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Site No. 826011
County Livingston
Town Lima
Foilable X Yes _____ No
File Name report.ltr~826011.1993-12.Final
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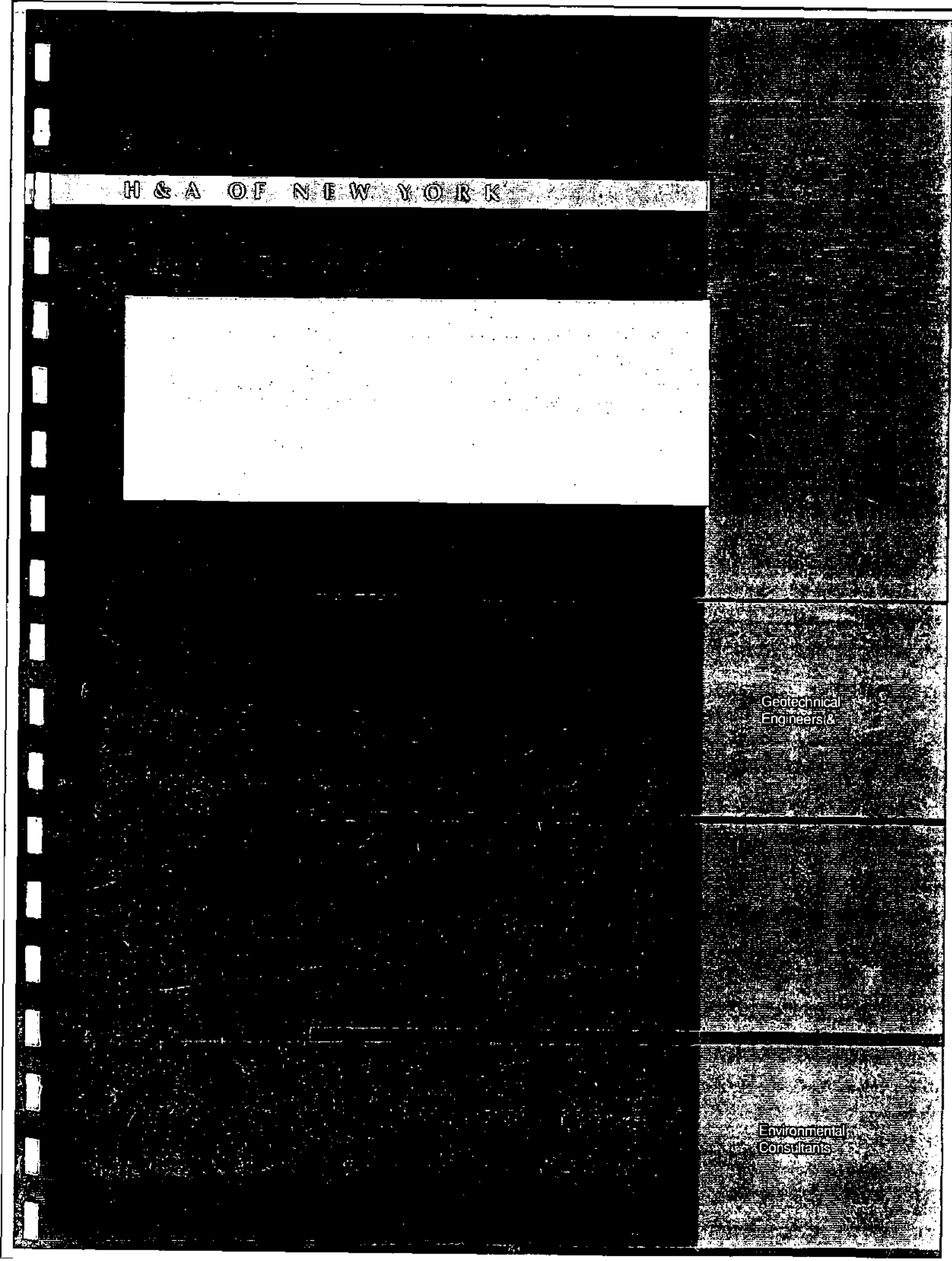


826011

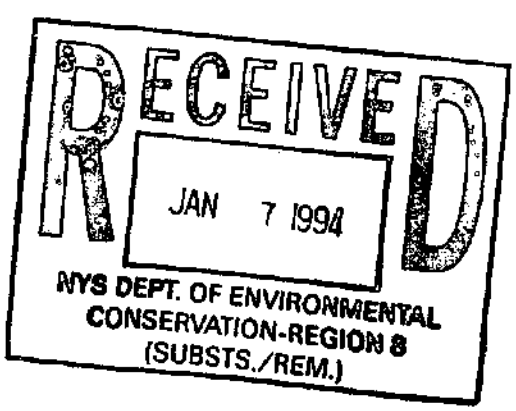
ENARCO RI WORKPLAN

1/94

FINAL
REMEDIAL INVESTIGATION WORK PLAN
ENARC-O MACHINE PRODUCTS, INC.
NYSDEC REGISTRY SITE NO. 8-26-011
LIMA, NEW YORK

Prepared for:

Kaddis Manufacturing Corp.
1100 Beahan Road
Rochester, New York



By:

H&A of New York
189 N. Water Street
Rochester, New York

File No. 70372-40
December 1993

H & A OF NEW YORK

Letter of Transmittal

Geotechnical Engineers &
Environmental Consultants

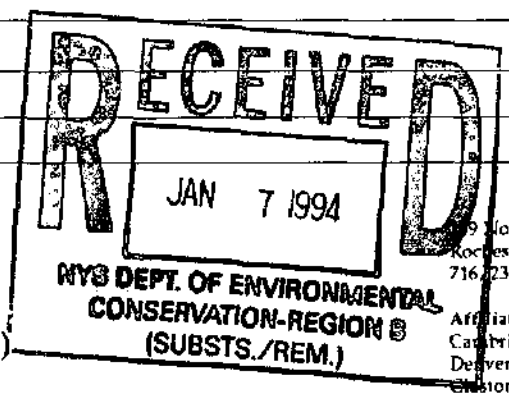
To	NYSDEC - Bureau of Western Remedial Action		4 January 1994
	50 Wolf Road	File Number	70372-40
	Albany, New York 12233-7010	Subject	Enarc-O Machine
Attention	David Chiusano		Site #826011

Copies	Date	Description
6	12/30/93	Final RI Work Plan Enarc-O Machine Corp.
1	---	Revised pages 23, 24 and Table 2

Remarks

In accordance with our phone conversation and your verbal approval of the work plan, enclosed are copies as indicated above. The revised pages 23, 24 and Table 2 are for you to insert in the work plan copy we sent you last week. The six full copies already have the revisions on these pages that you had requested. Distribution of the plan with your requested revisions has been done as shown below.

Please advise when you wish to schedule the public meeting.



Copy To
R. Iannucci, Kaddis Mfg. (1 copy)
W. Helferich, Harter Secrest (1 copy)
G. Bailey, NYSDEC -DEE (1 copy)
J. Craft, NYSDEC - Region 8 (1 copy)
D. Napier, NYSDOH (1 copy)
R. Van Houten, LCHD (1 copy)

Signed Vincent B. Dick

99 North Water Street
Rochester, NY 14604
716/232-7386

Affiliate
Cambridge, Massachusetts
Denver, Colorado
Glastonbury, Connecticut
Silver Spring, Maryland
Scarborough, Maine
Bedford, New Hampshire
Cleveland, Ohio

H & A OF NEW YORK

Geotechnical Engineers &
Environmental Consultants

30 December 1993
File No. 70372-40

Kaddis Manufacturing Corp.
P.O. Box 92985
1100 Beahan Road
Rochester, New York 14692-9085

Attention: Ronald Iannucci, President

Subject: Final RI Work Plan
Enarc-O Machine Products Corp.
Lima, New York

Gentlemen:

We are pleased to submit this Final Work Plan describing performance of a Remedial Investigation of the above-referenced site. This document is based on the Conceptual Work Plan dated 23 October 1992 prepared by H&A of New York as well as NYSDEC comment letters dated 7 December 1992, 9 April 1993, 9 August 1993, and 20 October 1993. Letters by H&A and meetings were used to develop responses which were agreed to by NYSDEC and subsequently incorporated in this Final Plan.

The work plan text describes site background and tasks associated with RI performance. Work plan appendices contain supporting information and related documents including the Quality Assurance Project Plan (QAPP), Health and Safety Plan (HSP), and the Citizen Participation Plan (CPP) for this site.

Copies of the Final Work Plan have been submitted to the State (NYSDEC, NYSDOH) and County (LCHD) offices requested by David Chiusano's letter of 24 December 1992.

Please contact us if you have any questions. Thank you for the opportunity to assist you with this project.

Sincerely yours,
H&A OF NEW YORK

Robert J. Mahoney
Senior Env. Geologist

Vincent B. Dick
Vice President

RJM:VBD:gmc/workplan.wp
xc: D. Chiusano, NYSDEC (7 copies)
G. Bailey, NYSDEC-DEE (1 copy)
J. Craft, NYSDEC (1 copy)
D. Napier, NYSDOH (1 copy)
R. Van Houten, LCHD (1 copy)

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Affiliate
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Cambridge, Massachusetts
Glastonbury, Connecticut
Scarborough, Maine
Bedford, New Hampshire

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1. INTRODUCTION

This Remediation Investigation/Feasibility Study (RI/FS) Work Plan applies to the Enarc-O Machine Products Corporation Property located in Lima, New York (see Figure 1 - Project Locus). The work plan has been prepared in conformance with USEPA "Guidance for Conducting Environmental Investigations and Feasibility Studies under CERCLA." The intent of the work plan is to describe proposed phases of site investigation, and to describe criteria to be used to evaluate remedial activities for the property.

Work under this plan will be performed by Kaddis Manufacturing Corporation (owner of Enarc-O) under an Order-on-Consent with the New York State Department of Environmental Conservation (NYSDEC).

This document provides a summary of relevant existing site information regarding the presence of hazardous substances detected on site and in the surrounding area; describes work and quality assurance procedures necessary to characterize the apparent nature and extent of these compounds in environmental media at and around the site; and identifies procedures to be used for feasible alternatives evaluation, including potential Interim Remedial Measures (IRM) which may be necessary to reduce or eliminate risks determined to result from site compounds.

1.1 SITE LOCATION AND SETTING

Enarc-O Machine Products, Inc. is located on a 6± acre parcel of land located at 1175 Bragg Street in the Town of Lima, Livingston County, New York. Enarc-O Machine Products, Inc. (Enarc-O) is a precision metal machining facility, occupying two buildings on the Enarc-O property (see Figure 2 - Site Plan). One of the Enarc-O buildings is used for office space, manufacturing, and shipping. The main portion of this building was constructed in approximately 1960, with additions constructed in 1964, and 1969 (see Figure 2). The main building is of concrete block construction and is one story in height with the exception of the manufacturing shop area added in 1969. The second building is a single story storage facility located southwest of the main building. The storage facility was constructed approximately in 1964 (see Figure 2).

The Enarc-O facility property is comprised of lawn, paved driveway and gravel-covered parking lot areas.

The Enarc-O property is bordered by rural residential, agricultural, and commercial property. The property is bordered on the north by a residential area along Martin Road and a residential neighborhood north of Martin Road; on the east by lawn of the Crane residence and Honeoye Creek; on the south by an autobody shop and agricultural fields; and on the west by scattered residences on Bragg Street and agricultural fields to the west of Bragg Street.

1.2 PROJECT PURPOSE AND OBJECTIVES

Overall, the intent of the RI/FS is to identify the nature and extent of hazardous substances which may have been released from the Enarc-O facility, determine baseline risks associated with possible exposure to these substances, and to evaluate possible interim and/or ultimate remedial measures that may be needed to reduce or eliminate these risks.

Specific objectives addressed in this document include:

- Determine the nature and extent of hazardous substances (specifically chlorinated volatile organic compounds) at the site.
- Identify potential migration routes of these substances.
- Identify potential exposure routes through which the human, fish, or wildlife populations may be exposed.
- Estimate exposure concentrations that may exist under current or foreseeable future conditions for the exposed populations, and estimate the possible risks associated with those exposures.
- Identify potential interim remedial measures (IRMs) or other remedial measures which should be addressed in a feasibility study to determine remedial measures to be performed on the property.

As is recommended by USEPA guidance (document cited above) this RI/FS work-plan includes a project description, site location, status, and a summary of previous investigations and site history. Further, as recommended, this document identifies project organization and responsibilities (Section III); Project objectives and tasks to meet those objectives (Sections I and IV); and a Quality Assurance Project Plan and Health & Safety Plan (both attached as appendices).

II. SITE HISTORY AND PREVIOUS INVESTIGATIONS

2.1 Site History

The following site history text is summarized from previous documents submitted by O'Brien and Gere and H&A of New York. Also, H&A gives specific responses to comments made by the NYSDEC in their letters regarding this site, dated 2 July 1992 and 7 December 1992. Footnotes identify the sections that directly address NYSDEC comments: [1] denotes the 2 July 1992 letter and [2] the 7 December letter.

Enarc-O Machine Products, Inc. is a machining facility located in the Town of Lima, Livingston County, New York, Figure 1. The facility is approximately one mile southeast of the Village of Honeoye Falls and 400 feet west and south of Honeoye Creek. Enarc-O, owned by Kaddis Corporation, is a manufacturer of swiss screw-machine products.

There are two structures present on site, a production building and a smaller storage building, Figure 2. The area surrounding the facility is predominantly residential, with agricultural lands to the south and west. An auto repair shop is located to the south of the site and reportedly has been operating since the mid 1960s. Located to the east of the property is the former residence of Mr. Wesley P. Crane, founder and previous owner of Enarc-O. Mr. Crane reportedly began manufacturing operations in the basement of his residence in 1954 before moving to a double garage on his property in 1955. The operations were then moved from this garage to the current Enarc-O Machine Products, Inc. property in 1960.

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 are attached (Appendix D) [1].

Past manufacturing activities reportedly occurred on site in a former "acid room". This area was used for a passivation process; an acid etch used to remove free-iron radicals from the surface of newly machined stainless steel parts. 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. H&A has interviewed Enarc-O representatives, but has been unable to determine the former location of the acid room [1].

Solvent use on site has been limited to a vapor degreasing process which removed oil residues from newly machined parts. This entirely contained process re-circulates the cleaning fluids. No reported loss has occurred from this system. Trichloroethene (TCE) was used in this process until 1980, and 1,1,1-trichloroethane (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.

Former and current degreasing operations have been performed on the south side of the east wing of the main building on site (see Figures 7 and 8). One of the degreasers is located on a metal grate over a concrete vault which is depressed approximately 2+/- ft. below slab grade. This specific location has been referred to in past project correspondence as an "open pit" [1].

An underground storage tank containing gasoline was 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 associated analytical results, it was not necessary to remove excavated soil from the site.

Waste cutting oil generated on site was stored in an above ground tank on the east side of the production building (see Figure 2). This tank was also removed in July 1986.

A solvent storage tank was located on the east side of the production building, Figure 2. On June 18, 1985 a small amount (approximately 5 gallons) of TCA 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 then spread out in the parking area, allowing any solvent to volatilize. Enarc-O removed the solvent storage tank in July 1986 and discontinued chlorinated solvent usage.

2.2 Previous Investigations

Subsequent to the above spill, the New York State Department of Health (NYSDOH), NYSDEC and Livingston County Department of Health (LCDOH) collected groundwater samples from a Enarc-O supply well and 35 residential wells. The analytical results indicated the presence of detectable concentrations of volatile organic compounds (VOCs) including TCE, TCA and/or related breakdown products in the Enarc-O well and 21 of 35 residential wells. As a result, access to public water was provided in 1988 to replace the individual well supplies.

In 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 between Kaddis and USEPA was signed. The results of the subsequent investigation, initiated in 1989, were presented in a May 1991 report by O'Brien & Gere. Based on the findings of the investigation, NYSDEC requested that Kaddis prepare a Remedial Investigation/Feasibility Study (RI/FS) work plan to further evaluate and address site conditions.

An RI work plan scoping document was prepared and submitted to NYSDEC by O'Brien & Gere in May 1992. The NYSDEC's subsequent comment letter of 2 July 1992 raised several questions regarding the proposed activities and overall direction of the investigation and requested several modifications.

At the request of Kaddis, H&A reviewed and evaluated the existing site information and previously submitted documents. The results of this review were submitted to Kaddis along with a Conceptual Remedial Investigation Work Plan in a letter dated 23 October 1992. Also submitted were revised interpretations of site top of rock surface and groundwater flow conditions (Figures 3 through 5 of this document).

Samples collected from the facility's effluent outfall 001 on August 24, 1988 indicated detectable concentrations of several volatile compounds (1,2-dichloroethene, chloroform, TCE, and bromodichloromethane). At the time of sampling, the Enarc-O facility was still on their private water source, the supply well. The on site well supplied process water for the facility which exited via the outfall. The compounds detected in the outfall had been previously detected in the supply well or are breakdown products of detected compounds [1].

Results of previous investigations are reproduced in Appendix N of this work plan.

III. PROJECT MANAGEMENT

This section describes responsibilities and procedures which will be used to effectively manage the project. Specific description is provided for personnel organization and responsibility of staff who will be working on the project; anticipated arrangements for site access and permits; anticipated arrangements for subcontracted services; and community relations.

3.1 PERSONNEL ORGANIZATION AND RESPONSIBILITY

H&A of New York will perform the site investigation using a team of hydrogeologists, geologists, environmental scientists and geotechnical engineers experienced in environmental site characterization. The team will consist of an Associate-In-Charge, a Project Task and Field Manager, Quality Assurance Officer, a Health and Safety Representative, and various Task Leaders and field staff. An outline of the project organization and key personnel responsibilities is presented below and shown on Figure 6.

Associate-In-Charge: The H&A Associate-In-Charge, Vincent B. Dick, will have ultimate authority and responsibility for H&A of New York's investigation. He will provide overall supervision of the project to ensure that schedule and budget commitments are met and that the technical work is directed to meeting the project objectives. He will be involved in directing the project team reviewing the results of the study. Mr. Dick's duties will include:

- Meeting project objectives within an established budget and schedule.
- Administering all contractual agreements.
- Assuring that the appropriate staffing level and technical expertise are provided.
- Reviewing deliverables prior to issue.

Project Task and Field Manager: The Project Task and Field Manager, Robert J. Mahoney, is responsible for the management of all work plan task completion. Mr. Mahoney is responsible for the following:

- Coordinate and inform Enarc-O of work status/progress and results.
- Preparing and organizing project work.
- Selecting team personnel and briefing them on specific assignments.
- Coordinating with the task leaders to complete the work planned.
- Completing final reports.
- Establishing safety and equipment requirements that are to be met, reviewing these with the Health and Safety Representatives and monitoring compliance with those requirements.

- Assisting in quality assurance efforts.

Quality Assurance Officer: Stanley E. Walker, P.E. will serve as the Quality Assurance Officer (QAO) for this project. His duties will include review of non-laboratory produced data for:

- Assuring the application and effectiveness of the Quality Assurance Project Plan by the analytical laboratory and the project staff.
- Conducting internal quality checks and performance audits of the investigation activities.
- Providing input to the Associate-In-Charge and Project Task and Field Manager as to corrective actions required resulting from the above-mentioned evaluations.

The QAO will be assisted in these activities by the Data Management Coordinator.

Data Management Coordinator: Management of all laboratory data generated during the investigation will be the responsibility of Denis Conley. Mr. Conley will be in charge of the following:

- Interfacing with the analytical laboratory to assign tests, receive and review results and resolve problems.
- Data validation.
- Overseeing laboratory data entry into a computer database.

Health and Safety Representative: Margaret M. Bonn will serve as the Health & Safety Representative for this project. Ms. Bonn and all H&A personnel who will work on this site have received at least the minimum required OSHA 29 CFR 1910.120 and associated training, and are included in H&A's medical monitoring program.

The Health and Safety Representative will be responsible for safety procedures and operations at the site, and preparation of the project Health and Safety Plan (HSP) including the following:

- Determining the level of personnel protection required for each field activity.
- Updating equipment or procedures based on new information gathered during the site investigation.
- Changing the levels of protection based on site observations.
- Monitoring compliance with the safety requirements. Stopping work as required to protect worker safety or where non-compliance with safety requirements is found.
- Determining and posting emergency telephone numbers (including poison control centers) and routes to medical facilities; arranging for emergency transportation to medical facilities.

- Informing personnel (other than team members) who want access to work areas of the potential hazardous of the site.

- Determining that each team member has been given the proper medical clearance by a qualified medical consultant and monitoring team members to determine compliance with applicable physical requirements as stipulated in the health and safety program.

Task Coordinator: Depending on the task, appropriately experienced personnel will be assigned as Task Coordinators for this project. Duties will consist primarily of facilitating communication and coordinating efforts between the project Task and Field manager and field personnel. Each coordinator will be responsible for ensuring the field procedures are carried out in accordance with this work plan. Any deviations from the work plan that becomes necessary, will be coordinated through the Task Coordinator. The Task Coordinator's duties will include:

- Maintaining flow of field work and data collection.

- Coordinating arrangements with field work subcontractors and owners, where property access has been arranged through Enarc-O.

- Assembling data for review, synthesis and reduction to useable report form.

- Assisting with report and document preparation.

3.2 ACCESS/PERMITS

Access to the project site will be arranged and controlled through Enarc-O Machine Products, Inc. Entrance to the site must be arranged through the Enarc-O facility manager, Bruce Whitmore. Criteria for access for specific work areas is contained in the Health & Safety Plan (Appendix B); in summary, personnel may only be admitted to investigative work areas upon demonstration of acceptable completion of health & safety training under 29 CFR 1910.120, participation in a medical monitoring program, and after review and agreement to follow the project health & safety plan.

Permits or authorization which may be required for performance of the work plan include:

- Utility clearance and stakeout for subsurface explorations.

- Access to selected individual residential properties for examination and potential sampling of residential wells. Such access will be arranged through Enarc-O and NYSDEC with the individual home owners.

- A temporary ("emergency") authorization for a surface water discharge will be required from NYSDECs Division of Water for performance of the pump test. Such arrangements will be made with the Region 8 office of NYSDEC in Avon, New York considering the pump test procedures described in Section 4.7.2.

Limited permits or authorization may be needed for performance of as yet unidentified activities under the IRM and Feasibility Study process. Insofar as specific investigative activities for these general tasks cannot be identified until the remedial investigation is near completion, specific indication of permits or authorizations that may be required cannot be made here. Once the need for such permits or authorizations become apparent they will be reviewed with Enarc-O and NYSDEC.

3.3 SUBCONTRACTING

Anticipated subcontracted services include a drilling subcontractor for subsurface explorations and well installations, and laboratory subcontractor for analytical services.

Several qualified drilling subcontractors capable of performing the exploration work described in this work plan are available in the site vicinity. The specific drilling subcontractor will be selected based on availability of subcontractor equipment, crews, and bid values at the time the services will be required.

An analytical laboratory will be subcontracted based on possession of certification under New York State's Environmental Laboratory Approval Program (ELAP), qualifications and ability to perform the required analyses, and ability of the laboratory to provide services under NYSDEC Analytical Services Protocol (ASP). H&A currently has standing contracts with several labs that are ELAP-certified and capable of performing analyses in accordance with NYSDEC's ASP protocols (e.g. RECRA Environmental, AQUATEC, General Testing Corp.). Upon approval of the work plan, the final analytical program will be submitted to bid by the ELAP/ASP labs to attempt obtaining reasonable, low-priced analytical costs for Enarc-O.

It is currently anticipated that the subcontracted services above will be subcontracted directly to Enarc-O. Contracts for primary subcontracted services (drilling, laboratory) will be arranged directly between Enarc-O and the particular subcontractor. This will avoid administrative costs which might otherwise be born by Enarc-O if such services were subcontracted to H&A of New York. Any technical requirements associated with the subcontracted services, such as but not limited to field direction for drillers, ordering bottle sets from the laboratory, or reviewing invoices for accuracy, will still be performed by H&A. However, the contractual arrangement is intended to be between Enarc-O and the subcontractor, and this results in cost savings to Enarc-O.

3.4 COMMUNITY RELATIONS

Community relations will be performed under the NYSDEC Citizen Participation Plan (see Appendix L). The majority of citizen participation activities described in that plan will be undertaken directly by NYSDEC with support services provided by NYSDOH, LCHD, and, on behalf of Enarc-O, by H&A of New York. The reader is directed to the NYSDEC Citizen Participation Plan for description of specific project contacts and community participation activities. Final copies of reports and information generated by H&A and submitted to NYSDEC will be placed in the document repository described in the Citizen Participation Plan and designated by NYSDEC. Documents and fact sheets generated by NYSDEC will also be placed in the repository by NYSDEC.

IV. PROJECT TASKS

This section presents the tasks to be performed during the Remedial Investigation. The tasks are generally presented in the order they were discussed in H&A's Conceptual Work Plan dated 23 October 1992. Additional tasks have been added based on NYSDEC's comment letter dated 7 December 1992.

4.1 RELATED DOCUMENT PREPARATION

USEPA guidance and NYCRR Part 375 require preparation of the following documents as part of a Remedial Investigation:

Quality Assurance Project Plan (QAPP)
Health and Safety Plan (HSP)
Citizen Participation Plan (CPP)

A QAPP has been prepared and is included in Appendix A of this document.

The project HSP contained in Appendix B was prepared in accordance with 40 CFR 1910.120, and describes measures to be taken to provide for health and safety of site workers and the general public in the site vicinity.

The CPP has been prepared by NYSDEC Central Office with input from NYSDEC Region 8, NYSDOH, LCHD, Enarc-O and H&A. It is included in Appendix L.

4.2 COLLECTION OF WELL CONSTRUCTION DATA

Well construction information for the residential wells and the Enarc-O supply well will be collected and evaluated. H&A will contact Livingston County offices, local well drillers and homeowners to determine the type and detail of well records or logs available. Well construction data such as casing length, well depth, and open interval will be obtained where possible.

A NYSDEC questionnaire will also be used to collect information on residential wells. Information gathered from this questionnaire will be subsequently forwarded to H&A, Enarc-O, NYSDOH, and LCHD for review and evaluation. A copy of the survey form and the list of homes to which the survey will be sent are in Appendix M.

Actual residential wells which will be surveyed and sampled will depend on responses to the questionnaire. In this work plan budgeting has been made for approximately 12 of the residential wells to be included in sampling and other investigative efforts. From previous sampling, 21 of the 38 residential wells in the area had detectable VOCs. By allowing for 12 wells, it is anticipated that an adequate number of wells has been allowed to place monitoring points along the perimeter, as well as within the anticipated affected area. Again, the number 12 is currently an assumption that appears to meet technical needs and provides a basis for budgeting. NYSDEC, NYSDOH, and LCHD will be involved in the decision-making process of the actual wells which will be used.

Field inspection of each well will be performed to measure total well depth (if possible) and determine overall condition of well. Selected residential wells will also be surveyed during the resurvey activities to provide surveyed location, and riser and ground surface elevations (Section 4.3).

The above data will aid H&A in selecting the wells to be sampled (Section 4.3). The criteria H&A will examine include:

- o Results of previous analytical results. H&A will examine results of 1985 and subsequent sampling of wells in the site vicinity.
- o Determination of elevation of open interval. Analytical data from several different depths will provide information about groundwater quality variation with depth.
- o Location of residential well in relation to proposed source area, taking into account area groundwater flow directions.
- o Spatial distribution of selected wells. A representative distribution of wells to be sampled across the study area is needed.
- o General condition of well and possible effect upon sampling activities. Some wells may be inaccessible, capped, plugged, or contain pumps or other equipment that would inhibit sampling or potentially alter results.

Borehole logging of the wells may be performed on some of the residential wells. This will occur if well construction information is unavailable, or further evaluation of the monitoring zone is needed. If logging is necessary, H&A will submit a more detailed scope to Enarc-O and NYSDEC for review.

To the maximum extent possible, existing wells will be used for all investigative work. If a sufficient number of existing wells is not available, then alternate plans involving new off-site wells, or other existing wells, will be developed for review and agreement by Enarc-O, the involved regulatory agencies, and H&A.

4.3 RESURVEY AND PREPARATION OF BASE MAP

Limited ground surface elevation data exists for the Enarc-O site. Because site topography may affect local groundwater flow conditions, a more detailed survey of the site will be performed. In addition, a revised base map will be produced.

Ground surface, top of well casing, and Honeoye Creek streambed elevations will be measured by a licensed surveyor and tied into National Geodetic Vertical Datum (NGVD). All on site monitoring wells, the Enarc-O supply well and accessible residential wells (selected from 4.2 tasks above) will be surveyed. Additional ground surface elevations will be obtained at selected locations to aid in surface topography determination.

Features including property lines, buildings, and paved areas will be included on the base map prepared during this effort. Also, locations of the auto shop located to the south of the facility, and the former Crane residence will be included, as well. Locations for the off-site features (autobody shop and Crane property) will not be surveyed, but will be depicted as accurately as possible from available public record documents.

A staff gauge will be installed in Honeoye Creek to monitor stream level with respect to site groundwater levels, as discussed in Section 4.7.4. The staff gauge will be tied into NGVD datum during the site re-survey.

4.4 EXISTING WELL AND SEPTIC TANK SAMPLING

4.4.1 Previous Sampling Activities

In 1985, 35 residential wells and the Enarc-O supply well were sampled by the NYSDEC, NYSDOH and LCDOH. In January 1991, six monitoring wells were installed on Enarc-O property and subsequently sampled. The residential wells have not been sampled since 1985, and have been out of service since 1988 when public water was provided.

4.4.2 Selection of Residential Wells

Re-sampling of the on-site and selected off-site wells will provide a means of characterizing present groundwater quality conditions at and around the Enarc-O site. Significant changes in groundwater quality may have occurred since residential well use was discontinued and natural gradients have been re-established. Sampling of these wells will provide a representation of static (non-pumping) groundwater quality conditions.

After evaluating site vicinity well information, H&A will determine which residential wells are to be sampled. The criteria for selection are outlined in Section 4.2. H&A will submit the list of wells proposed for sampling, along with the selection rationale, to Enarc-O, NYSDEC, NYSDOH, and LCHD for review prior to sampling.

The need for further evaluation of groundwater quality in the residential area will be determined based upon the results of this groundwater sampling program. If the data indicates significant changes in residential area groundwater quality, the future residential monitoring locations may be reduced or expanded to provide sufficient data to identify possible site impacts.

4.4.3 Groundwater Sampling Procedures

Groundwater samples will be collected from the on-site monitoring wells and supply well, and selected residential wells. The samples will be collected, handled and preserved in accordance with the procedures and requirements detailed in Appendix E. Sample containers, preservatives and coolers will be provided by the contract laboratory, following requirements shown on Table 2. H&A will fill out a Groundwater Sampling

Record form (Appendix C) for each sampling location. A chain-of-custody form (Appendix C) will be completed after sample collection and will accompany samples to the laboratory.

The residential wells have been out of service since 1988, and their present condition is unknown. H&A will evaluate conditions that may affect sampling activities during the field reconnaissance activities of Section 4.2. H&A may have to arrange additional activities to permit sampling such as removing pumps from wells. If access to a well is significantly affected, sampling/purging devices and methods different from those described in Appendix E may be employed for that well. Such methods will be reviewed with NYSDEC and the other involved agencies before implementation.

4.4.4 Laboratory Analysis

Groundwater samples from each well sampled will be analyzed by NYSDEC Method 91-1 for those parameters listed in Table 3. Samples will be analyzed in accordance with the laboratory analytical methods from the New York State Department of Environmental Conservation Analytical Services Protocol (NYSDEC ASP 1991).

Please note that the values listed in Table 3, page 2 are quantitation limits for ASP method 91-1, taken directly from the NYSDEC ASP document. These values are approximately 5 to 10 times the method detection limit for the analytical method, which means detection limits range from 1 to 5 ug/l. The method 91-1 procedure will be used to take advantage of a broader detection range than is possible with a lower detection limit method (ASP 91-4). If, on a second, third, or subsequent round of analysis, it is mutually agreed that a lower detection limit is desirable, then this decision will be made mutually among
Enarc-O, H&A, and the agencies. The revised, lower detection limit method would then be used on only those well(s) where it is appropriate.

4.4.5 Quality Assurance/Quality Control Samples

Trip blanks consisting of 40 ml borosilicate VOA vials filled with ASTM Type II or equivalent water will be supplied by the contract laboratory with each groundwater sample delivery group to be analyzed for volatile organic constituents.

A field duplicate sample will be collected at a frequency of one per ten samples (10% of sample population) for each analytical method and submitted to the contract laboratory. The field duplicate (also referred to as a blind duplicate) sample will be labeled in such a manner that the laboratory will not be able to determine the sample's origin. The sampling date for blind duplicate samples will be provided on the chain-of-custody documents so that the sample holding time can be monitored. The actual sampling locations will be noted on the Groundwater Sampling Record included with the final report.

4.4.6 Deliverables

Laboratory Analytical Data packages to be provided as part of the Enarc-O Remedial Investigation will include Superfund CLP Category Reporting and Deliverables as defined by NYSDEC ASP91 and EPA CLP SOW 3/90. If, after initial rounds of analysis, data development is sufficiently consistent that a simpler deliverable package (such as ASP Category A or B) is appropriate, request may be made, with agency concurrence, to change the reporting and deliverable procedure.

4.4.7 Septic Tank Sampling Procedures

The on-site septic tank will be sampled to determine if solvents were disposed through the septic system. H&A will obtain one sample of solids from the tank using a stainless steel sampling device. The sample will be analyzed for those parameters listed in Table 3. A backhoe may be needed to provide access to the tank. Tank opening will be arranged directly by Enarc-O at the time of sampling [2].

4.4.8 Residential Soil Sampling

NYSDOH requested a minimum of four surface soil samples be obtained within the residential area at mutually-agreed locations for VOC analysis. Accordingly, a total of four samples will be obtained at locations determined by mutual selection (NYSDEC, NYSDOH, Enarc-O, and H&A). One of the samples will be at an agreed-upon background location; the remaining three will be at agreed-upon locations in the residential neighborhood. The samples will be analyzed for VOC compounds only. Please note that detection of VOC parent or daughter products, similar to those at the Enarc-O site, will need to be evaluated to determine that such compounds were not introduced by other activities within the neighborhoods.

4.4.9 Data Validation Procedures

Laboratory analytical data packages will be validated using guidance provided by the "Functional Guidelines for Evaluating Organic and Inorganic Analyses," USEPA 1988. Organic analyses will be reviewed for compliance with the NYSDEC ASP 91 reporting requirements for holding times, calibration frequency and procedures, surrogate and internal standard compound recoveries, method blank analyses and site-specific quality control/quality assurance sample analyses.

4.5 SOIL GAS SURVEY

Work for the Enarc-O Machine Remedial Investigation includes a soil-gas survey which will be performed in two phases. The purpose of the first phase will be to characterize the potential contaminant sources at the former outdoor 1,1,1-trichloroethane storage tank and interior degreaser unit areas presented in Figures 7 and 8. The second phase of the soil gas survey will be expanded outward from the contaminant source area to delineate the potential migration of site contaminants in the subsurface.

4.5.1 Source Area Soil Gas Survey

Source area characterization will be conducted by extracting soil vapor at each location presented in Figure 8. Eight (8) sampling points will be accessed through the interior flooring around the degreaser unit and six sampling points will be established outside the building immediately adjacent to the degreaser unit. Each location will be spaced approximately 10-15 feet apart to establish an initial grid of approximately 900 square feet. Each interior sampling location will be established by drilling through the concrete floor slab with a Bosch Model 11709 27.5 lb. rotary-hammer.

Sampling points in the potential source area will be established using manually-emplaced soil probes using a weighted 40 inch long steel plunger bar and slide-hammer. A detailed soil gas sampling procedure is provided in Appendix F. The depth of the soil gas sampling points will be determined by ability to advance the 40 or 52 inch long steel plunger bars. Given that we are attempting to determine source areas of near surface releases, penetrating to a depth beneath the building slab below the degreaser sump pit is needed. Provided the sub-slab soils are not too dense, either the 40 inch or 52 inch plunger bar should be capable of advancing the hole to the desired target depth.

Soil-gas at each sampling point will be initially screened with a hand-held organic vapor monitoring instrument, Photovac Microtip photo-ionization detector or a Foxboro OVA flame ionization detector. Drager tubes will also be used during initial screening for specific compounds with low Permissible Exposure Limits (PELs) such as vinyl chloride.

Following the initial screen analysis, a tedlar bag sample of soil gas will be collected using the evacuated canister technique detailed in Appendix F. The total organic vapor readings will be recorded in a bound field logbook for health and safety monitoring and used to determine sample injection volumes for on-site gas chromatograph (GC) analyses.

The tedlar bag sample will be analyzed on-site within two hours of collection using a Photovac Model 10S50 portable gas chromatograph equipped with a 10.6 eV photoionization detector lamp for the target analytes listed on Table 4. If interference from non-target analytes (hydrocarbons) is noted, the tedlar bag sample will be transported to the H&A of New York in-house laboratory located in Rochester and will be re-analyzed within 24 hours using a benchtop Hewlett Packard Model 5890 Series II gas chromatograph equipped with a capillary column and flame ionization detector (FID). The HP 5890 GC capillary column and variable oven temperature program will be set up to resolve each target analyte.

Note that the detection limit for 1,1-DCA and 1,1,1-TCA (see Table 4) is limited by the ionization potential of these compounds on a FID detector in the portable GC. Confirmation of non-detects for these alkanes can be done for selected locations using the Hewlett-Packard GC with the FID detector. Therefore, a selected sub-population of samples, including some detects and non detects of these alkanes will be confirmed using the Hewlett-Packard GC.

Each of five sampling location which exhibit highest VOC concentrations will be completed as permanent shield-point monitors. The shield-point monitors will be constructed of an inert porous intake filter connected to high density polypropylene tubing. The shield-point monitor will be advanced to the bottom of the soil probe hole and covered with a sandpack, 1-ft. in length, and sealed by a cement/bentonite surface seal. The permanent shield-point monitors will be used to evaluate changes in soil-gas VOC concentrations over time at the selected locations.

Additional sampling points may be added upon mutual agreement of H&A and the NYSDEC on-site personnel. The criteria that will be used to determine addition of sampling points will include presence of obvious staining, chemical odor, and/or significantly elevated VOC readings.

It is possible for soil vapor points to reflect groundwater level if they penetrate the zone of saturation. However, previous explorations at this site have shown the permanent groundwater table to reside near or below the overburden bedrock interface. Since the soil vapor shield monitoring points will be several feet above this, we don't anticipate significant impact on shield point performance from the saturated zone. If high groundwater inhibits sampling, collection may have to be delayed until dryer weather allows sampling.

Based on soil vapor results, VOC analyses will be performed on five soil samples collected during the source area survey. Samples selected for laboratory submittal will be based on volatile screening readings at the time of sampling. Samples representing high, low, and medium VOC detections will be submitted to the lab in order to obtain a range of laboratory analysis relative to field screening results. Samples will be placed in 8 oz. teflon-lined lid wide-mouth jars for storage and transport to the analytical laboratory.

4.5.2 Delineation Soil Gas Survey

Based on the Source Area Soil Gas Investigation data, an expanded Delineation Soil Gas Survey will be conducted in order to delineate potential migration of site VOCs in the overburden. The delineation soil gas survey is designed to define the lateral and vertical extent of subsurface soil contamination at the former tank/degreasing area, and investigate one other suspected source location. Soil gas sampling locations are shown on Figure 7. As shown, the area of investigation will be concentrated within the area east of the facility building. Additionally, soil vapor survey points will be located adjacent to MW-2 and MW-3 to determine if the elevated chlorinated VOC concentrations detected previously in these two wells is attributable to localized shallow soil contamination or migration via groundwater. Soil vapor samples will be obtained from borings advanced using the Geoprobe, Hydropunch or an equivalent sampling system. Soil vapor samples will be collected at three-foot intervals by advancing a specially designed soil vapor probe ahead of the narrow hollow-stem augers into undisturbed soils. Additional soil vapor boring locations may be selected depending upon the results of the survey and with the agreement of NYSDEC, NYSDOH and LCHD.

Table 4 lists the target analytes for the survey. The same sampling and analysis program followed during the source area investigation will be used for the delineation phase. Initial soil probe holes will be screened with a hand held organic vapor analyzer. On-site analysis of extracted soil vapor will be analyzed within two hours of collection using a portable gas chromatograph. Off-site analyses when required will be performed within 24 hours of sample collection using a bench-top HP5890 Series II GC system.

A slightly modified soil vapor sample point emplacement procedure will be used for the points intended to be placed near the current MW-2 well location. In this area (see Figure 7), two of the five locations will be placed along the east side of the storage building; two locations will be located along the south side of the storage building near the southeast corner. All five locations will be sampled for soil vapor to a shallow depth (40 to 52 inches below current ground surface). The highest VOC detection from the five locations will then be converted to a deep probe soil vapor sample location, to be advanced and sampled to the top of bedrock as described above for other delineation sample points. In the event that VOCs are not detected in any one of the five shallow locations, then the middle location shown at the southeast corner of the building will be advanced and sampled to the top of rock as described above.

Quality Assurance procedures for both the on-site and off-site GC analysis are contained in Appendix A Quality Assurance Project Plan and/or the Soil Gas Standard Operating Procedure in Appendix F.

4.6 ADDITIONAL MONITORING WELL ACTIVITIES

Three new monitoring wells will be installed at the locations shown on Figures 7 and 8. The reasons for these well installations are as follows:

- To allow further definition of known and suspected source area soil, bedrock, and groundwater conditions.
- To allow additional groundwater sampling analysis.
- To allow for future soil vapor extraction in the TCA tank source area, should it be warranted.

4.6.1 Installation of Monitoring Wells

One overburden and one bedrock well will be installed in the source area near the location of the former TCA storage tank (Figures 7 and 8). A bedrock well will also be installed near the former drum storage area, located adjacent to the storage building, Figure 7.

The bedrock wells will be installed with open monitoring intervals in the upper-most water-bearing zone encountered in bedrock. This zone is typically at a depth of 4 to 12-ft. below top of rock, based on water levels observed in the existing on-site wells.

The overburden well will be installed to the top of bedrock to monitor overburden groundwater, if present. The Phase I investigation report indicated little or no overburden groundwater was encountered at the site. However, no monitoring wells were installed to conform this. If no groundwater is encountered by the overburden well, it may be used for future vapor extraction. The need for such extraction will be evaluated following the soil gas survey described in Section 4.5. and as a potential Interim Remedial Measure (IRM - see Section 4.11). Seasonal groundwater elevation fluctuation will also be taken into account while evaluating whether to convert the overburden well to a vapor extraction well. NYSDEC will be involved in this decision. Please note that high vacuum vapor extraction options exist that can extract soil vapor as well as water, if it is present in the screened section.

Test borings will be advanced to the top of bedrock at each monitoring well location prior to well installation. Soil samples will be obtained continuously to allow detailed description of soils and to allow screening for volatile organic compounds. Since the two wells proposed for the TCA tank source area will be located within approximately 15 feet of each other, soil samples are planned to be obtained in only one of these test borings. Additional soil samples may be obtained at the discretion and mutual agreement of NYSDEC and H&A; criteria used to select additional samples will be presence of obvious staining, chemical odor, and/or significantly elevated VOC readings.

Details of the drilling, sampling and well installation methods are described in Appendix G. Schematic diagrams of well construction are shown in Figure 9.

Drilling-related wastes (soil, rock cuttings and drilling fluids) will be containerized on site in NYSDOT approved 55-gallon drums. These materials will be disposed of in accordance with procedures described in Appendix I. In addition, NYSDEC TAGMS for fugitive dust suppression and disposal of cuttings will be followed.

Well construction materials and drilling and sampling equipment will be decontaminated according to procedures described in Appendix H.

Upon completion of well installation, each well will be developed to establish sufficient hydraulic connection with the formation. Well development procedures are presented in Appendix G. An attempt will be made during development to remove a volume of water equal to that lost to the formation during drilling. Development will continue until the criteria described in Appendix G are met.

Hydrogeologic testing in the new wells is described in Section 4.7.

As indicated previously, to the maximum extent possible, existing wells will be used for all investigative work. If a sufficient number of existing wells is not available, then alternate plans involving new off-site wells, or other existing wells, will be developed for review and agreement by Enarc-O, the involved regulatory agencies, and H&A.

4.6.2 Sampling of Monitoring Wells

Upon completion of well drilling and development, groundwater samples will be collected from each new and previously installed monitoring well. Groundwater samples will be collected, handled and preserved in accordance with the procedures and requirements described in Appendix E. Groundwater sample containers, preservatives and sample coolers will be provided by the contract laboratory. Groundwater sampling data will be entered on a Groundwater Sampling Record form (Appendix C) for each sample collected. A chain-of-custody form (Appendix C) will be completed after sample collection and will accompany samples to the laboratory at the end of each day.

At this time, it is anticipated the previously installed monitoring wells (MW-1 through MW-6) will be sampled concurrently with the selected residential wells. It is possible there will be some lag time between sampling of the previous monitoring and residential wells and completion and sampling of the new wells. The project field work will be scheduled to keep this lag time to a minimum. The project schedule is discussed further in Section V shown on Figure 11.

4.6.3 Future Sampling Plan

Upon completion of the Remedial Investigation field work, all analytical data from monitoring and residential well sampling will be reviewed. The RI report will present conclusions regarding groundwater quality and flow. Based on these findings, recommendations will be provided for future groundwater sampling. Enarc-O, H&A and the involved agencies will mutually agree on future sampling plans prior to implementation.

At a minimum, all monitoring wells on the Enarc-O property will be sampled quarterly, beginning with the first quarter following completion of the RI report. In addition, selected off-site residential wells will be included in the quarterly sampling. These wells will be chosen based on the criteria used to choose the initial sampling discussed in Section 4.2. In addition, groundwater flow characteristics identified in the RI report will be considered, to determine which wells will provide data useful in plume characterization.

Sampling will continue to follow procedures discussed in Section 4.4 and Appendix E. Water levels will also be obtained during each sampling round for each of the monitoring and residential wells included in the program.

Laboratory analysis will continue to follow ASP protocol as described in Section 1 of the QAPP. H&A will tabulate and forward data to all parties on the project correspondence distribution list, as it is received. After wells have been sampled once using CLP reporting and deliverables, subsequent sampling rounds will be completed with category A or B sampling and deliverables.

