<120.	<110.	<110.	<120.
Carbon tetrachloride	<1.	<11.	<12.	<11.	<11.	<12.
Chlorobenzene	↓	↓	↓	↓	↓	↓
Chloroethane	↓	↓	↓	↓	↓	↓
2-Chloroethylvinyl ether	<10.	<110.	<120.	<110.	<110.	<120.
Chloroform	<1.	<11.	<12.	<11.	<11.	<12.
1-Chlorohexane	<10.	<110.	<120.	<110.	<110.	<120.
Chloromethane	<10.	<110.	<120.	<110.	<110.	<120.
Chloromethylmethyl ether	<100.	<1100.	<1200.	<1100.	<1100.	<1200.
2-Chlorotoluene	<5.	<54.	<60.	<57.	<56.	<59.
4-Chlorotoluene	<5.	<54.	<60.	<57.	<56.	<59.
Dibromochloromethane	<1.	<11.	<120.	<11.	<11.	<12.
Dibromomethane	<10.	<110.	<120.	<110.	<110.	<120.
1,2-Dichlorobenzene	<5.	<54.	<60.	<57.	<56.	<59.
1,3-Dichlorobenzene	↓	↓	↓	↓	↓	↓
1,4-Dichlorobenzene	↓	↓	↓	↓	↓	↓
Dichlorodifluoromethane	<10.	<110.	<120.	<110.	<110.	<120.

Authorized: [signature]

Date: January 18, 1991

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OBG LABORATORIES, INC.

Volatile Organics
Method 8010/8020

CLIENT: HARTER, SECREST & EMERY JOB NO. 2387.006.517

DESCRIPTION: Enarc-O Machine Products, Honeoye Falls, NY

MATRIX: Soil, Water

DATE COLLECTED: 11-27,28,29-90 DATE RECEIVED: 12-4-90 DATE ANALYZED: 12-6,7-90

DESCRIPTION:	B-3 Rinseate Blank	B-4 6'-8'	B-4 8'-10'	B-5A 4'-6'	B-5A 12'-14'	B-5B 0'-2'
SAMPLE NO.:	L4972*	L4973**	L4974**	L4975**	L4976**	L4977**
1,1-Dichloroethane	<1.	<11.	16.	<11.	<11.	<12.
1,2-Dichloroethane	↓	↓	<12.	↓	↓	↓
1,1-Dichloroethylene	↓	↓	<12.	↓	↓	↓
1,2-Dichloroethylene (total)	↓	↓	900.	↓	↓	↓
Dichloromethane	↓	↓	<12.	↓	↓	12U***
1,2-Dichloropropane	↓	↓	<120.	↓	↓	<12.
cis-1,3-Dichloropropylene	↓	↓	↓	↓	↓	↓
trans-1,3-Dichloropropylene	↓	↓	↓	↓	↓	↓
Ethylbenzene	↓	↓	<12.	↓	↓	↓
1,1,2,2-Tetrachloroethane	↓	↓	↓	↓	↓	↓
1,1,1,2-Tetrachloroethane	↓	↓	↓	↓	↓	↓
Tetrachloroethylene	↓	↓	↓	↓	↓	↓
Toluene	↓	↓	↓	↓	↓	↓
1,1,1-Trichloroethane	↓	↓	41.J	↓	↓	↓
1,1,2-Trichloroethane	↓	↓	<120.	↓	↓	↓
Trichloroethylene	↓	13.J	1400.J	↓	↓	↓
Trichlorofluoromethane	↓	<11.	<12.	↓	↓	↓
1,2,3-Trichloropropane	↓	↓	↓	↓	↓	↓
Vinyl chloride	↓	↓	↓	↓	↓	↓
Xylene (total)	<3.	<33.	<36.	<34.	<33.	<35.

Comments: ***Laboratory Contaminant

Methodology: USEPA,SW-846, November 1986, 3rd Edition

Certification No.: 10155

Units: *µg/l
**µg/kg dry weight

Page 2 of 2

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OBG Laboratories, Inc., *an O'Brien & Gere Limited Company*

OBG LABORATORIES, INC.

Volatile Organics
Method 8010/8020

CLIENT: HARTER, SECREST & EMERY JOB NO. 2387.006.517

DESCRIPTION: Enarc-O Machine Products, Honeoye Falls, NY

MATRIX: Soil

DATE COLLECTED: 11-27,28-90 DATE RECEIVED: 12-4-90 DATE ANALYZED: 12-7-90

DESCRIPTION:	B-5B 2'-4'	B-5C 6'-8'	B-5C 14'-16'	B-5D 0'-2'	B-5D 10'-12'	B-5E 12'-14'
SAMPLE NO.:	L4978	L4979	L4980	L4981	L4982	L4983
Benzene	<12.	<11.	<12.	<12.	<11.	<11.
Benzyl chloride	<120.	<110.	<120.	<120.	<110.	<110.
Bis (2-chloroethoxy) methane	<5900.	<5600.	<6000.	<5800.	<5700.	<5700.
Bromobenzene	<59.	<56.	<60.	<58.	<57.	<57.
Bromodichloromethane	<12.	<11.	<12.	<12.	<11.	<11.
Bromoform	<120.	<110.	<120.	<120.	<110.	<110.
Bromomethane	<120.	<110.	<120.	<120.	<110.	<110.
Carbon tetrachloride	<12.	<11.	<12.	<12.	<11.	<11.
Chlorobenzene	↓	↓	↓	↓	↓	↓
Chloroethane	↓	↓	↓	↓	↓	↓
2-Chloroethylvinyl ether	<120.	<110.	<120.	<120.	<110.	<110.
Chloroform	<12.	<11.	<12.	<12.	<11.	<11.
1-Chlorohexane	<120.	<110.	<120.	<120.	<110.	<110.
Chloromethane	<120.	<110.	<120.	<120.	<110.	<110.
Chloromethylmethyl ether	<1200.	<1100.	<1200.	<1200.	<1100.	<1100.
2-Chlorotoluene	<59.	<56.	<60.	<58.	<57.	<57.
4-Chlorotoluene	<59.	<56.	<60.	<58.	<57.	<57.
Dibromochloromethane	<12.	<11.	<12.	<12.	<11.	<11.
Dibromomethane	<120.	<110.	<120.	<120.	<110.	<110.
1,2-Dichlorobenzene	<59.	<56.	<60.	<58.	<57.	<57.
1,3-Dichlorobenzene	↓	↓	↓	↓	↓	↓
1,4-Dichlorobenzene	↓	↓	↓	↓	↓	↓
Dichlorodifluoromethane	<120.	<110.	<120.	<120.	<110.	<110.

Authorized:

Date: January 18, 1991

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OBG LABORATORIES, INC.

Volatile Organics
Method 8010/8020

CLIENT: HARTER, SECREST & EMERY JOB NO. 2387.006.517

DESCRIPTION: Enarc-O Machine Products, Honeoye Falls, NY

MATRIX: Soil

DATE COLLECTED: 11-27,28-90 DATE RECEIVED: 12-4-90 DATE ANALYZED: 12-7-90

DESCRIPTION:	B-5B 2'-4'	B-5C 6'-8'	B-5C 14'-16'	B-5D 0'-2'	B-5D 10'-12'	B-5E 12'-14'
SAMPLE NO.:	L4978	L4979	L4980	L4981	L4982	L4983
1,1-Dichloroethane	<12.	<11.	<12.	<12.	<11.	<11.
1,2-Dichloroethane	↓	↓	↓	↓	↓	↓
1,1-Dichloroethylene	↓	↓	↓	↓	↓	↓
1,2-Dichloroethylene (total)	↓	↓	↓	↓	↓	↓
Dichloromethane	↓	↓	24U*	22U*	14U*	14U*
1,2-Dichloropropane	↓	↓	<12.	<12.	<11.	<11.
cis-1,3-Dichloropropylene	↓	↓	↓	↓	↓	↓
trans-1,3-Dichloropropylene	↓	↓	↓	↓	↓	↓
Ethylbenzene	↓	↓	↓	↓	↓	↓
1,1,2,2-Tetrachloroethane	↓	↓	↓	↓	↓	↓
1,1,1,2-Tetrachloroethane	↓	↓	↓	↓	↓	↓
Tetrachloroethylene	↓	↓	↓	↓	↓	↓
Toluene	↓	↓	↓	↓	↓	↓
1,1,1-Trichloroethane	↓	↓	↓	↓	↓	↓
1,1,2-Trichloroethane	↓	↓	↓	↓	↓	↓
Trichloroethylene	↓	↓	↓	↓	↓	↓
Trichlorofluoromethane	↓	↓	↓	↓	↓	↓
1,2,3-Trichloropropane	↓	↓	↓	↓	↓	↓
Vinyl chloride	↓	↓	↓	↓	↓	↓
Xylene (total)	<35.	<34.	<36.	<35.	<34.	<34.
	ND	ND	ND	ND	ND	ND

Comments: *Laboratory Contaminant

Methodology: USEPA,SW-846, November 1986, 3rd Edition

Certification No.: 10155

Units: μg/kg dry weight

Page 2 of 2

Authorized: [signature]

Date: January 18, 1991

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OBG LABORATORIES, INC.

Volatile Organics
Method 8010/8020

CLIENT: HARTER, SECREST & EMERY JOB NO. 2387.006.517

DESCRIPTION: Enarc-O Machine Products, Honeoye Falls, NY

MATRIX: Soil

DATE COLLECTED: 11-29-90 DATE RECEIVED: 12-7-90 DATE ANALYZED: 12-11-90

DESCRIPTION:	B-2 6'-8'	B-2 10'-10.8'			
SAMPLE NO.:	L5397	L5398			
Benzene	<11.	<12.			
Benzyl chloride	<110.	<120.			
Bis (2-chloroethoxy) methane	<5600.	<6000.			
Bromobenzene	<56.	<60.			
Bromodichloromethane	<11.	<12.			
Bromoform	<110.	<120.			
Bromomethane	<110.	<120.			
Carbon tetrachloride	<11.	<12.			
Chlorobenzene	↓	↓			
Chloroethane	↓	↓			
2-Chloroethylvinyl ether	<110.	<120.			
Chloroform	<11.	<12.			
1-Chlorohexane	<110.	<120.			
Chloromethane	<110.	<120.			
Chloromethylmethyl ether	<1100.	<1200.			
2-Chlorotoluene	<56.	<60.			
4-Chlorotoluene	<56.	<60.			
Dibromochloromethane	<11.	<120.			
Dibromomethane	<110.	<120.			
1,2-Dichlorobenzene	<56.	<60.			
1,3-Dichlorobenzene	↓	↓			
1,4-Dichlorobenzene	↓	↓			
Dichlorodifluoromethane	<110.	<120.			

Authorized:

Date: January 18, 1991

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OBG LABORATORIES, INC.

Volatile Organics
Method 8010/8020

CLIENT: HARTER, SECREST & EMERY JOB NO. 2387.006.517

DESCRIPTION: Enarc-O Machine Products, Honeoye Falls, NY

MATRIX: Soil

DATE COLLECTED: 11-29-90 DATE RECEIVED: 12-7-90 DATE ANALYZED: 12-11-90

DESCRIPTION:	B-2 6'-8'	B-2 10'-10.8'
SAMPLE NO.:	L5397	L5398
1,1-Dichloroethane	<11.	<12.
1,2-Dichloroethane	↓	↓
1,1-Dichloroethylene	↓	↓
1,2-Dichloroethylene (total)	↓	200. J
Dichloromethane	↓	<12.
1,2-Dichloropropane	↓	<120.
cis-1,3-Dichloropropylene	↓	↓
trans-1,3-Dichloropropylene	↓	↓
Ethylbenzene	↓	<12.
1,1,2,2-Tetrachloroethane	↓	↓
1,1,1,2-Tetrachloroethane	↓	↓
Tetrachloroethylene	↓	30. J
Toluene	↓	<12.
1,1,1-Trichloroethane	↓	<12.
1,1,2-Trichloroethane	↓	<120.
Trichloroethylene	↓	1200. J
Trichlorofluoromethane	↓	<12.
1,2,3-Trichloropropane	↓	↓
Vinyl chloride	↓	↓
Xylene (total)	<34.	<36.

Comments:

Methodology: USEPA,SW-846, November 1986, 3rd Edition

Certification No.: 10155

Units: µg/kg dry weight

Page 2 of 2

Authorized: [signature]

Date: January 18, 1991

OBG Laboratories, Inc., *an O'Brien & Gere Limited Company*
5000 Brittonfield Parkway / Suite 200, Box 4942 / Syracuse, NY 13221 / (315) 437-0200

OBG LABORATORIES, INC.

Laboratory Report

CLIENT HARTER, SECREST & EMERY JOB NO. 2387.006.517

DESCRIPTION Enarc-O Machine Products, Honeoye Falls, NY

MATRIX: Soil, Water

DATE COLLECTED 11-29-90 DATE RECEIVED 12-4-90

	Sample #	TOTAL LEAD			
B-1, 4'-6'*	L4966	14.			
B-1, Rinseate Blank**	L4968	<0.05			

Comments:

Certification No.: 10155

Units: *mg/kg dry weight
**mg/l

Authorized: [signature]

Date: January 18, 1991

0:

OBG Laboratories, Inc., *an O'Brien & Gere Limited Company*
5000 Brittonfield Parkway / Suite 300, Box 4942 / Syracuse, NY 13221 / (315) 437-0200

LABORATORIES, INC.

Laboratory Report

CLIENT HARTER, SECREST & EMERY JOB NO. 2387.006.517

DESCRIPTION Enarc-O Machine Products, Honeoye Falls, NY

MATRIX: Soils

DATE COLLECTED 11-26-90 DATE RECEIVED 11-27-90

	Sample #	PERCENT TOTAL SOLIDS			
B-6, 4'-6'	L4380	87.			
B-6, 6'-8'	L4381	84.			

Comments:

Certification No.: 10155

Units: %

Authorized: [signature]

Date: January 18, 1991

OBG Laboratories, Inc., *an O'Brien & Gere Limited Company*
5000 Brittonfield Parkway / Suite 300, Box 4942 / Syracuse, NY 13221 / (315) 437-0200

LABORATORIES, INC.

Laboratory Report

CLIENT: HARTER, SECREST & EMERY JOB NO. 2387.006.517

DESCRIPTION: Enarc-O Machine Products, Honeoye Falls, NY

MATRIX: Soil, Water

DATE COLLECTED 11-29-90 DATE RECEIVED 12-4-90

	Sample #	PERCENT TOTAL SOLIDS			
B-1, 4'-6'	L4966	86.			
B-1, 6'-8'	L4967	87.			
B-1, Rinseate Blank	L4968	-			
B-3, 0'-2'	L4969	86.			
B-3, 4'-6'	L4970	89.			
B-3, 6'-8'	L4971	88.			
B-3, Rinseate Blank	L4972	-			
B-4, 6'-8'	L4973	92.			
B-4, 8'-10'	L4974	83.			
B-5A, 4'-6'	L4975	88.			
B-5A, 12'-14'	L4976	90.			
B-5B, 0'-2'	L4977	85.			
B-5B, 2'-4'	L4978	85.			
B-5C, 6'-8'	L4979	89.			
B-5C, 14'-16'	L4980	84.			
B-5C, 0'-2'	L4981	86.			
B-5C, 10'-12'	L4982	87.			
B-5E, 12'-14'	L4983	87.			

Comments:

Certification No.: 10155

Units: %

Authorized: Thomas A. Alexander 01

Date: January 18, 1991

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5000 Brittonfield Parkway / Suite 300, Box 4942 / Syracuse, NY 13221 / (315) 437-0200

OBG LABORATORIES, INC.

Laboratory Report

CLIENT HARTER, SECREST & EMERY JOB NO. 2387.006.517

DESCRIPTION Enarc-O Machine Products, Honeoye Falls, NY

MATRIX: Soil

DATE COLLECTED 11-29-90 DATE RECEIVED 12-7-90

	Sample #	PERCENT TOTAL SOLIDS			
B-2, 6'-8'	L5397	89.			
B-2, 10'-10.8'	L5398	83.			

Comments:

Certification No.: 10155

Units: %

Authorized: [signature]

Date: January 18, 1991

01

OBG Laboratories, Inc., *an O'Brien & Gere Limited Company*
5000 Brittonfield Parkway / Suite 300, Box 4942 / Syracuse, NY 13221 / (315) 437-0200

C D M F E D E R A L P R O G R A M S C O R P O R A T I O N

June 6, 1991

RECEIVED
JUL - 1 1991
BUREAU OF WESTERN REMEDIAL ACTION
DIVISION OF HAZARDOUS
WASTE REMEDIATION

Cathy Moyik
Regional Project Officer
U.S. Environmental Protection Agency
26 Federal Plaza
New York, New York 10278

Project: TES V, EPA Contract No. 68-W9-0002

Document No: TES5-C02024-EP-CBJS

Subject: Letter Report for Work Assignment No. C02024
Data Summary of Split Sampling
North Bloomfield Site
Town of Lima, New York
Document Control No: TES5-C02024-LR-CBJR

Dear Ms. Moyik:

Please find enclosed the Letter Report entitled "Data Summary of Split Sampling, North Bloomfield Site, Town of Lima, New York", as partial fulfillment of the reporting requirements for this work assignment.

If you have any comments regarding this submittal, please contact Susan Boone of CDM Federal Programs Corporation at (908) 757-9500 within two weeks from the date of this letter.

Sincerely,

CDM Federal Programs Corporation

Scott B. Graber
TES V Regional Manager

Enclosure

cc: Mark Granger, EPA Work Assignment Manager, CERCLA Region II
Jill Robbins, EPA Contracting Officer, EPA HQ (letter only)
Susan Boone, CDM FPC Work Assignment Manager
NYC Project File
NJ Project File
Document Control, CDM Federal Programs Corporation (2 copies)

LETTER REPORT
DATA SUMMARY OF SPLIT SAMPLING
NORTH BLOOMFIELD SITE
TOWN OF LIMA, NEW YORK

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Waste Programs Enforcement
Washington, D.C. 20460

EPA Work Assignment No.	: C02024
EPA Region	: II
Site No.	: 2PL9
Contract No.	: 68-W9-0002
CDM Federal Programs Corporation Document No.	: TES5-C02024-LR-CBJR
Report Prepared By	: CDM Federal Programs Corporation
CDM FPC Work Assignment Manager	: Susan Boone
Telephone Number	: (908) 757-9500
EPA Work Assignment Manager	: Mark Granger
Telephone Number	: (212) 264-7592
Date Prepared	: June 6, 1991

June 6, 1991

Mr. Mark Granger
U.S. Environmental Protection Agency
26 Federal Plaza
New York, New York 10278

Project: TES V, EPA Contract No. 68-W9-0002

Document No: TES5-C02024-LR-CBJR

Subject: Letter Report for Work Assignment No. C02024
Data Summary of Split Sampling
North Bloomfield Site
Town of Lima, New York

Dear Mr. Granger:

This letter provides a data summary of split samples that were accepted by CDM Federal Programs Corporation (CDM FPC) during three sampling events. The first phase of the investigation consisted of a soil boring program. This took place during November 1990 and CDM FPC accepted five soil samples (four splits and one duplicate) from four borings. Two rounds of ground water sampling were performed during January and February 1991. CDM FPC accepted eight water samples (six splits and two duplicates) from three identical wells during both rounds. In addition to collecting samples for volatile organic analysis during the second round, samples for total petroleum hydrocarbons (TPH) analysis were collected at each well (6 samples and 1 duplicate) before purging the well. Figure 1 indicates the ground water and soil boring sample locations.

Attachment I contains data summary tables for all of the samples. Analysis during the soil boring program consisted of full Target Compound List (TCL) and Target Analyte List (TAL) parameters. Round 1 ground water samples were analyzed for TCL and TAL parameters and Round 2 samples were analyzed for volatile organic compounds (VOCs) and TPH only. All sample results for TPH were rejected because the laboratory failed to perform instrument calibration and calibration verification standards at mid-range and the method detection limit level immediately prior to sample analysis, as required by the method and SAS request.

Below is a summary of the contaminants that were detected in the soil and ground water samples. Ground water samples were compared to Maximum Contaminant Levels (MCLs) and New York State Ground Water Quality Standards (GWS). Compounds that were found in associated blanks, as well as the samples, are related to laboratory contamination or decontamination procedures and are not considered compounds of concern at the site.

Ground Water Results

Compounds exceeding the standards for ground water included the following:

1,1-dichloroethene (GWS)
1,1,1-trichloroethane (GWS)
trichloroethene (GWS)
tetrachloroethene (MCL)

Bis(2-ethylhexyl)phthalate was detected in two samples at very low concentrations (less than the contract required detection limit). This compound is typically a laboratory contaminant and, at these concentrations, not expected to be representative of site contamination. The detections were at wells MW-1 and MW-5.

PCB, Aroclor 1242, was detected in well MW-1. The field blank taken the following day also contained detectable amounts of this compound.

Varying concentrations of all metals were detected in the ground water samples. Iron was the only standard (GWS) that was exceeded.

Soil Results

The following compounds were detected in the soil boring samples at concentrations greater than contract required detection limits:

1,1-dichloroethane
1,2-dichloroethene (total)
chloroform
1,1,1-trichloroethane
trichloroethene
tetrachloroethene
ethylbenzene
xylene (total)

Two PAHs were detected in sample SB 1, naphthalene and 2-methylnaphthalene.

Varying concentrations of all metals were detected in the soil samples.

Should you have any questions regarding the contents of this letter, please feel free to contact me at (908) 757-9500.

Sincerely,

CDM Federal Programs Corporation

Susan E Boone

Susan E. Boone
Work Assignment Manager

NORTH BLOOMFIELD
VOLATILE ORGANIC DATA
CONCENTRATIONS: water in UG/L, soil in UG/KG

SAMPLE LOCATION:	SB 1 (6'-8')	SB 3 (4'-6')	SB 4 (8'-10')	SB 4 (DUP)	SB 5B (2'-4')	FIELD BLANK	TRIP BLANK
SAMPLE NUMBER:	BDE41	BDE37	BDE39	BDE40	BDE36	BDE38	BDE42
SAMPLE DATE:	11/29/90	11/28/90	11/29/90	11/29/90	11/28/90	11/29/90	11/30/90
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	WATER	WATER
Chloromethane	1500 UJ	57 U	58 U	11 U	12 U	10 U	10 U
Bromomethane	1500 UJ	57 UJ	58 UJ	11 UJ	12 UJ	10 U	10 U
Vinyl Chloride	1500 UJ	57 U	58 U	11 U	12 U	10 U	10 U
Chloroethane	1500 UJ	57 U	58 U	11 U	12 U	10 U	10 U
Methylene Chloride	720 UJ	28 U	29 U	6 U	7 U	3 BJ	2 BJ
Acetone	1500 UJ	210 U	140 U	23 U	12 UJ	14 BJ	10 BJ
Carbon Disulfide	720 UJ	28 U	29 U	1 J	6 U	5 U	5 U
1,1-Dichloroethene	720 UJ	28 U	29 U	2 J	6 U	5 U	5 U
1,1-Dichloroethane	720 UJ	28 U	9 J	2 J	6 U	5 U	5 U
1,2-Dichloroethene (total)	720 UJ	89	630	170	0.8 J	5 U	5 U
Chloroform	100 J	28 U	29 U	6 U	6 U	5 U	5 U
1,2-Dichloroethane	720 UJ	28 U	29 U	6 U	6 U	5 U	5 U
2-Butanone	1500 UJ	57 U	58 U	11 U	12 U	10 U	10 U
1,1,1-Trichloroethane	720 UJ	100	21 J	1 J	6 U	5 U	5 U
Carbon Tetrachloride	720 UJ	28 U	29 U	6 U	6 U	5 U	5 U
Vinyl Acetate	1500 UJ	57 U	58 U	11 U	12 UJ	10 U	10 U
Bromodichloromethane	720 UJ	28 U	29 U	6 U	6 U	5 U	5 U
1,2-Dichloropropane	720 UJ	28 U	29 U	6 U	6 U	5 U	5 U
cis-1,3-Dichloropropene	720 UJ	28 U	29 U	6 U	6 U	5 U	5 U
Trichloroethene	720 UJ	490	880	23	4 J	5 U	5 U
Dibromochloromethane	720 UJ	28 U	29 U	6 U	6 U	5 U	5 U
1,1,2-Trichloroethane	720 UJ	3 J	29 U	6 U	6 U	5 U	5 U
Benzene	720 UJ	28 U	29 U	6 U	6 U	5 U	5 U
trans-1,3-Dichloropropene	720 UJ	28 U	29 U	6 U	6 U	5 U	5 U
Bromoform	720 UJ	28 U	29 U	6 U	6 U	5 U	5 U
4-Methyl-2-Pentanone	1500 UJ	57 U	58 U	11 U	12 U	10 U	10 U
2-Hexanone	1500 UJ	57 U	58 U	11 U	12 U	10 U	10 U
Tetrachloroethene	720 UJ	100	5 J	2 J	6 U	5 U	5 U
1,1,2,2-Tetrachloroethane	720 UJ	28 U	29 U	6 U	6 U	5 U	5 U
Toluene	720 UJ	28 U	29 U	6 U	6 U	1 BJ	2 BJ
Chlorobenzene	720 UJ	28 U	29 U	6 U	6 U	5 U	5 U
Ethylbenzene	690 J	28 U	29 U	6 U	6 U	5 U	5 U
Styrene	720 UJ	28 U	29 U	6 U	6 U	5 U	5 U
Xylene (total)	12000 J	28 U	29 U	6 U	6 U	5 U	5 U

QUALIFIERS
- U = Compound was analyzed for but not detected.
- J = Estimated value.
- B = Analyte was found in the associated blank as well as in the sample.
- D = Compound identified in an analysis at a secondary dilution factor.

NORTH BLOOMFIELD
SEMIVOLATILE ORGANIC DATA
CONCENTRATIONS: water in UG/L, soil in UG/KG

SAMPLE LOCATION: SAMPLE NUMBER: SAMPLE DATE: MATRIX:	SB 1 (6'-8') BDE41 11/29/90 SOIL	SB 3 (4'-6') BDE37 11/28/90 SOIL	SB 4 (8'-10') BDE39 11/29/90 SOIL	SB 4 (DUP) BDE40 11/29/90 SOIL	SB 5B (2'-4') BDE36 11/28/90 SOIL	FIELD BLANK BDE38 11/29/90 WATER
Phenol	770 U	750 UJ	770 U	740 U	770 UJ	10 U
bis(2-Chloroethyl)ether	770 U	750 UJ	770 U	740 U	770 UJ	10 U
2-Chlorophenol	770 U	750 UJ	770 U	740 U	770 UJ	10 U
1,3-Dichlorobenzene	770 U	750 UJ	770 U	740 U	770 UJ	10 U
1,4-Dichlorobenzene	770 U	750 UJ	770 U	740 U	770 UJ	10 U
Benzyl alcohol	770 U	750 UJ	770 U	740 U	770 UJ	10 U
1,2-Dichlorobenzene	770 U	750 UJ	770 U	740 U	770 UJ	10 U
2-Methylphenol	770 U	750 UJ	770 U	740 U	770 UJ	10 U
bis(2-Chloroisopropyl)ether	770 U	750 UJ	770 U	740 U	770 UJ	10 U
4-Methylphenol	770 U	750 UJ	770 U	740 U	770 UJ	10 U
N-Nitroso-di-n-propylamine	770 U	750 UJ	770 U	740 U	770 UJ	10 U
Hexachloroethane	770 U	750 UJ	770 U	740 U	770 UJ	10 U
Nitrobenzene	770 U	750 UJ	770 U	740 U	770 UJ	10 U
Isophorone	770 U	750 UJ	770 U	740 U	770 UJ	10 U
2-Nitrophenol	770 U	750 UJ	770 U	740 U	770 UJ	10 U
2,4-Dimethylphenol	770 U	750 UJ	770 U	740 U	770 UJ	10 U
Benzoic acid	1860 U	130 BJ	3700 U	3600 U	390 BJ	50 U
bis(2-Chloroethoxy)methane	770 U	750 UJ	770 U	740 U	770 UJ	10 U
2,4-Dichlorophenol	770 U	750 UJ	770 U	740 U	770 UJ	10 U
1,2,4-Trichlorobenzene	770 U	750 UJ	770 U	740 U	770 UJ	10 U
Naphthalene	170 J	750 UJ	770 U	740 U	770 UJ	10 U
4-Chloroaniline	770 U	750 UJ	770 U	740 U	770 UJ	10 U
Hexachlorobutadiene	770 U	750 UJ	770 U	740 U	770 UJ	10 U
4-Chloro-3-methylphenol	770 U	750 UJ	770 U	740 U	770 UJ	10 U
2-Methylnaphthalene	240 J	750 UJ	770 U	740 U	770 UJ	10 U
Hexachlorocyclopentadiene	770 U	750 UJ	770 U	740 U	770 UJ	10 U
2,4,6-Trichlorophenol	770 U	750 UJ	770 U	740 U	770 UJ	10 U
2,4,5-Trichlorophenol	3700 U	3600 UJ	3700 U	3600 U	3700 UJ	50 U
2-Chloronaphthalene	770 U	750 UJ	770 U	740 U	770 UJ	10 U
2-Nitroaniline	3700 U	3600 UJ	3700 U	3600 U	3700 UJ	50 U
Dimethylphthalate	770 U	750 UJ	770 U	740 U	770 UJ	10 U
Acenaphthylene	770 U	750 UJ	770 U	740 U	770 UJ	10 U
2,6-Dinitrotoluene	770 U	750 UJ	770 U	740 U	770 UJ	10 U

QUALIFIERS
U = Compound was analyzed for but not detected.
J = Estimated value.
B = Analyte was found in the associated blank as well as in the sample.

NORTH BLOOMFIELD
SEMIVOLATILE ORGANIC DATA
CONCENTRATIONS: water in UG/L, soil in UG/KG

SAMPLE LOCATION: SAMPLE NUMBER: SAMPLE DATE: MATRIX:	SB 1 (6'-8') BDE41 11/29/90 SOIL	SB 3 (4'-6') BDE37 11/28/90 SOIL	SB 4 (8'-10') BDE39 11/29/90 SOIL	SB 4 (DUP) BDE40 11/29/90 SOIL	SB 5B (2'-4') BDE36 11/28/90 SOIL	FIELD BLANK BDE38 11/29/90 WATER
3-Nitroaniline	3700 U	3600 UJ	3700 U	3600 U	3700 UJ	50 U
Acenaphthene	770 U	750 UJ	770 U	740 U	770 UJ	10 U
2,4-Dinitrophenol	3700 U	3600 UJ	3700 U	3600 U	3700 UJ	50 U
4-Nitrophenol	3700 U	3600 UJ	3700 U	3600 U	3700 UJ	50 U
Dibenzofuran	770 U	750 UJ	770 U	740 U	770 UJ	10 U
2,4-Dinitrotoluene	770 U	750 UJ	770 U	740 U	770 UJ	10 U
Diethylphthalate	770 U	750 UJ	770 U	740 U	770 UJ	10 U
4-Chlorophenyl-phenylether	770 U	750 UJ	770 U	740 U	770 UJ	10 U
Fluorene	770 U	750 UJ	770 U	740 U	770 UJ	10 U
4-Nitroaniline	3700 U	3600 UJ	3700 U	3600 U	3700 UJ	50 U
4,6-Dinitro-2-methylphenol	3700 U	3600 UJ	3700 U	3600 U	3700 UJ	50 U
N-Nitrosodiphenylamine (1)	770 U	750 UJ	770 U	740 U	770 UJ	10 U
4-Bromophenyl-phenylether	770 U	750 UJ	770 U	740 U	770 UJ	10 U
Hexachlorobenzene	770 U	750 UJ	770 U	740 U	770 UJ	10 U
Pentachlorophenol	3700 U	3600 UJ	3700 U	3600 U	3700 UJ	50 U
Phenanthrene	770 U	750 UJ	770 U	740 U	770 UJ	10 U
Anthracene	770 U	750 UJ	770 U	740 U	770 UJ	10 U
Di-n-Butylphthalate	770 U	750 UJ	770 U	740 U	770 UJ	10 U
Fluoranthene	770 U	750 UJ	770 U	740 U	770 UJ	10 U
Pyrene	770 U	750 UJ	770 U	740 U	770 UJ	10 U
Butylbenzylphthalate	770 U	750 UJ	770 U	740 U	770 UJ	10 U
3,3'-Dichlorobenzidine	1500 U	1500 UJ	1500 U	1500 U	1500 UJ	20 U
Benzo(a)anthracene	770 U	750 UJ	770 U	740 U	770 UJ	10 U
Chrysene	770 U	750 UJ	770 U	740 U	770 UJ	10 U
bis(2-Ethylhexyl)phthalate	770 U	750 UJ	770 U	740 U	770 UJ	10 U
Di-n-octylphthalate	770 U	750 UJ	770 U	740 U	770 UJ	10 U
Benzo(b)fluoranthene	770 U	750 UJ	770 U	740 U	770 UJ	10 U
Benzo(k)fluoranthene	770 U	750 UJ	770 U	740 U	770 UJ	10 U
Benzo(a)pyrene	770 U	750 UJ	770 U	740 U	770 UJ	10 U
Indeno(1,2,3-cd)pyrene	770 U	750 UJ	770 U	740 U	770 UJ	10 U
Dibenz(a,h)anthracene	770 U	750 UJ	770 U	740 U	770 UJ	10 U
Benzo(g,h,i)perylene	770 U	750 UJ	770 U	740 U	770 UJ	10 U
TOTAL SEMIVOLATILES						

QUALIFIERS
U = Compound was analyzed for but not detected.
J = Estimated value.
B = Analyte was found in the associated blank as well as in the sample.