4.7 HYDROGEOLOGIC TESTING

Hydrogeologic testing will be performed to more fully characterize the bedrock with regard to hydraulic conductivity. The testing will consist of water level measurements, rising head permeability testing, stream gauging and a pumping test. The following sections describe these activities.

4.7.1 Water Level Measurements

Water level measurements will be obtained periodically from all on-site monitoring wells, the Enarc-O facility supply well and selected off-site residential wells. The data will be used to construct groundwater contour plans describing groundwater flow both on-site and off-site.

Water level measurements will be measured according to procedures described in Appendix E, using electronic water level indicators. In addition, a pressure transducer system will be installed in a selected well or wells (with NYSDEC concurrence) to provide week-long measurements for comparison to stream level measurement in Honeoye Creek during the same period. This data will allow evaluation of the response of groundwater levels at the site to changes in stream level. Stream level measurement is discussed below in Section 4.7.4.

NYSDEC will have access to the monitoring wells to allow for measurements of groundwater elevations by its own staff. Prior to entering into Enarc-O property, the NYSDEC will give Enarc-O prior notification and obtain verbal approval.

An anticipated schedule for obtaining water levels in as follows:

Time Interval	Well Group(s)	Frequency
1. During Well evaluation Program	• Onsite monitoring wells	• One measurement during sampling
	• Enarc-O supply well	• One measurement during sampling
	• Offsite residential wells	• One measurement during sampling
2. During Drilling Program	• Onsite Wells	• Daily
	• Selected offsite wells	• Weekly
3. During Sampling Program	• Newly installed onsite monitoring wells	• Once daily sampling
4. After Completion of RI	• All onsite wells	• Quarterly
	• Selected offsite residential wells	• Quarterly

4.7.2 Rising Head Permeability Testing

Rising Head Permeability testing will be performed in all new and previously installed onsite monitoring wells. The previously installed wells will be retested to confirm results of the Phase I investigation. Rising head tests provide a measure of hydraulic conductivity of the formation across the monitoring interval of the well. These testing results will provide information on the distribution of hydraulic conductivity, and will be used in conjunction with pump test data and geologic information to describe groundwater flow at the site.

The rising head tests will be performed in accordance with methods described by Hvorslev (1951). A description of the methodology to be used is provided in Appendix J.

4.7.3 Pumping Test

Upon completing the rising head testing, H&A will perform a pump test in one on-site well. To the extent possible from the data generated, the pump test will provide additional information on both on-site and off-site groundwater flow characteristics including transmissivity, storativity, the apparent radius of influence, and permeability values and variation.

The pumping well will be chosen based on hydraulic conductivity results obtained from rising head tests. It is anticipated either the Enarc-O facility supply well or the proposed bedrock monitoring well for the TCA tank source area will be used for pumping. It is likely the Enarc-O supply well is substantially deeper than the site monitoring wells, and also will probably have a much greater yield. Pumping from this well will be more likely to create a response in the offsite residential wells, thereby yielding useful information regarding offsite flow. NYSDEC will be consulted for final approval on selection of the pumping well if it is other than the supply well. Details of the construction of the supply well will be obtained during the well evaluation program.

A detailed description of the pump test procedure is presented in Appendix K, with additional specific details for this site described below. The pump test will be conducted for approximately 48 hours. The anticipated pumping rate is also described below. During the test, water level measurements will be obtained at regular intervals in the pumping well, all onsite monitoring wells, and selected offsite residential wells. This well drawdown data will be recorded and used to determine the bedrock aquifer parameters described above and in Appendix K.

All groundwater discharge from the pump test will be containerized for subsequent characterization and proper disposal. Based on the anticipated volumes of discharge it is likely a tank truck will be required for at least temporary storage and batching prior to discharge. A temporary discharge authorization will be obtained through NYSDEC Region 8 Division of Water as described below.

H&A of New York and NYSDEC Region 8 Division of Water personnel agreed that the pump test would proceed through application and issuance of an Emergency Discharge Authorization. A pump test procedure was worked-out with NYSDEC that consists of the following steps:

- H&A and Enarc-O will correspond directly with the Regional DEC office (Tom Pearson) for application and issuance of the Emergency Authorization.

- The pump test will be structured overall similar to a "step test." Pumping for the first 24 hours of the test will be at a relatively low with water passed through granular activated carbon (GAC). Volatile organic compound concentrations will be determined by sample and analysis at the time of pump test start-up for water entering and exiting the GAC. The initial analysis will be by formal laboratory analysis with rapid turn-around. A split of the initial sample will also be screened (headspace screening) by portable GC to establish a correlating headspace value for volatile organic compound concentrations. Subsequent sampling will be performed at 12 hour intervals and will be GC screened only. The low rate of pumping will continue through the first 24 hours at which time a second sample for laboratory analysis will be obtained. If the level of volatile organic compounds (VOCs) in the extracted water remains the same or decreases, then the pump test rate may be stepped up. If the volatile organic compound level increases, then the test will be stopped to evaluate and agree with NYSDEC personnel whether the test can proceed with additional controls or modified procedures.

- Assuming the VOC levels remain the same or decrease, the stepped-up pump rate will continue for an additional 24 to 48 hours at a rate to attempt stressing the aquifer. Periodic sampling and headspace screening will continue at a frequency of one sample every 12 hours.

- In discussions with Mr. Pearson it was agreed that the Principal Organic Compound limit in TOGS 1.1.1 of 50 ppb would apply to water discharged from the GAC units to Honeoye Creek. The 50 ppb limit would apply to the sum concentration of all detected volatiles. Further, the 50 ppb would be treated as a daily average so that if an excursion above 50 ppb occurs the pumping rate may be modified or pumping ceased to obtain a daily average of 50 ppb.

- Potential well yields, have been estimated to the extent possible, based on discussions with Enarc-O personnel. Current annual usage of water from the public water system (which should approximate average usage of the well when it was in use) ranges from 300,000-gallons per year to 500,000-gallons per year. This equates to a usage rate of 1.7 gpm to 2.9 gpm, based on an 8 hour work day. Enarc-O personnel indicated that a daily maximum use may range up to 4,000 to 5,000 gallons per day. This equates to a potential upper-end pumping rate of 8.3 to 10.4 gpm. Accordingly, the pump test will start out with an initial discharge rate which mimics the daily average based on Enarc-O's annual usage; that is, a pumping rate of approximately 2 to 3 gpm. If, after 24 hours of pumping, total volatile concentrations are less than the 50 ppb criteria, the

pumping rate will be increased as close to 10 gpm as possible to attempt stressing the aquifer, while at the same time attempting to stay within the discharge concentration criteria.

Data collection and reduction will otherwise be performed as described in Appendix K.

4.7.4 Staffing Gauge

Based on preliminary information, if appears groundwater levels at the site respond to fluctuations in the water levels in Honeoye Creek. To determine the relationship between stream and groundwater levels, H&A will obtain measurements of these parameters over specified time-periods.

To obtain accurate measurements of stream levels, a staffing gauge will be constructed (by Enarc-O) in the stream bed of Honeoye Creek at the approximate location shown on Figure 7. NYSDEC will be consulted for agreement on the actual field-selected staff location. The gauge will be capable of measuring water level to the nearest 0.1-ft. The gauge will consist of a stainless steel rod, approximately 1 to 2-in. diameter, with permanent markings in 0.1-ft. increments.

The gauge will be permanently mounted to the bed of the stream, in bedrock, using drilling and grouting or other appropriate techniques. It will be positioned, as possible, such that is will remain partially submerged even during anticipated low-water flow. A mark of known elevation will be fixed on the gauge at the time of the site-wide survey is performed. A schematic diagram of the gauge design is shown on Figure 10.

Measurements will be obtained for each day that field work is being performed on-site. In addition, for one-week periods during spring snowmelt (April/May) and early fall (September/October) a pressure transducer/datalogger system will be installed in selected on-site monitoring wells. Corresponding stream level measurements will be obtained daily during these one-week periods. The data will be used to construct computer-generated hydrographs that will allow direct comparison of stream vs. groundwater elevations changes with time.

4.8 POTENTIAL UTILITY MIGRATION PATHWAY EVALUATION

The source, extent, and possible remedial actions regarding the VOC contamination in water from a Martin Road basement sump must be evaluated as part of the RI.

Potential utility migration pathways which may affect off-site areas will initially be evaluated by review of selected documents and by viewing the residential area north of the Enarc-O facility. Potential utility migration pathways appear to primarily be limited to the water-main installed by USEPA. Documents related to the water-main installation consist of a USEPA contract report documenting the installation and a limited number of plans that may be available through Livingston County and the City of Rochester showing routes of the water main. These documents will be reviewed with respect to installation details (depth of installation, pipe

bedding, routes, and construction methods). These factors will be compared to available topographic maps for the area; the pipe routes will also be walked to view more subtle topographic trends.

Results of the review described above will next be compared to groundwater levels as evidenced in residential wells selected for monitoring within the neighborhood (see Section 4.4 of the work plan). Water-main routes that, as constructed, may constitute a preferential pathway for migration and that have been installed below the water table will then be subjected to additional appropriate evaluation. The scope of the additional evaluation will be developed based on the information available and as mutually agreed upon by NYSDEC, NYSDOH, Enarc-O and H&A.

Regarding the Martin Road residence, specifically, additional evaluation methods will include examination of the house foundation and water utility lines servicing the house. Depending upon the method of migration into the sump, plans to cut-off flow of VOC-containing water will then be developed for implementation by Enarc-O.

4.9 ENVIRONMENTAL RISK ASSESSMENT

A habitat-based environmental assessment will be conducted in accordance with the NYSDEC document "Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites" (June 1991). Based on existing site information, it is anticipated that the assessment will describe the existing environment (step 1); identify potential hazards to habitats and provide an assessment of potential risks from contaminants (step 2); evaluate anticipated remedial measures with respect to their effects on habitats affected by the contaminants (step 3); determine what elements may need to be included in remedial design where mitigation of fish and wildlife impacts is indicated (step 4); and identify monitoring requirements that may be necessary to evaluate the effectiveness of remedial measures under step 4 (step 5). Determination of the need for and level of effort of step 4 and step 5 activities will be made after steps 1 through 3 are completed. Steps 1 through 3 are therefore described below. NYSDEC will be consulted prior to and to assist with the determination whether to perform steps 4 and 5.

Step 1 - Description of Existing Environment

The existing ecology of the site and adjacent off-site areas which could be affected by site-related contaminants will be identified and described in a cover-type map. A discussion of natural resources associated with the site in terms of the vegetative cover type and their associated wildlife populations which are expected to be within the affected areas will be included. Significant habitats, regulated streams, and other resources of significance will be listed. The ecologist will concentrate field characterization activities on the site and on a 0.5-mile zone surrounding the site. Information on dominant vegetation species, cover types, associated wildlife, and the presence of significant habitats (as defined by NYSDEC) will be recorded. The ecologist will also complete a general reconnaissance level survey of fish, wildlife, and cover types, and significant habitat conditions within two miles of the site that are potentially affected by site compounds. The purpose of this survey will be to characterize the presence, location and uses of special resources within the zone. Habitat conditions and characteristics will be derived from existing information, photographs, reports, and maps obtained from the appropriate New

York State, Federal, Local agencies or other sources. Current aquatic habitat and fish population conditions of Honeoye Creek will be based on existing water quality and aquatic life survey data obtained from New York State Division of Fish and Wildlife and USEPA.

Step 2 - Resource Hazard Evaluation

Hydrogeologic information will be used to evaluate whether migration from the Enarc-O site may affect the identified habitats. Results of the sampling and analytical program performed under this work plan will be reviewed considering the chemical fate and transport potential of particular compounds. Potential environmental exposure concentrations for possible receptors will be identified. Evaluation of risks will be performed using hazard thresholds. Hazard thresholds are compound concentrations below which adverse effects are not expected to occur (i.e. acceptable concentrations). The assessment of ecological risk will be determined by comparing detected concentrations at potential receptor points to hazard threshold concentrations described in federal or state established standards, criteria, or guidance values (SCGs). In the absence of the values, hazard thresholds will be derived from the toxicological properties and environmental behavior characteristics of the specific compounds.

If pathways to specific habitats are determined to be absent or estimated receptor concentrations do not exceed hazard thresholds, no further evaluation will be performed.

Step 3 - Evaluate Remedial Measures

Where an exposure pathway and exceedance of hazard threshold has been identified for a particular habitat, potential remedial measures which may be necessary to reduce or eliminate the habitat impact will be identified. Evaluation of specific remedial measures will be performed along with other remedial measure evaluation under the feasibility study (Section 4.12).

4.10 HEALTH RISK ASSESSMENT

A baseline health risk assessment is used to identify potential pathways of exposure for humans, quantitatively estimate the exposures that could occur, and identify risks associated with such exposures. Risks derived from the baseline health risk assessment are used, along with other information, to determine whether remedial measures are needed at the site, and, if so, the quantitative risk estimates are considered in selecting appropriate remedial measures and identifying remedial action objectives.

The risk assessment will be performed in accordance with USEPA "Risk Assessment Guidance for Superfund - Volume 1, Human Health Evaluation Manual (Part A)", the "Superfund Public Health Evaluation Manual", and other selected references describing federal and state SCGs.

Performance of the baseline health risk assessment will be completed as follows:

- Potential chemical compounds of concern at the site will be identified. Identification of site related compounds will be based on site history, analyses of environmental media (soil vapor, groundwater, etc.) on site, and evaluation of the range of detected concentrations of such compounds.

- Potential exposure pathways will be identified. It is currently anticipated that these will particularly include a site soil contact route; a site vapor exposure route into limited-circulation building spaces; an on- and off-site groundwater exposure route; and potentially an off-site vapor exposure route, again to limit-circulation building spaces. Estimates of exposure point concentrations will be developed based on compounds present, their environmental fate and transport properties, concentrations detected, and rate and direction of flow.

- Potential adverse health effects that may be associated with the site chemicals of concern will be identified. Identification will be based on collection of toxicity information for the specific compounds of concern and media in which the potential exposure pathways are determined to exist.

- The toxicity and exposure assessments above will be integrated into a quantitative expression of risk. Risks will be based on current site and vicinity condition and use. Risk will also be evaluated in terms of a Reasonable Maximum Exposure (RME) scenario, based on reasonably anticipated site usage. Estimates of uncertainties embodied in the assessment will also be presented.

4.11 EVALUATION OF IRM/FS ALTERNATIVES

Based on results of the remedial investigation, an evaluation of remedial alternatives will be performed. Based upon investigations already performed at the site, it is anticipated that one or more Interim Remedial Measures (IRMs) or remedial actions developed through a focussed feasibility study may be able to quickly prevent, mitigate, or remedy environmental impacts and identified risks. Potential IRMs or remedial alternatives that could be performed in a focussed feasibility study, and that may be applicable to the site, may include the following:

- Source-area vapor extraction to reduce release of residual VOCs from site soils or high concentrations in groundwater.

- Migration control measures to mitigate migration toward off-site areas.

Therefore, initial FS efforts will be focused on identifying potential IRM or remedial activities under a Focussed Feasibility Study. In the event one or more activities appear warranted, a focussed feasibility study will be performed on the identified measures.

A full scale Feasibility Study (FS) will be undertaken only after evaluation of IRM or focussed feasibility study remedial activities, and to the extent such VOC measures are not able to address identified on- and off-site impact(s). If no activities are identified which may be implementable and risks are deemed to be present as a result of the RI, then a full-scale FS will be performed. FS activities will consist of the following:

- Identification of potential remedial technologies. Technologies will be based on data from the RI including contaminants of concern and media impacted.

- Technologies will be evaluated for site suitability. This pre-screening process will be based on remedy performance records; construction, operation and maintenance problems; applicability to site characteristics; and applicability of site remediation. NYSDEC TAGM 4030 will be used for guidance in this process.

- Suitable technologies will be assembled to alternative remedial measures. Individual or grouped alternatives will be assembled as necessary to address required remediation.

- Assembled remedial alternatives will be run through an initial screening and evaluated based on effectiveness, implementability, and costs. As recommended by USEPA Guidance, at least one containment alternative and the no-action alternative will be carried through the screening process to the detailed evaluation phase (see below).

Detailed evaluation of the remedial alternatives will be performed. The detailed analyses will include evaluation of effectiveness (including degree of protection and ability to eliminate or reduce volume, toxicity, and mobility). In addition, the following criteria will be used in the detailed evaluation process: short term effectiveness; long-term effectiveness and permanence; reduction of toxicity, mobility, and volume; implementability; costs; compliance with applicable or relevant and appropriate requirements (ARARs); overall protection of human health in the environment; agency acceptance; and community acceptance. The factors to be considered in terms of cost include short-term costs, long-term costs, present worth, and replacement costs.

4.12 REMEDIAL INVESTIGATION REPORT

H&A will prepare a Remedial Investigation report upon completion of all previously discussed tasks. The report will summarize the investigation's findings and will include the following components:

- An executive summary briefly summarizing key findings and recommendations for further studies of remedial measures, as appropriate.

- A table of contents outlining the entire report including tables, figures, and appendices.

- A main text describing, in detail, 1) procedures, methods and equipment used to perform the field investigations; 2) conditions at the site based on explorations and testing; 3) conclusions regarding the nature and extent of contamination and risks posed by the contamination at the site; and 4) recommendations for further investigations or interim remediation, as appropriate.

- Tables summarizing data on monitoring, supply, and residential (as possible) well construction, environmental analyses, groundwater elevations and hydrogeologic testing.

- Figures illustrating site features, exploration locations and elevations, including both plan and cross-section views. Figures will also be prepared depicting groundwater flow and quality, based on exploration and analytical data. The figures will be computer-generated using CADD or Intergraph software.

- Appendices containing raw analytical, water level, and hydrogeologic testing data, logs of test borings and well installations, and calculations/tables/graphs, as necessary to support conclusions drawn by the report.

V. SCHEDULE

The anticipated schedule for completion of field activities and submittal of the reports described herein is shown on Figure 11. The estimated time frames shown on this figure may be subject to change due to NYSDEC or other participating agency approval time frame, and actual conditions (weather and subsurface) encountered in the field.

VBD:gmc
70372-40\workplan.wp

Tables

TABLE 1

Enarc-O Machine Products
Remedial Investigation
Analytical Program

	Matrix	No. of Samples	Analysis Required
Offsite residential wells	Aqueous	*	91-1 (TCL)
Offsite residential yards	Soil	4	91-1 (TCL)
On-site monitoring well/supply wells	Aqueous	10	91-1 (TCL)
Source area survey	Vapor Soil	16 5	VOCs (Table 4) 91-1 (TCL)
Delineation survey	Vapor	**	VOCs (Table 4)
Trip blanks	Aqueous	6	91-1 (TCL)

Notes:

1. Method 91-1 NYSDEC Analytical Services Protocol
2. * - No. of samples to be determined during the well construction evaluation.
3. ** - No. of samples to be determined from the results of the source area investigation.
4. TCL - Target Compound List.
5. VOCs - Volatile Organic Compounds listed in Table 4.

vbd:70372-40/tbl1

TABLE 2

Enarc-O Machine Products
Remedial Investigation
Preservation, Holding Times and Volume/Weight Requirements
NYSDEC ASP Rev. December 1991

Parameter	Preservation	Holding Time*	Volume/Weight
Aqueous Volatiles	4°C(+/-2°C) Store in dark	7 days until analysis	80 ml
Soil/Sediment Volatiles	4°C(+/-2°C) Until extraction and analysis	7 days until analysis	20 g**
Vapor Volatiles	---	48 hours	1 l

* From verified time of sample receipt (VTSR)

** Collected in glass 8-ounce jar with septum-sealed lid

vbd:70372:tbl2

TABLE 3

Superfund Target Compound List (TCL) and
Contract Required Quantitation Limits (CRQL)

		Quantitation Limits*			
Volatiles	CAS Number	Water ug/L	Low Soil ug/Kg	Med Soil ug/Kg	On Column (ng)
1. Chloromethane	74-87-3	10	10	1200	(50)
2. Bromomethane	74-83-9	10	10	1200	(50)
3. Vinyl Chloride	75-01-4	10	10	1200	(50)
4. Chloroethane	75-00-3	10	10	1200	(50)
5. Methylene Chloride	75-09-2	10	10	1200	(50)
6. Acetone	67-64-1	10	10	1200	(50)
7. Carbon Disulfide	75-15-0	10	10	1200	(50)
8. 1,1-Dichloroethylene	75-34-4	10	10	1200	(50)
9. 1,1-Dichloroethane	75-35-3	10	10	1200	(50)
10. 1,2-Dichloroethylene(total)	540-59-0	10	10	1200	(50)
11. Chloroform	67-66-3	10	10	1200	(50)
12. 1,2-Dichloroethane	107-06-2	10	10	1200	(50)
13. 2-Butanone	78-93-3	10	10	1200	(50)
14. 1,1,1-Trichloroethane	71-55-6	10	10	1200	(50)
15. Carbon Tetrachloride	56-23-5	10	10	1200	(50)
16. Bromodichloromethane	75-27-4	10	10	1200	(50)
17. 1,2-Dichloropropane	78-87-5	10	10	1200	(50)
18. cis-1,3-Dichloropropene	10061-01-5	10	10	1200	(50)
19. Trichloroethene	79-01-6	10	10	1200	(50)
20. Dibromochloromethane	124-48-1	10	10	1200	(50)
21. 1,1,2-Trichloroethane	79-00-5	10	10	1200	(50)
22. Benzene	71-43-2	10	10	1200	(50)

70372-40

		Quantitation Limits*			
Volatiles	CAS Number	Water ug/L	Low Soil ug/Kg	Med Soil ug/Kg	On Column (ng)
22. Benzene	71-43-2	10	10	1200	(50)
23. trans-1,3-Dichloropropene	10061-02-6	10	10	1200	(50)
24. Bromoform	75-25-2	10	10	1200	(50)
25. 4-Methyl-2-pentanone	108-10-1	10	10	1200	(50)
26. 2-Hexanone	591-78-6	10	10	1200	(50)
27. Tetrachloroethene	127-18-4	10	10	1200	(50)
28. Toluene	108-88-3	10	10	1200	(50)
29. 1,1,2,2-Tetrachloroethane	79-34-5	10	10	1200	(50)
30. Chlorobenzene	108-90-7	10	10	1200	(50)
31. Ethyl Benzene	100-41-4	10	10	1200	(50)
32. Styrene	100-42-5	10	10	1200	(50)
33. Total Xylenes	1330-20-7	10	10	1200	(50)

1. "*"Quantitation Limits listed for soil/sediment are based on wet weight. The quantitation limits calculated by the laboratory for soil/sediment, calculated on dry weight basis, as required by the protocol, will be higher.

2. Table from NYSDEC ASP document (12/91 Revised), Appendix C, Section V, Analytic list for Method 91-1

70372-40

vbd:70372-40:tbl3

TABLE 4

ENARC-O MACHINE PRODUCTS
SOIL GAS SURVEY
TARGET ANALYTE LIST

Compound Name	CAS Number	Water Sol. (mg/L)	Vapor Press. (mmHg)	Henry's Law Constant (atm-m3/mol)	Estimated Detection Limit (ppmV)
1,1-Dichloroethene	75-35-4	2.50E+03	5.91E+02	3.01E-02	1.36
1,1-Dichloroethane	75-34-3	5.06E+03	2.27E+02	5.87E-03	23.1
Ethylbenzene	100-41-4	1.61E+02	9.53E+00	8.44E-03	1.17
Toluene	108-88-3	5.35E+02	2.84E+01	5.94E-03	0.99
1,2-(ORTHO) Xylene	95-47-6	1.75E+02	6.60E+00	5.10E-03	0.95
1,3-(META) Xylene	108-38-3	1.46E+02	8.30E+00	7.68E-03	0.95
1,4-(PARA) Xylene	106-42-3	1.56E+02	8.70E+00	7.68E-03	0.95
Tetrachloroethene	127-18-4	1.50E+03	1.85E+01	1.49E-02	0.70
Trichloroethene	79-01-6	1.10E+03	6.90E+01	1.03E-02	0.30
1,1,1-Trichloroethane	71-55-6	3.47E+02	1.24E+02	8.00E-03	27.4
1,2-Dichloroethene (Trans)	156-60-5	6.30E+03	3.40E+02	6.72E-03	0.50
1,2-Dichloroethene (Cis)	156-59-2	3.50E+03	3.50E+03	2.08E+02	2.00
Vinyl Chloride	75-01-4	2.76E+03	2.67E+03	2.30E+03	1.00
Tetrachloromethane	56-23-5	8.05E+02	1.14E+02	3.04E+02	20.0
1,1,2,2-Tetrachloroethane	79-34-5	2.90E+03	5.00E+00	3.81E-04	20.0

References:

(1) Basics of Pump and Treat Ground-Water Remediation Technology
Mercer J.W. et al., USEPA 600-8-90/003 R.S. Kerr Env. Research Laboratory Ada, Oklahoma

(2) Handbook of Environmental Fate and Exposure Data for Organic Chemicals
Howard, Philip H. et al., Syracuse Research Corporation Volumes I, II & III (1990)

(3) Material Safety Data Sheets for each respective compound as provided by either ENARC-O Machine Products or the material manufacturer.

(4) Handbook of Environmental Data on Organic Chemicals, 2nd Edition (1983)
Verschuren, Karel et al., Dept. of Public Health and Tropical Hygiene, Agricultural University of Wageningen, The Netherlands.

(5) Superfund Public Health Manual, USEPA 540/1-86/060
Office of Emergency and Remedial Response, Washington D.C. (1986)

(6) N/A - Not currently available.

(7) Vapor Pressure (mmHg) presented were calculated at 20-25 degrees Celsius.

(8) Estimated detection limits calculated from compound response factors on the Photovac 10S70 10.6 eV detector assuming a 100 uL injection. Actual detections limits may vary.

(9) ppmV - parts per million by molar volume in air.

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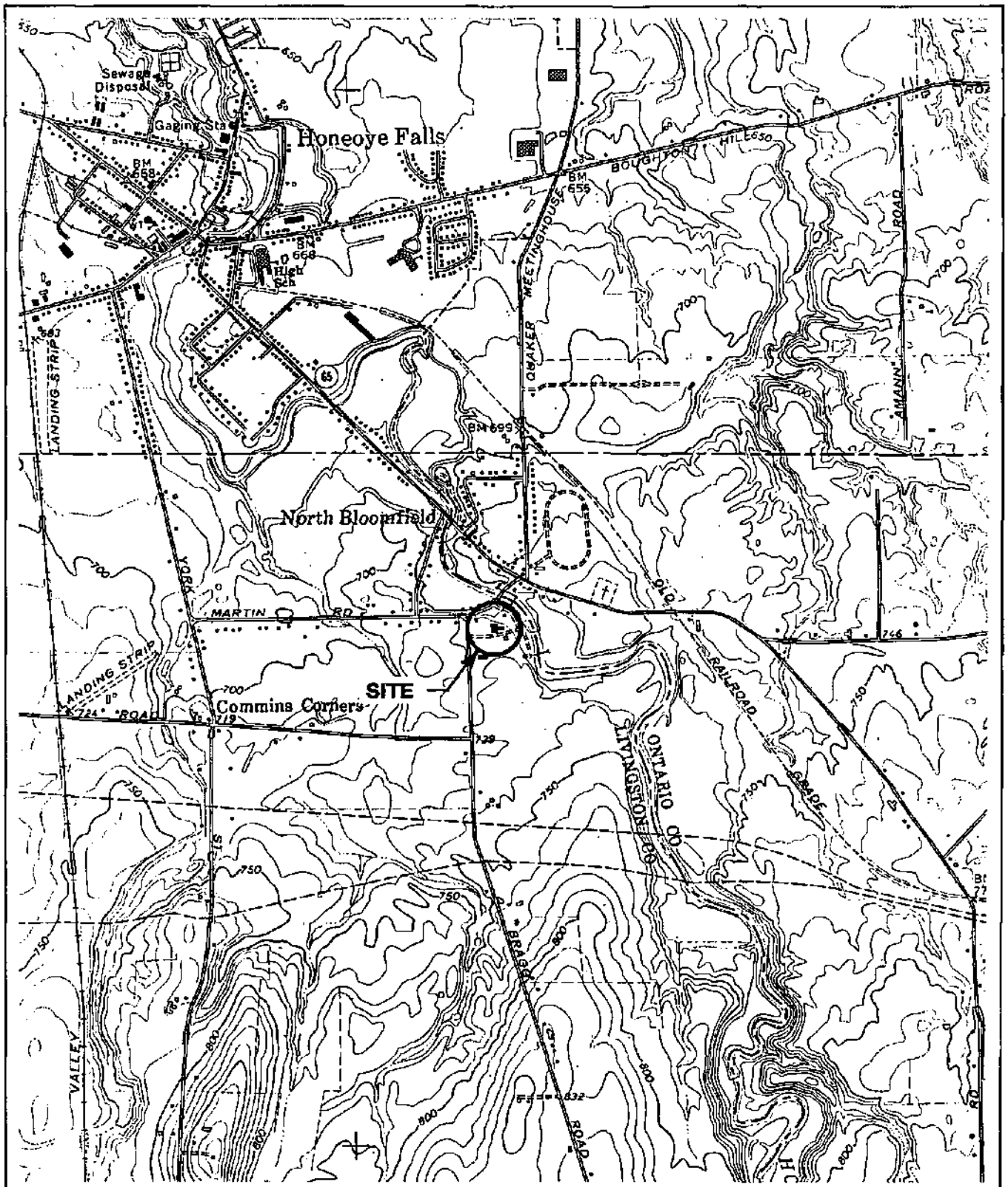
Figures



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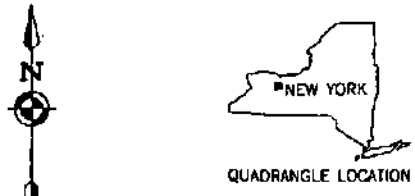


U.S.G.S. QUADRANGLE: HONEOYE FALLS, N.Y.

H & A OF NEW YORK

Geotechnical Engineers & Environmental Consultants

ENARC-O MACHINE PRODUCTS
LIMA, NEW YORK

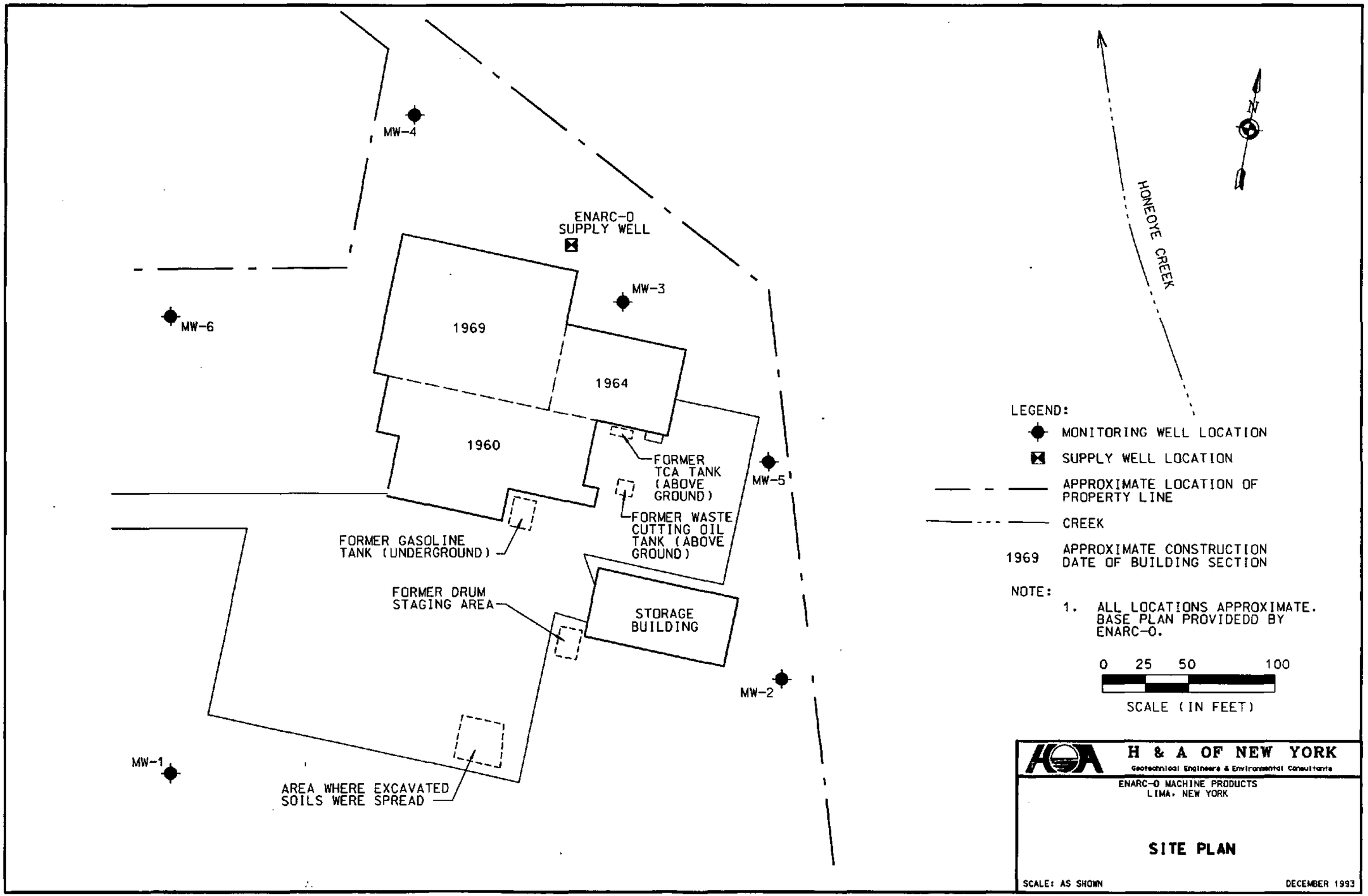
PROJECT LOCUS

SCALE: 1 IN. = 2000 FT. FEBRUARY 1993

FILE NO. 70372-40

MAKEPEACE

FIGURE 1



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ENARC-O MACHINE PRODUCTS
LIMA, NEW YORK

SITE PLAN

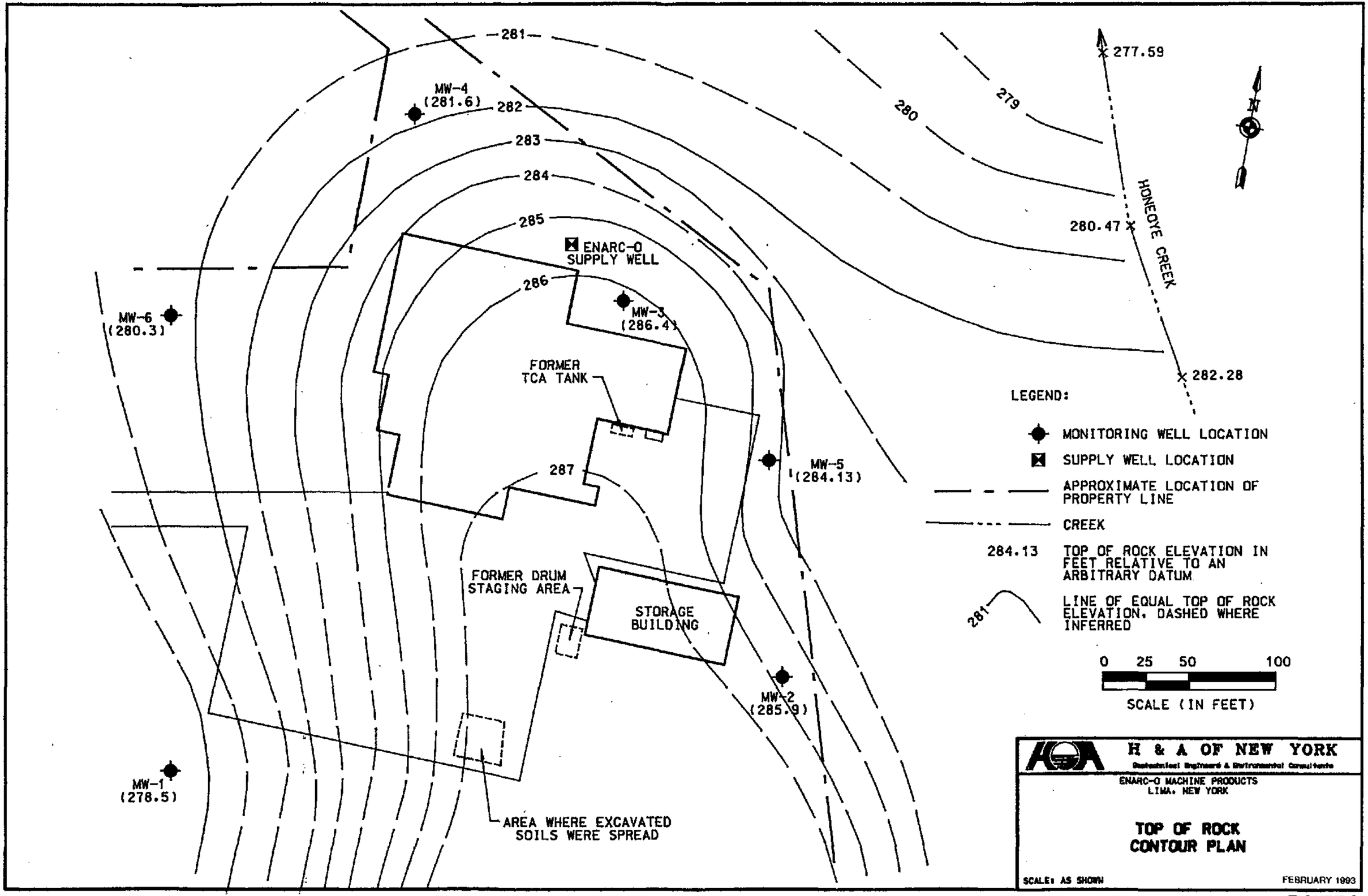
SCALE: AS SHOWN

DECEMBER 1993

FILE No. 70372-40

FILENAME: SITE.DGN

FIGURE 2



FILE No. 70372-40

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ENARC-O MACHINE PRODUCTS
LIMA, NEW YORK

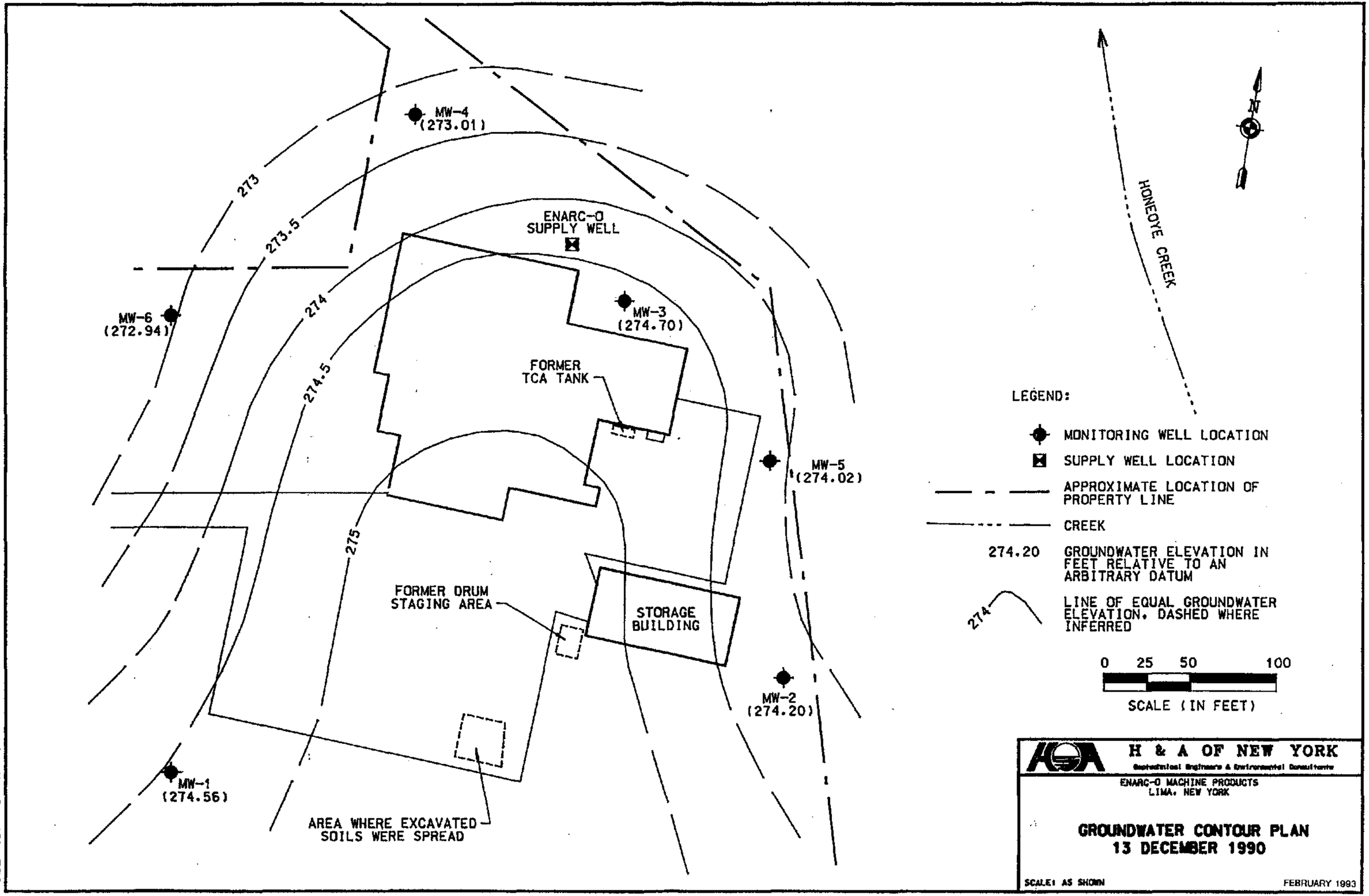
TOP OF ROCK CONTOUR PLAN

SCALE: AS SHOWN

FEBRUARY 1993

FILENAME: ROCK.DGN

FIGURE 3



FILE No. 70372-40

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ENARC-O MACHINE PRODUCTS
LIMA, NEW YORK

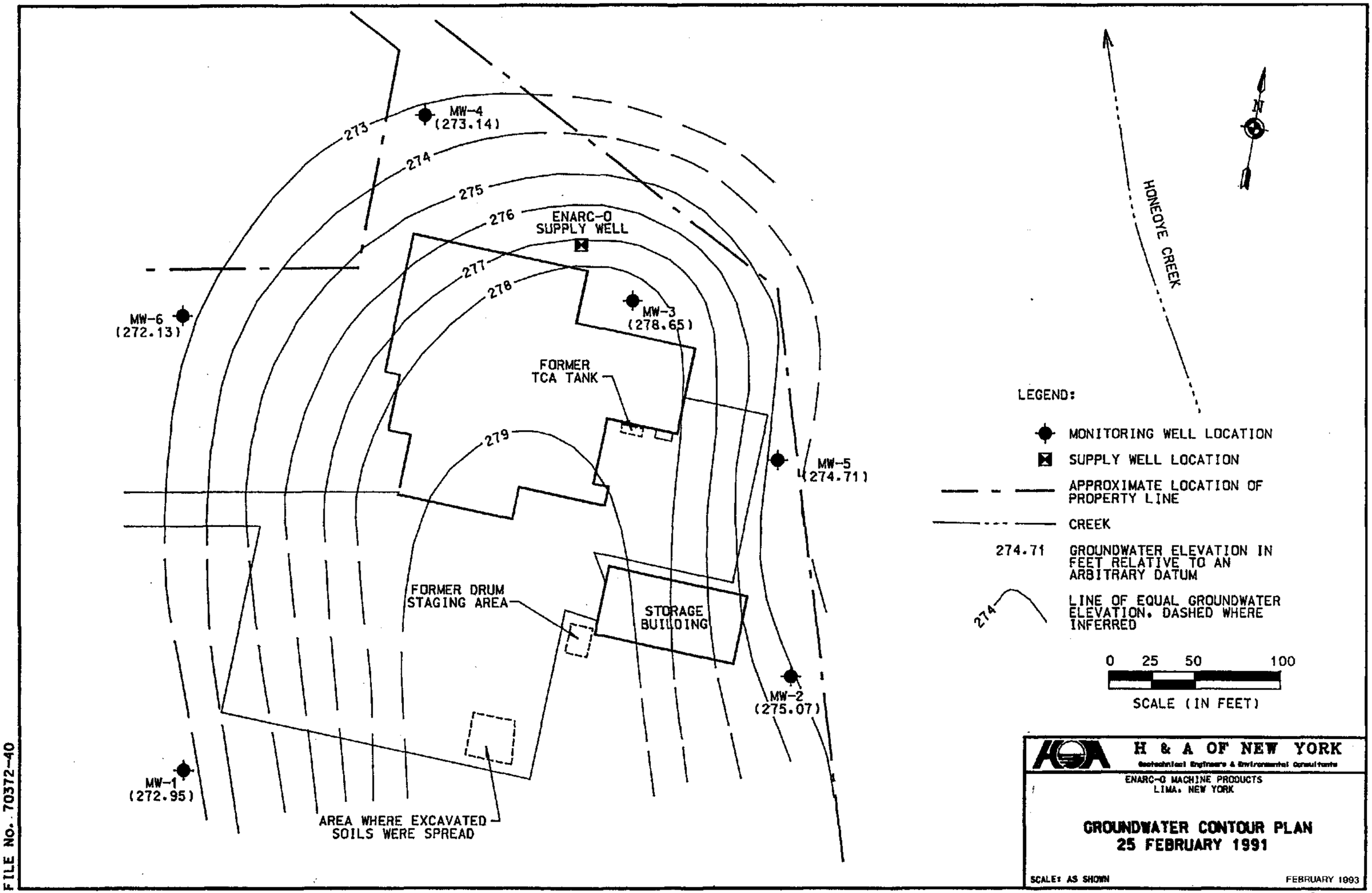
GROUNDWATER CONTOUR PLAN
13 DECEMBER 1990

SCALE: AS SHOWN

FEBRUARY 1993

FILENAME: 1990.DGN

FIGURE 4



FILE No. 70372-40

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ENARC-O MACHINE PRODUCTS
LIMA, NEW YORK