NORTH BLOOMFIELD
INORGANIC DATA
CONCENTRATIONS: water in UG/L, soil in MG/KG

SAMPLE LOCATION:	SB 1 (6'-8')	SB 3 (4'-6')	SB 4 (8'-10')	SB 4 (DUP)	SB 5B (2'-4')
SAMPLE NUMBER:	MBBY41	MBBY38	MBBY39	MBBY40	MBBY37
SAMPLE DATE:	11/29/90	11/28/90	11/29/90	11/29/90	11/28/90
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL
Aluminum	11600	11300	8530	9660	12700
Antimony	3.1 UNJ	3.1 BNJ	3.2 UNJ	3.1 UNJ	3.2 UNJ
Arsenic	3.4	3.2	3.8	2.8	3.4
Barium	93.2	92.7	72.1	80.8	81.5
Beryllium	0.52 B	0.52 B	0.41 B	0.44 B	0.56 B
Cadmium	0.66 U	0.65 U	0.68 U	0.66 U	0.68 U
Calcium	71800	72800	86800	76500	70800
Chromium	17.2	17.4	19.4	16.4	18.1
Cobalt	8.8 B	8.5 B	8.5 B	7.2 B	8.1 B
Copper	15.9	15.5	13	13.3	28.4
Iron	19200	20100	17100	17600	20200
Lead	10.5 NJ	9.4 +NJ	7.6 NJ	8.5 NJ	11.1 *NJ
Magnesium	19800	18500	30600	21700	19300
Manganese	513	488	455	462	561
Mercury	0.1 U	0.1 U	0.1 U	0.1 U	0.11 U
Nickel	19.1 J	18.8 J	21 J	16 J	17.8 J
Potassium	2290	2380	2000	2100	2700
Selenium	.45 UWNJ	.44 UWNJ	0.46 UNJ	0.45 UNJ	.45 UWNJ
Silver	0.44 U	0.44 U	0.46 U	0.44 U	0.45 U
Sodium	210 B	256 B	200 B	204 B	248 B
Thallium	0.27 B	0.29 B	0.25 BW	0.22 U	0.22 B
Vanadium	21.7	21.6	17.8	19.5	24.4
Zinc	50.8 EJ	47.7 EJ	41.1 EJ	72.5 EJ	65.6 EJ
Cyanide	1.8 U	1.9 U	1.9 U	1.6 U	1.5 U

QUALIFIERS
- U = Compound analyzed for but not detected.
- B = Value is less than CRDL but greater than IDL.
- * = Duplicate analysis not within control limits.
- J = Estimated value.
- N = Spiked sample recovery not within control limits.
- + = Correlation coefficient for the MSA is less than 0.995.
- E = The reported value is estimated because of the presence of interference.
- W = Post-digestion spike for Furnace AA analysis out of control limits, while sample absorbance is less than 50% of spike absorbance.

NORTH BLOOMFIELD
PESTICIDE/PCB DATA
CONCENTRATIONS: water in UG/L, soil in UG/KG

SAMPLE LOCATION: SAMPLE NUMBER: SAMPLE DATE: MATRIX:	SB 1 (6'-8') BDE41 11/29/90 SOIL	SB 3 (4'-6') BDE37 11/28/90 SOIL	SB 4 (8'-10') BDE39 11/29/90 SOIL	SB 4 (DUP) BDE40 11/29/90 SOIL	SB 5B (2'-4') BDE36 11/28/90 SOIL	FIELD BLANK BDE38 11/29/90 WATER
Alpha-BHC	19 U	18 UJ	19 U	18 U	19 UJ	0.05 U
Beta-BHC	19 U	18 UJ	19 U	18 U	19 UJ	0.05 U
Delta-BHC	19 U	18 UJ	19 U	18 U	19 UJ	0.05 U
Gamma-BHC (Lindane)	19 U	18 UJ	19 U	18 U	19 UJ	0.05 U
Heptachlor	19 U	18 UJ	19 U	18 U	19 UJ	0.05 U
Aldrin	19 U	18 UJ	19 U	18 U	19 UJ	0.05 U
Heptachlor Epoxide	19 U	18 UJ	19 U	18 U	19 UJ	0.05 U
Endosulfan I	19 U	18 UJ	19 U	18 U	19 UJ	0.05 U
Dieldrin	37 U	36 UJ	37 U	36 U	37 UJ	0.1 U
4,4'-DDE	37 U	36 UJ	37 U	36 U	37 UJ	0.1 U
Endrin	37 U	36 UJ	37 U	36 U	37 UJ	0.1 U
Endosulfan II	37 U	36 UJ	37 U	36 U	37 UJ	0.1 U
4,4'-DDD	37 U	36 UJ	37 U	36 U	37 UJ	0.1 U
Endosulfan Sulfate	37 U	36 UJ	37 U	36 U	37 UJ	0.1 U
4,4'-DDT	37 U	36 UJ	37 U	36 U	37 UJ	0.1 U
Methoxychlor	190 U	180 UJ	190 U	180 U	190 UJ	0.5 U
Endrin Ketone	37 U	36 UJ	37 U	36 U	37 UJ	0.1 U
Alpha-Chlordane	190 U	180 UJ	190 U	180 U	190 UJ	0.5 U
Gamma-Chlordane	190 U	180 UJ	190 U	180 U	190 UJ	0.5 U
Toxaphene	370 U	360 UJ	370 U	360 U	370 UJ	1 U
Aroclor-1016	190 U	180 UJ	190 U	180 U	190 UJ	0.5 U
Aroclor-1221	190 U	180 UJ	190 U	180 U	190 UJ	0.5 U
Aroclor-1232	190 U	180 UJ	190 U	180 U	190 UJ	0.5 U
Aroclor-1242	190 U	180 UJ	190 U	180 U	190 UJ	0.5 U
Aroclor-1248	190 U	180 UJ	190 U	180 U	190 UJ	0.5 U
Aroclor-1254	370 U	360 UJ	370 U	360 U	370 UJ	1 U
Aroclor-1260	370 U	360 UJ	370 U	360 U	370 UJ	1 U

QUALIFIERS
U = Compound analyzed for but not detected.
J = Estimated value.

- Haley & Aldrich of New York

- SS-101, SS-102, SS-105, SS-107 (May 1994)
- SS-1 through SS-4 and Septic Tank (May 1994)

General Testing Corporation

A Full Service Environmental Laboratory

H & A OF NEW YORK
JUN 7 1994
RECEIVED

June 6, 1993

Mr. Denis Conley
H&A of New York
189 North Water Street
Rochester, New York 14604

Re: Project #70372-43 - R94/1652, SDG# SSTB1

Dear Mr. Conley:

Enclosed you will find a report for the above referenced site. The samples were received on 05/09/94. Four (4) soil samples and one (1) trip blank were analyzed for 91-1 (volatiles).

A detailed case narrative is enclosed identifying any difficulties encountered during analysis. Please review and submit any questions in writing to me. These will be answered promptly by our QA officer.

Thank you for your continued business.

Sincerely,

GENERAL TESTING CORPORATION

Cindy Toomey

Cindy Toomey
Customer Service Representative

Enc.

710 Exchange Street • Rochester, NY 14608 • Tele: (716) 454-3760 • (716) 454-1245
85 Trinity Place • Hackensack, NJ 07601 • Tele: (201) 488-5242 • Fax: (201) 488-6386
435 Lawrence Bell Drive • Amherst, NY 14221 • Tele: (716) 634-0454 • Fax: (716) 634-9019

General Testing Corporation

Job #: R94/01652

SAMPLE DATA SUMMARY PACKAGE

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SAMPLE IDENTIFICATION AND
ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements* NYSDEC 1991 CLP PROTOCOL					
		*VOA GC/MS	*BNA GC/MS	*VOA GC	*PEST PCB	*METALS	*OTHER
SS107	R94/01652-1	X					
SS105	R94/01652-2	X					
SS102	R94/01652-3	X					
SSTB1	R94/01652-4	X					
SS101	R94/01652-5	X					

*Check Appropriate Boxes

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY

ORGANIC ANALYSES

SAMPLE ID	MATRIX	ANALYTICAL PROTOCOL	EXTRACTION METHOD	AUXILARY CLEAN UP	DIL/CONC FACTOR
R1652-1	SOIL	91-1			1.0
R1652-2	SOIL	91-1			1.0
R1652-3	SOIL	91-1			1.0
R1652-4	WATER	91-1			1.0
R1652-5	SOIL	91-1			1.0

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SAMPLE PREPARATION AND ANALYSIS SUMMARY
VOA
ANALYSES

LABORATORY SAMPLE ID	MATRIX	DATE COLLECTED	DATE REC'D AT LAB	LOW LEVEL MED LEVEL	DATE ANALYZED
R94/01652-1	SOIL	05/06/94	05/09/94	LOW	05/14/94
R94/01652-2	SOIL	05/06/94	05/09/94	LOW	05/14/94
R94/01652-3	SOIL	05/06/94	05/09/94	MED, LOW	05/14,16/94
R94/01652-4	WATER	05/06/94	05/09/94	LOW	05/16/94
R94/01652-5	SOIL	05/07/94	05/09/94	LOW	05/14/94

General Testing Corporation

Job #: R94/01652

SECTION B

SDG NARRATIVE

CASE NARRATIVE

COMPANY: H & A of New York
Enarc-O Machine Products
JOB #: R94/01652
SDG #: SSTB1

VOLATILE ORGANICS

Four soil and one water samples were analyzed for Target Compound List volatile organics by Method 91-1 from the NYSASP 1991.

EPA Sample ID	GTC Sample ID
SSTB1	R94/01652-04
SS101	-05
SS102	-03
SS102DL	-03DL
SS105	-02
SS105DL	-02DL
SS107	-01
VBLK1	METHOD BLANK
VBLK2	METHOD BLANK
VBLK3	METHOD BLANK
VBLK2MS	BLANK SPIKE
VBLK3MS	BLANK SPIKE
SS105MS	R94/01652-02MS
SS105MSD	-02MSD
SS102DLMS	-03DLMS
SS102DLMSD	-03DLMSD

All Tuning criteria for BFB were QC within limits.

All Initial Calibration criteria were compliant.

All Continuing Calibration Check (CCC) criteria were compliant.

All internal standard areas were within QC limits.

All soil samples were screened prior to analysis and sample SS102 (R94/01652-03) was subsequently done both as a low level and a medium level. Sample SS105 (R94/01652-02) was reanalyzed at a dilution as (R94/01652-02DL) to obtain target compounds within the calibration range of the method.

All surrogate compounds were within QC limits for recovery.

All recoveries for the Matrix Spike and Matrix Spike Duplicate were within QC limits for samples SS102DL (R94/01652-03DL) and SS105 (R94/01652-02) except for Trichloroethene in SS105MSD (R94/01652-02MSD). All %RPD were within precision limits except for Trichloroethene in the MS/MSD of SS105 (R94/01652-02). All Blank Spike recoveries were within QC limits.

No other analytical or QC problems were encountered during the analysis of this SDG.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Michael K. Perry
Michael K. Perry
Laboratory Director

6/3/94
Date

General Testing Corporation

Job #: R94/01652

SECTION C

SAMPLE DATA

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSTB1

Lab Name:GENERAL TESTING   Contract:H & A

Lab Code:10145   Case No.:   SAS No.:   SDG No.:SSTB1

Matrix: (soil/water) WATER   Lab Sample ID:1652-4

Sample wt/vol: 5.00 (g/ml) ML   Lab File ID: E9319

Level: (low/med) LOW   Date Received: 5/09/94

% Moisture: not dec.   Date Analyzed: 5/16/94

GC Column:RTX-502   ID: 0.53 (mm)   Dilution Factor: 1.0

Soil Extract Volume:0 (uL)   Soil Aliquot Volume:0 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene chloride	10.	U
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	10.	U
75-35-4	1,1-Dichloroethene	10.	U
75-34-3	1,1-Dichloroethane	10.	U
156-60-5	trans-1,2-Dichloroethene	10.	U
67-66-3	Chloroform	10.	U
107-06-2	1,2-Dichloroethane	10.	U
78-93-3	2-Butanone	10.	U
156-59-2	cis-1,2-Dichloroethene	10.	U
71-55-6	1,1,1-Trichloroethane	10.	U
56-23-5	Carbon tetrachloride	10.	U
75-27-4	Bromodichloromethane	10.	U
78-87-5	1,2-Dichloropropane	10.	U
10061-01-5	cis-1,3-Dichloropropene	10.	U
79-01-6	Trichloroethene	10.	U
124-48-1	Dibromochloromethane	10.	U
79-00-5	1,1,2-Trichloroethane	10.	U
71-43-2	Benzene	10.	U
50061-02-6	trans-1,3-Dichloropropene	10.	U
75-25-2	Bromoform	10.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	10.	U
79-34-5	1,1,2,2-Tetrachloroethane	10.	U
108-88-3	Toluene	10.	U
108-90-7	Chlorobenzene	10.	U
100-41-4	Ethylbenzene	10.	U
100-42-5	Styrene	10.	U
108-38-3	(m+p)Xylene	10.	U
95-47-6	o-Xylene	10.	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SSTB1

Lab Name: GENERAL TESTING Contract: H & A

Lab Code: 10145 Case No.: SAS No.: SDG No.: SSTB1

Matrix: (soil/water) WATER Lab Sample ID: 1652-4

Sample wt/vol: 5.00 (g/ml) ML Lab File ID: E9319

Level: (low/med) LOW Date Received: 5/09/94

% Moisture: not dec. Date Analyzed: 5/16/94

GC Column: RTX-502 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 0 (uL) Soil Aliquot Volume: 0 (uL)

Number TICs Found: 1

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	7.39	5.	J
2.				
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS101

Lab Name:GENERAL TESTING   Contract:H & A

Lab Code:10145   Case No.:   SAS No.:   SDG No.:SSTB1

Matrix: (soil/water) SOIL   Lab Sample ID:1652-5

Sample wt/vol: 5.00 (g/ml) G   Lab File ID: G8761

Level: (low/med) LOW   Date Received: 5/09/94

% Moisture: not dec. 17   Date Analyzed: 5/14/94

GC Column:RTX-502   ID: 0.53 (mm)   Dilution Factor: 1.0

Soil Extract Volume:0 (uL)   Soil Aliquot Volume:0 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12.	U
74-83-9	Bromomethane	12.	U
75-01-4	Vinyl chloride	12.	U
75-00-3	Chloroethane	12.	U
75-09-2	Methylene chloride	12.	U
67-64-1	Acetone	12.	U
75-15-0	Carbon Disulfide	12.	U
75-35-4	1,1-Dichloroethene	4.	J
75-34-3	1,1-Dichloroethane	12.	U
156-60-5	trans-1,2-Dichloroethene	12.	U
67-66-3	Chloroform	12.	U
107-06-2	1,2-Dichloroethane	12.	U
78-93-3	2-Butanone	12.	U
156-59-2	cis-1,2-Dichloroethene	4.	J
71-55-6	1,1,1-Trichloroethane	45.	
56-23-5	Carbon tetrachloride	12.	U
75-27-4	Bromodichloromethane	12.	U
78-87-5	1,2-Dichloropropane	12.	U
10061-01-5	cis-1,3-Dichloropropene	12.	U
79-01-6	Trichloroethene	190.	
124-48-1	Dibromochloromethane	12.	U
79-00-5	1,1,2-Trichloroethane	12.	U
71-43-2	Benzene	12.	U
50061-02-6	trans-1,3-Dichloropropene	12.	U
75-25-2	Bromoform	12.	U
108-10-1	4-Methyl-2-Pentanone	12.	U
591-78-6	2-Hexanone	12.	U
127-18-4	Tetrachloroethene	2.	J
79-34-5	1,1,2,2-Tetrachloroethane	12.	U
108-88-3	Toluene	12.	U
108-90-7	Chlorobenzene	12.	U
100-41-4	Ethylbenzene	12.	U
100-42-5	Styrene	12.	U
108-38-3	(m+p)Xylene	12.	U
95-47-6	o-Xylene	12.	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SS101

Lab Name: GENERAL TESTING Contract: H & A

Lab Code: 10145 Case No.: SAS No.: SDG No.: SSTB1

Matrix: (soil/water) SOIL Lab Sample ID: 1652-5

Sample wt/vol: 5.00 (g/ml) G Lab File ID: G8761

Level: (low/med) LOW Date Received: 5/09/94

% Moisture: not dec. 17 Date Analyzed: 5/14/94

GC Column: RTX-502 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 0 (uL) Soil Aliquot Volume: 0 (uL)

Number TICs Found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		Unknown	3.07	240.	JB
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EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

SS102

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSTB1

Matrix: (soil/water) SOIL Lab Sample ID:1652-3

Sample wt/vol: 5.00 (g/ml) G Lab File ID: G8760

Level: (low/med) LOW Date Received: 5/09/94

% Moisture: not dec. 14 Date Analyzed: 5/14/94

GC Column:RTX-502 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:0 (uL) Soil Aliquot Volume:0 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12.	U
74-83-9	Bromomethane	12.	U
75-01-4	Vinyl chloride	12.	U
75-00-3	Chloroethane	12.	U
75-09-2	Methylene chloride	12.	U
67-64-1	Acetone	12.	U
75-15-0	Carbon Disulfide	12.	U
75-35-4	1,1-Dichloroethene	130.	
75-34-3	1,1-Dichloroethane	83.	
156-60-5	trans-1,2-Dichloroethene	12.	U
67-66-3	Chloroform	12.	U
107-06-2	1,2-Dichloroethane	27.	
78-93-3	2-Butanone	12.	U
156-59-2	cis-1,2-Dichloroethene	8.	J
71-55-6	1,1,1-Trichloroethane	1100.	E
56-23-5	Carbon tetrachloride	12.	U
75-27-4	Bromodichloromethane	12.	U
78-87-5	1,2-Dichloropropane	12.	U
10061-01-5	cis-1,3-Dichloropropene	12.	U
79-01-6	Trichloroethene	1300.	E
124-48-1	Dibromochloromethane	12.	U
79-00-5	1,1,2-Trichloroethane	12.	U
71-43-2	Benzene	12.	U
50061-02-6	trans-1,3-Dichloropropene	12.	U
75-25-2	Bromoform	12.	U
108-10-1	4-Methyl-2-Pentanone	12.	U
591-78-6	2-Hexanone	12.	U
127-18-4	Tetrachloroethene	59.	
79-34-5	1,1,2,2-Tetrachloroethane	12.	U
108-88-3	Toluene	12.	U
108-90-7	Chlorobenzene	12.	U
100-41-4	Ethylbenzene	12.	U
100-42-5	Styrene	12.	U
108-38-3	(m+p)Xylene	12.	U
95-47-6	o-Xylene	12.	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SS102

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSTB1

Matrix: (soil/water) SOIL Lab Sample ID:1652-3

Sample wt/vol: 5.00 (g/ml) G Lab File ID: G8760

Level: (low/med) LOW Date Received: 5/09/94

% Moisture: not dec. 14 Date Analyzed: 5/14/94

GC Column:RTX-502 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:0 (uL) Soil Aliquot Volume:0 (uL)

Number TICs Found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS102DL

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSTB1

Matrix: (soil/water) SOIL Lab Sample ID:1652-3DL

Sample wt/vol: 4.00 (g/ml) G Lab File ID: E9320

Level: (low/med) MED Date Received: 5/09/94

% Moisture: not dec. 14 Date Analyzed: 5/16/94

GC Column:RTX-502 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:10000.00 (uL) Soil Aliquot Volume: 100.0 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1500.	U
74-83-9	Bromomethane	1500.	U
75-01-4	Vinyl chloride	1500.	U
75-00-3	Chloroethane	1500.	U
75-09-2	Methylene chloride	1500.	U
67-64-1	Acetone	1500.	U
75-15-0	Carbon Disulfide	1500.	U
75-35-4	1,1-Dichloroethene	1500.	U
75-34-3	1,1-Dichloroethane	1500.	U
156-60-5	trans-1,2-Dichloroethene	1500.	U
67-66-3	Chloroform	1500.	U
107-06-2	1,2-Dichloroethane	1500.	U
78-93-3	2-Butanone	1500.	U
156-59-2	cis-1,2-Dichloroethene	1500.	U
71-55-6	1,1,1-Trichloroethane	670.	DJ
56-23-5	Carbon tetrachloride	1500.	U
75-27-4	Bromodichloromethane	1500.	U
78-87-5	1,2-Dichloropropane	1500.	U
10061-01-5	cis-1,3-Dichloropropene	1500.	U
79-01-6	Trichloroethene	1500.	D
124-48-1	Dibromochloromethane	1500.	U
79-00-5	1,1,2-Trichloroethane	1500.	U
71-43-2	Benzene	1500.	U
50061-02-6	trans-1,3-Dichloropropene	1500.	U
75-25-2	Bromoform	1500.	U
108-10-1	4-Methyl-2-Pentanone	1500.	U
591-78-6	2-Hexanone	1500.	U
127-18-4	Tetrachloroethene	1500.	U
79-34-5	1,1,2,2-Tetrachloroethane	1500.	U
108-88-3	Toluene	1500.	U
108-90-7	Chlorobenzene	1500.	U
100-41-4	Ethylbenzene	1500.	U
100-42-5	Styrene	1500.	U
108-38-3	(m+p)Xylene	1500.	U
95-47-6	o-Xylene	1500.	U

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SS102DL

Lab Name: GENERAL TESTING   Contract: H & A

Lab Code: 10145   Case No.:   SAS No.:   SDG No.: SSTB1

Matrix: (soil/water) SOIL   Lab Sample ID: 1652-3DL

Sample wt/vol: 4.00 (g/ml) G   Lab File ID: E9320

Level: (low/med) MED   Date Received: 5/09/94

% Moisture: not dec. 14   Date Analyzed: 5/16/94

GC Column: RTX-502   ID: 0.53 (mm)   Dilution Factor: 1.0

Soil Extract Volume: 10000.00 (uL)   Soil Aliquot Volume: 100.0 (uL)

Number TICs Found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS105

Lab Name: GENERAL TESTING   Contract: H & A

Lab Code: 10145   Case No.:   SAS No.:   SDG No.: SSTB1

Matrix: (soil/water) SOIL   Lab Sample ID: 1652-2

Sample wt/vol: 5.00 (g/ml) G   Lab File ID: G8757

Level: (low/med) LOW   Date Received: 5/09/94

% Moisture: not dec. 13   Date Analyzed: 5/14/94

GC Column: RTX-502   ID: 0.53 (mm)   Dilution Factor: 1.0

Soil Extract Volume: 0 (uL)   Soil Aliquot Volume: 0 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11.	U
74-83-9	Bromomethane	11.	U
75-01-4	Vinyl chloride	11.	U
75-00-3	Chloroethane	11.	U
75-09-2	Methylene chloride	11.	U
67-64-1	Acetone	11.	U
75-15-0	Carbon Disulfide	11.	U
75-35-4	1,1-Dichloroethene	5.	J
75-34-3	1,1-Dichloroethane	11.	U
156-60-5	trans-1,2-Dichloroethene	11.	U
67-66-3	Chloroform	11.	U
107-06-2	1,2-Dichloroethane	11.	U
78-93-3	2-Butanone	11.	U
156-59-2	cis-1,2-Dichloroethene	11.	U
71-55-6	1,1,1-Trichloroethane	71.	
56-23-5	Carbon tetrachloride	11.	U
75-27-4	Bromodichloromethane	11.	U
78-87-5	1,2-Dichloropropane	11.	U
10061-01-5	cis-1,3-Dichloropropene	11.	U
79-01-6	Trichloroethene	300.	E
124-48-1	Dibromochloromethane	11.	U
79-00-5	1,1,2-Trichloroethane	11.	U
71-43-2	Benzene	11.	U
50061-02-6	trans-1,3-Dichloropropene	11.	U
75-25-2	Bromoform	11.	U
108-10-1	4-Methyl-2-Pentanone	11.	U
591-78-6	2-Hexanone	11.	U
127-18-4	Tetrachloroethene	11.	U
79-34-5	1,1,2,2-Tetrachloroethane	11.	U
108-88-3	Toluene	11.	U
108-90-7	Chlorobenzene	11.	U
100-41-4	Ethylbenzene	11.	U
100-42-5	Styrene	11.	U
108-38-3	(m+p)Xylene	11.	U
95-47-6	o-Xylene	11.	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SS105

Lab Name:GENERAL TESTING   Contract:H & A

Lab Code:10145   Case No.:   SAS No.:   SDG No.:SSTB1

Matrix: (soil/water) SOIL   Lab Sample ID:1652-2

Sample wt/vol: 5.00 (g/ml) G   Lab File ID: G8757

Level: (low/med) LOW   Date Received: 5/09/94

% Moisture: not dec. 13   Date Analyzed: 5/14/94

GC Column:RTX-502   ID: 0.53 (mm)   Dilution Factor: 1.0

Soil Extract Volume:0 (uL)   Soil Aliquot Volume:0 (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs Found: 1

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	3.09	79.	JB
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS105DL

Lab Name:GENERAL TESTING   Contract:H & A

Lab Code:10145   Case No.:   SAS No.:   SDG No.:SSTB1

Matrix: (soil/water) SOIL   Lab Sample ID:1652-2DL

Sample wt/vol: 2.50 (g/ml) G   Lab File ID: G8763

Level: (low/med) LOW   Date Received: 5/09/94

% Moisture: not dec. 13   Date Analyzed: 5/14/94

GC Column:RTX-502   ID: 0.53 (mm)   Dilution Factor: 1.0

Soil Extract Volume:0 (uL)   Soil Aliquot Volume:0 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	23.	U
74-83-9	Bromomethane	23.	U
75-01-4	Vinyl chloride	23.	U
75-00-3	Chloroethane	23.	U
75-09-2	Methylene chloride	23.	U
67-64-1	Acetone	23.	U
75-15-0	Carbon Disulfide	23.	U
75-35-4	1,1-Dichloroethene	23.	U
75-34-3	1,1-Dichloroethane	23.	U
156-60-5	trans-1,2-Dichloroethene	23.	U
67-66-3	Chloroform	23.	U
107-06-2	1,2-Dichloroethane	23.	U
78-93-3	2-Butanone	23.	U
156-59-2	cis-1,2-Dichloroethene	23.	U
71-55-6	1,1,1-Trichloroethane	36.	D
56-23-5	Carbon tetrachloride	23.	U
75-27-4	Bromodichloromethane	23.	U
78-87-5	1,2-Dichloropropane	23.	U
10061-01-5	cis-1,3-Dichloropropene	23.	U
79-01-6	Trichloroethene	200.	D
124-48-1	Dibromochloromethane	23.	U
79-00-5	1,1,2-Trichloroethane	23.	U
71-43-2	Benzene	23.	U
50061-02-6	trans-1,3-Dichloropropene	23.	U
75-25-2	Bromoform	23.	U
108-10-1	4-Methyl-2-Pentanone	23.	U
591-78-6	2-Hexanone	23.	U
127-18-4	Tetrachloroethene	23.	U
79-34-5	1,1,2,2-Tetrachloroethane	23.	U
108-88-3	Toluene	23.	U
108-90-7	Chlorobenzene	23.	U
100-41-4	Ethylbenzene	23.	U
100-42-5	Styrene	23.	U
108-38-3	(m+p)Xylene	23.	U
95-47-6	o-Xylene	23.	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SS105DL

Lab Name: GENERAL TESTING   Contract: H & A

Lab Code: 10145   Case No.:   SAS No.:   SDG No.: SSTB1

Matrix: (soil/water) SOIL   Lab Sample ID: 1652-2DL

Sample wt/vol: 2.50 (g/ml) G   Lab File ID: G8763

Level: (low/med) LOW   Date Received: 5/09/94

% Moisture: not dec. 13   Date Analyzed: 5/14/94

GC Column: RTX-502   ID: 0.53 (mm)   Dilution Factor: 1.0

Soil Extract Volume: 0 (uL)   Soil Aliquot Volume: 0 (uL)

Number TICs Found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	3.06	63.	DJB
2.				
3.				
4.				
5.				
6.				
7.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS107

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSTB1

Matrix: (soil/water) SOIL Lab Sample ID:1652-1

Sample wt/vol: 5.00 (g/ml) G Lab File ID: G8762

Level: (low/med) LOW Date Received: 5/09/94

% Moisture: not dec. 15 Date Analyzed: 5/14/94

GC Column:RTX-502 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:0 (uL) Soil Aliquot Volume:0 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12.	U
74-83-9	Bromomethane	12.	U
75-01-4	Vinyl chloride	12.	U
75-00-3	Chloroethane	12.	U
75-09-2	Methylene chloride	12.	U
67-64-1	Acetone	12.	U
75-15-0	Carbon Disulfide	12.	U
75-35-4	1,1-Dichloroethene	12.	U
75-34-3	1,1-Dichloroethane	12.	U
156-60-5	trans-1,2-Dichloroethene	12.	U
67-66-3	Chloroform	12.	U
107-06-2	1,2-Dichloroethane	12.	U
78-93-3	2-Butanone	12.	U
156-59-2	cis-1,2-Dichloroethene	52.	
71-55-6	1,1,1-Trichloroethane	29.	
56-23-5	Carbon tetrachloride	12.	U
75-27-4	Bromodichloromethane	12.	U
78-87-5	1,2-Dichloropropane	12.	U
10061-01-5	cis-1,3-Dichloropropene	12.	U
79-01-6	Trichloroethene	160.	
124-48-1	Dibromochloromethane	12.	U
79-00-5	1,1,2-Trichloroethane	12.	U
71-43-2	Benzene	12.	U
50061-02-6	trans-1,3-Dichloropropene	12.	U
75-25-2	Bromoform	12.	U
108-10-1	4-Methyl-2-Pentanone	12.	U
591-78-6	2-Hexanone	12.	U
127-18-4	Tetrachloroethene	12.	U
79-34-5	1,1,2,2-Tetrachloroethane	12.	U
108-88-3	Toluene	12.	U
108-90-7	Chlorobenzene	12.	U
100-41-4	Ethylbenzene	12.	U
100-42-5	Styrene	12.	U
108-38-3	(m+p)Xylene	12.	U
95-47-6	o-Xylene	12.	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SS107

Lab Name: GENERAL TESTING Contract: H & A

Lab Code: 10145 Case No.: SAS No.: SDG No.: SSTB1

Matrix: (soil/water) SOIL Lab Sample ID: 1652-1

Sample wt/vol: 5.00 (g/ml) G Lab File ID: G8762

Level: (low/med) LOW Date Received: 5/09/94

% Moisture: not dec. 15 Date Analyzed: 5/14/94

GC Column: RTX-502 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 0 (uL) Soil Aliquot Volume: 0 (uL)

CONCENTRATION UNITS:
Number TICs Found: 1 (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	3.09	180.	JB
2.				
3.				
4.				
5.				
6.				
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General Testing Corporation