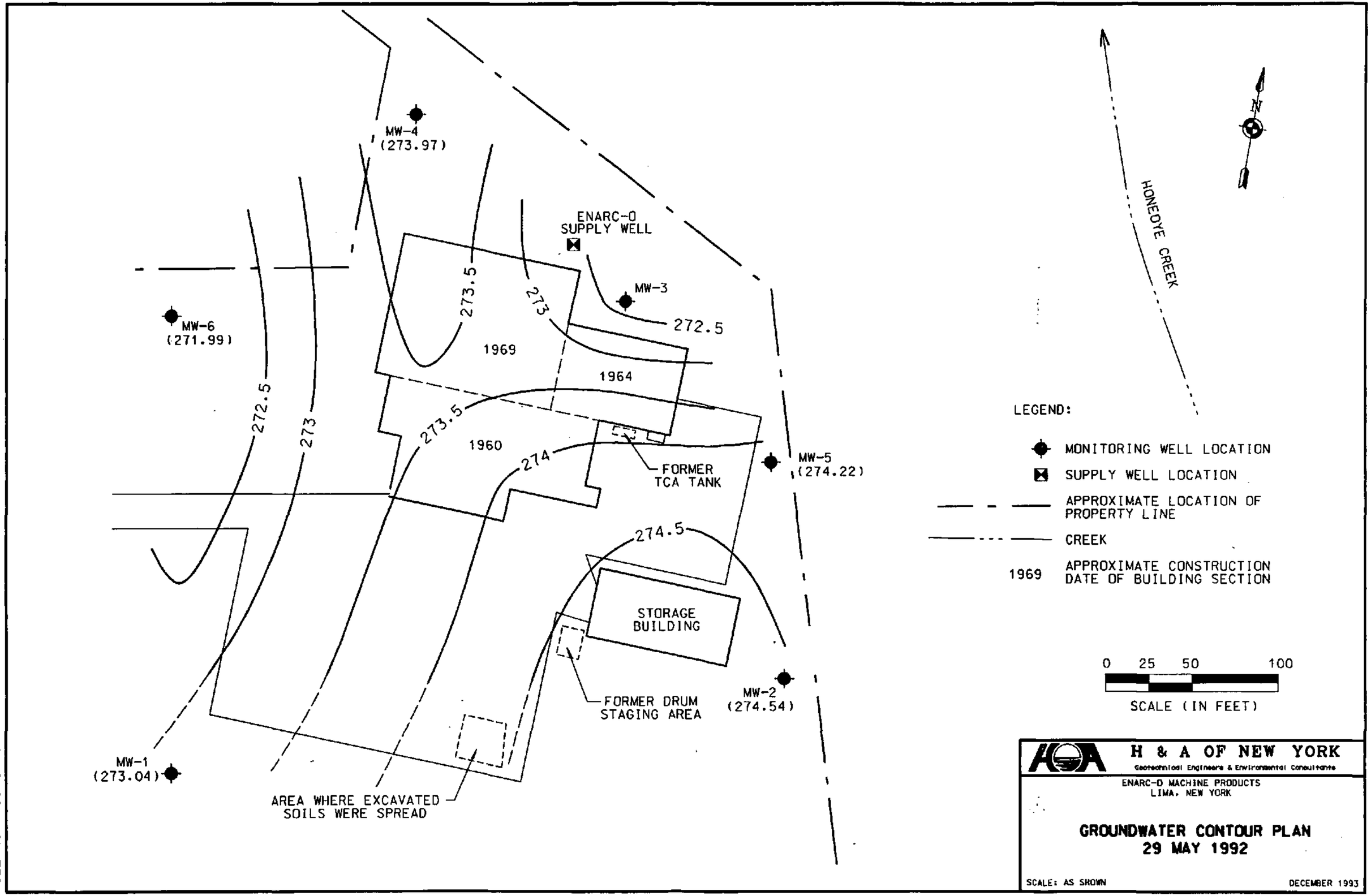
GROUNDWATER CONTOUR PLAN
25 FEBRUARY 1991

SCALE: AS SHOWN

FEBRUARY 1993

FILENAME: 1991.DGN

FIGURE 5



FILE No. 70372-40

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ENARC-O MACHINE PRODUCTS
LIMA, NEW YORK

GROUNDWATER CONTOUR PLAN
29 MAY 1992

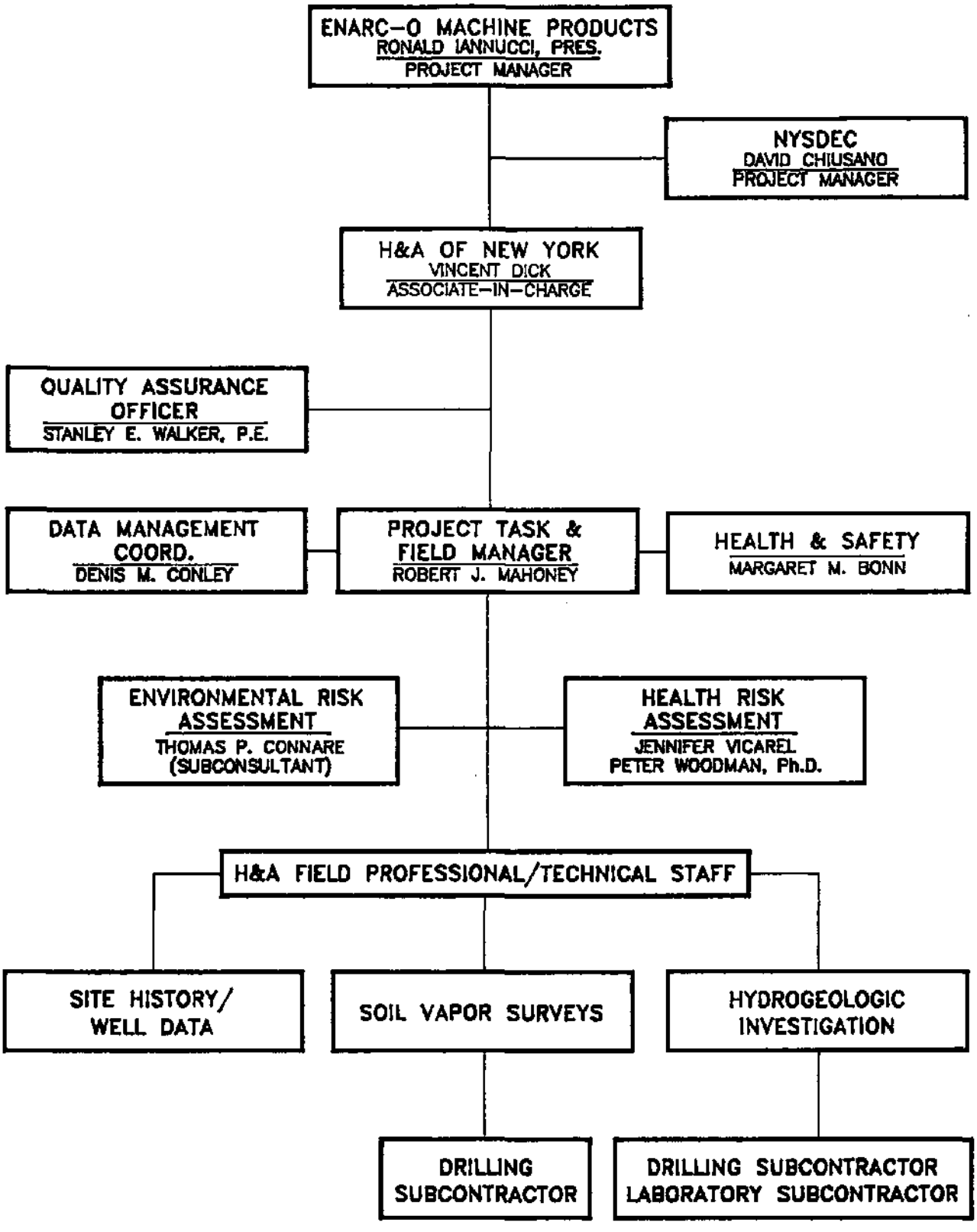
SCALE: AS SHOWN

DECEMBER 1993

FILENAME: FIG05A.DGN

FIGURE 5A

PROJECT ORGANIZATION

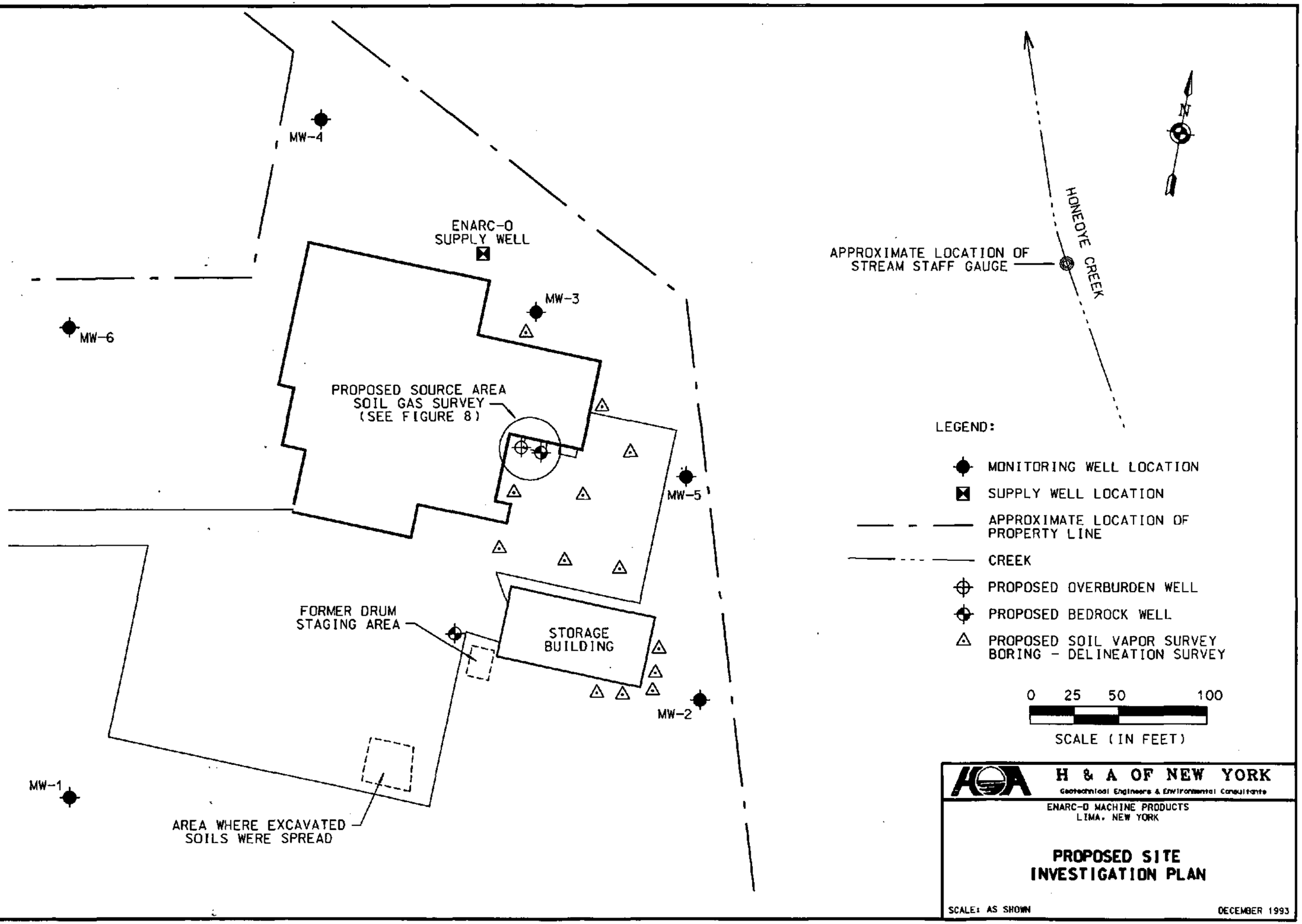


FILE NO. 70372-40

FEBRUARY 1993

X:\70372-40\ORG.DWG

FIGURE 6



FILE No. 70372-40

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ENARC-O MACHINE PRODUCTS
LIMA, NEW YORK

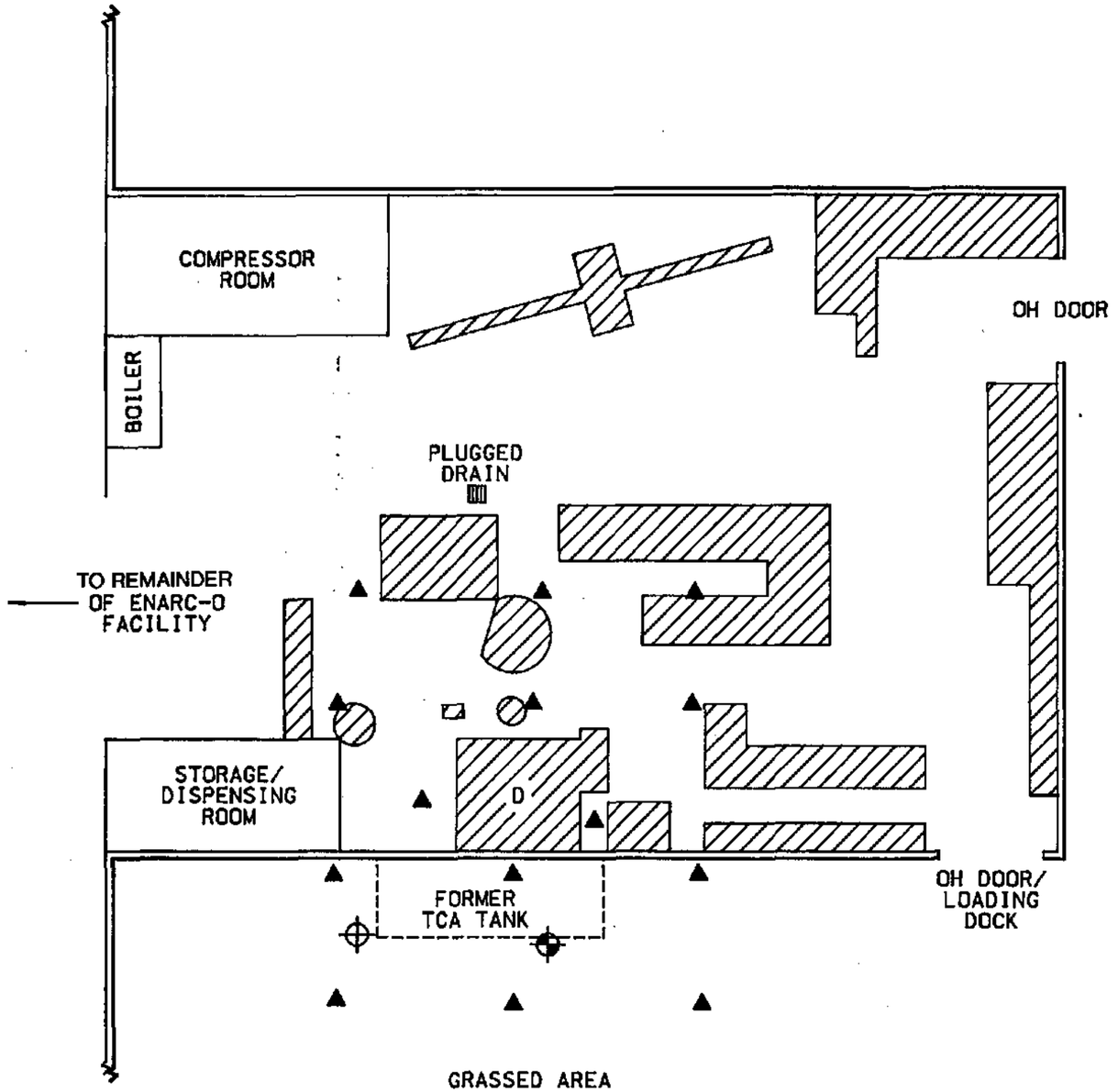
PROPOSED SITE INVESTIGATION PLAN

SCALE: AS SHOWN

DECEMBER 1993

FILENAME: FIG7.DGN

FIGURE 7



LEGEND:

- ▲ PROPOSED SOIL VAPOR SAMPLE LOCATIONS
- FLOOR AREA OBSTRUCTED BY EQUIPMENT, STORAGE OR OTHER, (DIMENSIONS APPROXIMATE) "D" DESIGNATES DEGREASER LOCATED IN CONCRETE PIT
- ⊕ PROPOSED OVERBURDEN WELL
- ⊕ PROPOSED BEDROCK WELL

NOTES:

1. ALL LOCATIONS AND DIMENSIONS APPROXIMATE, BASED ON TAPE PLAN OF FACILITY.
2. POTENTIAL SOURCE AREA SAMPLE LOCATIONS SHOWN ONLY. SEE TEXT FOR ADDITIONAL INFORMATION AND SEE FIGURE 7 FOR OTHER PROPOSED INVESTIGATION LOCATIONS.

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ENARC-O MACHINE PRODUCTS
LIMA, NEW YORK

SOURCE AREA INVESTIGATION PLAN

SCALE: 1" = 10 FT

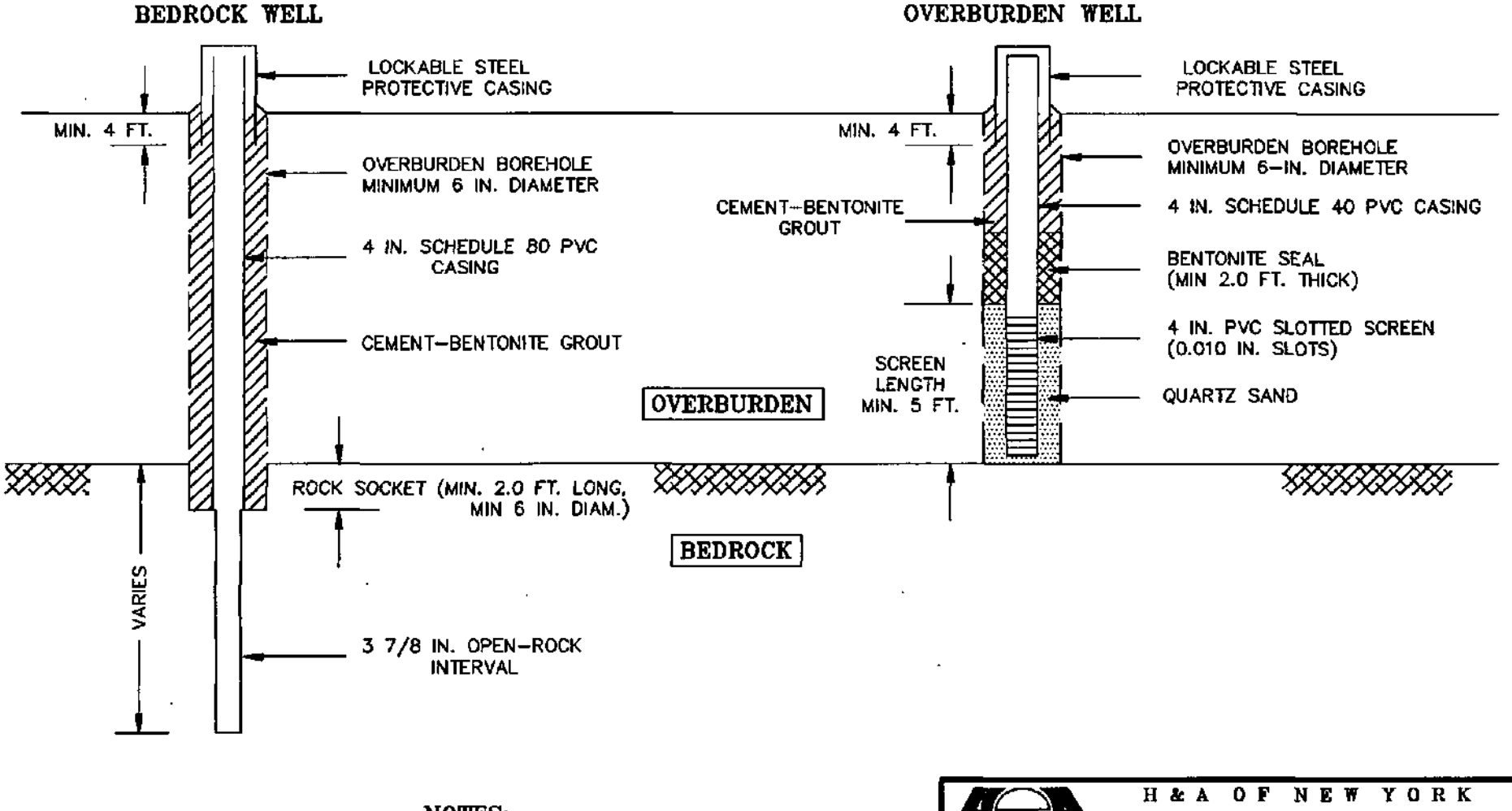
FEBRUARY 1993

FILENAME: FIG8.DGN

FIGURE 8

FILE No. 70372-40

FILE NO. 70372-40



NOTES:

1. LENGTH OF OPEN ROCK INTERVALS TO BE DETERMINED IN THE FIELD.

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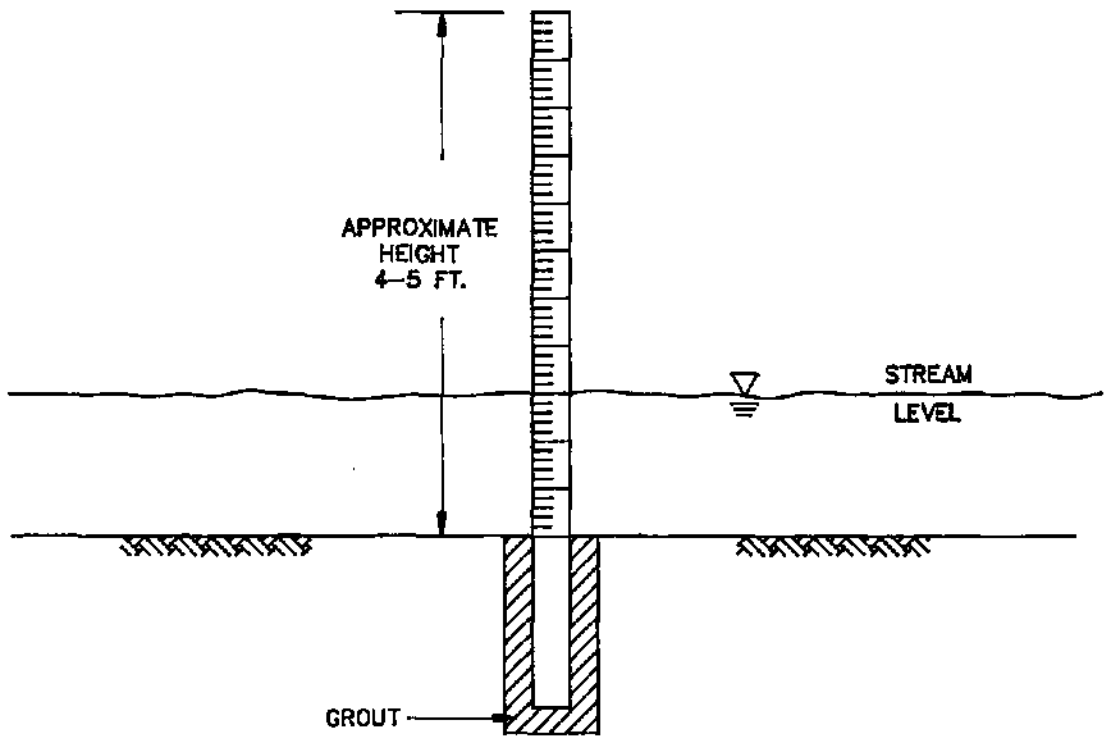
ENARC-O MACHINE PRODUCTS
LIMA, NEW YORK

MONITORING WELL CONSTRUCTION SCHEMATIC

NOT TO SCALE DECEMBER 1993

FIGURE 6



NOTES:

1. STREAM STAFFING GAUGE TO BE 1–IN. DIAMETER STAINLESS STEEL, OR EQUIVALENT, MARKED IN 0.10–FT INCREMENTS, SUPPLIED AND INSTALLED BY ENARC–O.

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ENARC–O MACHINE PRODUCTS
LIMA, NEW YORK

STREAM STAFF GAUGE

NOT TO SCALE FEBRUARY 1993

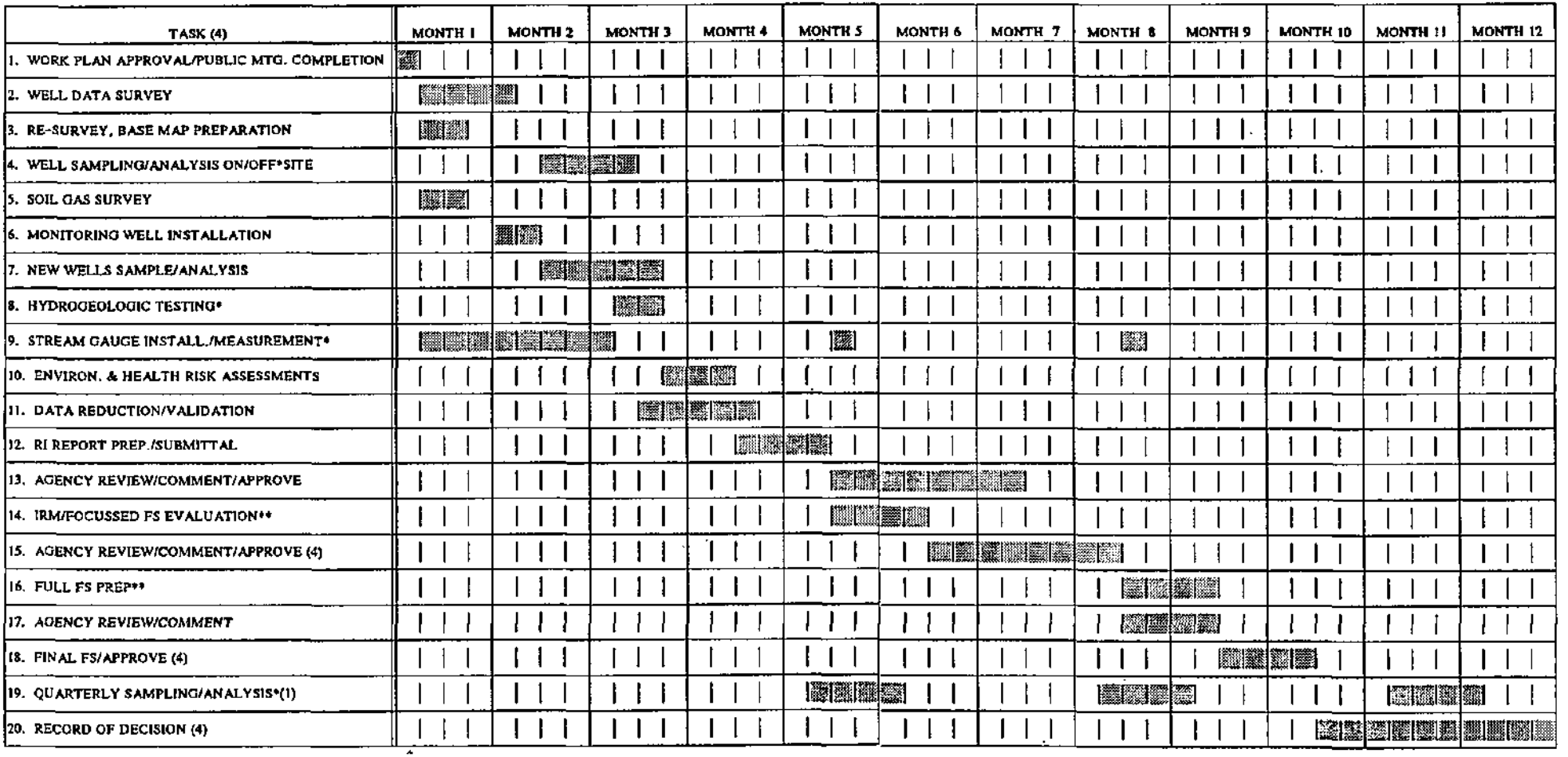
FILE NO. 70372–40

FIGURE 10

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

REMEDIAL INVESTIGATION WORK PLAN

PROJECT SCHEDULE (4)



NOTES

1. QUARTERLY SAMPLING WILL CONTINUE THROUGH ONE YEAR (MONTH 14) AT WHICH TIME FUTURE SAMPLING WILL BE REEVALUATED.
2. "*" DENOTES ITEMS ON WHICH ENARC-O & NYSDEC INPUT WILL BE REQUIRED TO CONFIRM LOCATIONS AND PARAMETERS PRIOR TO WORK EFFORT.
3. "**" DENOTES FOCUSSED FS FOR INTERIM OR OTHER QUICKLY IMPLEMENTED REMEDIAL EFFORT IF APPROPRIATE. FULL FS PROCEEDS TO THE EXTENT IMPACTS NOT ADDRESSED BY TASK 14.
4. TIME FRAMES AND SEQUENCE SUBJECT TO CHANGE BASED ON PUBLIC MEETING RESULTS, ACTUAL REVIEW/APPROVAL TIME-FRAMES, AND WEATHER CONDITIONS FOR OUTDOOR WORK. PROCESS CONCLUDES WITH RECORD OF DECISION (ROD) WHICH REQUIRES 3 MONTHS FOLLOWING FOCUSSED OR FINAL FS APPROVAL.

FIGURE 11

Appendix A

APPENDIX A

Quality Assurance Project Plan

APPENDIX A

QUALITY ASSURANCE PROJECT PLAN

1.0 QUALITY ASSURANCE OBJECTIVES FOR MEASUREMENT DATA

A quality assurance/quality control program is designed to produce data of the quality necessary to achieve project objectives and meet or exceed the minimum standard requirements for field and analytical methods. The QA/QC program will include:

- A mechanism for ongoing control and evaluation of data quality.
- A measure of data quality in terms of precision, accuracy, representativeness, completeness, and comparability.

The following is a general discussion of the criteria used to measure the quality at both field and laboratory analytical data. Field data collection and quality assurance will be the responsibility of H&A of New York and its subcontractors retained for field explorations (drillers, etc.). Laboratory data quality assurance as described herein will be the responsibility of the contract analytical laboratory retained for this project. The lab requirements described below are based on criteria that will be required contractually or are required based on NYSDEC ASP91 and EPA Superfund CLP protocol.

1.0.1 Precision

Precision measures the reproducibility of measurements under a given set of conditions or is a quantitative measure of the variability of a group of measurements compared to their average value.

Precision is usually stated in terms of standard deviation but other estimates such as the relative percent difference (RPD) expressed as a percentage of the mean, range (maximum value minus minimum value), and a relative range are common.

The overall precision of measurement data is a mixture of sampling and analytical factors. Analytical precision is much easier to control and quantify than sampling precision. There are more historical data related to individual method performance and the "universe" is limited to the samples received within a laboratory. In contrast, sampling precision is unique to each site.

Sampling precision for this project will be determined by collecting and analyzing collocated (split) or field replicate samples and by creating and analyzing laboratory replicates from one or more of the field samples. The analytical results from the collocated or field replicate samples will provide data on sampling precision. Laboratory replicate analysis will provide data on laboratory precision. For the Preliminary Site Assessment collocated or replicate samples will be collected at a rate of 10% of the total number of samples obtained in a particular sampling effort.

1.0.2 Accuracy

Accuracy relates to the bias in a measurement system. Bias is the difference between the average value of observed measurements and the "true" value. Sources of error are the sampling process, field contamination, preservation, handling, sample matrix, sample preparation and analytical techniques. For the Preliminary Site Assessment sampling accuracy will be assessed by evaluating the results of field/trip blanks. Field and trip blanks will be collected as appropriate for each sampling effort. Analytical accuracy will be assessed through the use of known QC samples and matrix spikes.

1.0.3 Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents a characteristic of a population, a parameter variation at a sampling point, or an environmental condition. Representativeness is a qualitative parameter which is most concerned with the proper design of the sampling program. The representativeness criterion is best satisfied by making certain that sampling locations are selected properly and a sufficient number of samples are collected.

Representativeness will be addressed by describing sampling techniques and the rationale used to select sampling locations. Sampling locations may be biased (based on existing data, instrument surveys, observations, etc.) or unbiased (completely random or stratified-random approaches) depending on the situation. The rationale used to determine sampling locations will be explicitly explained.

For the former Preliminary Site Assessment nearly all sampling will be biased; that is, water samples and monitoring well placement will be dictated by apparent presence or absence of site specific target compounds. Specific sample technique descriptions, which allow consistency, repetitiveness and thus representativeness in sampling, are included in this work plan as described by the specific Work Tasks in this plan.

Representativeness may also be assessed by the use of collocated samples. By definition, collocated samples are collected so that they are equally representative of a given point in space and time. In this way, they provide both precision and representativeness information. As stated previously collocated samples will be collected at a rate of 10% of all samples collected.

1.0.4 Completeness

Completeness is defined as the percentage of measurements made which are judged to be valid measurements. The completeness goal is essentially the same for all data uses: that a sufficient amount of valid data be generated.

1.0.5 Comparability

Comparability is a qualitative parameter expressing the confidence with which one data set can be compared with another. Sample data should be comparable with other measurement data for similar samples and sample conditions. This goal is achieved through using standard operating procedures to collect and analyze representative samples and the reporting of analytical results. The standard operating procedures for the various activities to be conducted during this investigation are contained within the attached appendices.

1.1 DOCUMENTATION AND CHAIN-OF-CUSTODY

1.1.1 Field Procedures

The quality of data can be greatly effected by sample collection activities. If the integrity of collected samples is for some reason in question, the data, regardless of its analytical quality will also be in question. Field sampling standard operating procedures will provide for the collection of samples representative of the matrix being investigated.

The following procedures will be used to maintain the integrity of the samples:

- Upon collection, samples will be placed in the proper containers. In general, samples collected for organic analysis will be placed in pre-cleaned glass containers and water samples collected for inorganic and field parameters analysis which will be placed in precleaned plastic (polyethylene) bottles.

- Each sample will be assigned a unique sample I.D. number which will be placed on a sample label securely affixed to the containers. Other information to be placed on the sample label will include: the sample type, the sampler's name, date collected and preservation method. Information on the labels will be completed with a ballpoint or felt-tip waterproof pen.

- Samples will be properly and appropriately preserved by field personnel in order to minimize loss of the constituent(s) of interest due to physical, chemical or biological mechanisms.

- The appropriate sample volumes to be collected will be confirmed prior to initiation of the field program to ensure that method-or contract-required detection limits (or quantification limits) can be successfully obtained and that the required level of quality control relative to both precision and accuracy can be performed.

- A chain-of-custody form will be completed as each sample is collected. The completed forms will accompany the samples to the laboratory. The field personnel collecting the samples will be responsible for the custody of the samples until the samples are relinquished to the laboratory. Sample transfer will require the individuals relinquishing and receiving the samples to sign, date and note the time on the chain-of-custody form. An example of the chain-of-custody form to be used during this investigation is shown in Appendix C.

On-site headspace analysis of water, soil and soil vapor, if collected and required during the various field operations, will not require chain-of-custody records. However, information from these analyses will be recorded on one of H&A's standard field forms, and will include information identifying each headspace sample with the correlated laboratory sample split, if one is taken.

- Samples will be shipped or delivered in a timely fashion to the contract laboratory so that holding-times and/or analysis times as prescribed by the chosen methodology can be met. Samples will also be transported in containers (coolers) which will maintain the appropriate temperature for those analytical parameters for which such refrigeration is required in the defined preservation protocols.

Field personnel will be required to keep written records of field activities on applicable preprinted field forms or in a bound field notebook. These records will be written legibly in ink and will contain pertinent field data and observations. Entry errors or changes will be crossed out with a single line, dated and initialed by the person making the correction. Field forms and notebooks will be reviewed by the Quality Assurance Officer and Project Manager on a weekly basis.

1.1.2 Laboratory Procedures

The contract laboratory chain-of-custody procedures will be based upon the National Enforcement Investigation Center (NEIC) policies and procedures (EPA-330/9-78-001-R). A full-time sample custodian will be assigned the responsibility of sample control. It will be the responsibility of the sample custodian to receive all incoming samples. Once received, the custodian will: 1) document that each sample is received in good condition (i.e., unbroken, cooled, etc.), and that the associated paperwork, such as chain-of-custody forms have been completed; and 2) will sign the chain-of-custody forms (Figure 13). In special cases, the custodian will document from appropriate subsamples that chain-of-custody with proper preservation has been accomplished. The custodian will also document that sufficient sample volume has been received to complete the analytical program.

The sample custodian will then place the samples into secure limited access storage (refrigerated storage if required).

Consistent with the analyses requested on the chain-of-custody form, analyses by the contract laboratory's analysts will begin in accordance with the appropriate methodologies. Samples will be removed from secure storage only after internal chain-of-custody sign-out procedures have been followed.

Empty sample bottles, when the available volume has been consumed by the analysis, will be returned to secure and limited access storage. Upon completion of the entire analytical work effort, samples will be disposed of by the sample custodian. The length of time that samples are held will be at least thirty (30) days after reports have been submitted.

Disposal of remaining samples will be completed in compliance with RCRA and 6 NYCRR Part 373 regulations.

Empty sample bottles will be disposed of as non-hazardous solid waste consistent with sample exclusion and empty container provisions of RCRA. All liquid and solid samples for disposal will be reviewed by the contract laboratory's management prior to authorization for disposal. If the samples are hazardous by characteristic (reactive, corrosive, ignitable or toxic) or are a TSCA/PCB waste, appropriate controlled disposal will be performed. The contract laboratory will be a permitted generator of hazardous wastes and will have disposal contracts with all necessary types of subtitle-C TSDF facilities. Full documentation of each step of the disposal process, consistent with the requirements of RCRA will be monitored by the contract laboratory's Environmental Health and Safety Officer.

For other non-characteristically hazardous or non-TSCA materials, the contract laboratory will review the available analytical results for the samples in question and dependent on the presence of and/or concentration of hazardous constituents will either dispose of materials as hazardous wastes or exercise its options to dispose of the materials as non-hazardous waste based upon the laboratory samples exclusion provisions of RCRA.

1.2 FIELD INSTRUMENT CALIBRATION PROCEDURES

Several field instruments will be used for both on-site screening of samples and for health and safety air monitoring. On-site screening and off-site air monitoring for health and safety purposes will be accomplished using several different organic vapor detection devices (Foxboro OVA, Draeger tubes).

1.2.1 Organic Vapor Detection Instruments

Instruments including the Foxboro Organic Vapor Analyzer, HNu PI-101 photoionization organic vapor detector, (11.7 eV lamp) Photovac Microtip, and Draeger tubes may be used to monitor air quality during drilling and sampling procedures. General calibration procedures common to each instrument manufacturer's specifications will be followed (except for the Draeger tubes which do not require calibration).

1.2.2 Draeger Multi-Gas Detector System

The Draeger Multi-Gas detector system consists of two primary components, the gas detector pump and the Draeger indicator tubes. Each Draeger indicator tube kit contains specific operating procedures provided by the manufacturer. Operation of the Draeger Multi-Gas detector system will be performed with strict adherence to the manufacturer's gas indicator tube kit specifications.

Prior to each operation of the system, the gas detector pump will be inspected for:

- Leaks within the folds of the bellows

- Proper seating of the indicator tube within the pump head stopper.

- Expiration date of indicator tube to be used.

Satisfactory completion of the pre-operation inspection will be noted on the Field Sampling Record, along with the results of each field measurement.

1.2.3 pH/Conductivity/Temperature Measurements

A Corning Checkmate Field System will be utilized to determine pH, specific electrical conductance and temperature measurements in conjunction with water quality sample collection. The Corning system uses a micro-processor based meter which interfaces with separate probes for pH/temperature and specific electrical conductance determinations respectively.

Each probe will be calibrated immediately prior to each day's operation using NIST traceable reference materials. Calibration data including reference materials and dates of reference material preparation and expiration, and the percent of true value observed will be recorded on the Field Sampling Record.

If calibration verification standard recovery is determined to be outside acceptance criteria of $\pm$ 20% of the standard true value, the specific probe will be reconditioned and recalibrated or replaced.

1.2.6 Field Gas Chromatograph

A monthly multipoint calibration check will be performed on the field gas chromatograph using certified standards and zero, ultra-high purity air placed in a 2L static dilution bottle. The standards will be prepared at concentrations in the range of expected field concentrations. A plot of known concentration versus instrument response for each standard will be prepared to check the linearity of instrument response. A linear regression analysis will be performed on the data. If the correlation coefficient is greater than 0.95, the instrument will be considered linear and ready for field use. If this criterion is not met, the instrument will be checked following the manufacturer's trouble-shooting procedures until the problem is corrected. The linear calibration check will be performed again. The instrument will be considered field ready when the above criterion is met.

Prior to daily field operations, the instruments will be checked for electronic calibration and adjusted as necessary. Appropriate standards will be used for establishing instrument settings.

1.3 Laboratory Analytical Procedures

Analytical procedures to be utilized for laboratory analysis of environmental samples as part of the Remedial Investigation will be from the following documents:

- The New York State Department of Conservation "Analytical Services Protocol", December 1991.
- "Test Methods for Evaluating Solid Waste" SW-846, USEPA Office of Soils Waste and Emergency Response 3rd Edition, Update December 1987.
- U.S. Environmental Protection Agency Contract Laboratory Protocol, Statement of Work, March 1990, (CLP SOW 3/90) protocols for analysis of organic (target compound list) and inorganic (target analyte list) constituents.

Specific quality control criteria for each analytical procedure will be derived from NYSDEC ASP91, Volume #8, Exhibit E, Parts I-VII and XVII where applicable.

1.4 Internal Quality Control Checks

1.4.1 Laboratory Procedures

Procedures which contribute to maintenance of overall laboratory quality assurance and control include proper sampling techniques, appropriately cleaned sample bottles (either by the contract laboratory or purchased as "certified clean"), proper sample identification and logging, applicable sample preservation, storage and analysis within holding times, and use of controlled materials.

The quality control program utilized by the contract laboratory will be based upon recommendations contained in the EPA Handbook for Analytical Quality Control in Water and Waste water Laboratories (March 1979), 600/4-/79-019.

Precision and accuracy charts will be maintained for specific parameters as described in the EPA handbook.

Consistent with general guidance from the EPA Handbook, control charts for internal standards and method surrogates will be maintained for each method to be performed as part of the analysis of each project sample.

Duplicate Samples

A duplicate analysis will be performed for every analytical batch or at a minimum of 10 percent of all project samples analyzed by the contract laboratory. The precision or reproducibility of the data generated will be monitored using a precision quality control chart.

The precision chart used to monitor laboratory precision will be based upon information presented in Section 6 of the EPA Handbook of Analytical Quality Control in Water and Waste water Laboratories (March 1979), 600 5-79-019.

The Upper Control Limit (UCL) will be calculated as follows:

$$UCL = D_{4R}$$
$$= 3.27\ (0.006)$$
$$= 0.0196$$

Where:

D_4 = Shewart factor for ranges based upon duplicate analyses.
R = The mean range of multiple replicate determinations.

The critical R value (R_c) is the upper control limit rounded off to an operationally feasible number; i.e., the $R_C = 0.020$. This R_C or critical R value is the maximum allowable difference between replicate determinations on a single sample. The R value will be plotted every day analyses are performed and the points will be reviewed for trends. If an R value exceeds the R_C value, the data will be considered invalid and the cause for such performance will be investigated and corrected before analyses are resumed.

Matrix Spike Samples

A minimum of 10 percent of all project samples to be analyzed by the contract laboratory will be spiked with known amounts of the target compounds being analyzed. The amount of the compound recovered from the sample compared to the amount added will be expressed as a percent recovery. The percent recovery of an analyte is an indication of the accuracy of an analysis and will be expressed on an accuracy chart.

Percent recovery will be calculated for matrix spike and matrix spike duplicate analyses (MS/MSD).

$$\%\ Recovery = \frac{Spiked\ Sample - Background}{Known\ Value\ of\ Spike} \times 100$$

The standard deviation of the MS/MSD recoveries will be calculated. The upper and lower warning limits will be set at plus and minus 2 standard deviation units. The upper and lower control limits will be set at plus and minus 3 standard deviations.

The acceptance criteria based upon this chart will be defined as follows:

The quality control value indicates acceptable analysis values when it falls between the lower warning limit (LWL) and the upper warning limit (UWL).

If the quality control value falls between the control limit and warning limit (UCL and UWL or LCL and LWL), the analysis should be scrutinized as possibly out-of-control. The sample results will still be acceptable at this point.

If the quality control value falls outside the control limits (UCL or LCL), this indicates an out-of-control situation. The analysis must be stopped until the reason for the problem has been identified and resolved. After it has been corrected, the problem will be documented in the procedure book, with the solution noted.

The contract laboratory will also include the analysis of Standard Reference Materials (SRM's) whenever possible. Standard reference materials will be supplied from independent manufacturer's and traceable to NIST materials with known concentrations of selected parameters. In cases where an independently supplied SRM is not available, one may be prepared by the contract laboratory.

1.4.2 Field Procedures

Field Blanks

Internal quality control checks include analysis of equipment blanks used to validate successful equipment cleaning activities.

Whenever possible, dedicated equipment will be employed to reduce the possibility of cross-contamination of samples.

Equipment used for organic sample collection will be cleaned prior to each usage of the equipment, according to the following procedure:

- Potable Water Rinse
- Alconox detergent (or equivalent) wash
- Potable water rinse
- Deionized water rinse

1.5 CALIBRATION PROCEDURES

The use of materials of known purity and/or quality will be utilized for the analysis of environmental samples as part of the Remedial Investigation. Field personnel and the contract laboratory will carefully monitor the use of all laboratory materials including solutions, standards and reagents through well-documented procedures.

All solid chemicals and acids/bases used by field personnel and the contract laboratory will be reagent grade or better. All gases will be High Purity or better. All standards or standard solutions will be obtained from the U.S. Environmental Protection Agency or from reliable Cooperative Research and Development Agreement (CRADA) certified commercial sources.

All Standard Reference Materials or Performance Evaluation Materials will be obtained from the National Institute of Standards and Technology (formerly National Bureau of Standards) or reliable CRADA certified commercial sources.

All materials including standards or standard solutions will be dated upon receipt, and will be identified by material name, lot number, purity or concentration, supplier, receipt/preparation date, recipient/preparer's name, expiration date and all other pertinent information.

Standards or standard solution concentrations will be validated prior to use. This validation may be re-standardization for acids or bases, response factor comparison, standard curve response, comparison to other standards made at a different time and/or by a different analyst. All standards and standard materials will be checked for signs of deterioration including unusual volume changes (solvent loss), discoloration, formation of precipitates or changes in analyte response. All standards and standard solutions will be properly stored and handled and will be labelled with all appropriate information including compound/solution name, concentration, solvent, expiration date, preparation date and initials of the preparer.

All solvent materials or materials used as a part of a given procedure will also be checked. Each new lot of solvent will be analyzed to insure the absence of interfering constituents.

Instruments will be calibrated in order to assure that method required criteria including sensitivity and detection limits can be met. Each instrument will be calibrated with standard solutions appropriate to the type of instrument and method being performed.

1.5.1 Gas Chromatograph/Mass Spectrometer/Data System

The mass spectrometer (MS) will be tuned prior to each analytical event and verified after twelve hours of continuous operation, using decafluorotriphenylphosphine (DFTPP) or bromofluorobenzene (BFB)(as appropriate) according to EPA procedures. The tuning results will be maintained on file.

Standard curves will be prepared based on the analysis of pure chemicals at known concentrations. At least three levels will be analyzed within the dynamic range of the analytical system.

For volatile organics, surrogates will be used to establish purge and trap efficiency. Quantitation will be accomplished via internal standardization techniques.

For semi-volatile organics, surrogates will be added to the raw sample to assess preparatory recoveries; internal standards will be added to all extracts and calibration solutions immediately before analysis for quantitation.

Surrogates and internal standards added to all samples and standards will be monitored daily for compliance with NYSDEC ASP91 requirements.

1.5.2 Gas Chromatographs

To verify detector sensitivity and chromatographic performance, calibration curves will be generated from the analysis of pure compounds at known concentrations covering the dynamic range within each analytical batch.

Detector response will be compared to a historical file for each compound or class of compounds to validate acceptable performance. If acceptable standard curves are not generated, corrective measures such as replacing glass injector linings, changing septa, changing columns, and "baking" columns and/or detectors will be employed until proper performance has been established.

1.6 TECHNICAL SYSTEM AUDITS

1.6.1 Field Procedures

Technical Systems audits for field sampling and analysis procedures will be conducted by a qualified H&A staff person who is familiar with the procedures being reviewed, but is not directly involved in the investigation. Systems audits will be conducted for groundwater and soil sampling and will occur at the beginning of each sampling task. An audit checklist will be prepared and used for each audit. It contains the items that pertain to the procedure under review such as well purging during the water quality sampling procedures. The checklists along with the auditor's observations and recommendations will be submitted to the QAO and Project Manager.

The following items will comprise the systems audit and will appear on the checklist:

- Field instrument calibration and appropriate documentation.
- Documentation of field log books and sampling data sheets.
- Potential contamination source minimization.
- Proper sample collection, storage, handling and transportation procedures.
- Compliance with chain-of-custody procedures.

1.6.2 Laboratory Procedures

Generally, for any and all measurement systems, the following chronological steps will be performed at one or more levels of the data generation process:

- sample receipt;
- sample logging, inventory, chain-of-custody;
- sample splitting and preservation (if required);

- sample storage;
- sample preparation (extraction and/or digestion);
- sample analysis (standard, QC and samples);
- data calculation;
- data reporting (internal);
- data review/QC logging;
- re-analysis (if and when required) and assessment;
- report preparation;
- report issuance/central file maintenance;
- data storage on magnetic tape
- sample archival and/or disposal.

Two specific analytical groups will be involved in the analytical protocols for this project. These groups will be GC and GC/MS. The specific means by which each group processes the data will be in general agreement with the steps listed above.

Linearity of the standard curve will be verified through regression analysis and final sample concentrations will be entered in a metals data logbook once quality control information, including the results of the SRM's, is deemed acceptable. These results will be transcribed into a final report form for final data/QC review and subsequent issuance.

Gas Chromatography (including separations laboratory)

The sample processing begins in the separations laboratory where a bound notebook will be maintained for the purpose of recording all pertinent information regarding the extraction and clean-up (if required) for the samples. This logbook will contain the following data:

- analyst
- extraction date
- job number
- sample I.D.
- extracted volume or weight of sample

- final concentration volume
- vial number (for extracts produced)
- analysis type (Base/Neutral, Acid Phase, Pesticide)
- glassware set

The above information will be required for either GC or GC/MS analyses. After samples have been prepared for analysis, the GC department will utilize a series of logs, reporting forms and computers to maintain the necessary data. The first will be a bound injection log which contains the following:

- analyst
- injection date
- job number
- sample I.D. vial number
- instrument run number
- method number (specific column and instrument conditions for the particular analyses)
- detector used

On the day that specific analyses will be performed, a minimum of three (3) point, standard curve will be generated via both computer assisted raw data plotting and regression analyses, using the areas as integrated by the gas chromatograph. The integrations and the standard curves will be reviewed by the analyst for consistency and accuracy, and if found acceptable, the sample concentrations will be calculated using standardized internal report forms. These forms will also contain information relative to field blanks, method blanks and solvent blanks associated with the analysis. Information data required for these calculations will be acquired from both the separations and the injection logbooks.

All chromatographs, standards information, QA/QC results, copies of separations and injection logbook pages and other project specific information will be maintained in separate files and used for data calculation and final report preparation.

Gas Chromatography/Mass Spectrometry (GC/MS)

A bound injection log will be maintained for each GC/MS unit and contains the following information:

- analysis date/time

- analyst
- computer file number
- sample I.D. and extract vial number
- job number
- injected volume
- extracted volume
- final volume and dilution
- column number
- injection port temperature
- GC temperature program
- run time
- column pressure
- multiplier setting
- internal standard retention time and % recovery
- surrogate retention time and % recovery

On each day of analysis, a standard curve will be generated to determine calibration factors. Samples will be searched for the characteristic ions of each compound of interest (as listed in the method) and if the ion's retention time and ratio meet the established NYSDEC ASP91 criteria, the compound will be qualitatively identified. The analyte concentration will be calculated from the primary ion area. The same type of procedure will be used for the evaluation of field blanks, method blanks and solvent blanks.

The data will be reviewed relative to the appropriate quality control results for that analytical batch. Internal reporting forms will be used for precision and accuracy data from the GC/MS analysis of volatiles and/or base neutral, acid phenolic or pesticide/PCB determinations. Upon approval by the GC/MS group supervisor, the project sample analytical data will be transferred to the report preparation group for final review and report issuance.

1.7 PERFORMANCE AND SYSTEM AUDITS

By NEIC definition, an audit is a systematic check to determine the quality of operation of some function or activity. Audits are further defined as being of two basic types; performance and system audits.

A performance audit is one in which quantitative or qualitative data are independently obtained for comparison with routinely obtained data from a measurement system. Performance audits to be completed by the contract laboratory will incorporate a number of mechanisms including the analyses of performance evaluation samples, U.S. Environmental Protection Agency, NYSDOH, as well as the analysis of commercially available check samples and/or the EPA's quality assurance check sample program. Additionally, the contract laboratory QA Officer will submit blind performance evaluation samples to the laboratory on a semi-annual basis. The routine use of available and applicable SRM's also provides for a continuous performance audit.

System audits, as opposed to performance audits, are strictly qualitative and consist of an on-site review of a laboratory's quality assurance system and physical facilities for calibration and measurement. System audits are routinely performed by NYSDEC Bureau of Technical Services (BTS) personnel as an element of certification programs. Additionally, detailed internal audits will also be performed on a semi-annual basis by the contract laboratory Quality Assurance Officer.

At the conclusion of internal or external system audits, reports will be provided to the contract laboratory's operating divisions for appropriate comment and remedial/corrective action where necessary. Written response to internal as well as external audits will be required. Records of audits and corrective actions will be maintained by the Contract Laboratory QA Officer.

1.8 PREVENTATIVE MAINTENANCE

1.8.1 Field Procedures

The field equipment preventive maintenance program helps to ensure the effective completion of the sampling effort and is designed to minimize equipment down time. Program implementation is concentrated in three areas:

- Maintenance responsibilities.
- Maintenance schedules.
- Inventory of critical spare parts and equipment.

The maintenance responsibilities for field equipment will be assigned to the task leaders in charge of specific field operations. Field personnel will be responsible for daily field checks and calibrations and for reporting any problems with the equipment. The maintenance schedule will follow the manufacturer's recommendations. In addition, the field personnel will be responsible for determining that critical spare parts are included with the field equipment. An adequate inventory of spare parts will be maintained to

minimize down time. The inventory will primarily contain parts that are subject to frequent failure, have limited useful lifetimes and/or can't be obtained in a timely manner.

1.8.2 Laboratory Procedures

All analytical equipment at the contract laboratory will be covered by some type of maintenance contract. The degree and extent of outside (contracted) routine and/or preventative maintenance assistance will be a function of the complexity of the equipment, and the contract laboratory expertise relative to repair and/or maintenance of the instrumentation.

Annual preventative maintenance service visits will involve cleaning, adjusting, inspecting and testing procedures designed to deduce product failure and/or extend useful product life. Between visits, routine operator maintenance and cleaning will be performed according to manufacturer's specifications.

1.9 DATA ASSESSMENT PROCEDURES

1.9.2 Field Procedures

In order to maintain data quality, standard operating procedures for field procedures have been developed and are contained in the attached appendices.

Field-generated information such as permeability testing data, soil and rock conditions, logs and field analysis forms will be reviewed for validity. The reviewing will include field logbooks/forms, data entry and calculation checks.

1.9.2 Laboratory Procedures

Quality Assurance (QA) procedures are based on the specific methodology utilized for sample analysis. Each analytical procedure includes determination/maintenance of standard response and linearity, instrument tuning, internal standard responses, surrogate recoveries in blanks and samples, spike recoveries and replicate precision. Many of the QA criteria are method based and decisions as to corrective action in the form of re-analysis will be determined by the analyst. Surrogate, internal standard and spike recoveries will be plotted on control charts so that trends in data quality can also be monitored so that appropriate and timely corrective action can be taken.

The contract laboratory's quality assurance/quality control program will include the following:

- Precision, in terms of replicate percent difference (RPD), will be determined by replicate sample analysis at a frequency of one per sample set or one sample in ten (10%) whichever is greater or at the appropriate frequency as defined by the method. RPD is defined as the absolute difference of replicate measurements divided by the mean of these analyses normalized to percentage.

- Accuracy, in terms of percent recovery (recovery of known constituent additions or surrogate recoveries), will be determined by the analysis of spiked and unspiked samples. The objective is to spike with such a quantity as to raise the sample concentration to 75% of the working analytical range. For large on-going projects, it will often times be most advantageous to perform the spiking of a random sample after the initial analysis has been completed. Alternatively and specific to certain methods, matrix spike and matrix spike duplicates are used for expression of accuracy. Recovery data can be gathered in two (2) forms; relative recovery and absolute recovery. Relative recovery is based on a spike being added to project samples while absolute recovery is based upon the SRM's or spiking of laboratory water (matrix spike blank). The frequency of spiking for both absolute and/or relative recoveries will be one per sample set or one sample in ten (10%) whichever is greater. The selection of relative recovery or absolute recovery will be determined by the volume of sample available for analysis. Generally, if greater than ten samples have been received, a relative and an absolute recovery will be measured.

- With each set of project samples a method blank will be prepared and analyzed. If field blanks are received, this blank will be processed and reported as a project sample. Trip blanks, if received will also be analyzed, processed and reported as a project sample. Trip blanks will be prepared and analyzed with all sample collections for volatile organic analysis. Additionally, holding blanks for volatile analysis and solvent blanks will be prepared as required. Solvent blanks are analyzed based upon method blank results and/or changes in solvent suppliers/lots. Unprocessed solvent blanks will be continually analyzed on the GC and or GC/MS as a routine control measure for these instruments.

- Standard Reference Materials (SRM's) will be used for each analysis. Sources of SRM's include the U.S. Environmental Protection Agency, commercially available material from CRADA certified vendors and/or laboratory produced solutions. SRM's, when available and appropriate, will be processed and analyzed on a frequency of one per set of samples.

- Stock and working standard solutions and separate spiking solutions will be prepared from materials supplied by the U.S. Environmental Protection Agency or purchased from commercially available sources. Standard curves will be generated consistent will methodology. Standard curves will be produced once per day and/or verified by re-analysis of mid-range standards at least every tenth sample. Standard curves for conventional parameters (i.e. cyanide) will not be generated daily but will be verified on a daily basis. Standard curves will also be reviewed for consistency to help identify problems that could be associated with the applicable instruments and/or the standard solutions.

1.10 INVESTIGATIVE CORRECTIVE ACTION

1.10.1 Field Procedures

Corrective action is intended to correct problems that arise when sampling or measurement procedures and environmental data do not meet accepted performance

criteria. The Project Task & Field Manager, Task Coordinators, and Quality Assurance Officer will be responsible for ensuring the quality of the sampling procedures and environmental data and initiating corrective action when appropriate.

The corrective action procedures will be as follows:

- Identify/define the problem.
- Assign responsibility for investigating the problem.
- Investigate/determine the cause of the problem.
- Determine an appropriate corrective action to eliminate the problem.
- Implement the corrective action.
- Evaluate the effectiveness of the corrective action.
- Verify that the corrective action has eliminated the problem.

The above procedures will be implemented through the use of the Systems Audit as described previously or upon any team member becoming aware of the potential need for corrective action. Any member of the project may initiate corrective action procedures by reporting the nature of the suspected problem to the Project Manager or QAO. The Project Manager will begin corrective action by relating the problem to appropriate personnel. A corrective action alternative will be selected, implemented and verified through the use of technical audits.

1.10.2 Laboratory Procedures

Within a laboratory QA/QC program, a percentage of data will not meet all of the established criteria. The following paragraphs defines the corrective action decision process relative to possible non-compliant events within the contract laboratory QA/QC program.

a) If precision, accuracy and SRM (if available) data are all within the established warning limits; proceed with final issuance of data report including all QA/QC results.

b) If precision, accuracy and SRM (if available) are within control limits but one or all of these parameters exceed the warning limits, the source(s) of bias/error needs to be evaluated, but proceed with final issuance of data report including all QA/QC results.

Source of error/bias may be found in the following:

- calculation errors

- transcription errors
- sample matrix (i.e., high suspended solids in water sample, oily sediment, etc.
- sample homogeneity
- level of contaminant measured (validity of the precision measurement is a factor of concentration)
- analyst error (warning control limits exceeded for one analyst more frequently than others)
- appropriateness of method(s) based upon sample type (wastewater as opposed to drinking water)

c) If precision, accuracy and/or SRM (if available) are out of control, one of the following approaches to the problem can be used:

- SRM out-of-control whether or not precision or accuracy are in control; method based errors are suggested and all data is suspect. If SRM is verified as out-of-control (i.e., standards are checked, etc.) all samples will be re-analyzed or data reported as out-of-control, if no additional sample available.
- SRM (if available) is in control but absolute recovery is out of control; method based error is suspected. If standards and spiking solutions are verified to be accurate as independent solutions, all data is suspect unless reprocessing and re-analysis of absolute recovery sample can be completed to prove only random error. If systematic error (constant out-of-control absolute recovery) is found, all samples will be re-analyzed after corrective action has been taken.
- SRM (if available), absolute recovery and precision are in control but relative recovery is out of control; matrix problems are likely. Proceed to issue data report with appropriate qualifications as to possible matrix effects.
- SRM (if available), absolute recovery and relative recovery are in control but precision is out-of-control; matrix problem likely in the form of sample heterogeneity. If sample appears homogeneous, the sample will be re-analyzed; if data is still out-of-control, data report will be issued with qualifications. If, on the other hand, data is in control, analyst error will be suspected. Each data point from the original sample set will be appropriately qualified.

- SRM and absolute recovery are under control but both relative recovery and precision are out-of-control; matrix effects, sample homogeneity problems and/or analyst error will be suspected. If re-analysis of a well-mixed homogeneous sample by different analyst(s) is still out-of-control, the data will be with a qualifier relative to matrix effects. If upon re-analysis relative recovery is within control limits but precision is still uncontrolled, the data report will be issued with advise of potential errors relative to heterogeneity of sample. If, in the last possible case, re-analysis indicates adequate precision but uncontrolled relative recovery, the final data report will be issued with advise of possible sample matrix effects on this data.

d) Precision limits will be defined by a relative percent difference which, when exceeded, indicates unacceptable analytical performance. Accuracy limits will be expressed in percent recovery of spiked material. A recovery below or above the set criteria will indicate a need for corrective action.

If any analysis has been deemed "out-of-control" corrective action will be taken to insure continued data quality.

The following presents a number of corrective actions which may be employed, depending upon the particular situations.

- Calculations will be rechecked.
- Sampling handling, i.e., digestion, concentration and or extraction logs will be checked for discrepancies in sample handling.
- The target analyte concentration will be reviewed to determine if it has severely influenced the reliability of the precision or recovery calculations.
- The instrument and method performance will be verified by inspecting data on standard reference materials (SRMs) processed in the same data set.
- Quality control data on the other samples in the data set, including surrogate recovery, internal standards, etc., will be reviewed to determine if the problem was method related or sample related.
- If original sample is available, the sample will be assessed for homogeneity.
- If sample is unavailable and no explanation for poor quality control results can be determined, the Project Quality Assurance Officer will be notified and additional sample may be obtained. If additional sample is unavailable, the results will be issued with a qualification as to their accuracy.

1.11 QUALITY ASSURANCE (QA) REPORTS TO MANAGEMENT

Critically important to the successful implementation of the QA Plan is the reporting system which provides the means by which the program can be reviewed, problems identified and programmatic changes made to remediate or improve the plan.

Quality Assurance reports to management take a number of forms as follows:

- Audit reports, internal and external audits with responses
- Performance evaluation sample results; internal and external sources
- Daily QA/QC exception reports corrective actions
- QA charts

QA/QC corrective action reports will be prepared by the Contract laboratory QAO and presented to the contract laboratory management personnel so that performance criteria can be monitored for all analyses from each analytical department. The updated trend/QA charts prepared by the contract laboratory QA/QC personnel will also be distributed at least monthly and reviewed by various levels of the contract laboratory management as well as the Contract laboratory Officer.

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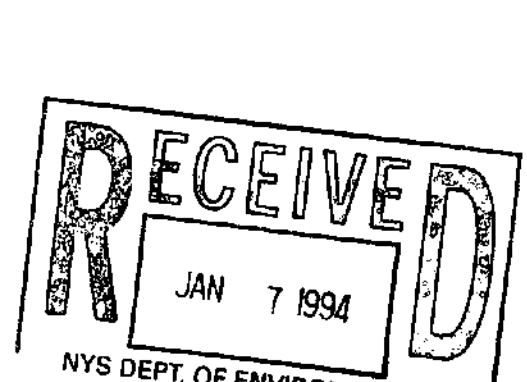
Appendix B

Appendix B

APPENDIX B

Health & Safety Plan



ENVIRONMENTAL HEALTH AND SAFETY REQUIREMENTS

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* Task-specific pages are non-paginated to allow for duplication.

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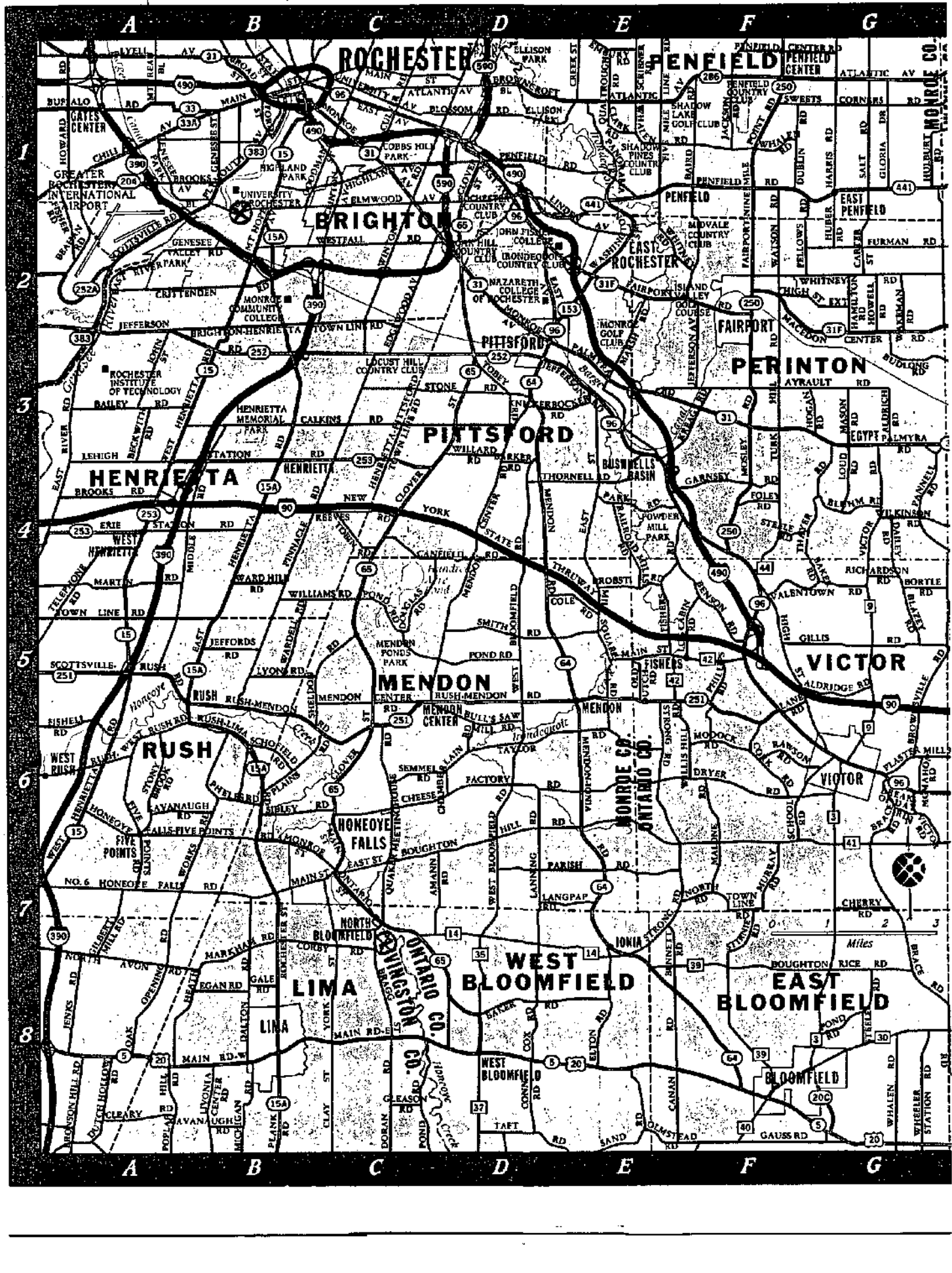
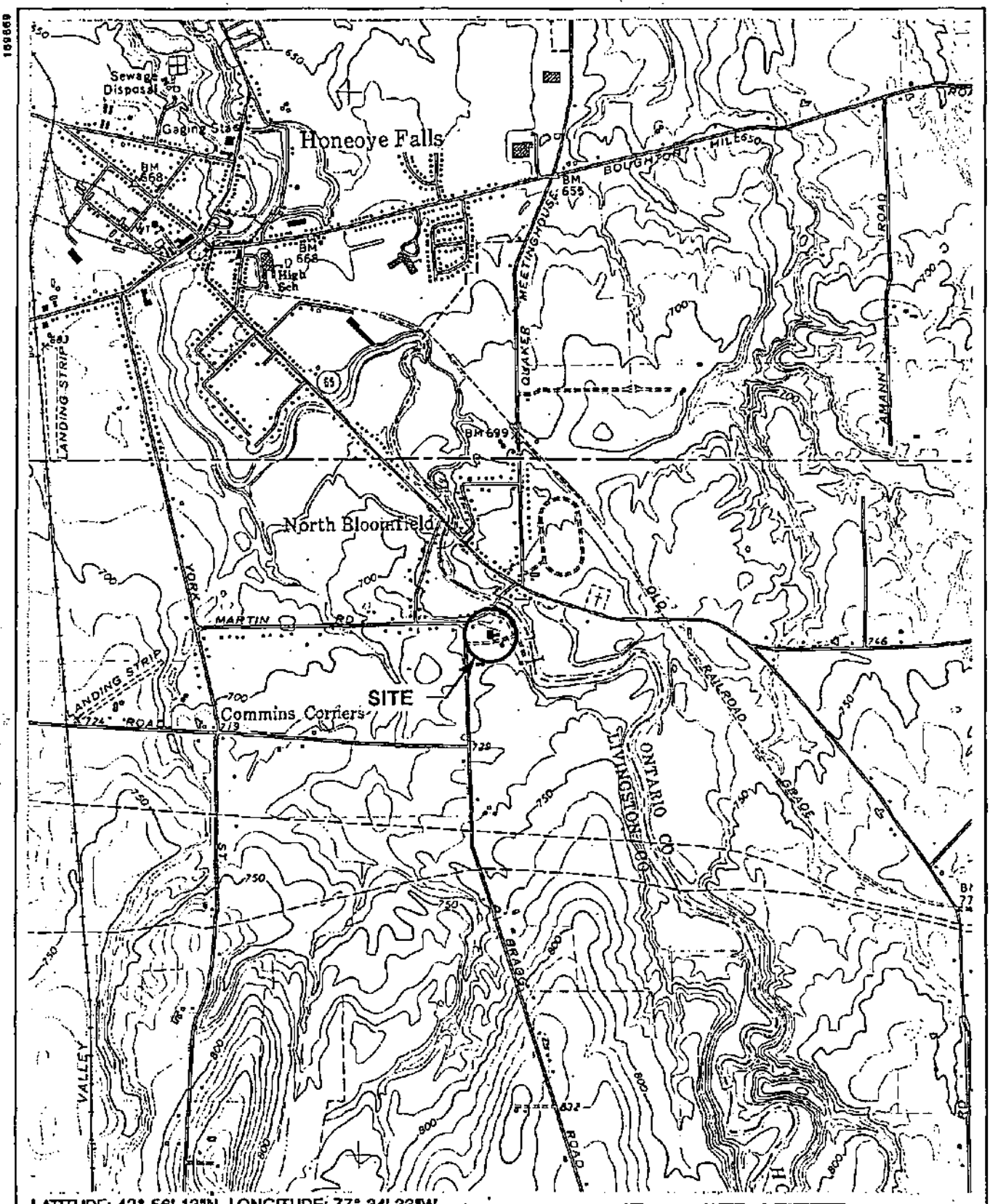
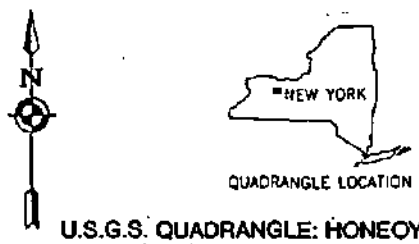
Livingston County Emergency Services	**911**
Ambulance Service	**911**
Fire Department	**911**
Police Department	**911**
H&A of New York Project Manager **Vincent Dick**	**232-7386**
H&A of New York Health & Safety Representative **Margaret Bonn**	**232-7386**
Kaddis Manufacturing Products Project Manager Ronald Iannucci	**464-9000**
Enarc-O Machine Products Health & Safety Representative Bruce Whitmore	624-3070
Occupation Health Physician Dr. Kenneth Dodgeson Strong Memorial Hospital 601 Elmwood Avenue Rochester, New York	**275-7795**
CHEMTREC (CHEMICAL TRANSPORTATION EMERGENCY CENTER)	**1-800-424-9300**
Hospital - Strong Memorial Hospital **601 Elmwood Ave.** **Rochester, New York** **Emergency Dept.** (map next page)	**275-4511**
Poison Control Strong Memorial Hospital	**275-5151**
New York State Department of Health David Napier	423-8071
Livingston County Health Department Ralph Van Houten	(1) 658-2866
New York State Department of Environmental Conservation Jim Craft - Region 8 Dave Chiusano - Albany Inactive Haz. Waste Site Remedial Program	 226-2466 (518) 457-3373 (800) 342-9296

Route to Strang Memorial Hospital





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



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. OCTOBER 1992

FILE NO. 70372-40

MAKEPEACE

FIGURE 1

TASK MODIFICATIONS AND PLAN APPROVAL

LIST BELOW EACH MODIFICATION TO THIS PLAN AND DATE MODIFIED

1.

2.

THE FOLLOWING SIGNATURES CONSTITUTE APPROVAL OF THIS HEALTH & SAFETY PLAN. THIS PLAN SHOULD NOT BE DEVIATED FROM WITHOUT PRIOR WRITTEN OR VERBAL APPROVAL.

THIS PLAN APPROVED BY:

			REVISIONS:	
CORPORATE HEALTH & SAFETY MANAGER	1/5/94 DATE		INITIAL/DATE	INITIAL/DATE
H&A BRANCH HEALTH & SAFETY MANAGER	1/5/94 DATE		INITIAL/DATE	INITIAL/DATE
PROJECT MANAGER	1/5/94 DATE		INITIAL/DATE	INITIAL/DATE

HEALTH AND SAFETY BRIEFING:

I HAVE READ, UNDERSTOOD AND AGREE TO FOLLOW THIS HEALTH & SAFETY PLAN.

			REVISIONS:	
NAME	SIGNATURE	DATE	INITIAL/DATE	INITIAL/DATE
NAME	SIGNATURE	DATE	INITIAL/DATE	INITIAL/DATE
NAME	SIGNATURE	DATE	INITIAL/DATE	INITIAL/DATE
NAME	SIGNATURE	DATE	INITIAL/DATE	INITIAL/DATE
NAME	SIGNATURE	DATE	INITIAL/DATE	INITIAL/DATE
NAME	SIGNATURE	DATE	INITIAL/DATE	INITIAL/DATE
NAME	SIGNATURE	DATE	INITIAL/DATE	INITIAL/DATE

I. INTRODUCTION

This document presents the Enarc-O Machine Products Environmental Health and Safety Plan, to be followed by authorized contractors, H&A of New York, other persons engaged in field activities associated with environmental projects conducted at Enarc-O Machine Products. The scope of work covered by this Health and Safety Plan (HSP) includes, but is not limited to, such projects as: soil vapor sampling, groundwater investigations, soil characterization studies, excavation projects, soil and groundwater remediation, and tank closure and replacement operations.

The provisions of this HSP are mandatory for all personnel assigned to the activities described in the work plan for this project. The Health and Safety procedures contained in this document have been developed for the activities associated with this project and will be periodically reviewed and revised as necessary to keep them current and technically correct.

The requirements set forth in this HSP are minimum health and safety protocols and duties to be adhered to and enforced during environmental investigation activities described in the following sections.

Plan Organization

Occupational Safety and Health Administration (OSHA) regulations under 29 CFR 1910.120 require that a project specific health and safety plan be developed for RCRA and CERCLA related hazardous materials/waste investigations and activities. This plan has been developed to meet these requirements and related OSHA criteria such as, but not limited to, respiratory protection, eye and hearing protection, trenching/excavation safety and confined space entry. This plan includes hazard evaluation, engineering controls, administrative controls, personal protective equipment (PPE), monitoring procedures, decontamination procedures, and emergency response provisions to meet the OSHA requirements above.

The plan is organized into two parts. The first part (Section II) contains task-specific health and safety procedures. It is intended to be updated and revised as new tasks are added to the project or new information becomes available which modifies task-specific health & safety needs. The second part (Section III) describes general health and safety procedures and information that applies to all tasks. Personal exposure limits (PELs), odor thresholds and hazardous compound physical properties appear in Table 1. Monitoring instrument action levels and appropriate level of protection responses appear in Table 2. **EMERGENCY CONTACTS AND PHONE NUMBERS ARE LISTED IMMEDIATELY FOLLOWING THE TABLE OF CONTENTS.**

II. TASK SPECIFIC HEALTH & SAFETY PROCEDURES

2.1 MASTER TASK LIST

This section describes health & safety procedures specific to individual tasks associated with the project. Additional task description sheets shall be developed and added to this section as necessary.

A master list of the tasks included in this section is provided below.

Task Name

1 Soil gas survey inside facility and at outside locations

2 Installation of monitoring wells

3 Hydrogeologic testing, sampling of monitoring and resident's wells, and soil

4

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6

7

8

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2.2 TASK-SPECIFIC HEALTH AND SAFETY REQUIREMENTS

✓ Initial

___ Revision

Task Name(s)*: Soil gas survey

Task Description: Source area soil gas survey inside the building and immediately adjacent to the building. Hand-opeated impact drill used to make holes through concrete. Sampling depths are 2 and 5 ft. Second phase of soil gas survey will define lateral and vertical extent of contamination. Soil vapor samples will be obtained from borings advanced using a hollow stem auger drilling rig.

Duration: 1 week

Media Affected: ✓ air ✓ soil ___ surface water ___ waste ✓ groundwater

Area Within Site Where Task(s) to be performed: Inside building near degreaser, adjacent to building near previous location of underground storage tank, an area east of the facility building and an area adjacent to MW2 and MW3.

2.2.1 HAZARD EVALUATION (check all that apply)

CHEMICAL HAZARDS:**

CHARACTERISTICS:

___ FLAMMABLE/COMBUSTIBLE
___ CORROSIVE
___ REACTIVE
✓ TOXIC
✓ VOLATILE
___ EXPLOSIVE
___ RADIOACTIVE
___ UNKNOWN
___ OTHER _____

TYPE:

___ SOLID/DUST
___ LIQUID/MIST
___ SLUDGE
✓ GAS/VAPOR/FUMES
✓ ORGANIC
___ HEAVY METAL
___ INORGANIC
___ PESTICIDE
___ PCB
___ ACID
___ BASE
✓ CARCINOGEN
___ FUEL/PETROLEUM PRODUCT
___ OTHER

PHYSICAL HAZARDS:

___ ACTIVE CONSTRUCTION SITE
___ CONFINED SPACE ENTRY
___ ELECTRICAL EQUIPMENT
___ EXCAVATION/TRENCHING
✓ UNDERGROUND UTILITIES
___ OVERHEAD UTILITIES
___ OPEN WATER
✓ TEMPERATURE EXTREMES
✓ NOISE
___ ASBESTOS
___ OTHER _____

2.2.2 PROTECTIVE AND CONTROL MEASURES

ENGINEERING CONTROLS:

- ___ VENTILATE AREA
- ___ DISCONNECT/CLEANOUT LINES
- ___ SLOPE EXCAVATION
- ___ SHORE EXCAVATION
- ✓ ELIMINATE IGNITION SOURCES
- ✓ TAPE OFF AREA
- POST WORK/WARNING SIGNS
- ___ PLASTIC SHEETING IN AREA
- ___ DESIGNATE NO SMOKING AREA
- ___ ESCAPE LADDER
- ✓ UTILITY CLEARANCES OBTAINED (DIG SAFE CONTACTED)
- ✓ PRIVATE UTILITIES CLEARED
- ___ LINES SHIELDED/DE-ENERGIZED LOCKED & TAGGED OUT
- ___ LIFE JACKETS/BARRICADES NEAR WATER
- ___ HEAT OR AIR CONDITIONING SOURCE FOR TEMPERATURE EXTREMES
- ___ OTHER _____

LEVEL OF PROTECTION:

- ✓ MODIFIED D (HOW MODIFIED) chemical-resistant gloves
- ___ LEVEL D tyvek coverall, resp. avail.
- ___ MODIFIED C (HOW MODIFIED) _____
- ___ LEVEL C
- ___ MODIFIED B (HOW MODIFIED) _____
- ___ LEVEL B

PERSONAL PROTECTIVE EQUIPMENT:

- ✓ SAFETY GLASSES
- ___ EYE/FACE SHIELD
- ✓ GLOVES (CIRCLE TYPES) INNER LATEX INNER COTTON, BUTYL, NEOPRENE, BUTYL, PVC NITRILE, SILVER SHIELD, OTHER _____
- ___ DUCT TAPE
- ✓ EAR PROTECTION (CIRCLE TYPE) EAR PLUGS, EAR PHONES
- ✓ BOOTS (CIRCLE TYPE) STEEL TOE, DISPOSABLE COVERS, LATEX, WADERS, OTHER _____
- ✓ TYVEK COVERALL
- ___ SARANEX COVERALL
- ___ HARD HAT
- ✓ RESPIRATOR (INDICATE TYPE OF CARTRIDGE) GMC-H
- ✓ FIRE EXTINGUISHER
- ✓ FIRST AID KIT
- ___ LOUD SIGNALING DEVICE (CIRCLE TYPE) AIR HORN, WHISTLE
- ___ FLASHLIGHT
- ___ SAFETY SHOWER/EYE WASH
- ___ WALKIE-TALKIE
- ___ OTHER: _____

2.2.3 ENVIRONMENTAL MONITORING

Equipment:	Action Thresholds*	Level of Protection
___ HNU (CIRCLE ONE) 10.2 EV 11.7 EV		
___ PHOTOVAC MIRCROTIP (10.6 EV)		
✓ OVA	per table 2	D → C
___ EXPLOSIMETER/O_2 METER		
___ RADIATION METER		
___ HYDROGEN CYANIDE METER		
✓ PHOTOVAC GC	per table 2	D → C
✓ DRAEGER TUBE Vinyl Chloride	1 ppm	D → C
___ RESPIRABLE DUST MONITOR		
___ OTHER _____		

Frequency

- ✓ BREATHING ZONE — every 15 min. - Drager tubes for initial exploration screening
- ✓ PERIMETER — every 2 hours at exclusion zone perimeter in downwind direction.

* List only those differing from or in addition to Table 2.

2.2.4 DECONTAMINATION EQUIPMENT AND PROCEDURES

DECONTAMINATION EQUIPMENT:

- ✓ TAP WATER
- ___ DISTILLED WATER
- ___ HEXANE
- ___ METHANOL
- ___ ACETONE
- ✓ ALCONOX
- ✓ BRUSHES
- ✓ PLASTIC SHEETING
- ✓ DISPOSAL BAGS
- ___ WASH TUBS (HOW MANY) _____
- ___ PAPER TOWELING
- ✓ STEAM CLEANER

SITE CONTROL/DECONTAMINATION PROCEDURES:

DISTINGUISHING FEATURES WHICH DELINEATE ZONES AND APPROXIMATE DIMENSIONS IN FEET:

EXCLUSION ZONE - 25 foot radius from work zone, delineated by red caution tape.

CONTAMINATION REDUCTION ZONE - 25 ft. radius from exclusion zone, mark with yellow caution tape.

SUPPORT ZONE -

DECONTAMINATION PROCEDURES WHICH ARE TO OCCUR IN:

EXCLUSION ZONE -

CONTAMINATION REDUCTION ZONE - Wash and/or decontaminate monitoring equipment, drilling equipment and PPE. Remove PPE and dispose in disposal bags.

SUPPORT ZONE -

2.2.5 EMERGENCY RESPONSE

If any organic concentrations greater than 5 ppm over background, attributed directly to drilling activities conducted at the Enarc-O site, are identified 200 feet downwind or half the distance to the nearest residential or commercial property, whichever is less, all drilling must be halted.

SEE EMERGENCY CONTACTS LISTED IMMEDIATELY FOLLOWING THE TABLE OF CONTENTS.

2.2 TASK-SPECIFIC HEALTH AND SAFETY REQUIREMENTS

✓ Initial

___ Revision

Task Name(s)*: Installation of Monitoring Wells

Task Description: Two bedrock and one overburden monitoring wells will be installed.

Duration: 1 week

Media Affected: ✓ air ✓ soil ___ surface water ___ waste ✓ groundwater

Area Within Site Where Task(s) to be performed: One bedrock well and the overburden will be installed in the vicinity of former TCA underground tank. The other bedrock well will be installed south of facility near the entrance to the storage building.

2.2.1 HAZARD EVALUATION (check all that apply)

CHEMICAL HAZARDS:**

CHARACTERISTICS:
- ___ FLAMMABLE/COMBUSTIBLE
- ___ CORROSIVE
- ___ REACTIVE
- ✓ TOXIC
- ✓ VOLATILE
- ___ EXPLOSIVE
- ___ RADIOACTIVE
- ___ UNKNOWN
- ___ OTHER _____

TYPE:
- ___ SOLID/DUST
- ___ LIQUID/MIST
- ___ SLUDGE
- ✓ GAS/VAPOR/FUMES
- ✓ ORGANIC
- ___ HEAVY METAL
- ___ INORGANIC
- ___ PESTICIDE
- ___ PCB
- ___ ACID
- ___ BASE
- ✓ CARCINOGEN
- ___ FUEL/PETROLEUM PRODUCT
- ___ OTHER

PHYSICAL HAZARDS:
- ___ ACTIVE CONSTRUCTION SITE
- ___ CONFINED SPACE ENTRY
- ___ ELECTRICAL EQUIPMENT
- ___ EXCAVATION/TRENCHING
- ✓ UNDERGROUND UTILITIES
- ___ OVERHEAD UTILITIES
- ___ OPEN WATER
- ✓ TEMPERATURE EXTREMES
- ✓ NOISE
- ___ ASBESTOS
- ___ OTHER _____

2.2.2 PROTECTIVE AND CONTROL MEASURES

ENGINEERING CONTROLS:

- ___ VENTILATE AREA
- ___ DISCONNECT/CLEANOUT LINES
- ___ SLOPE EXCAVATION
- ___ SHORE EXCAVATION
- ✓ ELIMINATE IGNITION SOURCES
- ✓ TAPE OFF AREA
- ___ POST WORK/WARNING SIGNS
- ___ PLASTIC SHEETING IN AREA
- ___ DESIGNATE NO SMOKING AREA
- ___ ESCAPE LADDER
- ✓ UTILITY CLEARANCES OBTAINED (DIG SAFE CONTACTED)
- ✓ PRIVATE UTILITIES CLEARED
- ___ LINES SHIELDED/DE-ENERGIZED LOCKED & TAGGED OUT
- ___ LIFE JACKETS/BARRICADES NEAR WATER
- ___ HEAT OR AIR CONDITIONING SOURCE FOR TEMPERATURE EXTREMES
- ___ OTHER _____

LEVEL OF PROTECTION:

- ✓ MODIFIED D (HOW MODIFIED) chemical resistant gloves
- ___ LEVEL D tyvek coverall, resp. avail.
- ___ MODIFIED C (HOW MODIFIED) _____
- ___ LEVEL C
- ___ MODIFIED B (HOW MODIFIED) _____
- ___ LEVEL B

PERSONAL PROTECTIVE EQUIPMENT:

- ✓ SAFETY GLASSES
- ___ EYE/FACE SHIELD
- ✓ GLOVES (CIRCLE TYPES) INNER LATEX INNER COTTON, BUTYL, NEOPRENE, BUTYL, PVC NITRILE, SILVER SHIELD, OTHER _____
- ___ DUCT TAPE
- ✓ EAR PROTECTION (CIRCLE TYPE) EAR PLUGS, EAR PHONES
- ✓ BOOTS (CIRCLE TYPE) STEEL TOE, DISPOSABLE COVERS, LATEX, WADERS, OTHER _____
- ✓ TYVEK COVERALL
- ___ SARANEX COVERALL
- ___ HARD HAT
- ✓ RESPIRATOR (INDICATE TYPE OF CARTRIDGE) GMC-H
- ✓ FIRE EXTINGUISHER
- ✓ FIRST AID KIT
- ___ LOUD SIGNALING DEVICE (CIRCLE TYPE) AIR HORN, WHISTLE
- ___ FLASHLIGHT
- ___ SAFETY SHOWER/EYE WASH
- ___ WALKIE-TALKIE
- ___ OTHER: _____

2.2.3 ENVIRONMENTAL MONITORING

Equipment:	Action Thresholds*	Level of Protection
✓ HNU (CIRCLE ONE) 10.2 EV 11.7 EV	per table 2	D → C
___ PHOTOVAC MIRCROTIP (10.6 EV)		
✓ OVA	per table 2	D → C
___ EXPLOSIMETER/O_2 METER		
___ RADIATION METER		
___ HYDROGEN CYANIDE METER		
___ PHOTOVAC GC		
✓ DRAEGER TUBE Vinyl Chloride	1 ppm	D → C
___ RESPIRABLE DUST MONITOR		
___ OTHER _____		

Frequency

- ✓ BREATHING ZONE — every 15 min. - Drager tubes for initial screening of exploration
- ✓ PERIMETER — every 2 hours downwind at exclusion zone perimeter.

2.2.4 DECONTAMINATION EQUIPMENT AND PROCEDURES

DECONTAMINATION EQUIPMENT:

- ✓ TAP WATER
- — DISTILLED WATER
- — HEXANE
- — METHANOL
- — ACETONE
- ✓ ALCONOX
- ✓ BRUSHES
- ✓ PLASTIC SHEETING
- ✓ DISPOSAL BAGS
- — WASH TUBS (HOW MANY) _____
- — PAPER TOWELING
- ✓ STEAM CLEANER

SITE CONTROL/DECONTAMINATION PROCEDURES:

DISTINGUISHING FEATURES WHICH DELINEATE ZONES AND APPROXIMATE DIMENSIONS IN FEET:

EXCLUSION ZONE - 25 foot radius from work zone, delineated by red caution tape.

CONTAMINATION REDUCTION ZONE - 25 ft. radius from exclusion zone, mark with yellow caution tape.

SUPPORT ZONE -

DECONTAMINATION PROCEDURES WHICH ARE TO OCCUR IN:

EXCLUSION ZONE -

CONTAMINATION REDUCTION ZONE - Wash and/or decontaminate monitoring equipment, drilling equipment and PPE. Remove PPE and dispose in disposal bags.

SUPPORT ZONE -

2.2.5 EMERGENCY RESPONSE

If any organic concentrations greater than 5 ppm over background, attributed directly to drilling activities conducted at the Enarc-O site, are identified 200 feet downwind or half the distance to the nearest residential or commercial property, whichever is less, all drilling must be halted.

SEE EMERGENCY CONTACTS LISTED IMMEDIATELY FOLLOWING THE TABLE OF CONTENTS.

2.2 TASK-SPECIFIC HEALTH AND SAFETY REQUIREMENTS

✓ Initial

___ Revision

Task Name(s)*: Hydrogeologic testing, and sampling of monitoring and resident's wells, soil sampling.

Task Description: Perform hydrogeologic teting at newly and previously installed wells to include: rising head permeability testing, pumping tests, and measurement of water levels. Sample monitoring wells at the facility and selected residential wells for groundwater analysis.

Duration: 1/2 week

Media Affected: ___ air ___ soil ___ surface water ___ waste ✓ groundwater

Area Within Site Where Task(s) to be performed: New and existing monitoring wells, the facility supply well, and residential wells.