Job #: R94/01652

SECTION D

SURROGATE SUMMARY

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSTB1

	EPA SAMPLE NO.	SMC1 (TOL)#	SMC2 (BFB)#	SMC3 (DCE)#	OTHER	TOT OUT
01	SSTB1	100	88	94		0
02	VBLK1	102	88	94		0
03						
04						
05						
06						
07						
08						
09						
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		QC LIMITS
SMC1 (TOL)	= Toluene-d8	(88-110)
SMC2 (BFB)	= Bromofluorobenzene	(86-115)
SMC3 (DCE)	= 1,2-Dichloroethane-d4	(76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSTB1

Level:(low/med) LOW

	EPA SAMPLE NO.	SMC1 (TOL)#	SMC2 (BFB)#	SMC3 (DCE)#	OTHER	TOT OUT
01	SS101	106	95	98		0
02	SS102	107	93	103		0
03	SS105	103	94	104		0
04	SS105DL	101	98	102		0
05	SS105MS	106	90	106		0
06	SS105MSD	110	89	101		0
07	SS107	107	93	99		0
08	VBLK3	100	98	100		0
09	VBLK3MS	98	98	100		0
10						
11						
12						
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		QC LIMITS
SMC1 (TOL)	= Toluene-d8	(84-138)
SMC2 (BFB)	= Bromofluorobenzene	(59-113)
SMC3 (DCE)	= 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSTB1

Level:(low/med) MED

	EPA SAMPLE NO.	SMC1 (TOL)#	SMC2 (BFB)#	SMC3 (DCE)#	OTHER	TOT OUT
01	SS102DL	99	87	94		0
02	SS102DLMS	100	88	95		0
03	SS102DLMSD	101	90	93		0
04	VBLK2	102	87	93		0
05	VBLK2MS	101	88	92		0
06						
07						
08						
09						
10						
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		QC LIMITS
SMC1 (TOL)	= Toluene-d8	(84-138)
SMC2 (BFB)	= Bromofluorobenzene	(59-113)
SMC3 (DCE)	= 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

General Testing Corporation

Job #: R94/01652

SECTION E

MS/MSD

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: GENERAL TESTING   Contract: H & A

Lab Code: 10145   Case No.:   SAS No.:   SDG No.: SSTB1

Matrix Spike - EPA Sample No.: SS102DL   Level:(low/med) MED

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
1,1-Dichloroethene	7300.	0.	6900.	95	59-172
Trichloroethene	7300.	1500.	8500.	96	62-137
Benzene	7300.	0.	7100.	97	66-142
Toluene	7300.	0.	6800.	93	59-139
Chlorobenzene	7300.	0.	7000.	96	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	7300.	6700.	92	3	22	59-172
Trichloroethene	7300.	8600.	97	1	24	62-137
Benzene	7300.	7000.	96	1	21	66-142
Toluene	7300.	7000.	96	3	21	59-139
Chlorobenzene	7300.	7200.	99	3	21	60-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS:

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSTB1

Matrix Spike - EPA Sample No.: SS105 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
1,1-Dichloroethene	57.	5.	76.	125	59-172
Trichloroethene	57.	300.	350.	88	62-137
Benzene	57.	0.	58.	102	66-142
Toluene	57.	0.	61.	107	59-139
Chlorobenzene	57.	0.	60.	105	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	57.	77.	126	1	22	59-172
Trichloroethene	57.	380.	140*	46*	24	62-137
Benzene	57.	62.	109	7	21	66-142
Toluene	57.	66.	116	8	21	59-139
Chlorobenzene	57.	63.	111	6	21	60-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 1 out of 5 outside limits
Spike Recovery: 1 out of 10 outside limits

COMMENTS:

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSTB1

Matrix Spike - EPA Sample No.: VBLK2 Level:(low/med) MED

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
1,1-Dichloroethene	6200.	0.	6200.	100	59-172
Trichloroethene	6200.	0.	5900.	95	62-137
Benzene	6200.	0.	6200.	100	66-142
Toluene	6200.	0.	6100.	98	59-139
Chlorobenzene	6200.	0.	6200.	100	60-133

\# Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 5 outside limits

COMMENTS:

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK2MS

Lab Name:GENERAL TESTING   Contract:H & A

Lab Code:10145   Case No.:   SAS No.:   SDG No.:SSTB1

Matrix: (soil/water) SOIL   Lab Sample ID:BLANK SPIKE

Sample wt/vol: 4.00 (g/ml) ML   Lab File ID: E9318

Level: (low/med) MED   Date Received: / /

% Moisture: not dec. 0   Date Analyzed: 5/16/94

GC Column:RTX-502 ID: 0.53 (mm)   Dilution Factor: 1.0

Soil Extract Volume:10000.00 (uL)   Soil Aliquot Volume: 100.0 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1200.	U
74-83-9	Bromomethane	1200.	U
75-01-4	Vinyl chloride	1200.	U
75-00-3	Chloroethane	1200.	U
75-09-2	Methylene chloride	1200.	U
67-64-1	Acetone	1200.	U
75-15-0	Carbon Disulfide	1200.	U
75-35-4	1,1-Dichloroethene	6200.	
75-34-3	1,1-Dichloroethane	1200.	U
156-60-5	trans-1,2-Dichloroethene	1200.	U
67-66-3	Chloroform	1200.	U
107-06-2	1,2-Dichloroethane	1200.	U
78-93-3	2-Butanone	1200.	U
156-59-2	cis-1,2-Dichloroethene	1200.	U
71-55-6	1,1,1-Trichloroethane	1200.	U
56-23-5	Carbon tetrachloride	1200.	U
75-27-4	Bromodichloromethane	1200.	U
78-87-5	1,2-Dichloropropane	1200.	U
10061-01-5	cis-1,3-Dichloropropene	1200.	U
79-01-6	Trichloroethene	5900.	
124-48-1	Dibromochloromethane	1200.	U
79-00-5	1,1,2-Trichloroethane	1200.	U
71-43-2	Benzene	6200.	
50061-02-6	trans-1,3-Dichloropropene	1200.	U
75-25-2	Bromoform	1200.	U
108-10-1	4-Methyl-2-Pentanone	1200.	U
591-78-6	2-Hexanone	1200.	U
127-18-4	Tetrachloroethene	1200.	U
79-34-5	1,1,2,2-Tetrachloroethane	1200.	U
108-88-3	Toluene	6100.	
108-90-7	Chlorobenzene	6200.	
100-41-4	Ethylbenzene	1200.	U
100-42-5	Styrene	1200.	U
108-38-3	(m+p)Xylene	1200.	U
95-47-6	o-Xylene	1200.	U

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: GENERAL TESTING   Contract: H & A

Lab Code: 10145   Case No.:   SAS No.:   SDG No.: SSTB1

Matrix Spike - EPA Sample No.: VBLK3   Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
1,1-Dichloroethene	50.	0.	64.	128	59-172
Trichloroethene	50.	0.	50.	100	62-137
Benzene	50.	0.	52.	104	66-142
Toluene	50.	0.	52.	104	59-139
Chlorobenzene	50.	0.	53.	106	60-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 5 outside limits

COMMENTS:

VOLATILE ORGANICS ANALYSIS DATA SHEET

VBLK3MS

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSTB1

Matrix: (soil/water) SOIL Lab Sample ID:BLANK SPIKE

Sample wt/vol: 5.00 (g/ml) G Lab File ID: G8755

Level: (low/med) LOW Date Received: / /

% Moisture: not dec. 0 Date Analyzed: 5/14/94

GC Column:RTX-502 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:0 (uL) Soil Aliquot Volume:0 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene chloride	10.	U
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	10.	U
75-35-4	1,1-Dichloroethene	64.	
75-34-3	1,1-Dichloroethane	10.	U
156-60-5	trans-1,2-Dichloroethene	10.	U
67-66-3	Chloroform	10.	U
107-06-2	1,2-Dichloroethane	10.	U
78-93-3	2-Butanone	10.	U
156-59-2	cis-1,2-Dichloroethene	10.	U
71-55-6	1,1,1-Trichloroethane	10.	U
56-23-5	Carbon tetrachloride	10.	U
75-27-4	Bromodichloromethane	10.	U
78-87-5	1,2-Dichloropropane	10.	U
10061-01-5	cis-1,3-Dichloropropene	10.	U
79-01-6	Trichloroethene	50.	
124-48-1	Dibromochloromethane	10.	U
79-00-5	1,1,2-Trichloroethane	10.	U
71-43-2	Benzene	52.	
50061-02-6	trans-1,3-Dichloropropene	10.	U
75-25-2	Bromoform	10.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	10.	U
79-34-5	1,1,2,2-Tetrachloroethane	10.	U
108-88-3	Toluene	52.	
108-90-7	Chlorobenzene	53.	
100-41-4	Ethylbenzene	10.	U
100-42-5	Styrene	10.	U
108-38-3	(m+p)Xylene	10.	U
95-47-6	o-Xylene	10.	U

General Testing Corporation

Job #: R94/01652

SECTION F

BLANK DATA

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK1

Lab Name:GENERAL TESTING　　Contract:H & A

Lab Code:10145　　Case No.:　　SAS No.:　　SDG No.:SSTB1

Lab File ID:E9316　　Lab Sample ID:METHOD BLANK

Date Analyzed: 5/16/94　　Time Analyzed:1947

GC Column:RTX-502　　ID: 0.53 (mm)　　Heated Purge: (Y/N) N

Instrument ID:MS5

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	SSTB1	1652-4	E9319	2135
02				
03				
04				
05				
06				
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COMMENTS:

VOLATILE ORGANICS ANALYSIS DATA SHEET

VBLK1

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSTB1

Matrix: (soil/water) WATER Lab Sample ID:METHOD BLANK

Sample wt/vol: 5.00 (g/ml) ML Lab File ID: E9316

Level: (low/med) LOW Date Received: / /

% Moisture: not dec. Date Analyzed: 5/16/94

GC Column:RTX-502 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:0 (uL) Soil Aliquot Volume:0 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene chloride	10.	U
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	10.	U
75-35-4	1,1-Dichloroethene	10.	U
75-34-3	1,1-Dichloroethane	10.	U
156-60-5	trans-1,2-Dichloroethene	10.	U
67-66-3	Chloroform	10.	U
107-06-2	1,2-Dichloroethane	10.	U
78-93-3	2-Butanone	10.	U
156-59-2	cis-1,2-Dichloroethene	10.	U
71-55-6	1,1,1-Trichloroethane	10.	U
56-23-5	Carbon tetrachloride	10.	U
75-27-4	Bromodichloromethane	10.	U
78-87-5	1,2-Dichloropropane	10.	U
10061-01-5	cis-1,3-Dichloropropene	10.	U
79-01-6	Trichloroethene	10.	U
124-48-1	Dibromochloromethane	10.	U
79-00-5	1,1,2-Trichloroethane	10.	U
71-43-2	Benzene	10.	U
50061-02-6	trans-1,3-Dichloropropene	10.	U
75-25-2	Bromoform	10.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	10.	U
79-34-5	1,1,2,2-Tetrachloroethane	10.	U
108-88-3	Toluene	10.	U
108-90-7	Chlorobenzene	10.	U
100-41-4	Ethylbenzene	10.	U
100-42-5	Styrene	10.	U
108-38-3	(m+p)Xylene	10.	U
95-47-6	o-Xylene	10.	U

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

VBLK1

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSTB1

Matrix: (soil/water) WATER Lab Sample ID:METHOD BLANK

Sample wt/vol: 5.00 (g/ml) ML Lab File ID: E9316

Level: (low/med) LOW Date Received: / /

% Moisture: not dec. Date Analyzed: 5/16/94

GC Column:RTX-502 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:0 (uL) Soil Aliquot Volume:0 (uL)

Number TICs Found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE METHOD BLANK SUMMARY

VBLK2

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSTB1

Lab File ID:E9317 Lab Sample ID:METHOD BLANK

Date Analyzed: 5/16/94 Time Analyzed:2023

GC Column:RTX-502 ID: 0.53 (mm) Heated Purge: (Y/N) N

Instrument ID:MS5

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	SS102DL	1652-3DL	E9320	2218
02	SS102DLMS	1652-3DLMS	E9321	2257
03	SS102DLMSD	1652-3DLMSD	E9322	2332
04	VBLK2MS	BLANK SPIKE	E9318	2100
05				
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COMMENTS:

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK2

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSTB1

Matrix: (soil/water) SOIL Lab Sample ID:METHOD BLANK

Sample wt/vol: 4.00 (g/ml) G Lab File ID: E9317

Level: (low/med) MED Date Received: / /

% Moisture: not dec. 0 Date Analyzed: 5/16/94

GC Column:RTX-502 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:10000.00 (uL) Soil Aliquot Volume: 100.0 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1200.	U
74-83-9	Bromomethane	1200.	U
75-01-4	Vinyl chloride	1200.	U
75-00-3	Chloroethane	1200.	U
75-09-2	Methylene chloride	1200.	U
67-64-1	Acetone	1200.	U
75-15-0	Carbon Disulfide	1200.	U
75-35-4	1,1-Dichloroethene	1200.	U
75-34-3	1,1-Dichloroethane	1200.	U
156-60-5	trans-1,2-Dichloroethene	1200.	U
67-66-3	Chloroform	1200.	U
107-06-2	1,2-Dichloroethane	1200.	U
78-93-3	2-Butanone	1200.	U
156-59-2	cis-1,2-Dichloroethene	1200.	U
71-55-6	1,1,1-Trichloroethane	1200.	U
56-23-5	Carbon tetrachloride	1200.	U
75-27-4	Bromodichloromethane	1200.	U
78-87-5	1,2-Dichloropropane	1200.	U
10061-01-5	cis-1,3-Dichloropropene	1200.	U
79-01-6	Trichloroethene	1200.	U
124-48-1	Dibromochloromethane	1200.	U
79-00-5	1,1,2-Trichloroethane	1200.	U
71-43-2	Benzene	1200.	U
50061-02-6	trans-1,3-Dichloropropene	1200.	U
75-25-2	Bromoform	1200.	U
108-10-1	4-Methyl-2-Pentanone	1200.	U
591-78-6	2-Hexanone	1200.	U
127-18-4	Tetrachloroethene	1200.	U
79-34-5	1,1,2,2-Tetrachloroethane	1200.	U
108-88-3	Toluene	1200.	U
108-90-7	Chlorobenzene	1200.	U
100-41-4	Ethylbenzene	1200.	U
100-42-5	Styrene	1200.	U
108-38-3	(m+p)Xylene	1200.	U
95-47-6	o-Xylene	1200.	U

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

VBLK2

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSTB1

Matrix: (soil/water) SOIL Lab Sample ID:METHOD BLANK

Sample wt/vol: 4.00 (g/ml) G Lab File ID: E9317

Level: (low/med) MED Date Received: / /

% Moisture: not dec. 0 Date Analyzed: 5/16/94

GC Column:RTX-502 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:10000.00 (uL) Soil Aliquot Volume: 100.0 (uL)

Number TICs Found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE METHOD BLANK SUMMARY

VBLK3

Lab Name: GENERAL TESTING   Contract: H & A

Lab Code: 10145   Case No.:   SAS No.:   SDG No.: SSTB1

Lab File ID: G8754   Lab Sample ID: METHOD BLANK

Date Analyzed: 5/14/94   Time Analyzed: 1021

GC Column: RTX-502   ID: 0.53 (mm)   Heated Purge: (Y/N) Y

Instrument ID: MS#3

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	SS101	1652-5	G8761	1605
02	SS102	1652-3	G8760	1529
03	SS105	1652-2	G8757	1337
04	SS105DL	1652-2DL	G8763	1806
05	SS105MS	1652-2MS	G8758	1414
06	SS105MSD	1652-2MSD	G8759	1452
07	SS107	1652-1	G8762	1642
08	VBLK3MS	BLANK SPIKE	G8755	1105
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COMMENTS:

VOLATILE ORGANICS ANALYSIS DATA SHEET

VBLK3

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSTB1

Matrix: (soil/water) SOIL Lab Sample ID:METHOD BLANK

Sample wt/vol: 5.00 (g/ml) G Lab File ID: G8754

Level: (low/med) LOW Date Received: / /

% Moisture: not dec. 0 Date Analyzed: 5/14/94

GC Column:RTX-502 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:0 (uL) Soil Aliquot Volume:0 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene chloride	10.	U
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	10.	U
75-35-4	1,1-Dichloroethene	10.	U
75-34-3	1,1-Dichloroethane	10.	U
156-60-5	trans-1,2-Dichloroethene	10.	U
67-66-3	Chloroform	10.	U
107-06-2	1,2-Dichloroethane	10.	U
78-93-3	2-Butanone	10.	U
156-59-2	cis-1,2-Dichloroethene	10.	U
71-55-6	1,1,1-Trichloroethane	10.	U
56-23-5	Carbon tetrachloride	10.	U
75-27-4	Bromodichloromethane	10.	U
78-87-5	1,2-Dichloropropane	10.	U
10061-01-5	cis-1,3-Dichloropropene	10.	U
79-01-6	Trichloroethene	10.	U
124-48-1	Dibromochloromethane	10.	U
79-00-5	1,1,2-Trichloroethane	10.	U
71-43-2	Benzene	10.	U
50061-02-6	trans-1,3-Dichloropropene	10.	U
75-25-2	Bromoform	10.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	10.	U
79-34-5	1,1,2,2-Tetrachloroethane	10.	U
108-88-3	Toluene	10.	U
108-90-7	Chlorobenzene	10.	U
100-41-4	Ethylbenzene	10.	U
100-42-5	Styrene	10.	U
108-38-3	(m+p)Xylene	10.	U
95-47-6	o-Xylene	10.	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

VBLK3

Lab Name:GENERAL TESTING   Contract:H & A

Lab Code:10145   Case No.:   SAS No.:   SDG No.:SSTB1

Matrix: (soil/water) SOIL   Lab Sample ID:METHOD BLANK

Sample wt/vol: 5.00 (g/ml) G   Lab File ID: G8754

Level: (low/med) LOW   Date Received: / /

% Moisture: not dec. 0   Date Analyzed: 5/14/94

GC Column:RTX-502   ID: 0.53 (mm)   Dilution Factor: 1.0

Soil Extract Volume:0 (uL)   Soil Aliquot Volume:0 (uL)

CONCENTRATION UNITS:

Number TICs Found: 1   (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	3.04	10.	J
2.				
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Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSTB1

ab File ID (Standard):G8753 Date Analyzed: 5/14/94

Instrument ID:MS#3 Time Analyzed:0928

GC Column:RTX-502 ID: 0.53 (mm) Heated Purge: (Y/N) Y

		IS1(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	105600	10.87	540723	12.92	415997	20.08
	UPPER LIMIT	211200	11.37	1081446	13.42	831994	20.58
	LOWER LIMIT	52800	10.37	270362	12.42	207999	19.58
	EPA SAMPLE NO.						
01	VBLK3	90890	10.86	489199	12.94	380954	20.04
02	VBLK3MS	101654	10.88	556603	12.96	432496	20.07
03	SS105	89395	10.94	517552	13.01	382116	20.14
04	SS105MS	86449	10.98	488537	13.05	350474	20.14
05	SS105MSD	89924	10.89	488297	12.97	338880	20.12
06	SS102	85764	10.93	462638	12.99	322069	20.12
07	SS101	89203	10.97	473869	13.04	337009	20.13
08	SS107	84071	10.93	437402	13.02	308493	20.15
09	SS105DL	94509	10.89	519870	12.97	384819	20.15
10							
1							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside of QC limits with an asterisk.
* Values outside of QC limits.

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSTB1

Lab File ID (Standard):E9313 Date Analyzed: 5/16/94

Instrument ID:MS5 Time Analyzed:1749

GC Column:RTX-502 ID: 0.53 (mm) Heated Purge: (Y/N) N

		IS1(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	73592	10.01	303980	11.75	247826	18.16
	UPPER LIMIT	147184	10.51	607960	12.25	495652	18.66
	LOWER LIMIT	36796	9.51	151990	11.25	123913	17.66
	EPA SAMPLE NO.						
01	VBLK1	66479	10.07	277982	11.78	218752	18.19
02	VBLK2	69426	10.07	285787	11.81	229930	18.25
03	VBLK2MS	71545	10.04	290684	11.74	235910	18.16
04	SSTB1	66138	10.10	274903	11.81	223754	18.22
05	SS102DL	70477	10.10	290364	11.81	240706	18.22
06	SS102DLMS	71403	10.04	289089	11.74	243388	18.19
07	SS102DLMSD	69167	10.07	277906	11.78	229500	18.22
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22							

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside of QC limits with an asterisk.
* Values outside of QC limits.

General Testing Corporation

A Full Service Environmental Laboratory

RECEIVED
JUL 01 1994
H & A OF NEW YORK

June 28, 1993

Mr. Denis Conley
H&A of New York
189 North Water Street
Rochester, New York 14604

Re: Project #70372-40 - R94/2018, SDG# SSDUP1

Dear Mr. Conley:

Enclosed you will find a report for the above referenced site. The samples were received on 05/31/94. Six (6) soil samples and one (1) trip blank were analyzed for 91-1 (volatiles).

A detailed case narrative is enclosed identifying any difficulties encountered during analysis. Please review and submit any questions in writing to me. These will be answered promptly by our QA officer.

Thank you for your continued business.

Sincerely,

GENERAL TESTING CORPORATION

Cindy Toomey

Cindy Toomey
Customer Service Representative

Enc.

710 Exchange Street • Rochester, NY 14608 • Tele: (716) 454-3760 • (716) 454-1245
85 Trinity Place • Hackensack, NJ 07601 • Tele: (201) 488-5242 • Fax: (201) 488-6386
435 Lawrence Bell Drive • Amherst, NY 14221 • Tele: (716) 634-0454 • Fax: (716) 634-9019
1201 E. Fayette Street, Suite 42 • Syracuse, NY 13210 • Tele: (315) 471-0936 • Fax: (315) 471-0943

General Testing Corporation

Job #: R94/02018

SAMPLE DATA SUMMARY PACKAGE

SECTION A: NYSDEC Data Package Summary Forms

SECTION B: SDG Narrative

SECTION C: Sample Data

SECTION D: Surrogate Summary

SECTION E: MS/MSD Data

SECTION F: Blank Data

General Testing Corporation

Job #: R94/02018

SECTION A

NYSDEC Data Package Summary Forms

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SAMPLE IDENTIFICATION AND
ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements* NYSDEC 1991 CLP PROTOCOL					
		*VOA GC/MS	*BNA GC/MS	*VOA GC	PCB	*METALS	*OTHER
STANK	R94/2018-1	X					
SS1	R94/2018-2	X					
SS2	R94/2018-3	X					
SS3	R94/2018-4	X					
SS4	R94/2018-5	X					
SSDUP1	R94/2018-6	X					
SSTRIP	R94/2018-7	X					

*Check Appropriate Boxes

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SAMPLE PREPARATION AND ANALYSIS SUMMARY
VOA
ANALYSES

LABORATORY SAMPLE ID	MATRIX	DATE COLLECTED	DATE REC'D AT LAB	LOW LEVEL MED LEVEL	DATE ANALYZED
R94/02018-1	SOIL	05/31/94	05/31/94	LOW	06/04/94
R94/02018-2	SOIL	05/31/94	05/31/94	LOW	06/06/94
R94/02018-3	SOIL	05/31/94	05/31/94	LOW	06/03/94
R94/02018-4	SOIL	05/31/94	05/31/94	LOW	06/04/94
R94/02018-5	SOIL	05/31/94	05/31/94	LOW	06/06/94
R94/02018-6	SOIL	05/31/94	05/31/94	LOW	06/03/94
R94/02018-7	WATER	05/31/94	05/31/94	LOW	06/07/94

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY

ORGANIC ANALYSES

SAMPLE ID	MATRIX	ANALYTICAL PROTOCOL	EXTRACTION METHOD	AUXILARY CLEAN UP	DIL/CONC FACTOR
R94/02018-1	SOIL	91-1			1.0
R94/02018-2	SOIL	91-1			1.0
R94/02018-3	SOIL	91-1			1.0
R94/02018-4	SOIL	91-1			1.0
R94/02018-5	SOIL	91-1			1.0
R94/02018-6	SOIL	91-1			1.0
R94/02018-7	WATER	91-1			1.0

General Testing Corporation

Job #: R94/02018

SECTION B

SDG NARRATIVE

Case Narrative

Client: H & A of New York
Enarc-O RI/FS
SDG#: SSDUP1
GTC Job#: R94/02018

Volatile Organics

Water and soil samples were analyzed for TCL volatile organics by Method 91-1 from the NYSASP 1991. The following samples are associated with SDG# SSDUP1:

EPA Sample ID	GTC Sample ID
STANK	R94/02018-01
STANKDL	-01DL
SSDUP1	-06
SSTRIP	-07
SS1	-02
SS2	-03
SS3	-04
SS4	-05
VBLK1	METHOD BLANK
VBLK2	METHOD BLANK
VBLK3	METHOD BLANK
VBLK2MS	BLANK SPIKE
SS1MS	R94/02018-02MS
SS1MSD	-02MSD

All Tuning criteria for BFB were within limits.

All Initial Calibration criteria were compliant.

All Continuing Calibration Check (CCC) criteria were compliant.

All surrogate compounds were within QC limits for recovery.
All matrix spiking compounds were within QC limits for recovery in the MS/MSD of SS1 (R94/02018-02) and the blank spike VBLK2MS. All % RPD were within limits for the MS/MSD of SS1.

Sample STANK was reanalyzed at a dilution as STANKDL in order to obtain target compound concentrations within the calibration range of the method.

All internal standard areas were within QC limits except for IS3 in sample STANK, however all internal standard areas were within limits for STANKDL.

No other analytical or QC problems were encountered during the analysis of this SDG.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Michael K. Perry

Michael K. Perry
Laboratory Director

6/24/94

Date

General Testing Corporation

Job #: R94/02018

SECTION C

SAMPLE DATA

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

SSDUP1

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSDUP1

Matrix: (soil/water) SOIL Lab Sample ID:2018-6

Sample wt/vol: 5.00 (g/ml) G Lab File ID: G9055

Level: (low/med) LOW Date Received: 5/31/94

% Moisture: not dec. 14 Date Analyzed: 6/03/94

GC Column:RTX-502 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:0 (uL) Soil Aliquot Volume:0 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	---------Chloromethane	12.	U
74-83-9	---------Bromomethane	12.	U
75-01-4	---------Vinyl chloride	12.	U
75-00-3	---------Chloroethane	12.	U
75-09-2	---------Methylene chloride	12.	U
67-64-1	---------Acetone	12.	U
75-15-0	---------Carbon Disulfide	12.	U
75-35-4	---------1,1-Dichloroethene	12.	U
75-34-3	---------1,1-Dichloroethane	12.	U
156-60-5	--------trans-1,2-Dichloroethene	12.	U
67-66-3	---------Chloroform	12.	U
107-06-2	--------1,2-Dichloroethane	12.	U
78-93-3	---------2-Butanone	12.	U
156-59-2	--------cis-1,2-Dichloroethene	12.	U
71-55-6	---------1,1,1-Trichloroethane	12.	U
56-23-5	---------Carbon tetrachloride	12.	U
75-27-4	---------Bromodichloromethane	12.	U
78-87-5	---------1,2-Dichloropropane	12.	U
10061-01-5	------cis-1,3-Dichloropropene	12.	U
79-01-6	---------Trichloroethene	12.	U
124-48-1	--------Dibromochloromethane	12.	U
79-00-5	---------1,1,2-Trichloroethane	12.	U
71-43-2	---------Benzene	12.	U
50061-02-6	------trans-1,3-Dichloropropene	12.	U
75-25-2	---------Bromoform	12.	U
108-10-1	--------4-Methyl-2-Pentanone	12.	U
591-78-6	--------2-Hexanone	12.	U
127-18-4	--------Tetrachloroethene	12.	U
79-34-5	---------1,1,2,2-Tetrachloroethane	12.	U
108-88-3	--------Toluene	12.	U
108-90-7	--------Chlorobenzene	12.	U
100-41-4	--------Ethylbenzene	12.	U
100-42-5	--------Styrene	12.	U
108-38-3	--------(m+p)Xylene	12.	U
95-47-6	---------o-Xylene	12.	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SSDUP1

Lab Name:GENERAL TESTING   Contract:H & A

Lab Code:10145   Case No.:   SAS No.:   SDG No.:SSDUP1

Matrix: (soil/water) SOIL   Lab Sample ID:2018-6

Sample wt/vol: 5.00 (g/ml) G   Lab File ID: G9055

Level: (low/med) LOW   Date Received: 5/31/94

% Moisture: not dec. 14   Date Analyzed: 6/03/94

GC Column:RTX-502   ID: 0.53 (mm)   Dilution Factor: 1.0

Soil Extract Volume:0 (uL)   Soil Aliquot Volume:0 (uL)

Number TICs Found: 1   CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	3.06	110.	J
2.				
3.				
4.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSTRIP

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSDUP1

Matrix: (soil/water) WATER Lab Sample ID:2018-7

Sample wt/vol: 5.00 (g/ml) ML Lab File ID: E9691

Level: (low/med) LOW Date Received: 5/31/94

% Moisture: not dec. Date Analyzed: 6/07/94

GC Column:RTX-502 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:0 (uL) Soil Aliquot Volume:0 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene chloride	10.	U
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	10.	U
75-35-4	1,1-Dichloroethene	10.	U
75-34-3	1,1-Dichloroethane	10.	U
156-60-5	trans-1,2-Dichloroethene	10.	U
67-66-3	Chloroform	3.	J
107-06-2	1,2-Dichloroethane	10.	U
78-93-3	2-Butanone	10.	U
156-59-2	cis-1,2-Dichloroethene	10.	U
71-55-6	1,1,1-Trichloroethane	10.	U
56-23-5	Carbon tetrachloride	10.	U
75-27-4	Bromodichloromethane	10.	U
78-87-5	1,2-Dichloropropane	10.	U
10061-01-5	cis-1,3-Dichloropropene	10.	U
79-01-6	Trichloroethene	10.	U
124-48-1	Dibromochloromethane	10.	U
79-00-5	1,1,2-Trichloroethane	10.	U
71-43-2	Benzene	10.	U
50061-02-6	trans-1,3-Dichloropropene	10.	U
75-25-2	Bromoform	10.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	10.	U
79-34-5	1,1,2,2-Tetrachloroethane	10.	U
108-88-3	Toluene	10.	U
108-90-7	Chlorobenzene	10.	U
100-41-4	Ethylbenzene	10.	U
100-42-5	Styrene	10.	U
108-38-3	(m+p)Xylene	10.	U
95-47-6	o-Xylene	10.	U

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SSTRIP

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSDUP1

Matrix: (soil/water) WATER Lab Sample ID:2018-7

Sample wt/vol: 5.00 (g/ml) ML Lab File ID: E9691

Level: (low/med) LOW Date Received: 5/31/94

% Moisture: not dec. Date Analyzed: 6/07/94

GC Column:RTX-502 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:0 (uL) Soil Aliquot Volume:0 (uL)

Number TICs Found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STANK

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSDUP1

Matrix: (soil/water) SOIL Lab Sample ID:2018-1

Sample wt/vol: 5.00 (g/ml) G Lab File ID: G9063

Level: (low/med) LOW Date Received: 5/31/94

% Moisture: not dec. 93 Date Analyzed: 6/04/94

GC Column:RTX-502 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:0 (uL) Soil Aliquot Volume:0 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	140.	U
74-83-9	Bromomethane	140.	U
75-01-4	Vinyl chloride	140.	U
75-00-3	Chloroethane	140.	U
75-09-2	Methylene chloride	140.	U
67-64-1	Acetone	4400.	E
75-15-0	Carbon Disulfide	140.	U
75-35-4	1,1-Dichloroethene	140.	U
75-34-3	1,1-Dichloroethane	140.	U
156-60-5	trans-1,2-Dichloroethene	140.	U
67-66-3	Chloroform	140.	U
107-06-2	1,2-Dichloroethane	140.	U
78-93-3	2-Butanone	3700.	E
156-59-2	cis-1,2-Dichloroethene	140.	U
71-55-6	1,1,1-Trichloroethane	140.	U
56-23-5	Carbon tetrachloride	140.	U
75-27-4	Bromodichloromethane	140.	U
78-87-5	1,2-Dichloropropane	140.	U
10061-01-5	cis-1,3-Dichloropropene	140.	U
79-01-6	Trichloroethene	140.	U
124-48-1	Dibromochloromethane	140.	U
79-00-5	1,1,2-Trichloroethane	140.	U
71-43-2	Benzene	140.	U
50061-02-6	trans-1,3-Dichloropropene	140.	U
75-25-2	Bromoform	140.	U
108-10-1	4-Methyl-2-Pentanone	140.	U
591-78-6	2-Hexanone	140.	U
127-18-4	Tetrachloroethene	140.	U
79-34-5	1,1,2,2-Tetrachloroethane	140.	U
108-88-3	Toluene	7800.	E
108-90-7	Chlorobenzene	140.	U
100-41-4	Ethylbenzene	140.	U
100-42-5	Styrene	140.	U
108-38-3	(m+p)Xylene	140.	U
95-47-6	o-Xylene	140.	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