2.2.1 HAZARD EVALUATION (check all that apply)

CHEMICAL HAZARDS:**

CHARACTERISTICS:
- ___ FLAMMABLE/COMBUSTIBLE
- ___ CORROSIVE
- ___ REACTIVE
- ✓ TOXIC
- ✓ VOLATILE
- ___ EXPLOSIVE
- ___ RADIOACTIVE
- ___ UNKNOWN
- ___ OTHER _____

TYPE:
- ___ SOLID/DUST
- ___ LIQUID/MIST
- ___ SLUDGE
- ✓ GAS/VAPOR/FUMES
- ✓ ORGANIC
- ___ HEAVY METAL
- ___ INORGANIC
- ___ PESTICIDE
- ___ PCB
- ___ ACID
- ___ BASE
- ✓ CARCINOGEN
- ___ FUEL/PETROLEUM PRODUCT
- ___ OTHER

PHYSICAL HAZARDS:

- ___ ACTIVE CONSTRUCTION SITE
- ___ CONFINED SPACE ENTRY
- ✓ ELECTRICAL EQUIPMENT (1)
- ___ EXCAVATION/TRENCHING
- ___ UNDERGROUND UTILITIES
- ___ OVERHEAD UTILITIES
- ___ OPEN WATER
- ✓ TEMPERATURE EXTREMES
- ___ NOISE
- ___ ASBESTOS
- ✓ OTHER hazards at residential property (animals, tripping hazards)

(1) Where residential wells are equipped with submersible pumps.

2.2.2 PROTECTIVE AND CONTROL MEASURES

ENGINEERING CONTROLS:

- ___ VENTILATE AREA
- ___ DISCONNECT/CLEANOUT LINES
- ___ SLOPE EXCAVATION
- ___ SHORE EXCAVATION
- ___ ELIMINATE IGNITION SOURCES
- ___ TAPE OFF AREA
- POST WORK/WARNING SIGNS
- ✓ PLASTIC SHEETING IN AREA
- ___ DESIGNATE NO SMOKING AREA
- ___ ESCAPE LADDER
- ___ UTILITY CLEARANCES OBTAINED (DIG SAFE CONTACTED)
- ___ PRIVATE UTILITIES CLEARED
- ___ LINES SHIELDED/DE-ENERGIZED LOCKED & TAGGED OUT
- ___ LIFE JACKETS/BARRICADES NEAR WATER
- ___ HEAT OR AIR CONDITIONING SOURCE FOR TEMPERATURE EXTREMES
- ___ OTHER _____

LEVEL OF PROTECTION:

- ✓ MODIFIED D (HOW MODIFIED) chemical resistant gloves
- ___ LEVEL D
- ___ MODIFIED C (HOW MODIFIED) _____
- ___ LEVEL C
- ___ MODIFIED B (HOW MODIFIED) _____
- ___ LEVEL B

PERSONAL PROTECTIVE EQUIPMENT:

- ✓ SAFETY GLASSES
- ___ EYE/FACE SHIELD
- ✓ GLOVES (CIRCLE TYPES) INNER LATEX INNER COTTON, BUTYL, NEOPRENE, BUTYL, PVC NITRILE, SILVER SHIELD, OTHER _____
- ___ DUCT TAPE
- ___ EAR PROTECTION (CIRCLE TYPE) EAR PLUGS, EAR PHONES
- ___ BOOTS (CIRCLE TYPE) STEEL TOE, DISPOSABLE COVERS, LATEX, WADERS, OTHER _____
- ___ TYVEK COVERALL
- ___ SARANEX COVERALL
- ___ HARD HAT
- ___ RESPIRATOR (INDICATE TYPE OF CARTRIDGE) GMC-H _____
- ___ FIRE EXTINGUISHER
- ✓ FIRST AID KIT
- ___ LOUD SIGNALING DEVICE (CIRCLE TYPE) AIR HORN, WHISTLE
- ___ FLASHLIGHT
- ___ SAFETY SHOWER/EYE WASH
- ___ WALKIE-TALKIE
- ___ OTHER: _____

2.2.3 ENVIRONMENTAL MONITORING

Equipment:	Action Thresholds*	Level of Protection
___ HNU (CIRCLE ONE) 10.2 EV 11.7 EV		
___ PHOTOVAC MIRCROTIP (10.6 EV)		
✓ OVA	per table 2	D → C
___ EXPLOSIMETER/O_2 METER		
___ RADIATION METER		
___ HYDROGEN CYANIDE METER		
___ PHOTOVAC GC		
___ DRAEGER TUBE _____		
___ RESPIRABLE DUST MONITOR		
___ OTHER _____		

Frequency

✓ BREATHING ZONE	once at each well location.	
___ PERIMETER		

2.2.4 DECONTAMINATION EQUIPMENT AND PROCEDURES

DECONTAMINATION EQUIPMENT:

- ✓ TAP WATER
- ___ DISTILLED WATER
- ___ HEXANE
- ___ METHANOL
- ___ ACETONE
- ✓ ALCONOX
- ___ BRUSHES
- ___ PLASTIC SHEETING
- ✓ DISPOSAL BAGS
- ___ WASH TUBS (HOW MANY) _____
- ✓ PAPER TOWELING
- ___ STEAM CLEANER

SITE CONTROL/DECONTAMINATION PROCEDURES:

DISTINGUISHING FEATURES WHICH DELINEATE ZONES AND APPROXIMATE DIMENSIONS IN FEET:

EXCLUSION ZONE - 25 foot radius from work zone, no markings on residential property.

CONTAMINATION REDUCTION ZONE - 25 ft. radius from exclusion zone, no markings on residential property.

SUPPORT ZONE -

DECONTAMINATION PROCEDURES WHICH ARE TO OCCUR IN:

EXCLUSION ZONE -

CONTAMINATION REDUCTION ZONE - Wash and/or decontaminate sampling equipment and gloves.

SUPPORT ZONE -

2.2.5 EMERGENCY RESPONSE

SEE EMERGENCY CONTACTS LISTED IMMEDIATELY FOLLOWING THE TABLE OF CONTENTS.

TABLE 2

MONITORING METHOD, ACTION LEVELS AND PROTECTIVE MEASURES

INSTRUMENT	HAZARD	ACTION LEVEL[1]	ACTION RESPONSE
Respirable Dust Monitor	Contaminant Particles	> 0.05 mg/m^3	Level C Protection
OVA, HNU[2], Photovac Microtip	Organic Vapors	Background	Level D
		3 ppm > background or lowest OSHA permissible exposure limit, whichever is lower, or as modified for this task (see Section 2.2.3)	Level C, site evacuation may be necessary for specific compounds (see Section 2.2.3)
		50 ppm over background *unless lower values required* due to respirator protection factors	Level B[3]
Explosimeter[4]	Explosive Atmosphere	10% Scale Reading	Proceed with work
		10-15% Scale Reading	Monitor with extreme caution
		> 15% Scale Reading	Evacuate site
O_2 *Meter*[5]	*Oxygen Deficient* Atmosphere	*19.5% O_2* 19.5% - 25% O_2 < 19.5% O_2	*Monitor with caution* Continue with caution Evacuate site; oxygen deficient
		> 22% O_2	Evacuate site; fire hazard
Radiation Meter[6]	Ionizing Radiation	0.1 Millirem/Hour	If > 0.1, radiation sources may be present[7]
		$\geq$ 1 Millirem/Hour	Evacuate site; radiation hazard
Draeger Tube	Vapors/Gases	Species Dependent > 1 ppm Vinyl Chloride > 1 ppm benzene > 1 ppm 1,1-DCE	Consult manual for concentration/toxicity/detection data. Upgrade to Level C and evacuate. Upgrade to Level B if concentrations of compounds exceed thresholds shown at left.
GC	Organic Vapors	3 ppm > background or *lowest OSHA permissible* exposure limit, whichever is lower	On site monitoring or tedlar *bag sample collection for* laboratory analysis

Notes:

1. MONITOR BREATHING ZONE
2. CAN ALSO BE USED TO MONITOR SOME INORGANIC SPECIES.
3. POSITIVE PRESSURE DEMAND SELF CONTAINED BREATHING APPARATUS
4. LOWER EXPLOSIVE LIMIT (LEL) SCALE IS 0-100%. LEL FOR MOST GASSES IS 15%.
5. NORMAL ATMOSPHERIC OXYGEN CONCENTRATION AT SEA LEVEL IS ~ 20%.
6. BACKGROUND GAMMA RADIATION IS ~ 0.01 - 0.02 MILLIREMS/HOUR.
7. CONTACT H&A HEALTH AND SAFETY STAFF IMMEDIATELY.

III. GENERAL HEALTH & SAFETY PROCEDURES

3.1 ADMINISTRATIVE CONTROLS

3.1.1 Initial Health and Safety Training

Personnel will not be permitted to participate in or supervise field activities until they have been trained to a level required by their job function and responsibility. H&A of New York employees, contractors, subcontractors, and consultants who have the potential to be exposed to contaminated materials or physical hazards must complete the training described in the following sections.

3.1.2 40-Hour Health and Safety Training

This basic course provides instruction on the nature of hazardous waste work, protective measures, proper use of personal protective equipment, recognition of signs and symptoms which might indicate exposure to hazardous substances, and decontamination procedures. It is required for all personnel working on-site, such as equipment operators, general laborers, electricians, plumbers, supervisors, management, etc. who may be potentially exposed to hazardous substances, health hazards, or safety hazards consistent with 29 CFR 1910.120. The course must be conducted by a qualified instructor in accordance with 29 CFR 1910.120.

3.1.3 8-hour Annual Refresher Training

Personnel with 40-hour health and safety training are required to attend an annual 8-hour refresher course to remain current in their training. This course must also be conducted by a qualified instructor in accordance with 29 CFR 1910.120.

3.1.4 8-Hour Supervisor Training

On-site management and supervisors directly responsible for or who supervise employees engaged in hazardous waste operations must have eight additional hours of Supervisor training in accordance with 29 CFR 1910.120. This course includes, but is not limited to, elements appropriate to supervising hazardous waste related projects (e.g., accident reporting/investigation, regulatory compliance, work practice observations, auditing, emergency response procedures, etc.).

3.1.5 Additional Training for Specific Projects

Contractors will ensure their personnel have received additional training on specific instrumentation, equipment, confined space entry, construction hazards, etc., as necessary to perform their duties. This specialized training will be provided to personnel before engaging in the specific work activities.

3.1.6 Documentation of Training

The Contractor/Consultant Project Manager will be responsible for maintaining and providing to Kaddis Manufacturing documentation of its employees' compliance with required training. H&A of New York will only allow properly trained and qualified personnel to perform work at the site.

3.2 MEDICAL SURVEILLANCE PROGRAM

3.2.1 Purpose

The Medical Surveillance Program is conducted to provide an initial baseline of the worker's health. Subsequent medical exams are used to monitor the worker's continued well being. The implementation of a medical surveillance program is the responsibility of the contractor/subcontractor employer.

3.2.2 Requirements

Medical surveillance is required by the Occupational Safety and Health Administration (OSHA) 29 CFR 1910.120 (f): Hazardous Waste Site Operations and Emergency Response. The Contractor/Consultant's medical surveillance program must meet or exceed these regulatory requirements.

These regulatory requirements include the determination by a physician that the individual being examined is physically able to use respiratory protection and is able to perform the work defined within the specific job description. The capability of an individual to perform the specified work will be determined from examinations that may include:

- Medical and occupational history, and past gastrointestinal, hematologic, renal, cardiovascular, reproductive, immunological, and neurological problems as well as a history of respiratory disease and personal smoking habits;
- Physical examination, including blood pressure measurements;
- Pulmonary function test (FVC and FEV1);
- Chest x-ray;
- ECG (Electrocardiogram);
- Eye examination and visual acuity;
- Audiometry;
- Urinalysis; and
- Blood chemistry: Hematology, serum analyses, heavy metals toxicology.

3.2.3 Periodic Monitoring

All personnel are required to have a physical examination within the 12 months prior to the beginning of their work on-site. This period may be shortened if the Contractor/Consultant Medical Consultant deems this appropriate. The physician performing the physical will insure the requirements of 29 CFR 1910.120(f) are fulfilled. Documentation attesting to current medical monitoring compliance must be maintained on-site by the Contractor/Consultant Safety Officer.

3.3 SITE CONTROLS

3.3.1 Work Site Access Control

Access to client property is dependent upon site-specific conditions under owner permission and will be controlled by the Enarc-O Project Manager. It will be the Contractor/Consultant Project Manager's responsibility to control access to a site by means of temporary barriers such as flagging tape or fencing. The barrier will be inspected daily for integrity and adequacy by the Contractor/Consultant Site Coordinator.

For sites requiring Level C to Level A PPE (personal protective equipment) the area of field operations will be subdivided into three distinct areas. The extent of these areas is task and location specific. Access to each zone will be controlled with fencing and/or plastic flagging tape. The three areas are defined as:

- Exclusion Zone

The exclusion zone is the area where the highest potential for exposure by dermal or inhalation routes exists. Personal protective equipment is required and a daily log will be kept of all personnel entering this zone. The exclusion zone will be marked off with barricades or barrier tape which will be placed a minimum of 50 feet from the active work area. This 50 foot minimum may be altered in the Task-Specific Health & Safety Requirements (Section II) depending upon actual site layout. During field operations this boundary may be expanded by the Contractor/Consultant Site Coordinator based upon observations and/or monitoring measurements. Whenever possible, all field work should be performed upwind from potential contaminant sources.

- Contamination Reduction Zone

The contamination reduction zone is the area immediately adjacent to the exclusion zone. The probability of dermal and inhalation exposure is lower than in the exclusion zone. Typically, contamination reduction zones include facilities for personnel or equipment decontamination. Personal protective equipment worn in the exclusion zone may not be worn outside the contamination reduction zone except during emergencies.

- Support Zone

Support zones cover all areas outside the contamination reduction zone. Typically, the support area includes facilities for a lunch area, office spaces, and clean equipment and material storage. Protective clothing worn in the exclusion zone may not be worn in a support zone except in emergencies. Emergency contacts are listed immediately following the Table of Contents.

3.3.2 Visitors:

- Visitors and subcontractors entering the site are subject to the same requirements as contractor and consultant personnel and will only be permitted in the immediate area of active operations (i.e., exclusion zone) after receiving written approval from the Contractor/Consultant Project Manager, and supplying a written agreement to comply with this HSP.

- A visitors log will be kept by the Contractor/Consultant Site Coordinator or other designated person.

- Visitor vehicles are restricted to support zones.

3.3.3 Unauthorized Personnel

All established procedures and actions are designed to prohibit unauthorized entry to the work sites. However, if security is violated, the following actions will be taken:

- Unauthorized personnel found within any active site will be reported to the Contractor/Consultant Project Manager, Safety Officer, and Site Coordinator, Enarc-O Operations Safety Representative.

- Unauthorized personnel found in the exclusion zone will be escorted through the contamination reduction zone and will be subject to all decontamination procedures established in the project-specific HSP.

- Any unauthorized personnel entering an active site will be escorted from the facility by Enarc-O Security. No re-entry will be permitted.

3.4 ENGINEERING CONTROLS

Engineering controls will be the method of preference to control health and safety hazards. Examples of engineering controls are:

- The use of excavation equipment to take samples from trenches;

- The use of cover material (soil) to suppress vapor emissions;

- The use of air conditioning in heavy equipment cabs to mitigate operator heat stress; and

- The use of ventilation equipment to eliminate hazardous atmospheres from confined spaces.

Administrative controls and personal protective equipment will be used where engineering controls are not feasible or are inadequate. Administrative controls include the exclusion of unnecessary personnel from hazardous areas. It should be noted that scheduled job rotation is not an acceptable administrative control to reduce employee exposure to airborne chemicals.

The hazard control methods to be employed must be described in the task-specific health & safety requirements where they deviate from those described here. As a project progresses, changes to these methods may be necessary. All such changes will be documented as addenda to the task-specific health & safety procedures.

3.4.1 Standard Safe Work Practices

Standard safe work practices applicable to most site activities are listed below. Additional safe work practices unique to specific site tasks must be included in the task-specific health & safety requirements

1. All field personnel must inform the Contractor/Consultant Site Coordinator or designated representative before entering work areas so that their presence can be recorded.

2. Workers must utilize the "buddy system": at least two members of the field crew (including subcontractor personnel) must be in visual contact with each other on-site whenever work is to be performed. If this is not possible, two-way radios will be used.

3. Eating, drinking, chewing gum or tobacco, smoking, or any other activity that increases the probability of hand-to-mouth transfer of contaminated material will not be permitted at the work site.

4. All personal safety equipment and protective clothing will be worn in conformance with Section 3.7 of this HSP.

5. Disposable outer coveralls, boots and gloves will be secured at the wrists and legs, and there will be closure of the suit around the neck.

6. Individuals getting wet to the skin with chemically contaminated liquids must remove clothing and wash the affected area immediately at a location to be identified in the task-specific health & safety requirements. Clothes wet with such liquids, must be changed. Any skin contact with such liquids, whether considered safe or not, will be dealt with immediately and as completely as possible. Medical attention should be sought as necessary.

7. Hands must be washed before eating, drinking, smoking and before using toilets at the facilities provided.

8. Avoid contact with surfaces either suspected or known to be contaminated, such as puddles, mud, or other discolored surfaces. Store equipment on elevated or protected surfaces to reduce the potential of incidental contamination.

9. Only remove personal protective equipment in the contamination reduction zone per Section 3.3.1.

10. Place all disposable coveralls, gloves, and cartridges in appropriate receptacles at the end of every shift or sooner, as directed by the Contractor/Consultant Site Coordinator.

11. Inspect all non-disposable clothing (i.e. hard hat liner, work gloves, cotton overalls) for contamination in the contamination reduction zone. Any clothing found to be contaminated will be decontaminated or disposed of in a manner approved by the Contractor/Consultant Site Coordinator.

12. Report all injuries to the Contractor/Consultant Site Coordinator, Kaddis Project Manager, and Enarc-O Safety Representative. An accident report, or equivalent must be completed by the Contractor/Consultant Site Coordinator and submitted to the Enarc-O Operations Safety Representative or Project Manager for appropriate follow-up.

13. The presence or consumption of alcoholic beverages or illicit drugs on Enarc-O Machine Products property or during the work day is strictly forbidden.

14. Spillage or splashing of contaminated materials must be prevented. Spills must be contained and follow up calls made as appropriate for the release.

15. Be alert to unsafe conditions or acts and notify the Contractor/Consultant Site Coordinator.

16. Workers need to be familiar with the work area and surroundings, including:

    - o Wind direction in relation to the work area;
    - o Accessibility of associates, equipment, vehicles;
    - o Available communications;
    - o Hot zone (areas of known or suspected contamination);
    - o Site access;
    - o Nearest water sources.

17. The number of personnel and equipment in the exclusion zone must be kept to a minimum.

18. Wastes generated during work activities must be disposed of in accordance with state, federal, and local, regulations.

3.4.2 Safe Work Permits/Hot Work Permits

Safe Work Permits are to be obtained from the Enarc-O Operations Safety Representative before any work is done that involves:

- o Entering vessels, tanks, pits, trenches, manholes, or other confined spaces.
- o Exposure to toxic or infectious material or to abnormal temperatures or pressures when such exposures are outside the employee's daily routine.
- o Using explosives for blasting or demolition.
- o Using flammable or combustible coatings inside buildings. Application of combustible paints by brush or roller is excluded.
- o Excavating and trenching.
- o Working in elevated areas such as roofs.
- o Using temporary heating devices.
- o Working in designated safe work permit areas.

Hot Work Permits are to be obtained from the Enarc-O Safety Representative before any work is done that involves:

- o Operating gasoline powered vehicles or equipment inside buildings.
- o Cutting, welding, lead burning, tar kettles, or similar work involving open flames or very high temperatures. In explosion prone areas, this includes any potential source of ignition, such as electric hand tools.

3.4.3 Working in Confined Spaces

A confined space, as defined by OSHA, is any space having a limited means of egress which is subject to the accumulation of toxic or flammable contaminants or has an oxygen deficient atmosphere.

Confined spaces are also areas where occupants are rendered isolated from help in case of need. Confined spaces include, but are not limited to: Ovens, tanks, vessels, bins, boilers, ducts, sewers, pipe chases, manholes, underground utility vaults, tunnels, pipelines, excavations, and trenches.

If waste activities require entrance into a confined space, strict Health and Safety protocol must be followed. Prior to any confined space work activities, written authorization must be obtained (see Section 3.4.3.1).

3.4.3.1 Confined Space Entry

- o A Safe Work Permit will be issued by Enarc-O Machine Products prior to entry into the confined space. This permit must be completed including the signatures of the Contractor/Consultant Safety Officer and Enarc-O Operations Safety Representative.

- o Only authorized, trained personnel may enter a confined space.

- o Open flame devices will not be used to open frozen or otherwise shut manhole covers, hatches or doors. Hot water or steam will be used to remove ice and snow holding such openings closed.

3.4.3.2 Confined Space Ventilation

The confined space will be ventilated to prevent the accumulation of:

- o Flammable vapors above 10% of the Lower Explosive Limit.

- o Concentrations of combustible dust.

- o Toxic and other contaminants in the atmosphere above one half of the TLV.

3.4.3.3 Safety Concerns

A standby employee will be stationed outside the entrance to the confined space to observe or communicate with the employee at all times. Communications (visual, voice, or signal line) will be maintained between all individuals present. The standby employee will be trained and equipped to initiate rescue operation.

3.4.4 Utility Clearance

Utility clearance will be obtained by the Contractor/Consultant Project Manager from Enarc-O Facilities personnel and any local utilities such as N.Y Telephone, Rochester Gas & Electric, and the appropriate Town or Village authority before the start of any drilling or excavation conducted at the site.

- o Other local utility clearance can be obtained by calling the toll-free hotline Dig Up Alert at (800)962-7962 and record the "reference number" for possible future use.

- o All utilities in the work area should be staked at least two weeks prior to the start of work.

- o All activities must be explained in detail to the respective utility by the Contractor/Consultant Site Coordinator. For some activities, such as blasting, the utility may request to have a representative at the site to expedite emergency response.

3.5 DRILLING SAFETY

Drilling and sampling activities present several potential hazards. Minimizing these hazards requires strict adherence to safe operating procedures.

3.5.1 Drill Crews

Drillers will be responsible for the safe operation of the drill rig as well as their crew's adherence to the requirements of the project-specific HSP. The driller must ensure that all safety equipment is in proper condition and is properly used. The members of the drill crew will follow all instructions of the driller, wear all appropriate personal protective equipment, and be aware of the hazards and applicable control procedures.

3.5.2 Rig Inspection

Each day, prior to the start of work, the drill rig and associated equipment will be inspected by the driller. The following checks will be made:

- Vehicle condition: Check proper operation of brakes, lights, steering mechanism, and horn.
- Equipment storage: All equipment such as auger flights, split spoon samplers, hammers, hand tools, etc. will be properly stored in an appropriate location and will be secured before moving the rig.
- Wire rope, Cat Line: All wire rope, cable and Cat Line will be inspected for signs of wear such as broken wires, a reduction in rope diameter, abrasion, or signs of rust. Worn, frayed, or otherwise damaged wire, rope or cable will be replaced.
- Safety equipment: Each rig will have at least one fire extinguisher (Type B/C) and one First Aid Kit.

3.5.3 Rig Set-Up

Each drill rig will be properly blocked and levelled prior to raising the derrick. The rig will be moved only after the derrick has been lowered. The leveling jacks will not be raised until the derrick has been lowered.

Blocking provides a more stable drilling structure by evenly distributing the weight of the rig. Proper blocking ensures that a differential settling of the rig does not occur. Wooden blocks, at least 12 by 12 inches and four to eight inches thick, are recommended and should be placed between the jack swivels and the ground. The emergency brake will be engaged and the wheels that are on the ground chocked.

Site drilling will comply with the following rules:

- o Before drilling, the Contractor/Consultant Site Coordinator will ensure an adequate safety zone around the drill rig and associated operations.

- o Before drilling, the existence of underground utilities in the work area will be determined and conspicuously marked (See Section 3.4.4).

- o If drilling is conducted in the vicinity of overhead power lines, proper distance will be maintained between the drill rig and the lines as per OSHA 29 CFR 1926, Subpart N. The proper distance or shielding technique will be stated in the project-specific HSP.

3.5.4 General Operating Procedures

The operator of the drill rig will only operate from the position of the controls. If the operator must leave this position, the transmission must be in neutral.

When working on the derrick platform, the drill crew should not guide drill rods or pipe into racks by taking hold of a moving line. Materials should not be stored or transported within the derrick. Pipe, drill rods, auger flights, hammers, and other drilling tools should be stored in racks and chained in place. During drilling, penetration hammers will be placed at a safe location on the ground.

3.5.5 Emergency Procedure for Electrical Contact

If a drill rig contacts an electrical line, it may or may not be insulated from the ground by its tires. Death or serious injury will result if a person touches the rig and the ground simultaneously.

- o Under most circumstances, the operator and other personnel on the seat of the vehicle should remain seated and not leave the vehicle. Do not move or touch any part, particularly a metallic part, of the vehicle or drill rig.

- o If it is determined that the rig should be vacated, all personnel should jump clear and as far as possible from the rig. Do not step off -- jump off, and do not hang on the vehicle or any part of the rig when jumping clear.

- o If you are on the ground, stay away from rig and do not let others get near the vehicle. Seek assistance immediately by calling the local emergency services contact. Emergency phone numbers are listed on page iii of this HSP.

3.6 EXCAVATION AND TRENCHING SAFETY

3.6.1 General Excavation and Trenching Safety

The following is a list of minimum requirements for trenching and excavating. Each excavation/trench/shoring project is different, therefore the Contractor/Consultant Project

Manager is responsible for evaluating site specific conditions and making appropriate provisions in the task-specific health and safety requirements (Section II) in conformance with 29 CFR 1926 Subpart P - Excavations.

- Contact the proper utilities to obtain clearance. Prior to work, review the utilities in the area and be sure they have been staked properly (See Section 3.4.4). Before work begins, a Safe Work Permit must be obtained from Enarc-O Operations Safety Representative as per Section 3.4.2.

- Be aware that trenches and excavations deeper than four feet are considered confined spaces and require additional safety precautions, such as shoring. If an excavation exceeds four feet in depth, contact the Enarc-O Operations Safety Representative to review the original Safe Work Permit and ensure that it is adequate.

- The walls and faces of all excavations and trenches more than four feet deep, in which an employee is exposed to danger from moving ground, will be guarded by a shoring system, sloping of the ground, or some other equivalent means. The design of shoring systems must be done by a registered Professional Engineer as per 29 CFR 1926 Subpart P.

- For excavations or trenches in which an employee may be required to enter, excavated or other material will be effectively stored and retained at least two feet or more from the edge of the excavation or trench.

- Daily inspections of excavations will be made by the Contractor/Consultant Site Coordinator. If evidence of possible cave-ins or slides is apparent, all work in the excavation will cease until the necessary precautions have been taken to safeguard employees.

- Trenches more than four feet deep will have ladders or steps located so as to require no more than 25 feet of lateral travel.

- Hard hats and other personal protective equipment will be worn at all times during any type of excavating or trenching operation.

- Determine soil composition (e.g., through soil sampling, soil maps, etc.) and other relevant site conditions, with special emphasis on conditions conducive to cave-ins.

- Monitor the atmosphere in and around trenches on a regular basis to check for explosive, toxic or otherwise dangerous gases and vapors.

- o The Contractor/Consultant Project Manager will insure that all employees involved in the excavation activity have appropriate training in safe trenching practices, with emphasis on factors such as:

  - utility line identification
  - cave-in prevention measures
  - recognition of conditions which may cause cave-ins
  - means of egress from trench

- o Water will not be allowed to accumulate in any excavation. Utilize ditches, dikes, pumps, or other means to keep surface water out of trenches.

- o All open excavations must be well marked and barricaded.

3.6.2 Cave-In Hazards

The following conditions increase the likelihood of cave-in:

- o Soil materials composed of unconsolidated, uncompacted, and/or rounded particles (See 29 CFR 1926 Subpart P - Excavation Standard). Special care must be used when trenching in areas which have previously been excavated and backfilled.

- o Soils which have a high water content, or have been subjected to freeze-thaw or frost-heaving.

- o Loading of trench walls by adjacent equipment, supplies, structures, "back-dirt" piles, etc.

- o Vibration due to equipment operating near excavations.

- o Trench walls that are steeper than the angle of repose of the material composing the walls.

- o Deep trenches (i.e., high trench walls).

The following precautions should be used to prevent cave-ins in all trenches in excess of 4 ft. deep. These precautions should also be used in trenches less than 4 ft. deep whenever those site conditions just listed indicate the likelihood of a cave-in:

- o Sloping: Trench walls should be sloped to the correct angle of repose.

- o Shoring: Vertical trench walls (unless composed of solid rock) must be shored and braced, or restrained with movable trench boxes, to prevent cave-in. Shoring systems must be designed by a registered professional engineer and meet accepted engineering requirements.

3.7 PERSONAL PROTECTIVE EQUIPMENT

Protective clothing and respiratory protection help protect workers from chemical hazards. Although personal protective equipment is the least preferred method, it may be necessary if engineering controls and work practices are inadequate in preventing workers from coming in contact with potential hazards. Personal protective equipment (PPE) will be selected for the potential hazards anticipated and detailed in the task-specific health & safety requirements.

Personnel at the work site will have their own appropriate and properly fitted safety equipment and protective clothing. Safety equipment and protective clothing will be used as directed by the Contractor/Consultant Safety Officer. All such non-disposable equipment and clothing will be kept clean and maintained in proper condition. All PPE will be supplied by the contractors and their subcontractors. Enarc-O Machine Products will only provide PPE to Enarc-O employees. Personnel will be trained in the use of the required protective equipment and equipment will be properly fitted.

The levels of protection to be used on-site will be based on applicable OSHA and Environmental Protection Agency (EPA) regulations, Enarc-O requirements, environmental sampling data, site conditions, and other factors. It will be the responsibility of the Contractor/Consultant Safety Officer to select the most effective PPE based on the anticipated hazards of the task.

3.7.1 Levels of Protection

The following is a description of the specific requirements of various levels of PPE in conformance with EPA nomenclature.

3.7.1.1 Level A Protection

Level A provides the highest level of respiratory and skin protection. Based on site contaminants, historical sampling, and operational data, utilization of this level of protection is not anticipated. This level of protection is anticipated only in extreme situations beyond the scope of this document, (i.e., HazMat Response).

3.7.1.2 Level B Protection

Level B should be worn when the highest level of respiratory protection, but a lesser level of skin protection is required. It is the minimum level of protection required to conduct any initial field work. Once sampling data (soil, water, or air) has been collected and analyzed, the necessity of this level of protection may be re-evaluated.

Level B Personal Protective Equipment (not limited to the following):

o Supplied-air respirator (MSHA/NIOSH approved):

A) Pressure-demand, self-contained breathing apparatus

or

B) Pressure-demand, airline respirator with escape bottle.

- o Chemical protective clothing: Chemically resistant to anticipated contaminants, (e.g. Saranex or polyethylene coated Tyvek, Chemrel, or Chem-Tuff).
- o Gloves (outer): Chemically resistant to anticipated contaminants.
- o Gloves (inner)
- o Boots (outer): Chemically resistant to anticipated contaminants.
- o Hard hat*
- o 2-Way radio communications* (intrinsically safe).
- o Joints between gloves, boots, and suit must be taped to ensure an adequate seal.

* The need for these items is dependent upon the work to be performed and will be chosen by the Contractor/Consultant Safety Officer.

3.7.1.3 Level C Protection

Level C protection with an air-purifying respirator should be worn routinely in an atmosphere only after the air contaminant(s) is (are) identified, concentrations measured and the criteria for wearing air-purifying respirator met.. Generally, Level C provides the same level of skin protection as Level B, but a lesser degree of respiratory protection.

Level C Personal Protective Equipment:

- o Air-purifying respirators, full-face, (half-face with appropriate safety glasses or goggles when potential for liquid splashes is low), canister or cartridge equipped (MSHA/NIOSH approved).
- o Chemical protective clothing: Chemically resistant to anticipated contaminants, e.g. Saranex or polyethylene coated Tyvek, Chemrel, or Chem-Tuff.
- o Gloves (outer): Chemically resistant to anticipated contaminants.
- o Gloves (inner).
- o Boots (outer): Chemically resistant to anticipated contaminants.
- o Hard hat*
- o 2-Way radio communications* (intrinsically safe).

- o Joints between gloves, boots, and suit must be taped to ensure an adequate seal.

* The need for these items is dependent upon the work to be performed and will be chosen by the Contractor/Consultant Safety Officer.

Criteria for Selection of Level C:

Meeting all of the following criteria permits use of Level C protection:

- o Oxygen concentrations not less than 19.5% or no greater than 22% by volume.
- o Personnel inhalation exposure will be reduced by the respirator below the substance's Threshold Limit Value (TLV)/Permissible Exposure Limit (PEL) or XEL, whichever is lowest and the concentration is within the service limit of the canister/cartridge.
- o Atmospheric contaminant concentrations do not exceed IDLH levels, (See Table 1).
- o Atmospheric contaminants, splashes, or other direct contact will not adversely affect any body area left unprotected by chemically resistant clothing.
- o Job functions do not require self-contained breathing apparatus.
- o Atmospheric contaminant concentrations are not in excess of Level C action criteria, (See Table 2).

3.7.1.4 Level D Protection

Level D is the minimum level of protection to be used during any site activities and does not provide respiratory or skin protection.

Level D Personnel Protective Equipment:

- o Coveralls or work uniform.
- o Gloves*
- o Substantial leather chemical-resistant boots or shoes (steel toe and shank is highly recommended).
- o ANSI Z87 safety glasses.

Chemical splash goggles*.

- o Hard hat*.

- o Disposable/reusable footwear covers*

  * The need for these items is dependent upon the work to be performed and will be chosen by the Contractor/Consultant Safety Officer.

Criteria For Selection of Level D:

Meeting any of these criteria allows use of Level D protection:

- o No contaminants are present.
- o Work functions preclude splashes, immersion, or potential for unexpected inhalation of any hazardous chemicals.

Level D protection is a minimum work uniform. It can be worn only in areas where the possibility of contact with contamination is minimal.

3.7.2 Personal Protective Equipment (PPE) Selection

PPE selection will be based on the task and the nature of hazards (type of contaminants, duration of exposure), engineering controls, and the work practices that are anticipated. The selected equipment will provide protection from the chemicals suspected to be present and which demonstrate the potential for skin exposure. The PPE chosen for each task will be specified in the task-specific health & safety requirements.

3.7.3 Changes in PPE

The Contractor/Consultant Safety Officer will make the decision to upgrade or downgrade the levels of protection. The decision will be primarily based on the results of the air monitoring performed during site activity.

3.8 AIR MONITORING FOR WORKER & COMMUNITY PROTECTION

3.8.1 Air Monitoring Scope

The Contractor/Consultant Site Coordinator will ensure periodic air monitoring is conducted during site operations. Should any monitoring indicate concentrations in excess of established action levels, the Contractor/Consultant Site Coordinator will notify Contractor/Consultant Safety Officer and will implement appropriate action to protect project personnel, Enarc-O employees, and the nearby community.

Periodic air monitoring for volatile compounds will be performed during the activities for which inhalation has been identified as a potential exposure route. These activities include, but are not limited to:

- o Drilling and soil sampling.
- o Excavation of contaminated soil for remediation.

- o Construction activities involving excavation in areas of known or potential soil or groundwater contamination.

- o Pump tests where organic vapors were detected during well installation or water samples.

- o Well sampling and hand bailing.

The Contractor/Consultant Site Coordinator should make use of both real time direct reading instruments and laboratory analysis of samples obtained by either grab, filter, sorbent, or wet contaminant collection techniques to measure chemical concentrations. Specific equipment is described in Section 3.8.4 of these Requirements.

3.8.2 Sample Locations

3.8.2.1 Personal Monitoring

Personal monitoring will take place at times proposed by the Contractor/Consultant Safety Officer or Site Coordinator and specified in the task-specific health & safety requirements. In scheduling personal monitoring, consideration will be given to collecting samples at times of maximum potential exposure. Samples will be collected in the employees' breathing zone (9 inch radius hemisphere centered at the nose and forward of the shoulders) utilizing direct reading instruments, flow controlled personal sampling pump, or diffusion type dosimeters.

Scheduled personal samples utilizing sampling pump/sorbent tubes or diffusion type dosimeters should be used to collect full-shift exposure data. If the active operations do not require a full shift work schedule, the sample should be collected for the duration of the active operations. Emphasis should be placed on sampling employees in the exclusion zone, however, employees involved in decontamination procedures will be sampled as well. Additional requirements for personal sampling will be specified in the task-specific health and safety requirements.

Non-scheduled personal samples will be collected as directed by the Contractor/Consultant Safety Officer.

3.8.2.2 Community Air Monitoring Plan

Real-time air monitoring for volatile organic compounds will also be conducted on a regular basis (every 2 hours) at the downwind site perimeter (exclusion zone as described in Section 3.3.1). If total organic vapor concentrations attributable to excavation, drilling or other activities conducted at the site, exceed 5 ppm, work activity must be halted and monitoring continued. If organic vapor concentrations remain sustained at the perimeter, work activities will remain halted and air samples taken to determine the chemical species present. The air samples may be analyzed on-site with a portable GC. Work activities at the site will proceed only after the following conditions are met:

- o Sustained organic vapor levels at the perimeter fall below 1 ppm, or
- o The concentration of the organic compounds obtained from the air sampling are within their TLV's.

If organic vapor concentrations are above 25 ppm at the perimeter of the Exclusion Zone and are attributable to the borehole, excavation or other site work, work activities must shutdown. When work shutdown occurs, downwind air monitoring as directed by the Safety Officer will be implemented to ensure the vapor emission does not impact the nearest residential or commercial structure at levels exceeding those specified in the major vapor emission section below.

3.8.3 Major Vapor Emission

If any organic concentrations greater than 5 ppm over background, attributed directly to excavation or drilling activities conducted at the Enarc-O site, are identified 200 feet downwind from the survey site or half the distance to the nearest residential or commercial property, whichever is less, all excavation must be halted.

Efforts shall be undertaken to abate the breathing zone vapor concentrations such as capping the borehole or backfilling the excavation.

If, following the cessation of the excavation activities, or as the result of an emergency, organic levels persist above 5 ppm above background 200 feet downwind or half the distance to the nearest residential or commercial property from the Exclusion Zone, then the air quality must be monitored within 20 feet of the perimeter of the nearest residential or commercial structure (20 Foot Zone).

The Major Vapor Emissions Response Plan will be automatically placed into effect if organic vapor concentrations, attributed to excavation or drilling activities conducted at the Enarc-O site, exceed 10 ppm in the 20 foot zone for more than 30 minutes.

3.8.4 Major Vapor Emission Response Plan

Upon activation, the following activities will be undertaken:

a. The local police authorities will immediately be contacted by the Safety Officer and advised of the situation.

b. Frequent air monitoring will be conducted at 30 minute intervals within the 20 Foot Zone. If two successive readings below action levels are measured, air monitoring may be halted or modified by the Safety Officer.

c. The NYSDEC and NYSDOH will be notified within the day the major vapor emission occurs.

d. Site personnel will assist local police authorities as necessary to identify wind direction and potentially affected areas that may require excavation.

3.8.5 Sample Methods

3.8.5.1 Integrated Sampling

The Contractor/Consultant Safety Officer will determine if there is a project specific need for integrated sampling and include a detailed sampling plan in the task-specific health & safety requirements.

3.8.5.2 Real Time Sampling

Real time monitoring will be conducted with a photoionization detector equipped with an 11.7 eV lamp or a flame ionization detector as specified in the task-specific Health & Safety section (see Section 2.2.3). These instruments are capable of detecting the volatile organic chemical compounds identified in Table 1 to an approximate lower detection limit of 1 ppm. The OSHA TLV's for the compounds listed in Table 1 are at or above the detection limit of the proposed equipment. The rapid response of these instruments allows for quick determination of airborne concentrations and therefore, subsequent changes in the safety procedures can be implemented if needed (See Section 3.8.4). Refer to Section 2.2.3 for frequency of environmental monitoring.

3.8.6 Air Monitoring Equipment

3.8.6.1 Direct Reading Instruments

The instruments used for air monitoring activities may include, but are not limited to, those listed below. The Contractor/Consultant Safety Officer will make the decision as to which instruments must be on a project specific basis.

- o A flame ionization detector (FID) equal or superior to Foxboro organic vapor analyzer (OVA) Model 128.

- o A photoionization detector (PID) equal or superior to HNU 101. Due to the general contaminant mix at the site the 11.2 eV probe will be utilized during site investigations.

- o A combustible gas indicator/oxygen meter equal or superior to MSA Model 260 or 360.

  Note: During environmental activities, the potential for creating a flammable atmosphere will be monitored, (e.g., prior to confined space entry, initial operations with atmospheres having the potential to exceed IDLH.) Please refer to Table 2 of this HSP for Action Levels.

Each instrument must be intrinsically safe where warranted. Each will be calibrated and maintained in accordance with the manufacturer's recommendations. Calibration records will be maintained in a daily field logbook.

3.8.6.2 Integrated Sampling Equipment/Techniques

Variable flow, belt mounted personal sampling pumps may be used in conjunction with the appropriate sample media to provide exposure estimates where real time analysis is inadequate. The following equipment/techniques may be used:

o Diffusion or Permeation Type Dosimeters

o Analysis of Sorbents

3.8.6.3 Specialized Monitoring Equipment and Analyses

Specialized sampling instruments and analyses (e.g.,H_2S monitors, solid sorbents, sampling bags) will be used on project sites on an "as needed" basis as determined by the site conditions, sampling history at the site, and the type of work to be performed. The Contractor/Consultant Safety Officer will determine the need for specialized equipment or analyses on a project specific basis and include thorough descriptions of sampling plans/procedures and equipment operation and maintenance in the task-specific health & safety requirements.

3.8.6.4 Spare Monitoring Equipment

Appropriate spare monitoring equipment will be made available either on the Project Site or at a location in the project area, as determined by the Contractor/Consultant Safety Officer. The location of spare equipment will be included in the task-specific health & safety requirements. Field activities will be suspended if the properly calibrated field monitoring instrumentation is not available.

3.8.7 Record Keeping

A Field Logbook will be maintained by the Contractor/Consultant Site Coordinator. It will be updated daily. The entries will include:

o Task description and date

o Location of work site

o Personnel involved:

- Name
- Function
- Level of personal protection (any change in level of protection will be recorded at the time of implementation)

o Health and Safety instrumentation calibration:

- Instrument name (OVA, LEL, etc.)

- Serial number
- Calibration information (i.e. calibration gas)
- Instrument setting (OVA span set)
- Time of calibration

o Meteorological information

- Type of day (sunny, cloudy, rain, etc.)
- Wind speed and direction (estimate)
- Temperature

o Events of the day in chronological order.

o Health and safety instrumentation readings

- Breathing zone concentrations
- Time
- Sample concentration with corresponding identification number

o Any unusual occurrences, problems or observations

o Signature of writer

Field Logbook Health and Safety entries, data sheets, etc. will be reviewed by the Contractor/Consultant Safety Officer on a regular basis. Upon review, each log book will be signed to demonstrate that the data has been reviewed and approved.

3.8.8 Summary of Action Levels

Project action levels will be determined by the Contractor/Consultant Safety Officer based upon site conditions and information and will be presented in the task-specific health & safety requirements. The levels defined in Tables 1 and 2 of this HSP will serve as guidelines for project action levels.

3.9 HEAT AND COLD STRESS

3.9.1 Heat Stress

Heat stress occurs in several forms. By order of increasing severity, they are:

1. Heat Rash
2. Heat Cramps
3. Heat Exhaustion
4. Heat Stroke

The potential for a worker to develop heat stress is related to the ambient temperature, relative humidity, and the nature of the work being performed. The Contractor/Consultant Safety Officer must include project specific information on heat stress identification, care and prevention procedures in the task-specific health & safety requirements (Section II).

3.9.2 Cold Stress

Cold stress, as well as heat stress, occurs in different forms. By order of increasing severity, they are:

1. Trench Foot
2. Frostbite
3. Hypothermia

The potential for a worker to develop cold stress is related to the ambient temperature, wind chill, protective clothing, and the nature of the work being performed. The Contractor/Consultant Safety Officer must include project specific information on cold stress identification, care and prevention procedures in the task-specific health & safety requirements (Section II).

3.10 DECONTAMINATION

Personnel and equipment are subject to decontamination procedures when exiting the exclusion zone. No contaminated material will be removed from the exclusion zone without undergoing proper decontamination procedures.

3.10.1 Personnel Decontamination

No personal protective equipment will be removed from the exclusion zone without proper decontamination or placement in a disposal receptacle.

Specific personal decontamination procedures must be detailed in the task-specific health & safety requirements (Section II). The following are guidelines for developing personnel decontamination procedures contained in the task-specific health & safety requirements (Section II):

A. Tools, etc. will be dropped off onto a plastic sheet in the exclusion zone for subsequent re-use or decontamination.

B. The boot wash station will consist of two plastic or metal tubs, two garden sprayers, and a boot brush. One sprayer will contain a detergent water mixture, the other will contain clean water.

C. The outer layer of disposable protective clothing will be removed by removing outer boots, outer gloves, hood, tape, etc., and placed in a receptacle for disposal. Clothing will be removed by "peeling" off while turning it inside-out. This will minimize contact with possible contamination on the outer surface.

D. Respirators will be removed and cartridges placed in a receptacle for disposal.

E. Inner gloves will be removed by rolling off the hand while turning them inside out and placed in a receptacle for disposal.

F. If highly toxic, skin-corrosive or skin-absorbable materials are known or suspected to be present, personnel must shower before exiting the site.

NOTE: The Contractor/Consultant Site Coordinator will ensure established personnel decontamination procedures are properly implemented and enforced.

3.10.2 Equipment Decontamination

Equipment, including drill rigs, will arrive at the site free of debris and contamination. Equipment will be cleaned and decontaminated before departure from the site. Decontamination chemically contaminated equipment will be performed at a minimum of Level C protection for steam cleaning and hydro-washing.

Specific equipment decontamination procedures will be based upon the type of work being performed and anticipated levels of contamination. The following items are guidelines for the establishment of equipment decontamination procedures to be included in the task-specific health & safety requirements:

A. All equipment that has been in the exclusion zone or the contamination reduction zone will be visually inspected and/or wipe sampled to assess the extent of contamination.

B. Sensitive instrumentation should be handled in a manner which will minimize the potential of exposure to hazardous soils and liquids. This care in handling will greatly reduce the amount of decontamination required. Should the conditions in the exclusion zone present an extreme potential for contamination, instrumentation may be wrapped in plastic.

C. All hand tools, safety equipment, and heavy equipment will be decontaminated before leaving the site. (e.g. high pressure, low volume hot water washed, steam cleaned, brushed with low phosphate detergent, and water rinsed.)

D. Heavy equipment must have visible residues removed in the exclusion zone. Wheels, wheel wells and cabs of vehicles must be cleaned before equipment is removed from the exclusion zone. The equipment may then be moved to a more centrally located decontamination pad for more extensive decontamination. This move must be accomplished in a manner that will prevent the spread of contamination along the travel path. A detailed plan for necessary equipment relocation must be included in the task-specific health & safety requirements (Section II).

E. If warranted and required by the Project Work Plan, samples such as equipment blanks will be taken and submitted for project related analysis to confirm the decontamination procedures.

3.10.3 Location of Decontamination Areas

Decontamination areas for project equipment and personnel will be designated by the Enarc-O Project Manager by the following guidelines:

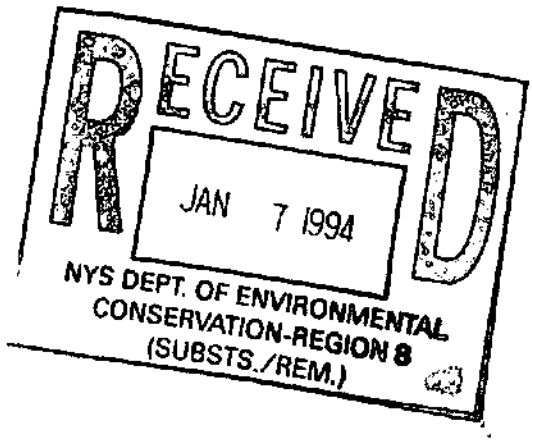
- o Each decontamination area will be sited to have access to water and electrical (GFCI protected) supplies as necessary for the decontamination process.
- o Access to the decontamination area(s) will be limited and controlled.
- o The specific decontamination area(s) for each project will be clearly defined in the task-specific health & safety requirements.

VBD:gmc
H&Sstand\plan.wp

Appendix C

APPENDIX C

Field Forms



H & A OF NEW YORK 189 North Water Street Rochester, New York 14604 (716) 232-7386	ANALYSIS REQUEST FORM AND CHAIN-OF-CUSTODY RECORD	Page _____ of _____ Nº 167 Delivery Date:
Project Name:	Laboratory:	Project Manager:
H & A File No. _____ — _____	Address:	Final Report Due Date:
H & A REP.		Turnaround Time: days
WORK ORDER No.	Client Rep.:	

Sample Information

Analysis Requested

Preservative

H & A Sample ID.	Laboratory ID.	Sample Date	Sample Time	Sample Depth	Sample Matrix	TOTAL	pH < 2.0 HNO3 (N)	pH < 2.0 HCl (C)	pH < 2.0 H_2SO_4 (S)	pH > 10 NaOH/ZA (Z)	pH 7.0 4 C (T)
1.											
2.											
3.											
4.											
5.											
6.											
7.											
8.											
9.											
10.											
11.											
12.											
13.											
14.											
15.											

Sampler Comments/Site Observations

Sample Conditions		Broken Containers
Custody Seal:	Intact:	List Type / Sample No.
Cooler Temp.:	C	
Any Broken Containers ?		

Preservation

No. Of Samples: (N) (C) (S) (Z) (T)

(List all pH measurements outside criteria in the Comments Section by H & A No. / Cont. / pres.)

Comments:

Sampled and Relinquished By:	Samples Received By:
Signature:	Signature:
Company Name:	Company Name:
Date: Time:	Date: Time:
Samples Relinquished By:	Samples Received By:
Signature:	Signature:
Company Name:	Company Name:
Date: Time:	Date: Time:
Samples Relinquished By:	Samples Received By:
Signature:	Signature:
Company Name:	Company Name:
Date: Time:	Date: Time:

H&A OF NEW YORK
Consulting Geotechnical Engineers
Geologists and Hydrogeologists

EXISTING MONITORING WELL EVALUATION FORM

Project:
Location:
Well Number:
Date Installed:
Field Rep:
Contractor:
Rig Type:
Formation Screened:

File Number:
Ground El. (NGVD):
Inner Casing El. (NGVD):
Outer Casing El. (NGVD):

DRILLING INFORMATION

Bit Type	Hole Diameter (in.)	End Depth (ft.)	Fluid Type

PROTECTOR, CASING AND SCREEN RECORD

Description	Diameter (in.)	Total Length (ft.)	Top (ft.)	Bottom (ft.)

FILTER PACK AND ANNULAR SPACE SEALS

DESCRIPTION	TOP (ft.)	BOTTOM (ft.)

*DEPTH MEASURED FROM GROUND SURFACE.

DRILLING METHOD

Method:
Fluid:
Was Fluid Analyzed:
Sampling: Split Spoon:
Rock Core:
Types of Tests Performed on Samples:

CONSTRUCTION MATERIALS

Primary Casing:

Protective Casing:

Screen:

Casing/Screen Connection:

Were Materials Decontaminated Prior to Installation:

WELL DEVELOPMENT

Method:
Development Time:

FIELD INSPECTION

Condition of Protective Casing:

Condition of Surface Seal:

Depth to Bottom of Well:

Depth to Water:

RECOMMENDATIONS:

H&A OF NEW YORK
189 N.WATER ST.
ROCHESTER, N.Y. 14604

GROUNDWATER SAMPLING RECORD

SAMPLE DATE
PAGE OF

FILE NO. -	NR	CLIENT:			PROJECT NAME:				
WELL NO.									
DEPTH TO PRODUCT (FT)									
DEPTH TO WATER (FT)									
PRODUCT THICKNESS (FT)									
DEPTH OF WELL (FT)									
WELL DIAMETER (IN)									
WELL VOLUME (GAL)									
PURGING DEVICE									
CONTAINMENT DEVICE									
PUMP RATE (gpm)									
PURGE TIME (MIN)									
GALLONS PURGED									
SAMPLE TIME									
SAMPLING DEVICE									
PUMP DECON.									
BAILER DECON.									
FIELD PARAMETERS									
pH MEASUREMENT									
TURBIDITY (ntu)									
TEMPERATURE (C)									
CONDUCTIVITY (uS)									
DISSOLVED OXYGEN (mg/L)									
REDOX (eH)									

FIELD METER CALIBRATION

CALIBRATION BUFFERS

		METER	SERIAL NO.	CAL. 4.0	CAL. 7.0	CAL. 10.0	EXP. DATE	LOT NO.	VENDOR
pH METER		CORNING	5874						
		CORNING	5869						
		SOILTEST	57-905						
		SOILTEST	57-904						

CALIBRATION SOLUTION

		SERIAL NO.	READING	TRUE VALUE	% RECOVERY	EXP. DATE	LOT NO.	VENDOR
SPECIFIC CONDUCTANCE	CORNING	120016		12.88 mS				
	CORNING	120002		12.88 mS				
	EXTECH	1-85461/889		12.88 mS				
	EXTECH	2-85461/889		12.88 mS				

CALIBRATION SOLUTION

		SERIAL NO.	CALIBRANT	TRUE VALUE	% RECOVERY	EXP. DATE	LOT NO.	VENDOR
DISSOLVED OXYGEN	CORNING	3612						
	CORNING	H082						

CALIBRATION SOLUTION

		SERIAL NO.	CALIBRANT	TRUE VALUE	% RECOVERY	EXP. DATE	LOT NO.	VENDOR
REDOX METER								

COMMENTS:

SIGNATURE:

CONTAINMENT

1. DRUMS 2. TANK 3. TANKER TRUCK 4. SEWER DISCHARGE 5. NOT REQUIRED

DECON PROCEDURES

1. ALCONOX, POTABLE WATER, DI WATER
2. METHANOL, POTABLE WATER, ALCONOX, POTABLE WATER, DI WATER
3. STEAM CLEANING
4. NA - NOT APPLICABLE
5. NR - NOT REQUIRED

123\dmc\forms\gwatr.wks

H & A OF NEW YORK
ROCHESTER
NEW YORK

TEST BORING REPORT

BORING NO. ____

PROJECT
CLIENT
CONTRACTOR

FILE NO.
SHEET NO. 1 of
LOCATION

ITEM	DRIVE SAMPLER	CORE BARREL	DRILLING EQUIPMENT & PROCEDURES
TYPE			RIG TYPE
INSIDE DIAMETER (IN)			CASING TYPE
HAMMER WEIGHT (LB)		---	DRILLING FLUID
HAMMER FALL (IN)		---	OTHER

SURFACE ELEV.
DATUM
START
FINISH
DRILLER
H & A REP

DEPTH (ft)	SAMPLE ID	SAMPLE NO.	SPT (blows/6") DRL RATE (min/ft)	REC (in) / RQD (%)	WELL DEPTH (ft)	WELL CONSTR.	DEPTH/ ELEV. (ft)	VISUAL DESCRIPTION AND REMARKS	FIELD OVA (ppm)
0									
5									
10									
15									
20									
25									

WELL CONSTRUCTION DETAILS

WELL NO.:	SCREEN TYPE:
COMPLETION DATE:	SLOT SIZE:
M.P. ELEVATION:	SCREEN INT.:
PROT. CASING:	SEAL INT.:
WELL MATERIAL:	OTHER:
WELL DIAMETER:	

SAMPLE IDENTIFICATION

S	SPLIT SPOON
L	LINED SPLIT SPOON
T	SHELBY TUBE
P	PISTON SAMPLE
R	ROCK CORE

SUMMARY

OVERBURDEN (LIN FT)
ROCK CORED (LIN FT)
SAMPLES

BORING NO. ____

H & A OF NEW YORK
ROCHESTER
NEW YORK

TEST BORING REPORT

BORING NO. ____
FILE NO.
SHEET NO. of

DEPTH (ft)	SAMPLE ID	SAMPLE NO.	SPT (blows/6") DRL RATE (min/ft)	REC (in) / RQD (%)	WELL DEPTH (ft)	WELL CONSTR.	DEPTH/ ELEV. (ft)	VISUAL DESCRIPTION AND REMARKS	FIELD OVA (ppm)
25									
30									
35									
40									
45									
50									
55									
60									

BORING NO. ____

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

WELL NUMBER:	GROUND/TOP OF CASING ELEVATION:	FILE NO. PAGE NO.

DATE	TIME	ELAPSED TIME	DEPTH OF WATER FROM _____	ELEVATION OF WATER	REMARKS	READ BY

H&A OF NEW YORK CONSULTING GEOTECHNICAL ENGINEERS GEOLOGISTS AND HYDROGEOLOGISTS	ORGANIC VAPOR MEASUREMENT	FILE NO.

PROJECT:
EXPLORATION NO.:
DRILLER:
H&A REP.:

DATE OF READINGS	SAMPLE NUMBER	DEPTH OF SAMPLE (IN FT.)	METER READING (IN PPM)	INSTRUMENT	REMARKS

H & A OF NEW YORK

MONITORING WELL DEVELOPMENT AND PERMEABILTY TESTING REPORT

PROJECT: _____ WELL NO.: _____

LOCATION: _____ H&A REP.: _____

CLIENT: _____ FILE NO.: _____

INTALLATION DATE _____ CONSTRUCTED WELL DEPTH _____ FT.

ESTIM. VOLUME FLUID LOST DURING DRILLING _____ GAL.

ESTIM. VOLUME FLUID LOST DURING W.P. TEST _____ GAL.

DEPTHS MEASURED FROM: _____

DEVELOPMENT

DATE	DEPTH TO WATER(FT.) BEFORE	DEPTH TO WATER(FT.) AFTER	DEPTH TO BOTTOM(FT.) BEFORE	DEPTH TO BOTTOM(FT.) AFTER	VOL. REMOVED	REMARKS, METHOD, ETC.

PERMEABILITY TESTING

TEST NO. 1 DATE _____ STATIC WATER LEVEL (DEPTH IN FT.) _____

H&A REP. _____

TIME	ELAPSED TIME	DEPTH TO WATER

COMPUTED K1 _____

TEST NO. 2 DATE _____ STATIC WATER LEVEL (DEPTH IN FT.) _____

H&A REP. _____

TIME	ELAPSED TIME	DEPTH TO WATER

COMPUTED K2 _____

REMARKS _____

RJM\MISC\DEVPERM

H & A OF NEW YORK
ROCHESTER, NEW YORK

PUMP TEST DATA SHEET B

PZ/OW NO. ______ TEST NO. ______

PROJECT: ______

CLIENT: ______

CONTRACTOR: ______

DISTANCE FROM PUMPED WELL: ______ FT. WELL NO. ______

BOTTOM OF WELL/PIEZOMETER POINT ELEVATION: ______

DESCRIPTION OF AQUIFER: ______

* REFERENCE MEASURING POINT: ______

REFERENCE MEASURING POINT ELEVATION: ______

FILE NO. ______

SHEET NO. ______ OF ______

LOCATION COORDINATES:

N ______

E ______

GROUND SURFACE ELEVATION: ______

ELEVATION DATUM: ______

STATIC WATER LEVEL:

DEPTH BELOW GRD. SURFACE ______ FT.

ELEVATION: ______

DATE	TIME	ELAPSED TIME FROM START OF PUMPING (MIN)	DEPTH * TO WATER LEVEL (FT)	WATER LEVEL ELEVATION	DRAWDOWN (FT)	READ BY	I.D. NO. OF MEASURING DEVICE	COMMENTS

H & A FORM 1208 MAR 78

H & A FORM 120C AUG. 83

HALEY & ALDRICH, INC.
CAMBRIDGE, MASSACHUSETTS

PUMP TEST WATER LEVEL RECOVERY DATA SHEET C

PZ/OW NO. _____ TEST NO. _____

PROJECT: _____

_____

_____

CLIENT: _____

CONTRACTOR: _____

STATIC WATER LEVEL:

DEPTH BELOW GROUND SURFACE: _____ FT.

ELEVATION: _____

DISTANCE FROM PUMPED WELL _____ FT. WELL NO. _____

BOTTOM OF WELL/PIEZOMETER POINT ELEVATION: _____

DESCRIPTION OF AQUIFER: _____

_____

_____

DATE PUMP TEST BEGAN: _____

TIME PUMP TEST BEGAN: _____

* REFERENCE MEASURING POINT: _____ EL. _____

FILE NO. _____

SHEET NO. _____ OF _____

LOCATION COORDINATES:

N _____

E _____

GROUND SURFACE ELEVATION:

_____

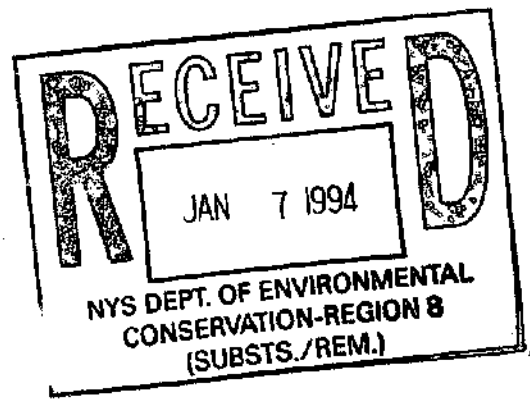
ELEVATION DATUM: _____

DATE	TIME	t ELAPSED TIME FROM START OF PUMPING (MIN)	t' ELAPSED TIME SINCE PUMPING STOPPED (MIN)	RATIO t / t'	DEPTH * TO WATER LEVEL (FT)	WATER LEVEL ELEVATION	s' RESIDUAL DRAWDOWN (FT)	s DRAWDOWN FROM PUMPING CURVE (FT)	CALCULATED RECOVERY s-s' (FT)	READ BY	I.D. NO. OF MEAS. DEVICE	COMMENTS

Appendix D

APPENDIX D

Material Safety Data Sheets



Metpar 120

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Form Approved
OMB No. 44-R1387

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME: Metal Parts Processing Compny, Inc.	EMERGENCY TELEPHONE NO.: 201-589-5314
ADDRESS (Number, Street, City, State, and ZIP Code): 165 Delancy Street, Newark, N.J. 07105	
CHEMICAL NAME AND SYNONYMS:	TRADE NAME AND SYNONYMS: Metpar #120
CHEMICAL FAMILY:	FORMULA:

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS NONE			FILLER METAL PLUS COATING OR CORE FLUX NONE		
ADDITIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
NONE		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)		SPECIFIC GRAVITY (H_2O=1)	
VAPOR PRESSURE (mm Hg.)		PERCENT, VOLATILE BY VOLUME (%)	
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (=1)	
SOLUBILITY IN WATER	good		
APPEARANCE AND ODOR	slight yellowish white--slight fatty smell		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) none	FLAMMABLE LIMITS	Lel	Uel
EXTINGUISHING MEDIA			
SPECIAL FIRE FIGHTING PROCEDURES			
UNUSUAL FIRE AND EXPLOSION HAZARDS			
powdery			

(Continued on reverse side)

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE

EFFECTS OF OVEREXPOSURE: sneezing

EMERGENCY AND FIRST AID PROCEDURES: blow the nose

a dry powder

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	x	

INCOMPATABILITY *(Materials to avoid)*: none

HAZARDOUS DECOMPOSITION PRODUCTS: soap

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID: dropping to create dust
	WILL NOT OCCUR	x	

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: sweep

WASTE DISPOSAL METHOD: lnd fill

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION *(Specify type)*: mask if dust is created

VENTILATION	LOCAL EXHAUST: sufficient		SPECIAL
	MECHANICAL *(General)*		OTHER

PROTECTIVE GLOVES: not necessary | EYE PROTECTION: in handling from dust

OTHER PROTECTIVE EQUIPMENT: low alkiline

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: dry storage

OTHER PRECAUTIONS

Chemtrol 108

3

MATERIAL SAFETY DATA SHEET

PRECISION FINISHING, INC.
BOX 272
SELLERSVILLE, PA 18960

EMERGENCY TELEPHONE NO.
(215) 257-6862

SECTION 01 - IDENTIFICATION

Product Name: Chemtrol 108
Product Type: Abrasive vibratory and tumbling compound
DOT Hazard Class: Not regulated

SECTION 02 - HAZARDOUS INGREDIENTS

Chemical Name	CAS #	Hazard
Silica 5-10%	7631-86-9	TLV = 10 mg/m3 / % Respirable SiO_2+2

This product is dedusted and normally used in wet processing eliminating the hazard.

SECTION 03 - PHYSICAL DATA

Appearance and Odor: Off white to light gray, odorless powder
pH: 1% solution = 9.3
Specific Gravity: Not determined
Solubility in Water: 20%
Percent Volatile at 70° F: 0%

SECTION 04 - FIRE AND EXPLOSION HAZARD DATA

Flash Point: >212° F
Extinguishing Media: Carbon dioxide or chemical foam
Special Fire Fighting Procedures: Wear NIOSH approved self-contained breathing apparatus with a full face shield.
Unusual Fire and Explosion Hazards: May release oxides of carbon and nitrogen

SECTION 05 - HEALTH AND FIRST AID

ACUTE AND CHRONIC HEALTH EFFECTS AND EFFECTS OF OVEREXPOSURE:

Inhalation: (Dust) Will irritate mucous membranes, eyes, and respiratory tract. Exposure to dust in excess of TLV for extended periods my lead to silicosis.
Ingestion: Ingestion effects not known. Slightly toxic.
Skin: May irritate skin.
Eye: May irritate skin.

EMERGENCY AND FIRST AID PROCEDURES:

Inhalation: Remove from exposure. Obtain medical assistance.
Ingestion: Obtain medical assistance.
Skin: Wash with copius water. Obtain medical attention if irritation persists.
Eye: Wash with copius water. Obtain medical attention if irritation persists.

SECTION 06 - CORROSIVITY AND REACTIVITY DATA

Stability:	Stable
Incompatability:	Acids
Decomposition Products:	Oxides of carbon and nitrogen
Polymerization:	Will not occur.

SECTION 07 - STORAGE, HANDLING AND USE PROCEDURES

Normal Storage and Handling:	Normal warehouse procedures
Normal Use:	Normally used wet as 10% solution in vibratory and tumbling equipment. Normal use does not present respiratory or ingestion hazard.
Steps to be taken in case of leaks or spills:	Sweep up material with normal protection for TLV.
Waste Disposal Method:	Dispose of in accordance with applicable federal, state, and local laws.

SECTION 08 - PERSONAL PROTECTION INFORMATION

Respiratory Protection:	In dusty conditions, use NIOSH approved dust respirator.
Ventilation:	Under normal use, none required.
Protective Gloves:	Rubber impervious type.
Eye Protection:	Chemical splash goggles.
Personal Hygiene:	Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet facilities. Promptly remove soiled clothing and wash thoroughly before reuse.

Measures to be taken during repair and maintenance of contaminated equipment that has been in contact with this material: See Sections 07 and 08.

SECTION 09 - SPECIAL PRECAUTIONS

Precautions to be taken in handling and storage: See Sections 07 and 08.

FOR COMPANY USE

Prepared by: William S. Walker Rev. 0 November 15, 1985

Beats Turco Oakite 184

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Form Approved
OMB No. 44-R1387

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME	EMERGENCY TELEPHONE NO.
OAKITE PRODUCTS, INC.	201-464-6900

ADDRESS (Number, Street, City, State, and ZIP Code): 50 Valley Road, Berkeley Heights, New Jersey 07922

CHEMICAL NAME AND SYNONYMS	TRADE NAME AND SYNONYMS
	Oakite FM 184
CHEMICAL FAMILY: Acid	FORMULA: Proprietary

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
Oxalic acid	5	1 mg/M^3
Sodium bisulfate	90	Not established

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H_2O=1) Bulk density	10.0 #/gal.
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT, VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Moderate	pH @ 1 to 4 oz/gal.	1.0to1.5

APPEARANCE AND ODOR: Tan to dark brown powder; acrid odor.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)		FLAMMABLE LIMITS	Lel	Uel
None.		N/A		

EXTINGUISHING MEDIA: Will not burn or support combustion.

SPECIAL FIRE FIGHTING PROCEDURES: Firemen should wear standard protective clothing and use adequate respiratory protection.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Unknown.

Oakite FM 184

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE
Mixture: unknown. See Section II.

EFFECTS OF OVEREXPOSURE
Direct contact with dry powder may cause burns of eyes and causes irritation of skin. Direct contact with solutions causes burns of eyes and skin. Inhalation of fumes may cause irritation of mucous membranes.

EMERGENCY AND FIRST AID PROCEDURES
Immediately flush skin or eyes with plenty of water for at least 15 minutes. For eyes, get medical attention. Remove contaminated clothing and shoes and wash before reuse. For inhalation, remove from exposure.

SECTION VI - REACTIVITY DATA

STABILITY			CONDITIONS TO AVOID
	UNSTABLE		N/A
	STABLE	X	

INCOMPATABILITY *(Materials to avoid)*
Alkaline materials, materials containing chlorine.

HAZARDOUS DECOMPOSITION PRODUCTS
When heated to decomposition, may yield oxides of sulfur and other fumes.

HAZARDOUS POLYMERIZATION			CONDITIONS TO AVOID
	MAY OCCUR		N/A
	WILL NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Sweep up dry powder. In any case, flush area with plenty of water. Neutralize remaining traces with soda ash or lime and flush again.

WASTE DISPOSAL METHOD
Neutralize with alkaline material, dilute and discharge according to federal, state and local regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION *(Specify type)* N/A

VENTILATION		
	LOCAL EXHAUST: Provide adequate ventilation.	SPECIAL
	MECHANICAL *(General)*: When used in a closed barrel, provide suitable venting to allow for gas release.	OTHER

PROTECTIVE GLOVES	EYE PROTECTION
Rubber	Safety goggles

OTHER PROTECTIVE EQUIPMENT
Apron and/or other suitable protective clothing; face shield if necessary.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Avoid breathing fumes. Suitable for general indoor storage in a dry area. Keep container closed when not in use.

OTHER PRECAUTIONS

OAKITE

LISTED NYSE... OKT

PROPRIETARY CHEMICAL PRODUCTS FOR INDUSTRIAL CLEANING AND METAL TREATING

OAKITE PRODUCTS, INC.

GENERAL OFFICES: 50 VALLEY ROAD, BERKELEY HEIGHTS, N.J. 07922

TWX 710-984-5459
TEL. (201) 464-6900

December 5, 1984
ID #0165464

ENARC-O MACHINE PRODUCTS
P. O. Box 152
Honeoye Falls, NY 14472

ATTN: MR. GUY BALL

Gentlemen:

You recently requested various information as listed below:

Information Requested: Telephone on 12/4/84

Item(s) Requested: MATERIAL SAFETY DATA SHEET

For: Oakite FM-184

We trust this information will meet with your requirements. Please contact us if we can be of further assistance.

Very truly yours,

OAKITE PRODUCTS, INC.

John H. Seitz

John H. Seitz, Manager
Safety & Regulatory Affairs

JHS:mk
CST: S. Schaeffer

75TH ANNIVERSARY... 1909-1984

ENCL:

PRODUCT PROFILE

TECHNICAL DATA

OAKITE FM 184: Powdered acidic compound for barrel finishing, deburring and descaling steel, stainless steel, brass and copper

PRIMARY APPLICATION

Oakite FM 184 is a powdered acidic compound that will quickly and effectively do these four distinct barrel finishing jobs: (1) remove heat scale and discolorations from steel parts; (2) brighten brass or copper, with or without media; (3) deburr brass, copper, steel or stainless steel; (4) restore color to steel darkened by alkaline deburring treatment. And once it has done the job, Oakite FM 184 is easily rinsed away, leaves no film or residue. Inhibited to prevent excessive attack on metals, the fast-acting acidic compound has none of the disadvantages of raw acids.

CHEMICAL CHARACTERISTICS

chemical composition	mixture of organic and inorganic acids with an inhibitor
physical form	as received: tan to dark brown powder as used: light brown solution
odor	acrid
bulk density	1200 g/ℓ (10.0 lbs/gal)
hygroscopic tendency	none
foaming tendancy	low
recommended diluent	water
maximum solubility	45 g/ℓ at 21°C; 75 g/ℓ at 77°C (6 oz/gal at 70°F; 10 oz/gal at 170°F)
behavior in hard water	no effect
rinsability	good
biodegradable surfactants	non-surfactant material
phosphate-free	yes
normal working concentrations	7.5 to 30 g/ℓ (1 to 4 oz/gal) of water
normal working concentrations	room temperatures—10° to 38°C (50° to 100°F)
pH at working concentrations	1.0 to 1.5 at 21°C (70°F)
effect of working solutions on metal	rate of metal loss from 4-hour immersion in Oakite FM 184, 30 g/ℓ (4 oz/gal) of water, 21°C (70°F), projected for one year is as follows:

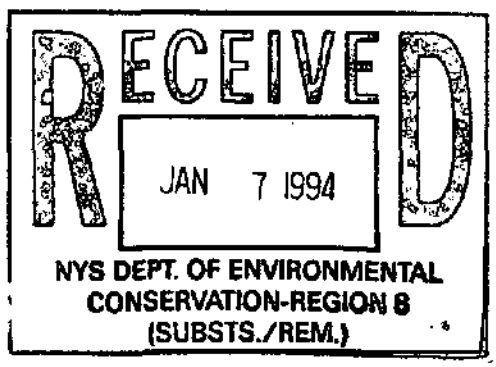
metal (alloy)	mm/yr	in/yr
brass	0.05	0.002
stainless steel	0.05	0.002
steel	0.08	0.003
copper	0.08	0.003
aluminum	7.21	0.284
zinc	9.55	0.376
magnesium	12.70	0.500

OAKITE PRODUCTS, INC., 50 VALLEY ROAD, BERKELEY HEIGHTS, N. J. 07922
OAKITE PRODUCTS OF CANADA, LTD., 115 EAST DR., BRAMALEA, ONT. L6T 1B7
Subsidiaries and Distributors World-wide Cable: OAKITE, BerkeleyHeights

Appendix E

APPENDIX E

Procedure For Groundwater Quality Sampling



APPENDIX E

PROCEDURE FOR GROUNDWATER QUALITY SAMPLING

INTRODUCTION

This section provides detailed procedures to be followed during all groundwater sampling activities at the Enarc-O Machine Products, Inc. facility. These activities are divided into two groups to be performed at different times during the project:

- o Sampling of residential and existing monitoring wells, and site supply well.
- o Sampling of newly installed monitoring wells.

Sampling activities for both groups will take more than one day. During the first day of groundwater sampling certain pre-sampling activities will be performed.

PRE-SAMPLING ACTIVITIES

Well Maintenance Check

Prior to sampling, a routine inspection of the condition of the protective casing (if present) and surface seal will be performed. The protective casing will be inspected for the integrity of the locking cap and the surface seal. In addition each temporary groundwater sampling point will be checked for any other signs of damage or inadvertent entry. Observations of any irregularities will be noted on the groundwater sampling record (attached) as well as the temporary groundwater sampling point number, date and time. The residential wells will be evaluated during the field reconnaissance activities of Section 4.2.

Air Monitoring

In order to provide workers with the proper respiratory protection for sampling, air monitoring in the breathing zone and immediately over the well head will be performed immediately after the initial uncapping. Health and safety procedures that are appropriate to the ambient air conditions will be implemented. Readings for both the breathing zone and well head will be recorded on the groundwater sampling record. The Health and Safety Plan for this work (Appendix B) defines respiratory protection action levels, and a description of the proper air monitoring equipment.

Water Level Measurements

A complete round of water level measurements will be taken from wells in the two groups before sampling. If possible, the water levels will be taken during a single day and within the shortest possible time period.

The depth to groundwater will be measured with an electronic depth-indicating sounder. The probe will be lowered into the temporary groundwater sampling point until the meter indicates water is reached. The probe will be raised above the water level and slowly lowered again until water is indicated. The cable will be held against the side of the inner protective casing at the point designated for water level measurements and a depth reading taken.

This procedure will be followed three times or until a consistent value is obtained. The value will be recorded to the nearest 0.01 feet in the groundwater level monitoring report (attached). The probe will be raised to the surface and together with the amount of cable that was wetted in the temporary groundwater sampling point, will be decontaminated with an alconox wash and distilled water rinse.

WELL EVACUATION

1. The well will be purged by a combination of bailing and/or pumping. The dedicated bailer (disposable or teflon) will be attached to a polypropylene or nylon line and the well bailed until 3 well volumes are removed from the well, or until the well is dry.

2. The evacuated water will be directed to a 5-gallon carboy, 55-gallon drum or other appropriate container. Observations on the flow rate, rate of recovery and other pertinent observations will be recorded on the groundwater sampling record.

3. When well evacuation is complete, the pump (if used) will be withdrawn from the well and decontaminated.

4. Groundwater quality samples will be obtained after evacuation of the well. Samples will be taken within three hours of well evacuation if sufficient volume is present.

5. A polypropylene or nylon line will be attached to a dedicated bailer equipped with a bottom check ball. The bailer will be lowered to the middle of the open interval of the well or, if little water is in the well, to within one foot of the bottom of the well. Care will be taken in slowly lowering the bailer into the water so as not to agitate the water unnecessarily. The bailer will then be raised to the surface. The appropriate sample vials will be filled slowly to avoid sample aeration, and field parameter measurements conducted as described in a subsequent section. Bailers will be discarded (if disposable) or will be decontaminated (if teflon) after each use in accordance with the decontamination procedures described in this appendix.

FIELD MEASUREMENTS

A portion of the groundwater collected during the sampling procedures will be subjected to the field tests of pH, temperature, and specific electrical conductance. Tests for field parameters will be conducted after all sample containers have been filled. Groundwater for these tests will be collected in a glass container with a minimum volume of 125 milliliters.

Temperature will be taken first and measured with a thermometer to the nearest tenth of a degree and the value recorded on the groundwater sampling record. The thermometer will be rinsed with deionized water and stored in a plastic carrying case for transport to other sampling locations.

The specific electrical conductance will be measured using a conductivity probe. The probe will be placed in the sample, readings taken and then recorded on the groundwater sampling record. The probe will be decontaminated between samples with a deionized water rinse and placed in a field carrying case.

The pH will be measured with a pH meter that is calibrated daily with appropriate standards. The clean probe will be inserted into the sample container and the readings recorded on the groundwater sampling record to the nearest 0.1 pH unit. The probe will be rinsed with deionized water and inserted into its own carrying case.

EQUIPMENT DECONTAMINATION

All of the sampling equipment will be decontaminated between sampling events using the following procedure:

1. An initial Alconox or equivalent detergent wash.

2. Clean water rinse.

3. Distilled/deionized water rinse.

6. Air dry

Decontamination wastewaters will be containerized in 55-gallon drums.

DUPLICATE, TRIP AND FIELD BLANKS

Duplicate Samples

Duplicate samples will be collected at the same time and location as field samples and will be collected at a frequency of one per matrix/method per day or 10 percent of the total analyses. The samples will be used to assess precision including variability caused by the laboratory analysis and the sample collection procedure. Duplicates will be collected in immediate succession using identical sampling techniques, sample storage, transportation and analysis. Duplicates will be evenly split from the same bailer load and equally proportioned into each receptacle for the split duplicate. Sample containers will be labelled such that laboratory personnel are not aware that they are analyzing duplicate samples.

Equipment Blanks

Equipment blanks are intended to assess the potential introduction of contamination during sample collection, handling and analysis and will be obtained in a fashion that approximates sampling procedures used in the field. Distilled/deionized water will be poured into randomly selected decontaminated bailers and non-dedicated pumps that are used for monitoring well sampling and collected in appropriate containers. The samples will be handled and transported as all other groundwater samples. Field blanks will be collected at a frequency of 5 percent of the total samples or at least one per week or one per sample shipment.

Trip Blanks

Trip blanks are intended to assess the potential introduction of contamination during round trip sample handling and transport from the laboratory to the field. A trip blank sample will be obtained from the contract laboratory for each sampling event and will be stored in the sample collection cooler during the daily sampling activities. The trip blank will return to the laboratory with the groundwater samples. The trip blanks consist of distilled/deionized water placed in two 40 ml borosilicate glass vials. One trip blank will be analyzed for each sample shipment for volatiles analysis.

SAMPLE CONTAINERS, PRESERVATION METHODS, HOLDING TIME AND FILTERING

The types of containers, preservation methods and holding times for the various laboratory analyses are presented in Table 2. Holding times will be measured from verified time of sample receipt (VTSR) by the contract laboratory.

SAMPLE LABELS

Sample labels will be placed on all samples and will contain the following information:

- Date and time of collection
- Sample location
- Sample number
- Analysis to be performed
- Sampler's name

GROUNDWATER SAMPLING RECORD

The Groundwater Sampling Record form Appendix C used during sampling procedures will include the following information:

- Well number
- Static water level (depth to water)
- Depth to bottom of the well
- Calculated well volume
- Actual evacuation volume

- o Date and time
- o Analyses to be performed
- o Preservation method
- o Field meter calibration information
- o General remarks (weather conditions, etc.)
- o Sample temperature, pH and specific conductivity

All entries will be made in black indelible ink and will be written legibly. Entry errors will be crossed out with a single line, dated and initialed by the person making the correction. Groundwater sampling records will be reviewed by the Data Management Coordinator on a daily basis.

SAMPLE CUSTODY

A chain-of-custody form Appendix C will be completed after sample collection. The chain-of-custody forms will accompany the samples to the laboratory at the end of each day. A sample transfer will be completed when the sampling team relinquishes the samples to laboratory personnel by signing the chain-of-custody form.

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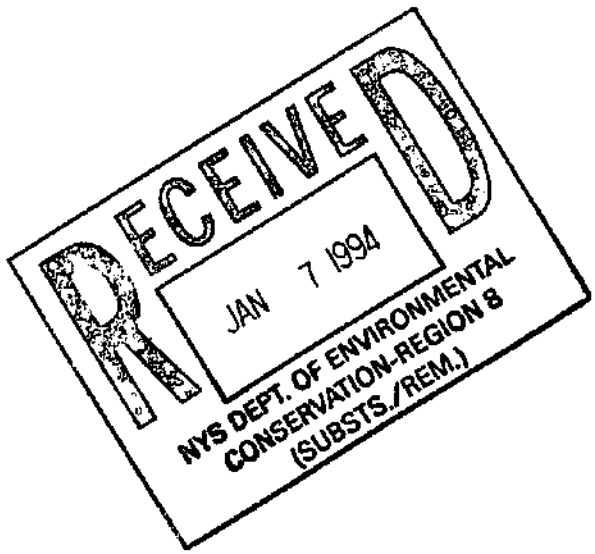
Appendix F

APPENDIX F

Soil Gas Procedure



APPENDIX F

SOIL GAS PROCEDURE

Analysis of soil gas can be used to quickly detect volatile organic compounds (VOCs) present below the ground surface. Soil gas surveys typically involve advancing a hollow soil probe several feet below ground surface, withdrawing air from the soil pore-space, and analyzing the air samples by gas chromatography. The soil gas method provides rapid information relative to the location and relative intensity of VOCs present in the soil and/or groundwater at a site.

Sample Collection Technique

Two different probe systems can be used to obtain soil gas samples. A manual slide-hammer probe can be used for shallow soil gas sampling to depths of approximately 4 ft. An electric hammer-driven system can be used for advancing soil probes to depths of approximately 15 ft. depending on soil conditions. For sampling below concrete floor slabs or asphalt pavement, pilot holes are drilled to penetrate the surface slab using an electric rotary-hammer drill and an 18-in. long by 1-in. diameter carbide drill bit. The soil probe is then advanced through the pilot hole.

- The manually emplaced soil probe consists of a weighted 40 or 52-in. long steel plunger bar and 40 or 52-in. long, 0.37-in. O.D. hollow stainless steel sampling tubes. Each sampling tube has eight 1/8-in. diameter perforations in its lowermost six inches to allow intake of soil vapor. The steel plunger bar is advanced into the ground using a weighted slide-hammer to create a sample hole into which the sampling tube is inserted.

- The electric hammer-driven soil probe system consists of a Bosch Model 11209 electrically powered 27.5 lb. rotary-hammer, and a K-V Systems, Inc. soil probe. The K-V probe includes a steel drive head attachment, 3.0 ft. long by 7/8-in. O.D. hollow hardened chrome-steel tube sections, a detachable 6-in. long by 7/8-in. O.D. slotted intake section, and a solid conical tip. The probe sections are threaded together and driven with the rotary-hammer to specific depths in the soil.

Moist bentonite clay is packed around the soil probe at the ground surface to seal off the sample hole from any influx of atmosphere air during sample collection. Once emplaced, the soil probe is connected with 1/8-in. O.D. teflon tubing (dedicated for each hole) to a battery operated air pump, and the sample hole is purged of approximately 0.5 L of soil gas. A variable-area flowmeter is connected to the pump outlet to verify and measure the soil gas flow rate. Typical purge times are on the order of 30 seconds at pumping rates of approximately 1 to 2 L per minute. A total organic vapor reading is measured and recorded from the pump effluent using a Foxboro Organic Vapor Analyzer or an Hnu photoionizing organic vapor meter.

Soil gas sample collection is accomplished by connecting a labeled Tedlar airbag to the teflon tubing. The Tedlar bag is enclosed in an airtight canister and a hand pump is used to evacuate the canister thus drawing a vacuum. The vacuum pressure causes soil gas to flow into and inflate the Tedlar bag. Once the airbag is inflated, it is retrieved from the vacuum canister, the airbag

inlet valve is closed, and the airbag sample is transported to an on-site gas chromatograph (GC) for immediate analysis. This sampling method avoids possible sample cross-contamination by eliminating the air pump from the sampling loop.

Probe Decontamination

The soil vapor sampling probes area disassembled and cleaned between use at each sampling location as follows:

- washed with low phosphate detergent
- rinsed with potable water
- rinsed with dilute methanol
- rinsed with distilled water
- thoroughly dried

Sample Analysis

Samples are analyzed on a Hewlett-Packard 5890 Series II GC equipped with a 30 meter DB-5 megabore capillary column (0.53-mm I.D., 1.5-micrometer film thickness) and a flame ionization detector (FID).

Samples will be introduced into the GC by direct injection using a 250 ul Hamilton Gastight syringe with teflon Lever-lock needle attachments. Smaller volume fixed-needle gastight syringes may be used for samples containing high concentrations of VOCs, if required. Subsamples will be withdrawn from the septum valve on the Tedlar airbags using the gastight syringe and manually injected into the GC. Anticipated injection volumes will be on the order of 100 ul or smaller, depending on VOC concentrations encountered.

Reference standards for this investigation are presented in Table 4.

Other site specific compounds may also be included.

The vapor phase calibration gas will be prepared from reference grade chemicals in their pure liquid form. The calibrant standards are mixed by injecting microliter volumes of each neat chemical into a Tekmar 2.0 L static dilution bottle filled with ultra-pure carrier (UPC) grade air. Calibrant concentrations are then calculated in terms of micrograms per liter (ug/L) of compound in air and in terms of parts per million by molar volume (ppmv).

Instrument calibration is accomplished on a 3-point calibration curve for each of the target analytes. The GC operator makes small, intermediate, and large injections of the calibration mixture and stores each calibration level on the GC integrator. A point-to-point calibration fit is used for each of the compounds. Detector linearity is monitored by the response factors for each compound in terms of nanograms per peak area on each calibration level.

Calibration ranges for the target compounds are anticipated to be on the order of the values listed below, using 1,2-dichloroethane as an example.

	CAL1	CAL2	CAL3
Nanograms on-column	10	100	1000
ppmv	2.47	24.7	247

Compounds detected in the sample analyses are calculated and reported in both ug/L and in ppmv (molar volume) as referenced to the vapor-phase calibrant standard. Estimated detection limits for the target VOCs are anticipated to be approximately 1 ppmv (molar volume) on the FID.

A single-point calibration in the middle range of the calibration curve will be performed at least twice daily during the investigation to monitor compound retention times and detector response.

Blank Analysis

The sampling syringe is purged with UPC air between each sample injection. Blank injections of UPC air are analyzed after approximately 10% of the samples, and after samples with high levels of VOCs detected, to evaluate the possibility of residual carry over contamination of the sampling syringe.

Sample train blanks collected through a decontaminated soil probe in atmospheric air will be collected and analyzed at a rate of one per day during the site sampling. These blanks will be used to evaluate the effectiveness of the decontamination procedures and the possibility of sample cross-contamination from the sampling tubes.

Blank injections of ambient air using the field GC work station will be performed at each soil vapor sampling location to evaluate possible analytic interference by atmospheric VOCs in the Enarc-O Machine facility.

A Tedlar airbag blank will be analyzed for each manufacturing lot of Tedlar bags to evaluate any possible VOC interference due to the bag manufacturing process. The airbag blank will be performed by filling a new Tedlar bag with UPC air and analyzing a subsample of the airbag contents using the sample syringe.

Limitations of Soil Gas Method

Volatile organic compounds detected in sample chromatograms are identified by retention time matches with the known standards, subsequently compound concentrations are calculated based on peak areas. Actual compound identities may differ. For absolute identification, mass spectral confirmation is necessary, and would require submitting soil or soil gas samples for laboratory analysis.

The estimated detection limits for VOCs such as 1,2-dichloroethane are expected to be approximately 1 ppm expressed molar volume. However, the detection limits of specific compounds will vary on the field and laboratory GC systems with respect to their carbon content, ionization potential, flammability, vapor pressure, temperature, and the injection volume.

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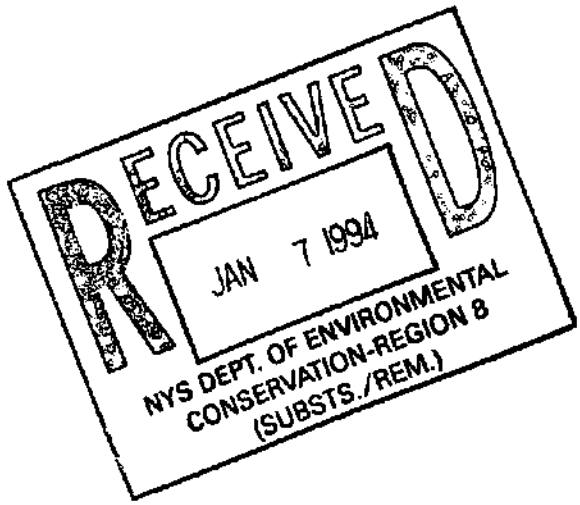
Appendix G

APPENDIX G

Procedure For Test Boring and Monitoring Well Installation



APPENDIX G

PROCEDURE FOR TEST BORING AND MONITORING WELL INSTALLATION

Bedrock Well Installation

Test borings will be advanced in the overburden using minimum 4-1/4-in. I.D. hollow-stem augers. Split-spoon sampling will be performed according to ASTM procedure D 1586-84. Soil samples will be described by an experienced geologist. All data obtained during drilling will be recorded on a standard H&A of New York Test Boring Report, an example of which is included in Appendix C.

Field screening for volatile organic compounds will be performed for each sample. Upon opening the split spoon, the field geologist will screen the entire split spoon with an organic vapor detector such as an HNU, photovac Microtip, or Foxboro OVA. Readings obtained will be recorded on the Test Boring Report, along with information regarding visual or other indications of contaminants.

Upon encountering auger refusal on bedrock, the augers will be removed and a temporary 6-in. I.D. steel casing will be installed and seated on bedrock. A nominal 6-in. diameter hole will be advanced in at least two ft. into bedrock using rotary drilling methods. Alternatively, the augers may be advanced into bedrock one ft. if feasible, prior to installing the temporary casing.

Upon completion of drilling of the two-foot rock socket, a 4-in. I.D., Schedule 80 PVC well casing will be grouted into the bottom of the rock socket using procedures described below. The grout will be allowed to set for a minimum of 12-hours before resuming drilling activity.

Upon grout set-up, the borehole will be advanced in bedrock using rotary coring techniques. An NX-sized (2-4/8-in. I.D. 3-in. OD) double-tube core barrel will be advanced in ten-foot run lengths. Core samples will be described in detail by the field geologist on the Test Boring Report forms (Appendix C). Measurements of drill water lost during coring (if any) will also be recorded.

After each core run, the corehole will be bailed dry and allowed to set for a period to time to allow recharge to the borehole to occur. If recharge indicates a water-bearing zone has been encountered in sufficient thickness, drilling will ceased. If little recharge occurs, coring and bailing will continue in ten-foot runs water and water-bearing zone is encountered. The well depth will be chosen to allow a minimum of ten feet of water in the finished well.

The surface completion for each well will consist of a lockable steel pipe, grouted a minimum of four feet below ground surface (Figure 9). The surface seal will be sloped to promote drainage away from the well.