STANK

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSDUP1

Matrix: (soil/water) SOIL Lab Sample ID:2018-1

Sample wt/vol: 5.00 (g/ml) G Lab File ID: G9063

Level: (low/med) LOW Date Received: 5/31/94

% Moisture: not dec. 93 Date Analyzed: 6/04/94

GC Column:RTX-502 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:0 (uL) Soil Aliquot Volume:0 (uL)

CONCENTRATION UNITS:
Number TICs Found: 12 (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	3.14	5900.	J
2. 75-18-3	Dimethyl sulfide	6.91	280.	JN
3.	Unknown alkane	20.05	510.	J
4.	Unknown alkane	22.16	1400.	J
5.	Unknown alkane	22.51	520.	J
6.	Unknown	23.51	1100.	J
7.	Unknown alkane	24.10	660.	J
8.	Unknown Hydrocarbon	25.74	2200.	J
9.	Unknown aromatic Hydrocarbon	25.94	1500.	J
10.	Unknown alkane	26.59	5900.	J
11.	Unknown aromatic Hydrocarbon	27.02	910.	J
12.	Unknown	27.39	750.	J
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STANKDL

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSDUP|

Matrix: (soil/water) SOIL Lab Sample ID:2018-1DL

Sample wt/vol: 1.00 (g/ml) G Lab File ID: G9080

Level: (low/med) LOW Date Received: 5/31/94

% Moisture: not dec. 93 Date Analyzed: 6/06/94

GC Column:RTX-502 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:0 (uL) Soil Aliquot Volume:0 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	710.	U
74-83-9	Bromomethane	710.	U
75-01-4	Vinyl chloride	710.	U
75-00-3	Chloroethane	710.	U
75-09-2	Methylene chloride	710.	U
67-64-1	Acetone	14000.	D
75-15-0	Carbon Disulfide	710.	U
75-35-4	1,1-Dichloroethene	710.	U
75-34-3	1,1-Dichloroethane	710.	U
156-60-5	trans-1,2-Dichloroethene	710.	U
67-66-3	Chloroform	710.	U
107-06-2	1,2-Dichloroethane	710.	U
78-93-3	2-Butanone	13000.	D
156-59-2	cis-1,2-Dichloroethene	710.	U
71-55-6	1,1,1-Trichloroethane	710.	U
56-23-5	Carbon tetrachloride	710.	U
75-27-4	Bromodichloromethane	710.	U
78-87-5	1,2-Dichloropropane	710.	U
10061-01-5	cis-1,3-Dichloropropene	710.	U
79-01-6	Trichloroethene	710.	U
124-48-1	Dibromochloromethane	710.	U
79-00-5	1,1,2-Trichloroethane	710.	U
71-43-2	Benzene	710.	U
50061-02-6	trans-1,3-Dichloropropene	710.	U
75-25-2	Bromoform	710.	U
108-10-1	4-Methyl-2-Pentanone	710.	U
591-78-6	2-Hexanone	710.	U
127-18-4	Tetrachloroethene	710.	U
79-34-5	1,1,2,2-Tetrachloroethane	710.	U
108-88-3	Toluene	14000.	D
108-90-7	Chlorobenzene	710.	U
100-41-4	Ethylbenzene	710.	U
100-42-5	Styrene	710.	U
108-38-3	(m+p)Xylene	710.	U
95-47-6	o-Xylene	710.	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

STANKDL

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSDUPI

Matrix: (soil/water) SOIL Lab Sample ID:2018-1DL

Sample wt/vol: 1.00 (g/ml) G Lab File ID: G9080

Level: (low/med) LOW Date Received: 5/31/94

% Moisture: not dec. 93 Date Analyzed: 6/06/94

GC Column:RTX-502 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:0 (uL) Soil Aliquot Volume:0 (uL)

CONCENTRATION UNITS:
Number TICs Found: 12 (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		Unknown	3.14	21000.	DJB
2.		Unknown alkane	19.98	2200.	DJ
3.		Unknown alkane	22.13	6600.	DJ
4.		Unknown alkane	22.45	2100.	DJ
5.		Unknown alkane	24.02	2900.	DJ
6.		Unknown aromatic Hydrocarbon	25.04	1600.	DJ
7.		Unknown alkane	25.32	13000.	DJ
8.		Unknown Hydrocarbon	25.64	8400.	DJ
9.	99-87-6	Benzene, 1-methyl-4-(1-methy	25.83	5400.	DJN
10.		Unknown alkane	26.49	28000.	DJ
11.		Unknown aromatic Hydrocarbon	26.90	3500.	DJ
12.		Unknown	27.28	3300.	DJ
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS1

Lab Name: GENERAL TESTING   Contract: H & A

Lab Code: 10145   Case No.:   SAS No.:   SDG No.: SSDUP1

Matrix: (soil/water) SOIL   Lab Sample ID: 2018-2

Sample wt/vol: 5.00 (g/ml) G   Lab File ID: G9056

Level: (low/med) LOW   Date Received: 5/31/94

% Moisture: not dec. 13   Date Analyzed: 6/03/94

GC Column: RTX-502   ID: 0.53 (mm)   Dilution Factor: 1.0

Soil Extract Volume: 0 (uL)   Soil Aliquot Volume: 0 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11.	U
74-83-9	Bromomethane	11.	U
75-01-4	Vinyl chloride	11.	U
75-00-3	Chloroethane	11.	U
75-09-2	Methylene chloride	11.	U
67-64-1	Acetone	11.	U
75-15-0	Carbon Disulfide	11.	U
75-35-4	1,1-Dichloroethene	11.	U
75-34-3	1,1-Dichloroethane	11.	U
156-60-5	trans-1,2-Dichloroethene	11.	U
67-66-3	Chloroform	11.	U
107-06-2	1,2-Dichloroethane	11.	U
78-93-3	2-Butanone	11.	U
156-59-2	cis-1,2-Dichloroethene	11.	U
71-55-6	1,1,1-Trichloroethane	11.	U
56-23-5	Carbon tetrachloride	11.	U
75-27-4	Bromodichloromethane	11.	U
78-87-5	1,2-Dichloropropane	11.	U
10061-01-5	cis-1,3-Dichloropropene	11.	U
79-01-6	Trichloroethene	11.	U
124-48-1	Dibromochloromethane	11.	U
79-00-5	1,1,2-Trichloroethane	11.	U
71-43-2	Benzene	11.	U
50061-02-6	trans-1,3-Dichloropropene	11.	U
75-25-2	Bromoform	11.	U
108-10-1	4-Methyl-2-Pentanone	11.	U
591-78-6	2-Hexanone	11.	U
127-18-4	Tetrachloroethene	11.	U
79-34-5	1,1,2,2-Tetrachloroethane	11.	U
108-88-3	Toluene	11.	U
108-90-7	Chlorobenzene	11.	U
100-41-4	Ethylbenzene	11.	U
100-42-5	Styrene	11.	U
108-38-3	(m+p)Xylene	11.	U
95-47-6	o-Xylene	11.	U

000017

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SS1

Lab Name:GENERAL TESTING   Contract:H & A

Lab Code:10145   Case No.:   SAS No.:   SDG No.:SSDUP1

Matrix: (soil/water) SOIL   Lab Sample ID:2018-2

Sample wt/vol: 5.00 (g/ml) G   Lab File ID: G9056

Level: (low/med) LOW   Date Received: 5/31/94

% Moisture: not dec. 13   Date Analyzed: 6/03/94

GC Column:RTX-502   ID: 0.53 (mm)   Dilution Factor: 1.0

Soil Extract Volume:0 (uL)   Soil Aliquot Volume:0 (uL)

Number TICs Found: 1   CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	3.06	100.	J
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS2

Lab Name:GENERAL TESTING   Contract:H & A

Lab Code:10145   Case No.:   SAS No.:   SDG No.:SSDUPl

Matrix: (soil/water) SOIL   Lab Sample ID:2018-3

Sample wt/vol: 5.00 (g/ml) G   Lab File ID: G9060

Level: (low/med) LOW   Date Received: 5/31/94

% Moisture: not dec. 16   Date Analyzed: 6/04/94

GC Column:RTX-502   ID: 0.53 (mm)   Dilution Factor: 1.0

Soil Extract Volume:0 (uL)   Soil Aliquot Volume:0 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12.	U
74-83-9	Bromomethane	12.	U
75-01-4	Vinyl chloride	12.	U
75-00-3	Chloroethane	12.	U
75-09-2	Methylene chloride	12.	U
67-64-1	Acetone	12.	U
75-15-0	Carbon Disulfide	12.	U
75-35-4	1,1-Dichloroethene	12.	U
75-34-3	1,1-Dichloroethane	12.	U
156-60-5	trans-1,2-Dichloroethene	12.	U
67-66-3	Chloroform	12.	U
107-06-2	1,2-Dichloroethane	12.	U
78-93-3	2-Butanone	12.	U
156-59-2	cis-1,2-Dichloroethene	12.	U
71-55-6	1,1,1-Trichloroethane	12.	U
56-23-5	Carbon tetrachloride	12.	U
75-27-4	Bromodichloromethane	12.	U
78-87-5	1,2-Dichloropropane	12.	U
10061-01-5	cis-1,3-Dichloropropene	12.	U
79-01-6	Trichloroethene	12.	U
124-48-1	Dibromochloromethane	12.	U
79-00-5	1,1,2-Trichloroethane	12.	U
71-43-2	Benzene	12.	U
50061-02-6	trans-1,3-Dichloropropene	12.	U
75-25-2	Bromoform	12.	U
108-10-1	4-Methyl-2-Pentanone	12.	U
591-78-6	2-Hexanone	12.	U
127-18-4	Tetrachloroethene	12.	U
79-34-5	1,1,2,2-Tetrachloroethane	12.	U
108-88-3	Toluene	12.	U
108-90-7	Chlorobenzene	12.	U
100-41-4	Ethylbenzene	12.	U
100-42-5	Styrene	12.	U
108-38-3	(m+p)Xylene	12.	U
95-47-6	o-Xylene	12.	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SS2

Lab Name: GENERAL TESTING Contract: H & A

Lab Code: 10145 Case No.: SAS No.: SDG No.: SSDUP

Matrix: (soil/water) SOIL Lab Sample ID: 2018-3

Sample wt/vol: 5.00 (g/ml) G Lab File ID: G9060

Level: (low/med) LOW Date Received: 5/31/94

% Moisture: not dec. 16 Date Analyzed: 6/04/94

GC Column: RTX-502 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 0 (uL) Soil Aliquot Volume: 0 (uL)

Number TICs Found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	3.12	230.	J
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS3

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSDUPI

Matrix: (soil/water) SOIL Lab Sample ID:2018-4

Sample wt/vol: 5.00 (g/ml) G Lab File ID: G9061

Level: (low/med) LOW Date Received: 5/31/94

% Moisture: not dec. 14 Date Analyzed: 6/04/94

GC Column:RTX-502 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:0 (uL) Soil Aliquot Volume:0 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12.	U
74-83-9	Bromomethane	12.	U
75-01-4	Vinyl chloride	12.	U
75-00-3	Chloroethane	12.	U
75-09-2	Methylene chloride	12.	U
67-64-1	Acetone	12.	U
75-15-0	Carbon Disulfide	12.	U
75-35-4	1,1-Dichloroethene	12.	U
75-34-3	1,1-Dichloroethane	12.	U
156-60-5	trans-1,2-Dichloroethene	12.	U
67-66-3	Chloroform	12.	U
107-06-2	1,2-Dichloroethane	12.	U
78-93-3	2-Butanone	12.	U
156-59-2	cis-1,2-Dichloroethene	12.	U
71-55-6	1,1,1-Trichloroethane	12.	U
56-23-5	Carbon tetrachloride	12.	U
75-27-4	Bromodichloromethane	12.	U
78-87-5	1,2-Dichloropropane	12.	U
10061-01-5	cis-1,3-Dichloropropene	12.	U
79-01-6	Trichloroethene	12.	U
124-48-1	Dibromochloromethane	12.	U
79-00-5	1,1,2-Trichloroethane	12.	U
71-43-2	Benzene	12.	U
50061-02-6	trans-1,3-Dichloropropene	12.	U
75-25-2	Bromoform	12.	U
108-10-1	4-Methyl-2-Pentanone	12.	U
591-78-6	2-Hexanone	12.	U
127-18-4	Tetrachloroethene	12.	U
79-34-5	1,1,2,2-Tetrachloroethane	12.	U
108-88-3	Toluene	12.	U
108-90-7	Chlorobenzene	12.	U
100-41-4	Ethylbenzene	12.	U
100-42-5	Styrene	12.	U
108-38-3	(m+p)Xylene	12.	U
95-47-6	o-Xylene	12.	U

000021

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SS3

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSDUP|

Matrix: (soil/water) SOIL Lab Sample ID:2018-4

Sample wt/vol: 5.00 (g/ml) G Lab File ID: G9061

Level: (low/med) LOW Date Received: 5/31/94

% Moisture: not dec. 14 Date Analyzed: 6/04/94

GC Column:RTX-502 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:0 (uL) Soil Aliquot Volume:0 (uL)

Number TICs Found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	3.16	160.	J
2.				
3.				
4.				
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000022

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS4

Lab Name: GENERAL TESTING   Contract: H & A

Lab Code: 10145   Case No.:   SAS No.:   SDG No.: SSDUP|

Matrix: (soil/water) SOIL   Lab Sample ID: 2018-5

Sample wt/vol: 5.00 (g/ml) G   Lab File ID: G9077

Level: (low/med) LOW   Date Received: 5/31/94

% Moisture: not dec. 20   Date Analyzed: 6/06/94

GC Column: RTX-502   ID: 0.53 (mm)   Dilution Factor: 1.0

Soil Extract Volume: 0 (uL)   Soil Aliquot Volume: 0 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12.	U
74-83-9	Bromomethane	12.	U
75-01-4	Vinyl chloride	12.	U
75-00-3	Chloroethane	12.	U
75-09-2	Methylene chloride	12.	U
67-64-1	Acetone	12.	U
75-15-0	Carbon Disulfide	12.	U
75-35-4	1,1-Dichloroethene	12.	U
75-34-3	1,1-Dichloroethane	12.	U
156-60-5	trans-1,2-Dichloroethene	12.	U
67-66-3	Chloroform	12.	U
107-06-2	1,2-Dichloroethane	12.	U
78-93-3	2-Butanone	12.	U
156-59-2	cis-1,2-Dichloroethene	12.	U
71-55-6	1,1,1-Trichloroethane	12.	U
56-23-5	Carbon tetrachloride	12.	U
75-27-4	Bromodichloromethane	12.	U
78-87-5	1,2-Dichloropropane	12.	U
10061-01-5	cis-1,3-Dichloropropene	12.	U
79-01-6	Trichloroethene	12.	U
124-48-1	Dibromochloromethane	12.	U
79-00-5	1,1,2-Trichloroethane	12.	U
71-43-2	Benzene	12.	U
50061-02-6	trans-1,3-Dichloropropene	12.	U
75-25-2	Bromoform	12.	U
108-10-1	4-Methyl-2-Pentanone	12.	U
591-78-6	2-Hexanone	12.	U
127-18-4	Tetrachloroethene	12.	U
79-34-5	1,1,2,2-Tetrachloroethane	12.	U
108-88-3	Toluene	12.	U
108-90-7	Chlorobenzene	12.	U
100-41-4	Ethylbenzene	12.	U
100-42-5	Styrene	12.	U
108-38-3	(m+p)Xylene	12.	U
95-47-6	o-Xylene	12.	U