Grouting Procedure

The bedrock monitoring well casings will be grouted using the Halliburton single-plug method. A quantity of grout equal to approximately 1.5 times the volume of the total annular space will be mixed. The grout mixture will be prepared by mixing five pounds of powdered bentonite, two pounds of calcium chloride, and one sack of Portland Cement per six gallons of water. The grout will be placed inside the casing with a drillable plug placed on top of the grout. Water pressure or drilling rods will be used to force the plug toward the bottom of the casing and subsequently the grout into the annular space. The plug will be forced to within approximately one foot of the bottom of the casing. If used, the rods will then be removed from the casing at which time the casing will be filled with clean water. A valve on the clean water line will be closed to maintain pressure on the plug and the grout will be allowed to stand for at least 12 hours before drilling may be resumed.

Overburden Well Installation

A test boring will be advanced at the overburden well location, using the same procedures described for bedrock well locations.

Upon auger refusal on bedrock, the augers will be removed and a temporary six inch I.D. steel casing will be installed to the top of rock. Alternatively, 6-1/4-inch I.D. augers may be used to advance the borehole to rock, at which point they will act as a temporary casing for well installation.

Approximately six inches of clean quartz sand will be placed to the bottom of the borehole. A four-inch I.D., Schedule 40, slotted (0.010-in. slots) PVC well screen with sufficient four-inch PVC riser pipe will be installed on top of the quartz sand. A quartz sand-pack will be installed completely around the well screen to a minimum distance of 1 ft. above the top of the screen. This sand-pack will in turn be overlain by a minimum of 2 ft. of hydrated bentonite, followed by a cement-bentonite grout mixture to ground surface.

The surface completion for the overburden well will be the same as that described for the bedrock monitoring wells.

Well Development

Upon the completion of a well, it will be allowed to sit a minimum of 12 hours for grout to set and then will be developed to provide optimum communication with the formation. Any combination of bailing, mechanical surging with a rubber surge block, and pumping using a submersible pump may be used for development. All development water will be contained as noted in Appendix I.

The amount of water removed during development will be recorded on the Monitoring Well Development form (attached). Development will include, if possible, removal of all drill water lost during installation. Development will be continued until development water is relatively free of sediment.

In addition, turbidity, pH, and conductivity measurements will be obtained during development. If possible, development will continue until the periodic measurement indicate a stabilization of these parameters and turbidity is 50 NTUs or less. Stabilization will be attempted, developing the well for up to two hours.

If the goals for well development as described are unable to be met in a period of 2 hours, the situation will be identified to the NYSDEC on-site representative. Since the intent of development is to establish communication with the formation, results from successive hydraulic conductivity tests can be used to check communication with the formation. Assuming the turbidity goal has not been met, two successive hydraulic conductivity tests will be performed and, if the results appear reasonable for the type of formation and agree within 10% of one another, the well is determined to be developed.

Equipment Decontamination

All drilling equipment which comes in contact with the subsurface materials including drilling bits, augers, casings and tools will be decontaminated prior to site entry and between each well location. Decontamination of this equipment will be accomplished using a brush to remove any large solid particles, followed by steam cleaning with clean water. The drilling and decontamination wastes will be containerized as specified in Appendix I. Well installation material such as screens and casing will also be steam cleaned in this manner prior to use.

Split-spoon samplers and any other hand-sampling equipment used for the collection of soil samples will be decontaminated at the drilling location with an alconox wash followed by clean and deionized water rinses.

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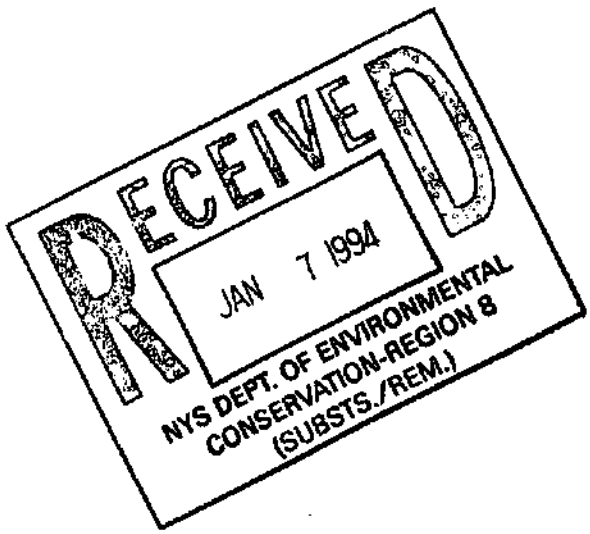
Appendix H

Appendix H

APPENDIX H

Equipment Decontamination Procedures



APPENDIX H

EQUIPMENT DECONTAMINATION PROCEDURES

DRILLING EQUIPMENT

All equipment which comes in contact with the subsurface materials including drilling bits, drilling rods, augers, drilling casing, pipe, and tools will be decontaminated prior to site entry and between each well or boring location. Decontamination of this equipment will be accomplished using a brush to remove any large solid particles, followed by steam-cleaning with clean water. The drilling rig will also be steam-cleaned prior to entry and prior to leaving the site. The cleaning will take place in a designated decontamination area. The decontamination area will consist, at a minimum, of a polyethylene-lined, bermed area large enough to collect steam-cleaning wash water and from which decontamination wastes can be pumped into 55-gallon drums, or other appropriate containers. Polyethylene lining will consist of a minimum of two or more layers of 6 mil polyethylene. The drilling and decontamination wastes will be handled and disposed according to procedures outlined in Appendix I of this document.

After cleaning, the equipment will be placed on racks specifically used for the temporary storage of clean equipment. The racks will be located adjacent to the drilling operation but far enough away that the equipment will not risk recontamination prior to use. Well installation material such as well screens and riser pipes will also be cleaned in this manner prior to use, if not previously cleaned and certified by the supplier.

SOIL/SEDIMENT SAMPLING EQUIPMENT

Equipment brought into actual contact with a laboratory sample (excluding sample containers) will be cleaned prior to starting and between each use. Split-spoon samplers, sediment samplers, field workers' gloves, soil knives, etc., used for the collection of soil samples will be decontaminated using phosphate-free detergent (i.e., alconox) and clean water followed by a deionized water rinse. This procedure eliminates the use of acid or solvent rinses in situations where gross contamination is not a problem (e.g., contaminated with separate phase product).

Decontamination liquids and related solid waste will be contained and disposed according to procedures outlined in Appendix I.

GROUNDWATER/SURFACE WATER SAMPLING EQUIPMENT

Groundwater sampling will be performed using dedicated disposable equipment and as such will not require decontamination. Equipment used to measure pH, conductivity and water levels will be decontaminated using a detergent wash followed by clean and deionized water rinses.

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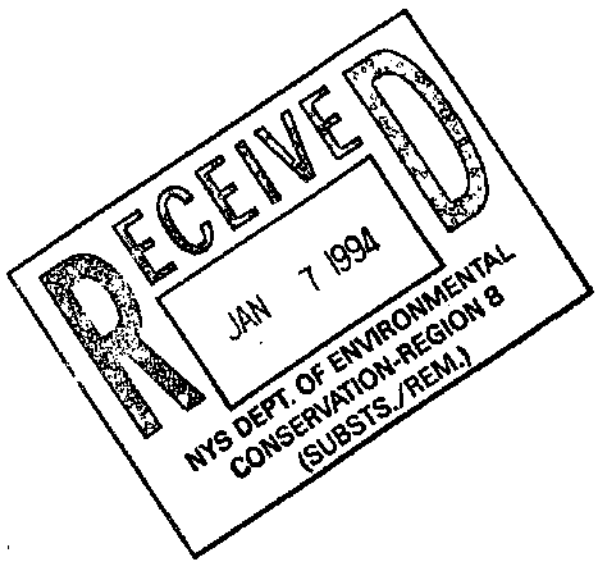
APPENDIX I

Containing Drilling-and Sampling-Related Wastes



APPENDIX I

CONTAINING DRILLING-AND SAMPLING-RELATED WASTES

Drilling Fluids

The drilling recirculating fluid will be contained and disposed of after every ten feet of coring or drilling. This procedure is followed to minimize the potential for groundwater contamination by the drilling fluid as the borehole is advanced. The waste drilling fluid will be temporarily containerized in either 55-gallon drums or a tank truck. Fluids will screened for the presence of VOCs using an organic vapor monitoring instrument.

Drilling Equipment Decontamination Wastes

The drilling and related equipment (augers, split spoons, drill rods, etc.) will be decontaminated on a temporary decontamination pad and the wastes containerized in 55-gallon drums or a tank truck. The temporary decontamination pad will be set up at a location that will not interfere with drilling activities or activities of Enarc-O employees. The decontamination wastes contained in the drums or tank truck will be screened for the presence of VOCs using an organic vapor monitoring instrument.

Soil Cuttings

The soil cuttings from the monitoring well installations will be containerized in 55-gallon drums. Drummed soil will be screened in the field for the presence of VOCs. Disposal recommendations will be developed based on screening results, results of the soil gas survey, and groundwater analyses. If the screening or analytical results indicate the potential presence of contaminants, further soil characterization and/or disposal by a licensed hazardous waste contractor may be performed. If sample screening, on-site soil gas analysis and laboratory analytical results indicate contaminants are not present, the soil will be disposed on site.

Personal Protective Clothing Waste

Waste personal protective clothing (tyvek suits, gloves, boots, etc.) worn during the drilling operations will be placed in plastic bags and disposed as solid waste in Enarc-Os on-site dumpster.

Well Development and Purge Water

Groundwater removed from monitoring wells during development, hydraulic conductivity testing and purging prior to sampling will be containerized in 55-gallon drums and stored at the Enarc-O facility until appropriate disposal at permitted facilities can be arranged. If analytical results indicate the potential presence of contaminants, further characterization and/or disposal by a licensed hazardous waste contractor may be performed. Alternatively, on site treatment of the water using carbon filtering to remove VOCs, or other appropriate methods may be performed.

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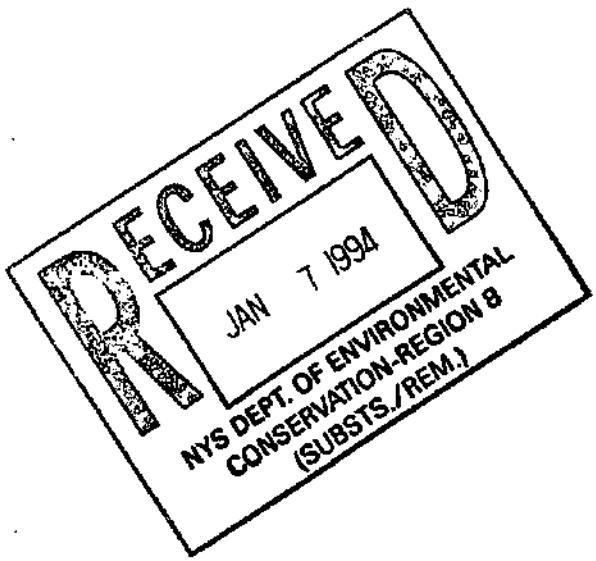
Appendix J

APPENDIX J

Procedure For Rising Head Tests



APPENDIX J

PROCEDURES FOR RISING HEAD TESTS

In order to determine the in-place hydraulic conductivity of the overburden and bedrock at the newly installed monitoring well locations, rising head tests will be performed. These tests involve lowering the water level in the monitoring wells and measuring the change in head with respect to time as the water level recovers. In wells which are slow to recover the water level will be bailed down and recovery measured manually. Wells which recover too quickly for this method will be tested by removing only one bailer of water and the recovery measured by means of a pressure transducer system.

The rising head tests for monitoring wells with rapid recovery rates will be conducted as follows:

- The static water level in the monitoring well to be tested will be measured and recorded.
- The pressure transducer will be placed in the monitoring well to a minimum depth of three feet below the static water level.
- Readings will be made using the data logger until three consecutive readings are the same (equilibrium conditions).
- The data logger will then be calibrated to read 0.00 feet at static conditions. Following the installation and calibration of the pressure transducer, a pre-cleaned bailer will be lowered into the well and placed just below the water surface.
- Water level measurements will again be made until the water level returns to static conditions following introduction of the bailer. If static conditions are not reached within 15 minutes following introduction of the bailer the well will be tested using the procedures described below for slow recovery wells.
- Once static conditions are re-established, the bailer will be rapidly removed from the water column, thus creating a rapid decline of the water level. Coincident with the withdrawal of the bailer, automatic logging of the water levels will be initiated using the data logger. It is a primary goal in a recovery test to "instantaneously" remove a volume of water that will result in a measurable head decline, the recovery of which (to static conditions) can be monitored over time. Such an instantaneous withdrawal results in recovery due to contributions of flow from the surrounding formation; this flow is controlled by the formation's hydraulic conductivity and not other factors such as storage effects.
- The water level measurements will continue until water levels recover to within a minimum of 10 percent of the original static level (90 percent recovery), or an elapsed time of one hour. If after one hour the water level has not recovered to the above criteria, the transducer may be removed and the monitoring well will be tested at a later date using the procedures described below for slow recovery wells.

- Data stored in the data loggers will be "dumped" either to a hard copy printout using a field printer or to a magnetic disk using a portable computer. If field printouts are used, each will be dated and signed by the field geologists.

For monitoring wells with slow recovery rates the following procedure will be used:

- The static water level will be measured and recorded.

- The monitoring well will be bailed by hand until the depth to water appears to stabilize, based on the depth of travel of the bailer rope (this measurement needs only to be approximated and is not critical to the test), or to the top of the open or screened interval in wells which are screened below the standing water level.

- The bailer will then be removed and water level measurements will be collected by hand, using an electronic water level indicator, at a frequency which will provide approximately 15 to 20 data points during recovery (to within 10 percent of the total drawdown), if feasible. Water level measurements will be recorded on the Hydraulic Conductivity Testing Report (attached).

A pre-cleaned bailer, one for each monitoring well, will be used in the rising head testing. All equipment which enters the monitoring wells, such as the transducers or water level probes, will be cleaned prior to reuse with a detergent wash followed by clean and deionized water rinses. All groundwater and rinse water generated by the rising head tests will be collected in appropriate containers and disposed according to the procedures outlined in Appendix I.

The data from both types of rising head tests will be reduced and evaluated as described below.

The following equation is used to calculate the in-situ hydraulic conductivity of the formation opposite the interval of the piezometer (Hvorslev, 1951):

$$k = d^2 \ln \frac{\left(\frac{2m\ L}{D}\right)}{8\ L\ (t_2 - t_1)} \ln \frac{H1}{H2}$$

Where:

K = hydraulic conductivity in ft/min
d = casing diameter (ft.)
L = intake length (ft.)
D = intake diameter (ft.)
t_1 = time 1 from semilog graph, in minutes
t_2 = time 2 from semilog graph, in minutes
H_1 = residual head (ft.) corresponding to t_1
H_2 = residual head (ft.) corresponding to t_2
m = square root of the ratio of horizontal to vertical permeability (an estimated value)

The above method of calculating hydraulic conductivity was developed by Hvorslev for the U.S. Army Corps of Engineers as a result of a comprehensive study of methods of in situ hydraulic conductivity estimation. The method is founded on the precept that whenever a hydrodynamic system is disturbed (e.g., piezometer installation, artificial withdrawal of water) water will flow from (or to, in the case of a surcharge) the system until equilibrium is again achieved. A time lag will exist between the disturbance and re-establishment of equilibrium. The magnitude of this time lag is inversely proportional to the hydraulic conductivity of the formation and varies with the size and type of well.

Hvorslev's research resulted in the definition of a series of shape factors for a variety of well construction details. The preceding equation for calculating hydraulic conductivity corresponds to a shape factor for a well with casing extending to an open hole in which the slug test is performed and where L/R is greater than eight. This shape factor was selected to match the piezometer/well construction in the study area.

In using this equation for calculating hydraulic conductivity, all of the input variables are clearly defined except for the h and t intervals. When doing recovery test data analysis, the head ratio and time are plotted on semi-logarithmic paper. An exponential relationship, or straight-line data plot, should result. Hvorslev suggested that data for the region of head ratios between 0.37 and 0.1 will be most representative. Accordingly, the straight line portion of the plot, within these limits, will be used in the calculation of hydraulic conductivity. In those cases where the data plot between these limits is found to be inconsistent or erratic, those points providing a best fit straight line will be used for the calculations.

References

Hvorslev, M.J., 1951, Time Lag and Soil Permeability in Groundwater Observations. United States Corps of Engineers, Waterways Experiment Station, Bulletin No. 36, April 1951.

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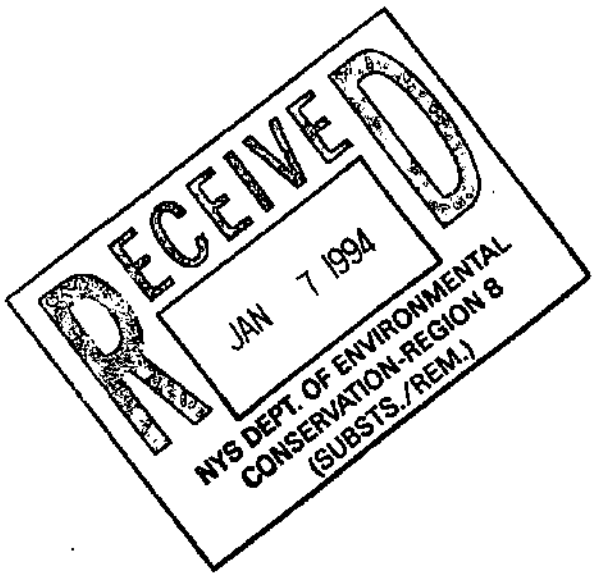
Appendix K

APPENDIX K

Pump Test Procedure



APPENDIX K

PUMP TEST PROCEDURE

INTRODUCTION

This Appendix provides a step by step procedure for conducting a pump test to determine aquifer characteristics including transmissivity, storativity and the apparent radius of influence. Please note that information regarding potential yield, pumping rates, and sampling and management of water are described specifically for this site in Section 4.7.2 of the work plan.

Pre-Test Procedures

1. Review the site hydrogeologic data and identify the wells to be monitored during the pump test. If possible, the monitoring well network used for the test should extend beyond the cone of depression estimated to be caused by the pumping well.

2. Review the well construction data to gather the following information on the pumping and monitoring wells:

   - Well Number
   - Location
   - Ground Elevation
   - Datum Elevation
   - Reference Measurement
   - Point
   - Reference Measurement Point Elevation
   - Type of Pump
   - Capacity of Pump
   - Flow Measuring Device
   - Type of Well Screen
   - Opening Size
   - Bottom of Well Screen Elevation
   - Top of Well Screen Elevation
   - Screen Diameter
   - Hole Diameter
   - Test Number
   - Static Water Level

   Record the data on the attached Pump Test Data Sheet.

3. Review the site Health and Safety Plan to determine the required personal protection and the type of air monitoring device(s) to be used during the test.

4. Determine the means of containing and disposing of the effluent derived from the pumping well. Estimate the expected yield based on the well's design and the pump capacity. If necessary, arrange to have sufficient tanks, drums or other containers in place to receive the effluent.

5. Measure the water levels in the pumping well and monitoring network over a period of 2 days before the test. Follow the procedures for water level measurement described in this document. Record the data on the Pump Test Data Sheet form.

6. If possible, the pump should be run for a short period of time to set the desired pumping rate. If a totalizing flow meter is to be used during the test, it should be installed in the discharge line. The water level should be allowed to re-stabilize.

7. Schedule the test during a period of time that stable, dry weather conditions are expected.

3.0 TEST PROCEDURES

1. Re-measure water levels in the pumping well and in the entire monitoring network just prior to the start of pumping. If possible, a stilling tube should be installed in the pumping well to negate the effects of turbulence caused by pumping. Record the date, time of measurement, and depth to water on the Pump Test Data Sheet form.

2. Initiate pumping at a steady rate, as previously determined. If a totalizing flow meter is used, record the initial meter reading before pumping, then measure the discharge over a 1-2 minute interval to determine the pumping rate, Q. Ambient air quality in proximity to the pumping well should be monitored with the appropriate detection device(s) specified in the Health and Safety Plan.

3. If electronic water level measurement probes are used, water levels in the pumping well and nearby monitoring wells will be measured according to the following schedule:

Time Since Start of Pumping	Water Level Measurement Frequency
0-10 minutes	2 minutes
10-60 minutes	5 minutes
1-4 hours	20 minutes
4-8 hours	40 minutes
8-24 hours	2 hours
24-48 hours	4 hours

If transducers and a data logger are used, the following measurement schedule will be programmed:

Time Since Start of Pumping	Water Level Measurement Frequency
0-10 minutes	15 seconds

10-60 minutes	30 seconds
1-4 hours	1 minute
4-8 hours	15 minutes
8-24 hours	30 minutes
24-48 hours	1 hour

4. Periodic measurements of the entire monitoring network should be continued for the remainder of the test every 4-6 hours.

5. The flow rate should be checked on an hourly basis.

6. The following data will be recorded for each well on the Pump Test Data Sheet Forms:

   - Date
   - Time
   - Elapsed Time Since Pumping Started
   - Pumping Rate
   - Depth to Water
   - Water Elevation
   - Drawdown
   - Personnel
   - Barometric pressure and weather changes
   - Other Pertinent Comments, as appropriate

7. Just prior to the end of cessation of pumping, a full round of measurements of the entire monitoring network should be performed. At the completion of this measurement, the final flow rate will be determined and recorded. If applicable, the totalized flow will be recorded.

8. Water level measurements will continue during the recovery period for a similar amount of time as elapsed during pumping or until recovery of 90% of the original water level is achieved in the pumping well. Observations will be made at the same frequency as performed for the pumping phase of the test described above under Item #3. The data will be recorded on the Pump Test Data Sheet form.

9. At the end of the test, all equipment will be decontaminated using procedures discussed in this document.

4.0 POST-TEST ANALYSIS

Drawdown vs. Elapsed Time will be plotted on both semi-log and log-log graph paper. The data will be analyzed using Theis, Jacob-Cooper or Hantush Methods, as appropriate. The pump test data will be used to determine formation transmissivity, storage coefficients and vertical permeabilities as well as the calculated radius of influence. It is anticipated, based on available information for this site, that the drawdown plot will first be examined for evidence of hydraulic barriers or recharge boundaries (see excerpts from Fetter 1988 attached). This data will also be

used to estimate confined or unconfined conditions to allow selection of appropriate analytical formulae (Theis, Jacob, Hantush, etc.). Calculations, supporting graphical, and/or tabular summaries of data will be included in the RI report as necessary to support conclusions.

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tiple-well system will result in a composite hydraulic gradient greater than that of an equivalent confined system in order to compensate for a reduced value of aquifer transmissivity.

In designing well-field layouts, it is necessary to take into account well interference. The level of the water in the well during pumping determines the length of pipe necessary to carry water to the surface. The characteristics of the well pump and the horsepower requirements of the motor also depend upon the depth to the pumping level. If wells are spaced too closely together, the amount of well interference could be excessive. Aligning wells parallel to a line source of recharge, such as a river, would result in less well interference than would a perpendicular configuration.

6.10 EFFECT OF HYDROGEOLOGIC BOUNDARIES

If a well is not located in an aquifer of infinite areal extent, as is the case with all real wells in real aquifers, the drawdown cone will extend until either the well is supplied by vertical recharge or a hydrogeologic boundary is reached. A hydrogeologic boundary could be the edge of the aquifer, a region of recharge to a fully confined artesian aquifer, or a source of recharge, such as a stream or lake.

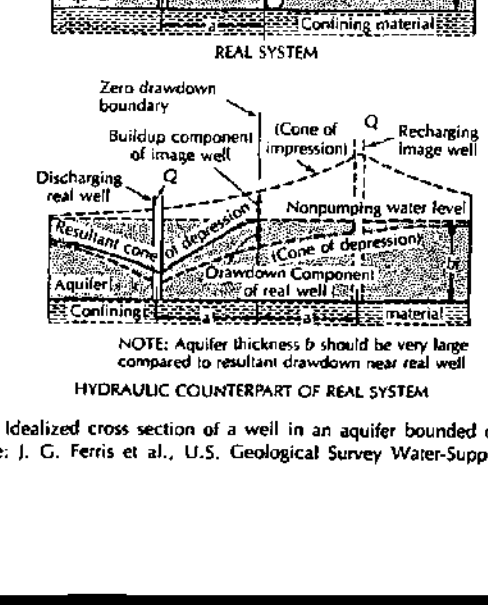


FIGURE 6.24 Idealized cross section of a well in an aquifer bounded on one side by a stream. Source: J. G. Ferris et al., U.S. Geological Survey Water-Supply Paper 1536-E, 1962.

Boundaries are considered to be either recharge or barrier boundaries. A **recharge boundary** is a region in which the aquifer is replenished. A **barrier boundary** is an edge of the aquifer, where it terminates, either by thinning or abutting a low-permeability formation, or has been eroded away.

Figure 6.24 shows a well bounded by a recharge boundary. The recharge boundary can be simulated by a recharging image well located an equivalent distance away from the recharge boundary but on the opposite side. Figure 6.25 indicates the presence of a barrier boundary. The barrier boundary is simulated by a discharging image well located an equivalent distance away from the boundary but on the opposite side. Boundaries have the most dramatic impact on the drawndown of a pumped well for the aquifer with no source of vertical recharge. As the well withdraws water only from storage in the aquifer, drawdown proceeds as a function of the logarithm of time.

Figure 6.26 shows a theoretical straight-line plot of drawdown as a function of time on semilogarithmic paper. The effect of a recharge boundary is to retard the rate of drawdown. Change in drawdown can become zero if the well

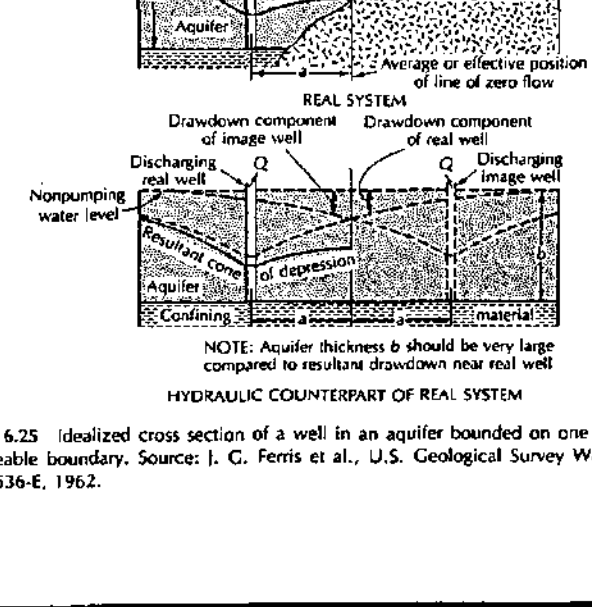


FIGURE 6.25 Idealized cross section of a well in an aquifer bounded on one side by an impermeable boundary. Source: J. G. Ferris et al., U.S. Geological Survey Water-Supply Paper 1536-E, 1962.

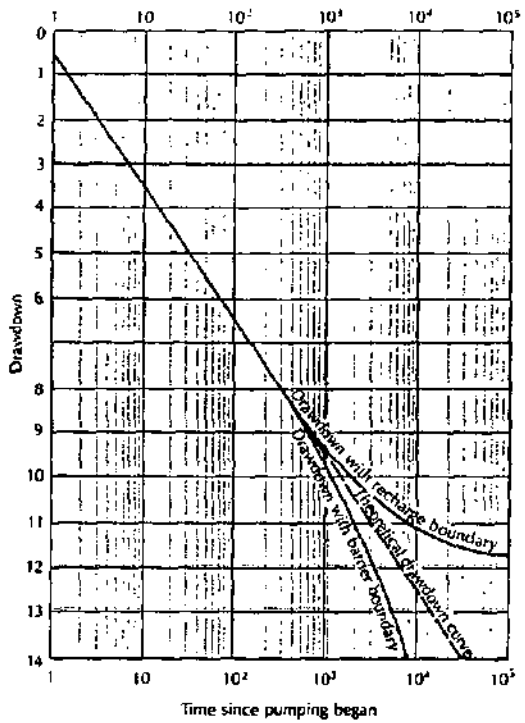


FIGURE 6.26 Impact of recharge and barrier boundaries on semilogarithmic drawdown-time curves.

comes to be supplied entirely with recharged water. The effect of a barrier to flow in some region of the aquifer is to accelerate the drawdown rate. The water level declines faster than the theoretical straight line.

6.11 PUMPING-TEST DESIGN

Adequate design and execution of a pumping test involves considerable planning and attention to detail. An understanding of fundamental well hydraulics is necessary, not only for the interpretation of data, but also for the experimental design by which valid and usable data are obtained. The purpose of the pumping test must be established first. Determining the yield of a new well involves simply pumping the well. This type of test, as it is generally conducted, yields only the scantiest information about the aquifer itself. With careful planning, the pumping-well test can yield data to compute the aquifer transmissivity. It can also indicate the general type of aquifer.

If a test well has been drilled prior to the installation of a production well, a reasonable conjecture can be made as to the probability the well will be unconfined, semiconfined, or confined. However, the presence or absence of recharge or barrier boundaries may not be known. Indeed, this is one of the reasons to perform a long-term pumping test. If one makes a semilogarithmic plot of drawdown versus time (e.g., Figure 6.26) one can inspect it to see if the pumping level of the well stabilizes. If this occurs, this means that there is a source of recharge, either vertically by leakage across a semiconfining layer or horizontally from a recharge boundary. If the water level falls faster than the theoretical drawdown curve, then the presence of a barrier boundary must be considered.

The amount of information gained from a pumping test expands greatly if one or more observation wells are involved in addition to the pumping well. Both transmissivity and storativity of the aquifer can be determined, as can the vertical hydraulic conductivity of any overlying semipervious layers. More eloquent tests can be used to determine the value of the vertical anisotropy of the formation. Radial anisotropy and recharge or barrier boundaries can also be detected.

6.11.1 SINGLE-WELL PUMPING TESTS

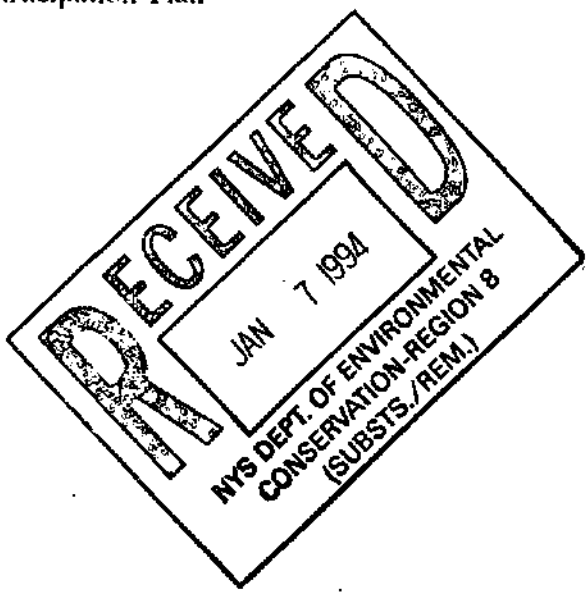
The basics of a single-well pumping test are also applicable to pumping tests involving multiple wells. The first step is to determine the location of the well to be drilled. This is best done on the basis of detailed exploration using geological, geophysical, and perhaps aerial photo techniques. However, the location of the well is often dictated by economic or engineering factors. If economic or engineering factors predominate, the hydrogeologist should determine if there is a reasonable chance of success based on the known hydrogeology of the site.

A test well may be bored as the first step, or the production well may be drilled immediately. The geologist should make a log of the geologic formations encountered. The water level in the drilled hole should be recorded as a function of the depth of the hole; however, this might not be possible if certain drilling techniques such as rotary and reverse rotary are used. Based on the test hole and selected borehole geophysical studies, the hydrogeologist can determine the depth and thickness of potential aquifer zones. An aquifer is selected, and a test or permanent well is installed. If at all feasible, the well should be open throughout the entire thickness of the aquifer. The physical dimensions of the well should be recorded, along with the depth, thickness, and type of aquifer. A description of the aquifer material should be included. An inventory of nearby wells should be made, and it should be determined whether any other

Appendix L

APPENDIX L

NYSDEC Citizen's Participation Plan



Department of Environmental Conservation

Division of Hazardous Waste Remediation

Citizen Participation Plan

Enarc-O Machine Products
North Bloomfield
Site Number 8-26-011
Livingston County, New York

March 1993

New York State Department of Environmental Conservation
MARIO M. CUOMO, *Governor* THOMAS C. JORLING, *Commissioner*

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NOTE: Words that have been *italicized* when first encountered in this plan are defined in Section 8, Glossary of Key Terms and Major Program Elements

1.0 Introduction to the Plan

The New York State Department of Environmental Conservation (NYSDEC), in partnership with the New York State Department of Health (NYSDOH), is responsible for ensuring that hazardous waste sites across the state are investigated and, if necessary, remediated. Under the State's Hazardous Waste Site Remedial Program, the process follows a path of investigation, enforcement, remedial action selection, ***design*** and ***construction***. Throughout this process, NYSDEC conducts a ***citizen participation program***.

In many instances, NYSDEC is able to identify and enter into legal agreements with companies who owned or operated, or currently own or operate the facility identified as a hazardous waste site. These companies are called Potentially ***Responsible Parties (PRPs)***.

NYSDEC is working with Enarc-O Machine Products, Inc. (Enarc-O), the PRP for the Enarc-O site. Enarc-O has agreed to perform a detailed investigation, called a ***Remedial Investigation/Feasibility Study (RI/FS)*** of the site. NYSDEC, NYSDOH, Livingston County Department of Health (LCHD) and Enarc-O are committed to a citizen participation program as part of their responsibilities for the remedial program at the Enarc-O Machine Products site.

The citizen participation program encourages two-way communication with the *public* providing: 1) an opportunity for NYSDEC, NYSDOH, LCHD, and Enarc-O to exchange site information with you that will enable them to develop a remedial program which is protective of human health and the environment and 2) a mechanism for them to learn about your concerns and address your questions about the site and the remedial process.

This ***citizen participation plan*** is based on New York State regulations which set forth requirements for citizen participation during hazardous waste site programs and the NYSDEC policy document New York State Inactive Hazardous Waste Site Citizen Participation Plan, August 30, 1988.

2.0 Basic Site Information

The Enarc-O site is listed in the NYSDEC's ***Registry of Inactive Hazardous Waste Disposal Sites in New York State.*** The site has been assigned a ***site classification of 2***, which indicates that the site poses a significant threat to the environment or the public health. An environmental assessment completed in February 1991 by Enarc-O for the USEPA detected the presence of hazardous waste at the site.

2.1 Site Location and History:

Enarc-O Machine Products, Inc. is a metal machining facility located on six acres of land at 1175 Bragg Street in the Livingston County, Town of Lima.

In 1984, the LCHD found high levels of ***chlorinated solvents*** commonly used as industrial degreasers (***1,1,1-Trichloroethane, Trichloroethylene***) in the Enarc-O water supply well. No other industrial/commercial facility is located within a close proximity of the site except for a small body shop adjacent to Enarc-O.

In 1985, the New York State Departments of Environmental Conservation (NYSDEC), Health (NYSDOH), and LCHD sampled thirty-eight (38) private residential wells and found twenty-one (21) to be contaminated with varying concentrations of chlorinated solvents. As a result, NYSDEC, NYSDOH, and LCHD formally requested the United States Environmental Protection Agency (USEPA) to expend federal *superfund* money to provide an alternate drinking water supply to the affected residents. In 1985, Enarc-O site was originally listed in the "Registry of Inactive Hazardous Waste Disposal Sites in New York State," and classified as a Class 2 site. *This classification was due to* contamination of the groundwater and private drinking water supplies by industrial degreasers (trichloroethylene, 1,1,1-trichloroethane, *1,2-dichloroethylene, tetrachloroethylene, and tetrachloromethane*). In November 1985, the USEPA authorized the provision of bottled water to residents under the Federal Superfund Program (CERCLA). Beginning in December 1985, over 30 residents were provided with regular delivery of bottled water. In July 1986, USEPA authorized the installation of a water main to service the affected residences.

The contract for installation of a water main was awarded to the City of Rochester in July of 1987. Work began in August 1987 on the installation of the water main and was completed in June 1988.

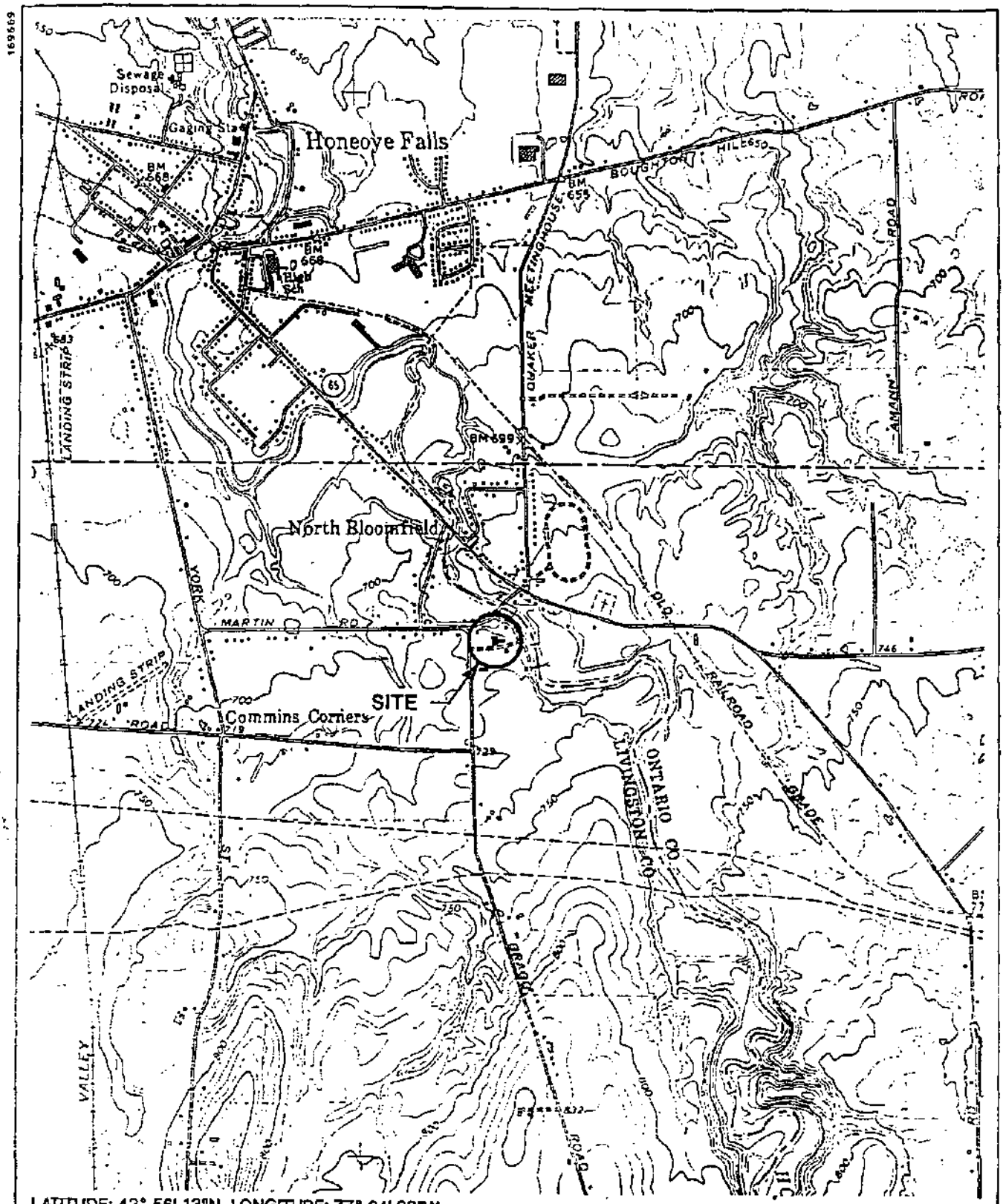
At this same time, USEPA requested that Enarc-O develop a site assessment workplan to determine if the source of contamination is located on the Enarc-O property. The final draft of this workplan was prepared and submitted by Enarc-O to USEPA in October, 1990. The field investigation, consisting of soil sampling and installation/sampling of six monitoring wells, began in November 1990, and was completed in February 1991. Results of this investigation are outlined in a document entitled, "Site Assessment Report," dated May 1991, written by O'Brien and Gere Engineers, Inc. Analytical results indicate that the groundwater and soil at the Enarc-O property have been contaminated with concentrations of industrial degreasers that exceed NYS standards.

The NYSDEC assumed the project lead responsibility from the USEPA in July 1991 for the purpose of assuring that the necessary Remedial Study (RI/FS) is completed at the site.

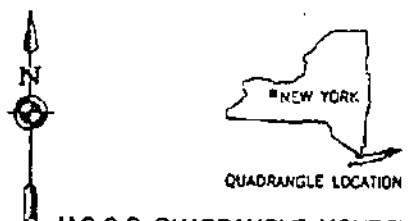
A technically approved RI/FS workplan scoping document was prepared and submitted to the NYSDEC and NYSDOH in November 1992 by H&A of New York (Geotechnical Engineers and Environmental Consultants). A subsequent full RI/FS workplan was submitted to the NYSDEC and NYSDOH for review and approval in February 1993.

2.2 Problems Identified at the Site:

Residential homes adjacent to the site are now supplied with public water, and no longer use their private wells as their primary source of water. However, to address possible groundwater seepage into basements, the NYSDOH and LCHD conducted a basement survey of homes adjacent to the site. In one home, water from a basement sump (formerly a dug well) was found to contain elevated levels of *volatile organic compounds*. As a result, this particular home was tested for the presence of organic vapors. Results of the test came back negative, except for the presence of organic compounds associated with the use of a kerosene heater being operated during the time of the sampling event.



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



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

ACA 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

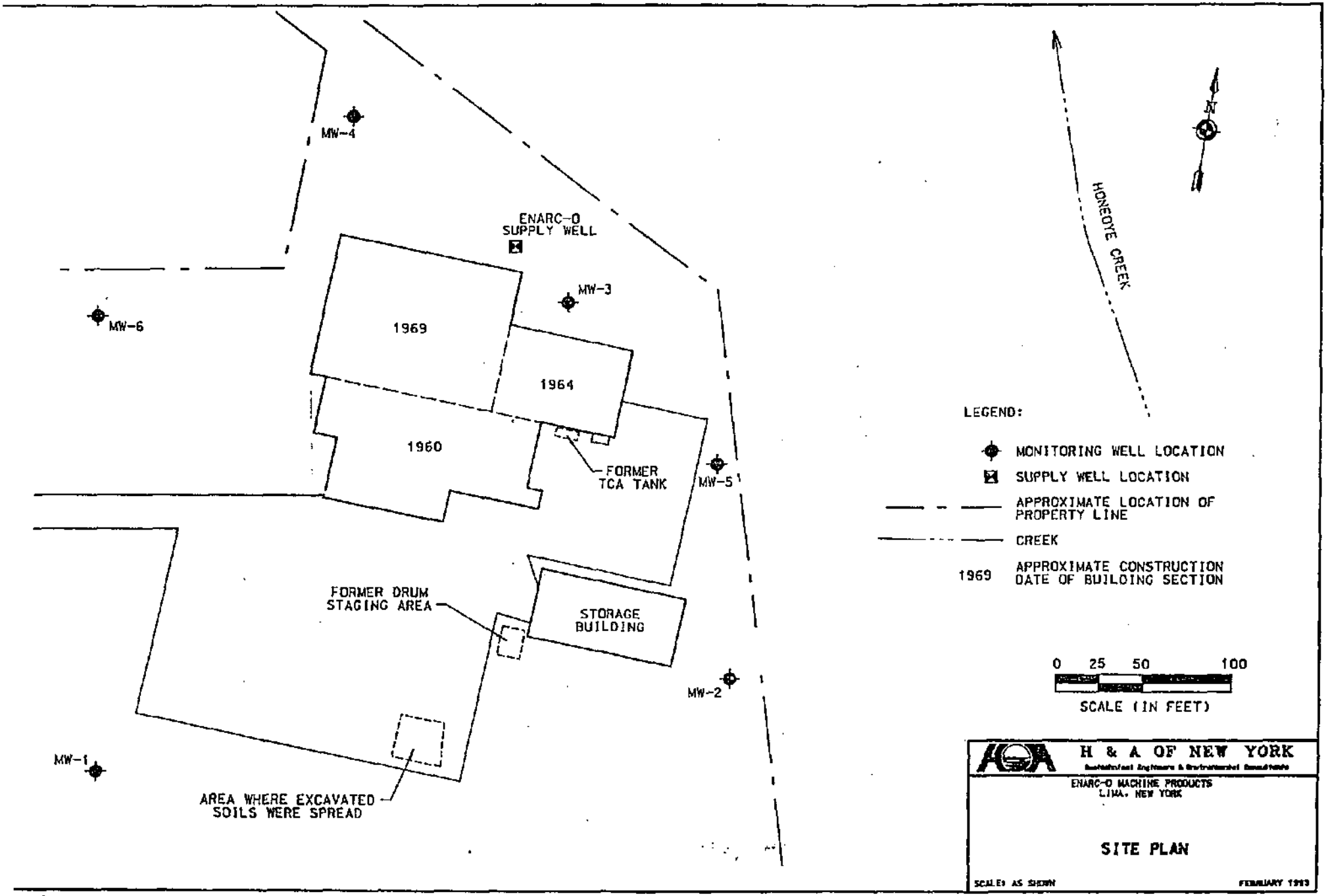

MW-4
ENARC-O
SUPPLY WELL
MW-3
MW-6
1969
1964
1960
FORMER
TCA TANK
MW-5
FORMER DRUM
STAGING AREA
STORAGE
BUILDING
MW-2
MW-1
AREA WHERE EXCAVATED
SOILS WERE SPREAD
HONEOYE CREEK
N
LEGEND:
MONITORING WELL LOCATION
SUPPLY WELL LOCATION
APPROXIMATE LOCATION OF
PROPERTY LINE
CREEK
1969
APPROXIMATE CONSTRUCTION
DATE OF BUILDING SECTION
0 25 50 100
SCALE (IN FEET)
H & A OF NEW YORK
ENARC-O MACHINE PRODUCTS
LIMA, NEW YORK
SITE PLAN
SCALE: AS SHOWN
FEBRUARY 1993
FILENAME: SITE.DGN

FIGURE 2

3.0 Project Description

3.1 Overview of the Project:

The 1990 USEPA Assessment investigation previously described was aimed at trying to identify the basic nature and source of site contamination.