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SS4

Lab Name: GENERAL TESTING   Contract: H & A

Lab Code: 10145   Case No.:   SAS No.:   SDG No.: SSDUP1

Matrix: (soil/water) SOIL   Lab Sample ID: 2018-5

Sample wt/vol: 5.00 (g/ml) G   Lab File ID: G9077

Level: (low/med) LOW   Date Received: 5/31/94

% Moisture: not dec. 20   Date Analyzed: 6/06/94

GC Column: RTX-502   ID: 0.53 (mm)   Dilution Factor: 1.0

Soil Extract Volume: 0 (uL)   Soil Aliquot Volume: 0 (uL)

Number TICs Found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	3.62	1100.	JB
2.				
3.				
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General Testing Corporation

Job #: R94/02018

SECTION D

SURROGATE SUMMARY

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSDUP1

	EPA SAMPLE NO.	SMC1 (TOL)#	SMC2 (BFB)#	SMC3 (DCE)#	OTHER	TOT OUT
01	SSTRIP	108	108	98		0
02	VBLK1	108	108	96		0
03						
04						
05						
06						
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	QC LIMITS
SMC1 (TOL) = Toluene-d8	(88-110)
SMC2 (BFB) = Bromofluorobenzene	(86-115)
SMC3 (DCE) = 1,2-Dichloroethane-d4	(76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSDUP

Level:(low/med) LOW

	EPA SAMPLE NO.	SMC1 (TOL)#	SMC2 (BFB)#	SMC3 (DCE)#	OTHER	TOT OUT
01	SS1	110	87	97		0
02	SS1MS	115	89	96		0
03	SS1MSD	106	89	97		0
04	SS2	113	86	97		0
05	SS3	108	95	96		0
06	SS4	123	78	91		0
07	SSDUP1	105	91	95		0
08	STANK	118	91	95		0
09	STANKDL	111	96	95		0
10	VBLK2	104	96	94		0
11	VBLK2MS	104	96	94		0
12	VBLK3	104	94	92		0
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	QC LIMITS
SMC1 (TOL) = Toluene-d8	(84-138)
SMC2 (BFB) = Bromofluorobenzene	(59-113)
SMC3 (DCE) = 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

General Testing Corporation

Job #: R94/02018

SECTION E

MS/MSD

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name:GENERAL TESTING   Contract:H & A

Lab Code:10145   Case No.:   SAS No.:   SDG No.:SSDUP1

Matrix Spike - EPA Sample No.: SS1   Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
1,1-Dichloroethene	57.	0.	62.	109	59-172
Trichloroethene	57.	0.	56.	98	62-137
Benzene	57.	0.	59.	104	66-142
Toluene	57.	0.	67.	118	59-139
Chlorobenzene	57.	0.	61.	107	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	57.	67.	118	8	22	59-172
Trichloroethene	57.	57.	100	2	24	62-137
Benzene	57.	61.	107	3	21	66-142
Toluene	57.	65.	114	3	21	59-139
Chlorobenzene	57.	62.	109	2	21	60-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS:

000029

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSDUPI

Matrix Spike - EPA Sample No.: VBLK2 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
1,1-Dichloroethene	50.	0.	57.	114	59-172
Trichloroethene	50.	0.	51.	102	62-137
Benzene	50.	0.	53.	106	66-142
Toluene	50.	0.	55.	110	59-139
Chlorobenzene	50.	0.	54.	108	60-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 5 outside limits

COMMENTS:

000030

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK2MS

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSDUP1

Matrix: (soil/water) SOIL Lab Sample ID:BLANK SPIKE

Sample wt/vol: 5.00 (g/ml) G Lab File ID: G9054

Level: (low/med) LOW Date Received: / /

% Moisture: not dec. 0 Date Analyzed: 6/03/94

GC Column:RTX-502 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:0 (uL) Soil Aliquot Volume:0 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene chloride	10.	U
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	10.	U
75-35-4	1,1-Dichloroethene	57.	
75-34-3	1,1-Dichloroethane	10.	U
156-60-5	trans-1,2-Dichloroethene	10.	U
67-66-3	Chloroform	10.	U
107-06-2	1,2-Dichloroethane	10.	U
78-93-3	2-Butanone	10.	U
156-59-2	cis-1,2-Dichloroethene	10.	U
71-55-6	1,1,1-Trichloroethane	10.	U
56-23-5	Carbon tetrachloride	10.	U
75-27-4	Bromodichloromethane	10.	U
78-87-5	1,2-Dichloropropane	10.	U
10061-01-5	cis-1,3-Dichloropropene	10.	U
79-01-6	Trichloroethene	51.	
124-48-1	Dibromochloromethane	10.	U
79-00-5	1,1,2-Trichloroethane	10.	U
71-43-2	Benzene	53.	
10061-02-6	trans-1,3-Dichloropropene	10.	U
75-25-2	Bromoform	10.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	10.	U
79-34-5	1,1,2,2-Tetrachloroethane	10.	U
108-88-3	Toluene	55.	
108-90-7	Chlorobenzene	54.	
100-41-4	Ethylbenzene	10.	U
100-42-5	Styrene	10.	U
108-38-3	(m+p)Xylene	10.	U
95-47-6	o-Xylene	10.	U

000031

General Testing Corporation

Job #: R94/02018

SECTION F

BLANK DATA

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK1

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSDUP1

Lab File ID:E9690 Lab Sample ID:METHOD BLANK

Date Analyzed: 6/07/94 Time Analyzed:1247

GC Column:RTX-502 ID: 0.53 (mm) Heated Purge: (Y/N) N

Instrument ID:MS5

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	SSTRIP	2018-7	E9691	1321
02				
03				
04				
05				
06				
07				
08				
09				
10				
11				
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COMMENTS:

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK1

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSDUP1

Matrix: (soil/water) WATER Lab Sample ID:METHOD BLANK

Sample wt/vol: 5.00 (g/ml) ML Lab File ID: E9690

Level: (low/med) LOW Date Received: / /

% Moisture: not dec. Date Analyzed: 6/07/94

GC Column:RTX-502 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:0 (uL) Soil Aliquot Volume:0 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene chloride	5.	J
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	10.	U
75-35-4	1,1-Dichloroethene	10.	U
75-34-3	1,1-Dichloroethane	10.	U
156-60-5	trans-1,2-Dichloroethene	10.	U
67-66-3	Chloroform	10.	U
107-06-2	1,2-Dichloroethane	10.	U
78-93-3	2-Butanone	10.	U
156-59-2	cis-1,2-Dichloroethene	10.	U
71-55-6	1,1,1-Trichloroethane	10.	U
56-23-5	Carbon tetrachloride	10.	U
75-27-4	Bromodichloromethane	10.	U
78-87-5	1,2-Dichloropropane	10.	U
10061-01-5	cis-1,3-Dichloropropene	10.	U
79-01-6	Trichloroethene	10.	U
124-48-1	Dibromochloromethane	10.	U
79-00-5	1,1,2-Trichloroethane	10.	U
71-43-2	Benzene	10.	U
50061-02-6	trans-1,3-Dichloropropene	10.	U
75-25-2	Bromoform	10.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	10.	U
79-34-5	1,1,2,2-Tetrachloroethane	10.	U
108-88-3	Toluene	10.	U
108-90-7	Chlorobenzene	10.	U
100-41-4	Ethylbenzene	10.	U
100-42-5	Styrene	10.	U
108-38-3	(m+p)Xylene	10.	U
95-47-6	o-Xylene	10.	U

000034

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK1

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSDUP1

Matrix: (soil/water) WATER Lab Sample ID:METHOD BLANK

Sample wt/vol: 5.00 (g/ml) ML Lab File ID: E9690

Level: (low/med) LOW Date Received: / /

% Moisture: not dec. Date Analyzed: 6/07/94

GC Column:RTX-502 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:0 (uL) Soil Aliquot Volume:0 (uL)

Number TICs Found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
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4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK2

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSDUPI

Lab File ID:G9053 Lab Sample ID:METHOD BLANK

Date Analyzed: 6/03/94 Time Analyzed:1907

GC Column:RTX-502 ID: 0.53 (mm) Heated Purge: (Y/N) Y

Instrument ID:MS#3

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	SS1	2018-2	G9056	2105
02	SS1MS	2018-2MS	G9058	2230
03	SS1MSD	2018-2MSD	G9059	2332
04	SS2	2018-3	G9060	0014
05	SS3	2018-4	G9061	0049
06	SSDUP1	2018-6	G9055	2029
07	STANK	2018-1	G9063	0157
08	VBLK2MS	BLANK SPIKE	G9054	1950
09				
10				
11				
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13				
14				
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COMMENTS:

000036

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK2

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSDUP1

Matrix: (soil/water) SOIL Lab Sample ID:METHOD BLANK

Sample wt/vol: 5.00 (g/ml) G Lab File ID: G9053

Level: (low/med) LOW Date Received: / /

% Moisture: not dec. 0 Date Analyzed: 6/03/94

GC Column:RTX-502 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:0 (uL) Soil Aliquot Volume:0 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene chloride	10.	U
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	10.	U
75-35-4	1,1-Dichloroethene	10.	U
75-34-3	1,1-Dichloroethane	10.	U
156-60-5	trans-1,2-Dichloroethene	10.	U
67-66-3	Chloroform	10.	U
107-06-2	1,2-Dichloroethane	10.	U
78-93-3	2-Butanone	10.	U
156-59-2	cis-1,2-Dichloroethene	10.	U
71-55-6	1,1,1-Trichloroethane	10.	U
56-23-5	Carbon tetrachloride	10.	U
75-27-4	Bromodichloromethane	10.	U
78-87-5	1,2-Dichloropropane	10.	U
10061-01-5	cis-1,3-Dichloropropene	10.	U
79-01-6	Trichloroethene	10.	U
124-48-1	Dibromochloromethane	10.	U
79-00-5	1,1,2-Trichloroethane	10.	U
71-43-2	Benzene	10.	U
50061-02-6	trans-1,3-Dichloropropene	10.	U
75-25-2	Bromoform	10.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	10.	U
79-34-5	1,1,2,2-Tetrachloroethane	10.	U
108-88-3	Toluene	10.	U
108-90-7	Chlorobenzene	10.	U
100-41-4	Ethylbenzene	10.	U
100-42-5	Styrene	10.	U
108-38-3	(m+p)Xylene	10.	U
95-47-6	o-Xylene	10.	U

000037

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK2

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSDUP1

Matrix: (soil/water) SOIL Lab Sample ID:METHOD BLANK

Sample wt/vol: 5.00 (g/ml) G Lab File ID: G9053

Level: (low/med) LOW Date Received: / /

% Moisture: not dec. 0 Date Analyzed: 6/03/94

GC Column:RTX-502 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:0 (uL) Soil Aliquot Volume:0 (uL)

CONCENTRATION UNITS:
Number TICs Found: 0 (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
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000038

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK3

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSDUP1

Lab File ID:G9076 Lab Sample ID:METHOD BLANK

Date Analyzed: 6/06/94 Time Analyzed:0952

GC Column:RTX-502 ID: 0.53 (mm) Heated Purge: (Y/N) Y

Instrument ID:MS#3

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	SS4	2018-5	G9077	1039
02	STANKDL	2018-1DL	G9080	1444
03				
04				
05				
06				
07				
08				
09				
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COMMENTS:

000039

VOLATILE ORGANICS ANALYSIS DATA SHEET

VBLK3

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSDUP|

Matrix: (soil/water) SOIL Lab Sample ID:METHOD BLANK

Sample wt/vol: 5.00 (g/ml) G Lab File ID: G9076

Level: (low/med) LOW Date Received: / /

% Moisture: not dec. 0 Date Analyzed: 6/06/94

GC Column:RTX-502 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:0 (uL) Soil Aliquot Volume:0 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene chloride	10.	U
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	10.	U
75-35-4	1,1-Dichloroethene	10.	U
75-34-3	1,1-Dichloroethane	10.	U
156-60-5	trans-1,2-Dichloroethene	10.	U
67-66-3	Chloroform	10.	U
107-06-2	1,2-Dichloroethane	10.	U
78-93-3	2-Butanone	10.	U
156-59-2	cis-1,2-Dichloroethene	10.	U
71-55-6	1,1,1-Trichloroethane	10.	U
56-23-5	Carbon tetrachloride	10.	U
75-27-4	Bromodichloromethane	10.	U
78-87-5	1,2-Dichloropropane	10.	U
10061-01-5	cis-1,3-Dichloropropene	10.	U
79-01-6	Trichloroethene	10.	U
124-48-1	Dibromochloromethane	10.	U
79-00-5	1,1,2-Trichloroethane	10.	U
71-43-2	Benzene	10.	U
50061-02-6	trans-1,3-Dichloropropene	10.	U
75-25-2	Bromoform	10.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	10.	U
79-34-5	1,1,2,2-Tetrachloroethane	10.	U
108-88-3	Toluene	10.	U
108-90-7	Chlorobenzene	10.	U
100-41-4	Ethylbenzene	10.	U
100-42-5	Styrene	10.	U
108-38-3	(m+p)Xylene	10.	U
95-47-6	o-Xylene	10.	U

000040

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

VBLK3

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSDUP1

Matrix: (soil/water) SOIL Lab Sample ID:METHOD BLANK

Sample wt/vol: 5.00 (g/ml) G Lab File ID: G9076

Level: (low/med) LOW Date Received: / /

% Moisture: not dec. 0 Date Analyzed: 6/06/94

GC Column:RTX-502 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:0 (uL) Soil Aliquot Volume:0 (uL)

Number TICs Found: 1 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	3.54	10.	J
2.				
3.				
4.				
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VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: GENERAL TESTING   Contract: H & A

Lab Code: 10145   Case No.:   SAS No.:   SDG No.: SSDUP|

Lab File ID (Standard): E9686   Date Analyzed: 6/07/94

Instrument ID: MS5   Time Analyzed: 0953

GC Column: RTX-502   ID: 0.53 (mm)   Heated Purge: (Y/N) N

		IS1(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	57567	10.20	241011	11.94	204817	18.52
	UPPER LIMIT	115134	10.70	482022	12.44	409634	19.02
	LOWER LIMIT	28784	9.70	120506	11.44	102409	18.02
	EPA SAMPLE NO.						
01	VBLK1	58313	10.20	246489	11.91	188649	18.39
02	SSTRIP	54513	10.14	226779	11.91	176465	18.45
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IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside of QC limits with an asterisk.
* Values outside of QC limits.

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSDUP1

Lab File ID (Standard):G9052 Date Analyzed: 6/03/94

Instrument ID:MS#3 Time Analyzed:1815

GC Column:RTX-502 ID: 0.53 (mm) Heated Purge: (Y/N) Y

		IS1(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	102302	10.93	522799	13.01	403789	20.09
	UPPER LIMIT	204604	11.43	1045598	13.51	807578	20.59
	LOWER LIMIT	51151	10.43	261400	12.51	201895	19.59
	EPA SAMPLE NO.						
01	VBLK2	97329	10.79	532596	12.87	396036	20.07
02	VBLK2MS	97040	10.80	528929	12.89	391631	20.07
03	SSDUP1	84540	10.83	457649	12.92	325678	20.06
04	SS1	80053	10.99	435840	13.10	301915	20.16
05	SS1MS	79419	10.88	416910	12.99	275059	20.17
06	SS1MSD	78042	11.01	440826	13.11	313240	20.18
07	SS2	74045	10.99	381589	13.07	240020	20.19
08	SS3	74489	11.04	398559	13.11	276609	20.22
09	STANK	62349	11.00	339860	13.09	201383*	20.23
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22							

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside of QC limits with an asterisk.
* Values outside of QC limits.

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name:GENERAL TESTING Contract:H & A

Lab Code:10145 Case No.: SAS No.: SDG No.:SSDUP1

Lab File ID (Standard):G9075 Date Analyzed: 6/06/94

Instrument ID:MS#3 Time Analyzed:0847

GC Column:RTX-502 ID: 0.53 (mm) Heated Purge: (Y/N) Y

		IS1(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	123727	10.95	625594	13.04	502262	20.15
	UPPER LIMIT	247454	11.45	1251188	13.54	1004524	20.65
	LOWER LIMIT	61864	10.45	312797	12.54	251131	19.65
	EPA SAMPLE NO.						
01	VBLK3	141759	11.05	826594	13.03	633667	20.05
02	SS4	78076	11.05	487380	13.04	292444	20.05
03	STANKDL	112131	10.93	599469	13.01	414793	20.14
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IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside of QC limits with an asterisk.
* Values outside of QC limits.