A Remedial Investigation/Feasibility Study (RI/FS) is conducted at a site once hazardous waste contamination has been confirmed. Enarc-O has agreed to carry out this detailed study under an enforceable *Consent Order* currently being negotiated with NYSDEC

The Remedial Investigation (RI) determines the nature and extent of contamination through sampling activities which may include sampling of soils, air, sediments, surface water and groundwater. Sampling and monitoring wells may be installed to identify the contaminants, determine how far they have spread, and in what quantities.

The information gathered during the RI is used in the Feasibility Study (FS) to develop a list of potential alternatives to clean up the site and eliminate threats to health and the environment.

From the list of potential cleanup options, a remedial action is selected based upon review of NYSDEC, NYSDOH and public review and comment. The RI/FS results in a *Record of Decision (ROD)*. The ROD describes the cleanup that will be carried out and how the selected alternative was chosen.

The selected alternative is implemented through remedial design and construction activities, and the site is *monitored* as necessary to ensure effectiveness of the cleanup.

3.2 Overall Objectives of the RI/FS:

Objectives of the RI/FS at the Enarc-O site include:

- Define the nature and extent of the contamination at the site
- Identify potential migration of the contamination into groundwater, surface water
- Identify possible routes of exposure (ways in which people can be exposed to the contaminants)
- Identify the kinds of people who could be exposed, if any, including Enarc-O employees, nearby residents, surface water users, people using groundwater or people entering the Enarc-O property.
- Identify fish and wildlife, if any, near the site that could be exposed.

3.3 Description of the RI/FS Planned for the Site:

The RI plan is designed to provide sufficient field data to prepare a baseline *health risk assessment* and to conduct a feasibility study that will meet the remedial response objectives.

The remedial investigation is broken down into the following tasks:

- Task 1 - Preparation of *Quality Assurance Project Plan, Health and Safety Plan,* and Citizen Participation Plan
- Task 2 - Groundwater Quality Sampling - Residential and Existing on-site *monitoring wells*
- Task 3 - Collection of Well Construction Data
- Task 4 - Resurvey and Preparation of *Base Map*
- Task 5 - *Soil Gas Survey*
- Task 6 - Installation of Additional Monitoring Wells
- Task 7 - *Hydrogeologic Testing*
- Task 8 - *Fish and Wildlife Impact Analysis*
- Task 9 - Human Health Risk Assessment
- Task 10 - Remedial Investigation Report

Specific details of these tasks can be found in the Enarc-O RI/FS workplan, dated 2/93, written by H&A and located in the *document repository* established for the site. (Refer to Section 6, Page 9)

At the completion of these tasks, a draft remedial investigation report will be prepared and submitted to the NYSDEC for review and comment. A proposed project schedule for completion of these tasks and other facets of the RI/FS program is shown on Figure 11.

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

REMEDIAL INVESTIGATION WORK PLAN

PROJECT SCHEDULE

TASK	MONTH 1	MONTH 2	MONTH 3	MONTH 4	MONTH 5	MONTH 6	MONTH 7	MONTH 8
1. WELL DATA SURVEY								
2. RE-SURVEY, BASE MAP PREPARATION								
3. WELL SAMPLING/ANALYSIS (ON*/OFFSITE)								
4. SOIL GAS SURVEY								
5. MONITORING WELL INSTALLATION								
6. NEW WELLS SAMPLE / ANALYSIS								
7. HYDROGEOLOGIC TESTING								
8. STREAM GAUGE INSTALL./MEASUREMENT								
9. ENVIRON. & HEALTH RISK ASSESSMENTS								
10. IRM / FS EVALUATION								
11. DATA REDUCTION / RI REPORT PREP.								
12. QUARTERLY SAMPLING / ANALYSIS*(1)								

NYSDEC NOTICE-
TO-PROCEED

NOTES:

1. QUARTERLY SAMPLING WILL CONTINUE THROUGH ONE YEAR (MONTH 14) AT WHICH TIME FUTURE SAMPLING WILL BE REEVALUATED.
2. "*" DENOTES ITEMS ON WHICH ENARC-O & NYSDEC INPUT WILL BE REQUIRED TO CONFIRM LOCATIONS AND PARAMETERS PRIOR TO SAMPLING EFFORT.

FIGURE 11

4.0 Identification of Affected and/or Interested Public

PROPERTY/OWNERS/INTERESTED PUBLIC

-Country Lane Associates, 1175 Bragg St., Lima, NY 14485
-Robert and Jane H. Jobe, 1167 Bragg St., Honeoye Falls, NY 14472
-Edward M. Tondryk, 1191 Bragg St., Honeoye Falls, NY 14472
-Mendon Grain Corp. Inc., P.O. Box 100, Pittsford, NY 14534
-Dale G. and Nancy Spencer, 7880 Martin Road, Honeoye Falls, NY 14472
-Harry and Virginia Vellekoop, 7886 Martin Road, Honeoye Falls, NY 14472
-Kent K. and Linda H. Fellows, 1301 Bragg St., Lima, NY 14472
-Robert J. Garvey, 7883 Martin Road, Honeoye Falls, NY 14472
-Ronald A. and Cathie Years, 7873 Martin Road, Honeoye Falls, NY 14472
-Edward J. Tondryk Jr. and Karen Y. Hasler, 7865 Martin Road, Honeoye Falls, NY 14472
-Peter M. and Linda Doyle, 7859 Martin Road, Honeoye Falls, NY 14472
-Scotod Developers Inc., c/o John Wood, 135 Oakbriar Drive, Rochester, NY 14616
-Walford E. and Linda Anderson, 7829 Martin Road, Honeoye Falls, NY 14472
-Leonard E. and Mary A. Tompkins, 1155 Ideson Road, Honeoye Falls, NY 14472
-Robert J. Saunders, 7838 Martin Road, Lima, NY 14485
-Allen H. Hopkins Jr., 7852 Martin Road, Honeoye Falls, NY 14472
-Wilma S. Lawrence, 38 Spring Road, Dansville, NY 14437
-Williard L. and Barbara C. Johnson, 1129 Ideson Road, Honeoye Falls, NY 14472
-Peter W.D. Cooper, 1121 Ideson Road, Honeoye Falls, NY 14472
-Timothy E. and Cheryl R. Hart, 1111 Ideson Road, Honeoye Falls, NY 14472
-Elinor Chambers, 1091 Ideson Road, Honeoye Falls, NY 14472
-Mary D. Miller, 1081 Ideson Road, Honeoye Falls, NY 14472
-Thomas E. McGory, et al., 1080 Ideson Road, Honeoye Falls, NY 14472
-Michael A. and Nancy P. Colavito, 1070 Ideson Road, Honeoye Falls, NY 14472
-Jeffery W. and Jane K. Endicott, 1108 Ideson Road, Honeoye Falls, NY 14472
-Sue G. O'Grade, et al., c/o William Maloy, 1116 Ideson Road, Honeoye Falls, NY 14472
-Mr. Doug Conway, 2028 Clay Street, Lima, NY 14485
-Resident/Occupant, 7840 Martin Road, Lima, NY 14485
-Vernie and Claire Sabourin, 7714 Martin Road, Lima, NY 14485
-Mr. Bill Stinson, 155 Ontario Street, Honeoye Falls, NY 14472
-Ms. Carol Shafer, 7694 Martin Road, Lima, NY 14485
-Warren and Delores Haskins, 7660 Martin Road, Lima, NY 14485
-William and Helen Payne, 7696 Martin Road, Lima, NY 14485
-James and Mary Lee, 7666 Martin Road, Lima, NY 14485
-Fulton Woodman, 7702 Martin Road, Lima, NY 14485
-Joseph and Dorothy Contino, 7735 Martin Road, Lima, NY 14485
-Norman and Susan Schueckler, 7777 Martin Road, Lima, NY 14485
-Mrs. Helen Warren, 19 S. Church Street, Honeoye Falls, NY 14472
-Ronald and Maryann Burdick, 7720 Martin Road, Lima, NY 14485
-Resident/Occupant, 7672 Martin Road, Lima, NY 14485
-Beverly J. Whitbourne, 7744 Martin Road, Lima, NY 14485
-Charles and Marian Swanger, 7750 Martin Road, Lima, NY 14485
-Gary and Elizabeth Mandak, 7678 Martin Road, Lima, NY 14485
-David and Barbara Lonobile, 7745 Martin Road, Lima, NY 14485
-Resident/Occupant, 7780 Martin Road, Lima, NY 14485
-Kent K. and Linda H. Fellows, 1301 Bragg Street, Lima, NY 14485
-Alan & Frances Ramsey, 7680 Martin Road, Lima, NY 14485
-Debbie Galloway, Mendon Public Library, 15 Monroe Street, Honeoye Falls, NY 14472
-Mr. Robert Topping, Topping Engineers, 306 Norstar Bldg., 5 E. Market Street, Corning, NY 14830
-Mr. & Mrs. Gardiner, 7708 Martin Road, Lima, NY 14485
-Leslie and Elizabeth Desmann, 7756 Martin Road, Lima, NY 14485

-S-W Associates of Mendon Inc., 350 Monroe Street, Honeoye Falls, NY 14472
-Phyllis J. Reano, 1146 Ideson Road, Honeoye Falls, NY 14472
-Patricia J. Moran, 1154 Ideson Road, Honeoye Falls, NY 14472
-Edward and Leona O'Brien, 7801 Martin Road, Lima, NY 14485
-Harry J. Bush, 7787 Martin Road, Honeoye Falls, NY 14472
-Edward M. and Virginia Tondryk, 7783 Martin Road, Lima, NY 14485
-James D. and Scott Shuffield, 119 W. Filbert St., East Rochester, NY 14445
-Richard and Verna Slade, 7796 Martin Road, Lima, NY 14485
-Robert H. and Dorothy A. Ghostlaw, 7808 Martin Road, Lima, NY 14485
-Leo R. Johnson, 7820 Martin Road, Lima, NY 14485
-Victor George, 1886 Ontario Street, Honeoye Falls, NY 14472
-David W. Wagner, 1897 Ontario Street, Honeoye Falls, NY 14472
-Seltzer Residence, 9644 Bean Hill Road, Honeoye Falls, NY 14472
-Alan J. Knauf Esq., Alan J. Knauf & Associates P.C., 20 N. Main Street, Pittsford, NY 14534
-Mr. Vince Dick, H&A of New York, 189 North Water Street, Rochester, NY 14604
-Mr. Michael Hill, Paralegal Gallagher and Gallagher Attorney's at Law, P.C., 1 Construction Plaza, Boston, MA 02129

TOWN OF LIMA

-A. Ronald Yorks, Supervisor, Town of Lima, P.O. Box 143, Lima, NY 14885
-Amanda M. Hayes, Clerk, Town of Lima, P.O. Box 143, Lima, NY 14885
-Alen Lacey, Councilman, Town of Lima, P.O. Box 143, Lima, NY 14885
-Carol Renere, Councilwoman, Town of Lima, P.O. Box 143, Lima, NY 14885
-Dennis McGurer, Councilman, Town of Lima, P.O. Box 143, Lima, NY 14885
-John Decker, Councilman, Town of Lima, P.O. Box 143, Lima, NY 14885
-Keith Arner, Superintendent of Highways, Town of Lima, P.O. Box, Lima, NY 14885

LIVINGSTON COUNTY

-James Steele, Chairman, Livingston County Board of Supervisors, Livingston Co. Gov't Center, Rm 302, 6 Court Street, Geneseo, NY 14454-1043
-Dominic F. Mazza, County Administrator, Livingston County Gov't Center, Room 302, 6 Court Street, Geneseo, NY 14454-1043
-Margaret McCaughey, County Clerk, Livingston County Gov't Center, Room 302, 6 Court Street, Geneseo, NY 14454-1043
-David Harter, Director, Livingston County Civil Defense, 4 Court Street, Geneseo, NY 14454
-Patrick Rountree, Economic Development Department, Livingston County Gov't Center, Room 306, 6 Court Street, Geneseo, NY 14454-1043
-Austin Morris, Chairman, Livingston County Industrial Development Agency, P.O. Box 96, Geneseo, NY 14450
-David Woods, Director, Livingston County Planning Department, Livingston County, Gov't Center, Room 305, 6 Court Street, Geneseo, NY 14454-1043
-Joan Ellison, Public Health Director, Livingston County Campus, Mt. Morris, NY 14510
-Rodney Carpenter, Superintendent of Highways, Livingston County, Conesus, NY 14435
-John M. York, Sheriff, Livingston County, 4 Court Street, Geneseo, NY 14454

NEW YORK STATE

-Sen. Dale M. Volker, 131 Main Street, Geneseo, NY 14454
-Assemblyman John W. Hasper, P.O. Box 190, Geneseo, NY 14454

UNITED STATES

-Rep. Louise M. Slaughter, 311 Federal Building, Rochester, NY 14614
-Sen. Daniel Patrick Moynihan, Guranty Building, 28 Church St., Suite 203, Buffalo, NY 14202
-Sen. Alfonse D'Amato, Federal Office Building, 100 State Stree, Room 304, Rochester, NY 14614

ECONOMIC ORGANIZATIONS

-Ronald Iannucci, President, Kaddis Manufacturing Corp., 1100 Beahan Road, Rochester, NY 14624
-Enarc-O Machine Products, 1175 Bragg Street, Honeoye Falls, NY 14485
-Livingston County Chamber of Commerce, 53 Main Street, Mt. Morris, NY 14510
-Genesee Valley Board of Realtors, 53 Blackwell Lane, Henrietta, NY 14467
-Greater Rochester Association of Realtors, 103 White Spruce Blvd., Rochester, NY 14623

ENVIRONMENTAL ORGANIZATIONS

-David Woods, Livingston County Environmental Management Council, Building #2, Livingston County Campus, Mt. Morris, NY 14614
-Greenpeace Action, 274 N. Goodman Street, Rochester, NY 14607
-Ray Nelson, Chairperson, Sierra Club of Rochester, 42 Tyringham Road, Rochester, NY 14617
-Barbara Johnston, Livingston County Environmental Council, Livingston County Gov't Center, Planning Department, Room 305, 6 Court Street, Geneseo, NY 14454-1043
-League of Woman Voters, 1344 University Place, Rochester, NY 14607
-Rochester Committee for Scientific Information, 47 Sunset Trail, Fairport, NY 14450
-Elizabeth Thorndike, Center for Environmental Information, 46 Prince Street, Rochester, NY 14607
-Scott Sherwood, Center for Govt'l Research, 37 S. Washington Street, Rochester, NY 14608
-Ms. Diane Heminway, Citizens' Environmental Coalition, 11149 Dunlop Road, Medina, NY 14103
-James MacKenzie, Xerox Corporation, Joseph Wilson Center for Technology, Rochester, NY 14644

MEDIA

-Regional Editor, Democrat and Chronicle, 55 Exchange Street, Rochester, NY 14614
-Janice Bullard, Democrat and Chronicle, 61 Main Street, Rochester, NY 14454
-Regional Editor, Times-Union, 55 Exchange Street, Rochester, NY 14614
-Stephen Lowe, Times-Union, 55 Exchange Street, Rochester, NY 14614
-Eve Holberg, Rochester, Business Journal Inc., 1 Mt. Hope Avenue, Rochester, NY 14620
-News Editor, Livingston County News, 122 Main Street, Geneseo, NY 14454
-News Editor, Livingston County Leader, 3 Center Street, Geneseo, NY 14454

-News Editor, Wolfe Publications Inc., 666 Phillps Road, Victor, NY 14564
-News Editor, Sentinel Publishing, 201 N. Main Street, Honeoye Falls, NY 14472
-News Editor, Clarion Newspaper, 5620 S. Lima Road, Livonia, NY 14487
-News Director, WGRC-Cable Channel 5, 71 Mt. Hope Avenue, Rochester, NY 14620-1090
-News Director, WROC-TV 8, 201 Humboldt Street, Rochester, NY 14604
-News Director, WHEC-TV 10, 191 East Avenue, Rochester, NY 14604
-News Director, WOKR-TV 13, 4225 W. Henrietta Road, Rochester
-News Director, WXXI-TV 21, 280 State Street, Rochester, NY 14614
-News Director, WHAM Radio, 350 East Avenue, Rochester, NY 14605
-News Director, WYSL Radio, 5620 S. Lima Road, Livonia, NY 14487

5.0 Identification of Department Contacts

New York State Department of Environmental Conservation

Toll Free Information Line for New York State's Inactive Hazardous Waste Remediation Program: 1-800-342-9296

Project Manager:

David J. Chiusano
Environmental Engineer
Bureau of Western Remedial Action
Division of Hazardous Waste Remediation
Dept. of Environmental Conservation
50 Wolf Road
Albany, NY 12233-7010
(518) 457-3373 (8 a.m. - 4 p.m.)

Region 8 Contact:

Jim Craft, Senior Engineering Geologist
Division of Hazardous Waste Remediation
NYSDEC Region 8
6274 East Avon-Lima Road
Avon, NY 14414
(716) 226-2466 (8:30 a.m. - 4:00 p.m.)

Citizen Participation Specialist:

Linda Vera
Citizen Participation Specialist
Division of Hazardous Waste Remediation
NYSDEC - Region 8
6274 East Avon-Lima Road
Avon, NY 14414
(716) 226-2466 (8:30 a.m. - 4:00 p.m.)

New York State Department of Health

Toll Free Telephone Number of the NYSDOH Health Liaison Program (HELP) Program: 1-800-458-1158

Contact Persons:

David Napier
Regional Toxics Coordinator
Bureau of Environmental Exposure Investigation
NYSDOH - Rochester
Bevier Building
42 S. Washington Street
Rochester, NY 14608
(716) 423-8071 (8:30 a.m. - 4:30 p.m.)

Emmy Thomee
Program Research Specialist
Bureau of Toxic Substance Assessment
NYSDOH - Albany
2 University Place
Albany, NY 12203
1-800-458-1158, Ext. 402

Livingston County Health Department

Ralph VanHouten
Director of Environmental Health
Livingston County Health Department
2 County Campus
Mount Morris, NY 14510-1691
(716) 243-7280

H&A of New York

Project Manager:

Vince Dick
Senior Hydrogeologist
H&A of New York
189 North Water Street
Rochester, NY 14604
(716) 232-6768

6.0 Identification of Document Repository

Document repositories are established at the following locations, to make site documents easily accessible for the public to read and review. We encourage you to use the document repositories and review site documents before attending *public meetings* whenever possible.

1. NYSDEC Region 8 Office (BY APPOINTMENT ONLY)
   6274 East Avon-Lima Road
   Avon, NY 14414
   (716) 226-2466

   Contact: Linda Vera
   Hours of Operation: 8:30 a.m. - 4:30 p.m. M-F

2. Mendon Public Library
15 Monroe Street
Honeoye Falls, NY 14472
(716) 624-6067
Contact: Ms. Debbie Galloway, Library Director
Hours of Operation: Monday thru Friday 2 p.m. - 9 p.m.
Thursdays 10 a.m. - noon, 2 p.m. - 9 p.m.
Saturdays 1 p.m. - 4 p.m.

The repository contains documents pertinent to NYSDEC's activities at the site. These documents are freely available to the public during the library's regular hours, which are listed above. To date, the following documents have been placed in the repository:

- 1 copy of the Administrative Order on Consent between the United States Environmental Protection Agency (USEPA) and the Kaddis Manufacturing Corporation (owner of Enarc-O).
- 1 copy of the Interim Technical Memorandum, dated October 1990, outlining the work currently taking place at the Enarc-O facility by the USEPA.
- 1 copy of the two (2) previously released Enarc-O Fact Sheets, written by NYSDEC.
- 1 copy of the 1992 NYSDEC Division of Hazardous Waste Remediation, Inactive Hazardous Waste Disposal Site Report for the Enarc-O Machine Facility.
- 1 copy of the Administrative Order on Consent between the NYSDEC and the Kaddis Manufacturing Corporation.
- 1 copy of the RI/FS work plan, dated February 1993, outlining the investigatory work planned for the RI/FS at the Enarc-O facility.

Additional project documents will be added as they are generated.

7.0 Description of Citizen Participation Activities for Each Major Element of the Remedial Program

This section describes the specific citizen participation activities that have been, or will be, carried out during the Enarc-O site Remedial Program. They are based on New York State regulation Party 375-1.5 (May 1992) which sets forth requirements for citizen participation during hazardous waste site programs, and the NYSDEC policy document New York State Inactive Hazardous Waste Site Citizen Participation Plan (August 1988).

These citizen participation activities may be modified, and additional activities may be conducted as NYSDEC, NYSDOH, LCHD and Enarc-O gain additional insight into local interest in citizen participation and the remedial program, or as the technical program and information about the site changes.

NOTE: At the completion of the RI/FS process, NYSDEC will prepare a Record of Decision for the Enarc-O site, detailing the remedial action chosen and the decision process used. At that time, this CP Plan will be reviewed and updated to address the specific CP activities to be conducted during Design and Construction of the remedial program. NYSDEC policy requirements and

options for these activities are detailed in its Statewide CP Plan referenced above.

Below are listed completed/ongoing CP activities and future CP activities. Future CP activities are listed under several major elements of the site remedial program.

COMPLETED/ONGOING CP ACTIVITIES

1. The NYSDEC has mailed two *fact sheets* to the *contact list* that

   - specified local document repositories, important documents available for review and project contacts
   - briefly outlined 1990 USEPA investigation, and the NYSDEC-NYSDOH involvement

2. NYSDEC has developed, and NYSDOH, LCHD, Enarc-O, and H&A have reviewed and approved, a site-specific CP Plan for Enarc-O site. This Plan fulfills the requirements of Part 375-1.5(b)(1). Periodically, and at the Record of Decision (ROD) stage, it will be reviewed and revised as appropriate. The finalized, approved CP Plan has been distributed to the NYSDEC project manager and citizen participation specialist, the NYSDOH site contact, the LCHD site contact, the document repositories, and has been retained by Enarc-O and its consultant (H&A).

3. The NYSDEC has established a local document repository at the Mendon Public Library (see Section 6.0). This fulfills the requirements of Part 375-1.5(b)(3).

4. The NYSDEC has established a preliminary contact list. This list will be reviewed periodically and updated as required. It also will be updated by the NYSDEC after each public meeting, and as additional interested citizens are located by NYSDEC, NYSDOH, LCHD, and Enarc-O. This fulfills the requirement of Part 375-1.5(b)(2).

5. Enarc-O will provide copies of all necessary documents (see Section 6.0) to the local repositories, NYSDEC central and regional offices, NYSDOH and LCHD. NYSDEC will approve the list of documents to be placed in the repositories. This fulfills the requirement of Part 375-1.5(d).

FUTURE CITIZEN PARTICIPATION ACTIVITIES

1. NYSDEC will draft a fact sheet to be mailed to the contact list that:

   - announces availability of the final draft RI/FS workplan
   - briefly outlines the proposed investigation
   - announces date, time and place of a "kickoff" public meeting or availability session to discuss the upcoming RI fieldwork
   - specifies local document repositories, important documents available for review and project contacts

   This fact sheet will be reviewed/approved by NYSDOH, LCHD, Enarc-O, and H&A. It will be mailed by the NYSDEC to the contact list. Completion/mailing of the fact sheet fulfills the requirement of Party 375-1.5(b)(4).

2. The NYSDEC will make necessary room arrangements for the RI "kickoff' meeting or availability session referenced in the mailing above. It will be at a date, time and location convenient to the interested/affected community.

3. NYSDEC, in conjunction with NYSDOH and LCHD, will conduct the RI "kickoff" meeting or availability session. Enarc-O and H&A staff will be present to offer additional information/field questions as appropriate.

4. If necessary, NYSDEC, in conjunction with NYSDOH and LCHD, Enarc-O and H&A will prepare a Responsiveness Summary of the meeting/availability session and conduct the mailing.

5. Additional informational meetings and/or mailings may be necessary based upon results of RI/FS work and/or public interest.

UPON COMPLETION OF THE FEASIBILITY STUDY AND THE PROPOSED REMEDIAL ACTION PLAN (PRAP)

1. The NYSDEC will draft a fact sheet to be mailed to the contact list that:

   - briefly discusses the results of the RI/FS, and outlines the *proposed remedial action plan (PRAP)*
   - announces the public meeting to discuss the PRAP (including meeting date, time and place)
   - details the start and end dates of the 30-day PRAP public comment period
   - discusses where the process goes from here
   - lists project contacts
   - lists document repository locations and important documents available for public review

   This fact sheet will be reviewed/approved by NYSDOH, LCHD, Enarc-O, and H&A. It will be mailed by the NYSDEC to the contact list. This fulfills the requirements of Part 375-1.5(c)(1).

2. The NYSDEC will make necessary room arrangements for the meeting referenced in the mailing above. The meeting will take place within a 30-day PRAP public comment period, and at a date, time and location convenient to the interested/affected community.

3. NYSDEC, in conjunction with NYSDOH and LCHD, will conduct the PRAP public meeting. Enarc-O and H&A will supplement the presentation as appropriate, present appropriate additional information, and also field questions and comments. NYSDEC staff, with appropriate NYSDOH, LCHD and Enarc-O assistance, will keep notes of public comments for preparation of the PRAP *responsiveness summary*. This fulfills the requirements of Party 375-1.5(c)(2).

4. NYSDEC, with assistance of NYSDOH, LCHD, Enarc-O and H&A, will prepare a responsiveness summary to comments received at the public meeting. NYSDEC will conduct the mailing. The responsiveness summary will discuss the remedy selected for implementation, any significant changes from the PRAP and comments received, with the Department's response. This fulfills the requirement of Part 375-1.5(c)(3).

UPON SIGNING OF THE RECORD OF DECISION (ROD)

1. NYSDEC press office in the central office will prepare and distribute a press release about the signing of the ROD.

8.0 Glossary of Key Terms and Major Program Elements

8.1 Key Terms:

Aquifer - A saturated water-bearing formation of permeable rock, sand, or gravel.

Base Map - A detailed map that is usually produced from aerial photography and supplemented by a ground survey. All relevant features of the site and adjacent areas (residents, Honeoye Creek facility, etc.) are plotted on the map. The base map will be used during data analysis and to accurately plot all sampling locations.

Chlorinated Solvents - A group of solvents which contain chlorine as a part of their molecular structure. Chlorinated solvents are commonly found in degreasers and are widely used for cleaning metal parts. Common chlorinated solvents are: Trichloroethylene (TCE), Tetrachloroethlyene (PCE), 1,1,1-Trichloroethane (TCA).

Citizen Participation - A process to inform and involve the interested/affected public in the decision-making process during identification, assessment and remediation of inactive hazardous waste sites. This process helps to assure that the best decisions are made from environmental, human health, economic, social and political perspectives.

Citizen Participation Plan - A document that describes the site-specific citizen participation activities that will take place to complement the "technical" (remedial) activities. It also provides site background and rationale for the selected citizen participation program for the site. A plan may be updated or altered as public interest or the technical aspects of the program change.

Citizen Participation Specialist - A Department staff member within the Division of Hazardous Waste Remediation or the Office of Public Affairs who provides guidance, evaluation and assistance to help the Project Manager carry out his/her site-specific Citizen Participation program.

Consent Order - A legal and enforceable negotiated agreement between the Department and responsible parties where responsible parties agree to undertake investigation and cleanup or pay for the costs of investigation and cleanup work at a site. The order includes a description of the remedial actions to be undertaken at the site and a schedule for implementation.

Contact List - Names, addresses and/or telephone numbers of individuals, groups, organizations and media interested and/or affected by a particular hazardous waste site. Compiled and updated by the Department. Interest in the site, stage of remediation and other factors guide how comprehensive the list becomes. Used to assist the Department to inform and involve the interested/affected public.

Degradation Products - The solvent Tetrachloroethlyene (PCE), when released in the environment, will naturally degrade by microbial action in soil and/or groundwater into similar compounds that have fewer chlorine atoms. For instance, PCE has 4 chlorine atoms but TCE has only 3. The same principle holds true for 1,1,1- Trichloroethane (TCA).

Delisting - Removal of a site from the state Registry based on study which shows the site does not contain hazardous wastes.

1,2 - Dichloroethylene - At room temperature it is a liquid. It is used as a solvent for waxes, a refrigerant, in the manufacture of pharmaceuticals and artificial pearls, and in the removal of oils and fats from fish and meat.

Document Repository - Typically, a regional DEC and/or public building, such as a library, near a particular site, at which documents related to remedial and citizen participation activities at the site are available for public review. Provides access to documents at times and a location convenient to the public. Environmental Management Councils (EMCs), Conservation Advisory Committees (CACs) as well as active local groups often can serve as supplemental document repositories.

Fact Sheet - A written discussion of a site's remedial process, or some part of it, prepared by the Department for the public in easily understandable language. May be prepared for the "general" public or a particular segment. Uses may include, for example: discussion of an element of the remedial program, opportunities for public involvement, availability of a report or other information, or announcement of a public meeting. May be mailed to all or part of the interested public, distributed at meetings, and availability sessions or sent on an "as requested" basis.

Fish and Wildlife Impact Analysis - An engineering investigation of fish and wildlife concerns associated with the cleanup of a hazardous waste disposal site. The objectives of this evaluation are to characterize the existing ecology of the site and surrounding area and to identify fish and wildlife potentially exposed to the pollution called receptors. Further steps evaluate the risk to these receptors.

The ponds at the base of the cliff at Seneca Lake represents the probable (primary) receptor area. If a risk exists, it is necessary to develop remedial measures to eliminate the risk and afterwards provide follow-up monitoring.

Halogenated Volatile Organic Compounds - A group of organic (carbon) compounds of 5 chemically related non-metallic elements such as chlorine that evaporate readily at normal temperatures and pressures. The liquid degreaser TCE is an example. Includes all "chlorintaed solvents".

Health and Safety Plan - A plan included into the RI workplan which outlines protective measures for site workers and the community during investigative activities.

Health Risk Assessment - A process which estimates the likelihood that people who have been exposed to chemicals may have health effects. The four steps of a risk assessment are: hazard identification (Can this substance damage health?); dose-response assessment (What dose causes what effect?); exposure assessment (How and how much do people contact it?); and risk characterization (combining the other three steps to estimate risk).

Hydrogeologic Testing - Physical tests performed on monitoring wells in order to obtain specific groundwater and geologic data.

Microgram Per Liter (ug/l) - One microgram per liter means one microgram of chemical per liter of water, and is equivalent to one part per billion (ppb).

Monitoring Well - A hole drilled into the soil or bedrock which has a screen pipe and riser pipe installed in the borehole. The well enables the samples of groundwater at a specific horizontal and vertical location for chemical analysis.

Parts Per Billion (ppb) - The concentration of a substance of air, water or soil. One ppb means that there is one part of a substance for every billion parts of the air, water or soil in which it is measured. One ppb is about one drop of dye in 18,000 gallons of water or about one second in 32 years. One ppb is 1,000 times less than one ppm. See "parts per million."

Parts Per Million (ppm) - The concentration of a substance in air, water or soil. One ppm means that there is one part of a substance for every million parts of the water or soil in which it is measured. One ppm is about one drop of dye in 18 gallons of water, about the one inch in 16 miles, or one penny in $10,000.

Plume - An area of chemicals moving away form its source in a long band or column. A plume, for example, can be a column of smoke drifting away from a chimney or a similarly shaped area of dissolved chemicals moving with groundwater.

Project Manager - A Department staff member within the Division of Hazardous Waste Remediation (usually an engineer, geologist or hydrogeologist) responsible for the day-to-day administration of activities, and ultimate disposition of, one or more hazardous waste sites. The Project Manager works with the Office of Public Affairs as well as fiscal and legal staff to accomplish site-related goals and objectives.

Proposed Remedial Action Plan (PRAP) - The end product of the Feasibility Study consisting of an analysis of each alternative and the rationale for selecting the proposed alternative. This plan is reviewed by the public and other government agencies; NYS Department of Health and NYS Department of Law.

Public - The universe of individuals, groups and organizations: a) affected (or potentially affected) by an inactive hazardous waste site and/or it's remedial program; b) interested in the site and/or its remediation; c) having information about the site and it's history.

Public Meeting - A scheduled gathering of the Department staff and the public to give and receive information, ask questions and discuss concerns. May take one of the following forms: large-group meeting called by the Department; participation by the Department at a meeting sponsored by another organization such as a town board or Department of Health; working group or workshop; tour of the hazardous waste site.

Public Notice - A written or verbal informational technique for telling people about an important part of a site's remedial program coming up soon (examples: announcement that the report for the IRM or RI/FS is publicly available; a public meeting has been scheduled).

The public notice may be formal and meet legal requirements (for example: what it must say, such as announcing beginning of a public comment period; where, when and how it is published).

- Publish - For purposes of 6NYCRR Part 375.7, at a minimum requires publication of a legal notice in a local newspaper of general circulation.

Another kind of public notice may be more informal and may not be legally required (examples: paid newspaper advertisement; telephone calls to key citizen leaders; targeted mailings).

Quality Assurance Project Plan - A plan included into the RI workplan which: 1) discusses the data quality objectives and analytical requirements for the RI/FS, 2) describes sampling and field monitoring procedures, 3) describes requirements for maintaining sample integrity and 4) outlines instrument calibration and maintenance procedures.

Registry of Inactive Hazardous Waste Disposal Sites in New York State - This is a compilation of all known and suspected hazardous waste sites in New York State, updated every 3 months.

Responsible Parties - Individuals, companies (e.g. site owners, operators, transporters or generators of hazardous waste) responsible for or contributing to the contamination problems at a hazardous waste site. "PRP" is a Potentially Responsible Party.

Responsiveness Summary - A formal or informal written or verbal summary and response by the Department to public questions and comments. Prepared during or after important elements in a site's remedial program. The responsiveness summary may list and respond to each question, or summarize and respond to questions in categories.

Site Classification - The NYSDEC assigns sites to classifications established by state law, as follows:

- Classification 1 - A site causing or presenting an imminent danger of causing irreversible or irreparable damage to the public health or environment - immediate action required.
- Classification 2 - A site posing a significant threat to the public health or environment - action required.
- Classification 2a - A temporary classification for a site known or suspected to contain hazardous waste. Most likely the site will require a Phase I and Phase II investigation to obtain more information. Based on the results, the site then would be reclassified or removed from the State Registry if found not to contain hazardous wastes.
- Classification 3 - A site which has hazardous waste confirmed, but not a significant threat to the public health or environment - action may be deferred.
- Classification 4 - A site which has been properly closed - required continued management.
- Classification 5 - A site which has been properly closed, with no evidence of present or potential adverse impact - no further action required.

Soil Boring - A circular hole made in the ground by an auger or mechanical drill rig to collect soil samples deep in the ground. The best samples are saved for testing to see if the subsoil has been contaminated. Sometimes these borings are converted into groundwater monitoring wells.

Soil Gas Survey - This is a method for investigating underground distributions of volatile organic compounds (VOCs) such as TCE by looking for their vapors in the shallow soil gas (voids) that exist between soil particles. The method involves pumping a small amount of soil gas out of the ground through a hollow probe driven into the ground and testing the gas for the presence of volatile compounds. The presence of VOCs in shallow soil gas indicates the observed compounds may either be in the unsaturated (dry) soil or in the groundwater below the probe.

This survey is used to trace the outline of a groundwater contaminant plume and help determine the best location to install groundwater monitoring wells.

Superfund (federal and states) - The federal and state programs to investigate and clean up inactive hazardous waste sites. The federal program gives the U.S. Environmental Protection Agency the funding and authority to investigate, rank and conduct or supervise cleanup of sites on the National Priority List. New York State's superfund program gives the Department of Environmental Conservation the same authority to deal with sites that do not qualify for the federal superfund list.

Tetrachloroethene (perchloroethene) - Is a clear, colorless, non-flammable liquid with a characteristic odor. It is a widely used solvent with particular use as a dry cleaning agent and a degreaser.

Tetrachloromethane - Is a colorless, non-flammable liquid with a characteristic odor. It is used as a solvent for oils, fats, lacquers, varnishes, rubber, waxes, and resins. It is also used as a dry-cleaning agent, a fire extinguishing agent, and a fumigant.

Toll-Free "800" Telephone Information Number - Provides cost-free access to the Department by members of the public who have questions, concerns or information about a particular hazardous waste site. Calls are taken and recorded 24 hours a day, and a Department staff member contacts the caller as soon as possible (usually the same day).

1,1,1-Trichloroethane (1,1,1 TCA) - Colorless, non-flammable, man-made liquid solvent. In liquid form it is used as a degreaser and for cold cleaning, dip-cleaning and bucket cleaning of metals. Other industrial applications of 1,1,1-TCA's solvent properties include its use as a dry-cleaning agent, a vapor degreasing agent, and a propellant.

Trichloroethene (TCE) - Trichloroethene (also called trichloroethylene) is a colorless, man-made liquid used primarily as a solvent for removing grease from metal. It has a variety of other uses such as a dry cleaning solvent and in the production of other chemicals. It generally gets into drinking water by improper waste disposal.

Volatile Organic Compound - Carbon-containing chemicals which readily evaporate (cleaning solvents, gasoline, etc.).

8.2 Definitions of Major Program Elements:

NOTE: The definitions represent major elements of the remedial process. They are presented in the order in which they most commonly occur, rather than in alphabetical order, to provide a context to aid in their definition.

Interim Remedial Measure (IRM) - An Interim Remedial Measure (IRM) means a discrete set of activities to address both emergency and non-emergency site conditions, which can be carried out without extensive investigation and evaluation, to prevent, mitigate, or remedy environmental damage attributable to a site listed in the registry.

An IRM workplan is prepared to address one or more specific problems and will be included in the final remedy for the whole site. An IRM is designed to be a permanent part of the final remedy. When an IRM constitutes the entire remedy, DEC prepares a Record of Decision (ROD). The ROD contains the results of a remedial investigation and remedy selection process.

At many hazardous waste sites, contamination problems and the process of selecting an effective remedial program may require years of site investigation, remedial design and construction. The IRM, which can be carried out months and sometimes years before full remediation, can quickly prevent, mitigate or remedy environmental damage and lessen the risks to public health. Often, an IRM can be initiated before the full nature and extent of contamination is known.

IRMs range in size from small to large projects and include:

- Removing wastes and contaminated materials including contaminated soil and water;
- Constructing diversion ditches, collection systems, or leachate collection systems;
- Construction fences or other barriers;
- Installing water filters or providing alternative water supplies;
- Posting warning signs around a site's perimeter.

Remedial Investigation (RI) - A process to determine the nature and extent of contamination by collection data and analyzing the site. It includes sampling and monitoring, as necessary, and includes the gathering of sufficient information to determine the necessity for, and proposed extent of, a remedial program for the site.

Feasibility Study (FS) - A process for developing, evaluating and selecting remedial actions, using data gathered during the remedial investigation to: define the objectives of the remedial program for the site and broadly develop remedial action alternatives; perform an initial screening of these alternatives; and perform a detailed analysis of a limited number of alternatives which remain after the initial screening stage.

Remedial Design - Once a remedial action has been selected, technical drawings and specifications for remedial construction at a site are developed, as specified in the final RI/FS report. Design documents are used to bid and construct the chosen remedial actions. Remedial design is prepared by consulting engineers with experience in inactive hazardous waste disposal site remedial actions.

Record of Decision (ROD) - Presents the remedial action for an inactive hazardous waste site and documents the information and rationale used to arrive at the decision.

The ROD is the culmination of extensive investigations and a remedy selection that identifies a solution to remove the threat of harm from public health and the environment. It serves as the definitive record of the remedial action decision for the site and as a convenient reference to other documents that were developed during the remedial process.

Construction - The PRP selects contractors and supervises construction work to carry out the designed remedial alternative. The DEC provides regulatory oversight. Construction may be as straightforward as excavation of contaminated soil with disposal at a permitted hazardous waste facility. On the other hand, it may involve drum sampling and identification, complete encapsulation, leachate collection, storage and treatment, groundwater management, or other technologies. Construction costs may vary from several thousand dollars to many millions of dollars, depending the size of the site, the soil, groundwater and other conditions, and the nature of the wastes.

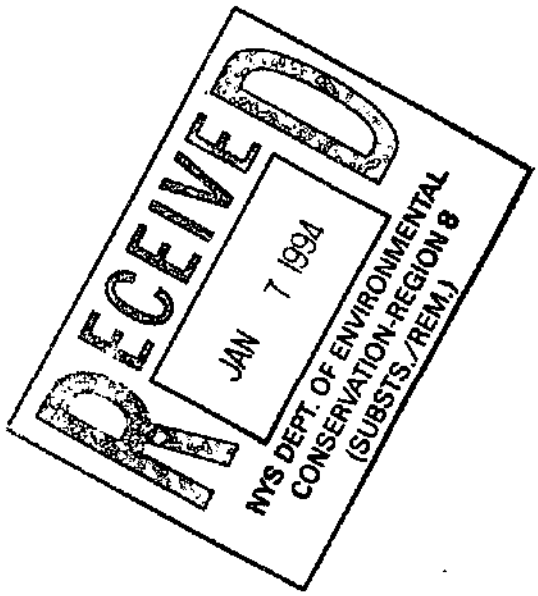
Monitoring/Maintenance - Denotes post-closure activities to insure continued effectiveness of the remedial actions. Typical monitoring/maintenance activities include quarterly inspection by an engineering technician; measurement of level of water in monitoring wells; or collection of groundwater and surface water samples and analysis for factors showing the condition of water, presence of toxic substances, or other indicators of possible pollution from the site. Monitoring/maintenance may be required indefinitely at many sites.

c:\wp51\chiusano\enarcocp.djc

Appendix M

APPENDIX M

Well Survey Questionnaire and List of
Homes to be Contacted



New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233

Thomas C. Jorling
Commissioner

Dear Resident:

Re: Enarc-O Machine Products, Site #8-26-011, Livingston County

Enarc-O Machine Products, Inc. and the New York State Department of Environmental Conservation (NYSDEC) are working together in conducting a Remedial Investigation and Feasibility Study (RI/FS) for the Enarc-O Machine Products Site in North Bloomfield. In cooperation with the NYSDEC and the New York State Department of Health (NYSDOH), Enarc-O has hired the engineering services of H&A of New York to perform the RI/FS, and to obtain information concerning residential water usage near the Enarc-O Machine Products Site. Although we realize that most residents are currently using municipal water for their everyday needs, you may have a well which you no longer use that we could incorporate into our study.

Please fill out the enclosed brief questionnaire to the best of your knowledge and mail it in the stamped, self-addressed envelope provided. If you have any questions concerning this survey, feel free to call Mr. David Napier - NYSDOH at (716) 423-8071, Mr. Vince Dick - H&A of New York at (716) 232-7386, Linda Vera - NYSDEC Citizen Participation Specialist at (716) 226-2466, or me at (518) 457-3373. You may also reach NYSDEC staff by calling the Department's Inactive Hazardous Waste Site Remedial Program in Albany, toll-free, at 1-800-342-9296 and leaving a message. Your call will be returned shortly.

Thank you for your cooperation in this matter.

Sincerely,

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

David J. Chiusano
Environmental Engineer
Remedial Section C
Bureau of Western Remedial Action
Division of Hazardous Waste Remediation

Enclosure

c:\wp51\chiusano\enarcwat.djc

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233

Thomas C. Jorling
Commissioner

WATER USAGE RECONNAISSANCE SURVEY
ENARC-O MACHINE PRODUCTS, INC. SITE AREA

NAME: _____

ADDRESS: _____

TELEPHONE: _____
(optional)

A. Do you have a water well? Yes _____ No _____

Answer questions A.1 - A.6 only if you answered yes to Question A.

A.1 Please list your uses for this well water (if any) such as drinking, agriculture, livestock.

1. _____
2. _____
3. _____
4. _____
5. _____

A.2 If the well is abandoned, is it:

Capped _____ Open _____ Accessible _____

Plugged with cement _____ Unknown _____

A.3 When was your well constructed? 19__

A.4 Was it dug, hand driven, or drilled?

dug _____ hand driven _____ drilled _____

Please provide the name and phone number of the driller, if known.

(Name) _____ (Phone) _____

A.5 How deep is your well? _____ feet

Is the well currently occupied by a submersible pump or water lines?

_____ Pump _____ Water Lines _____ Well is open and unoccupied

A.6 Are you currently using municipal water? _____ Yes _____ No

B. Do you have a sump in your basement? _____ Yes _____ No

B.1 If Yes, does your sump contain water on a regular basis?
_____Yes _____No

B.2 On an intermittant basis?

_____ Winter _____ Spring _____ Summer _____ Fall

GENERAL COMMENTS

PLEASE USE BACK OF FORM FOR ANY COMMENTS

ENCLOSURE #2

Enarc-O Home Survey

Mailing List

Martin Road

7660	7720	7796	7873
7666	7735	7801	7880
7672	7744	7808	7883
7678	7745	7820	7886
7680	7750	7829	9617
7694	7756	7838	9622
7696	7777	7840	9624
7702	7780	7852	9626
7708	7783	7859	9680
7714	7787	7865	

Ideson Road

1070	1121
1080	1129
1081	1146
1091	1154
1108	1155
1111	
1116	

Clay Street

2028

Bragg Street

1167
1175
1191
1301

Ontario Street

155	1918
1886	1922
1896	1926
1897	1930
1901	1934
1903	1950
1913	

State Rt. 65

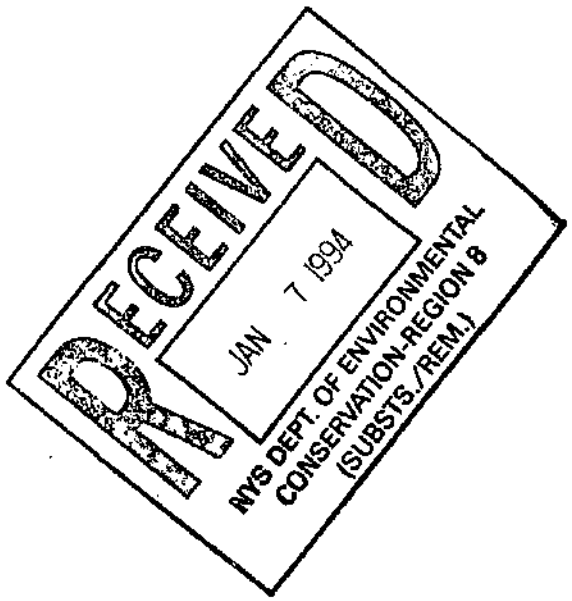
1932
1933
1942
1944
1946

c:\wp51\chiusano\enarmlhs.djc

Appendix N

APPENDIX N

Previously Collected Data



DD-17-1 (5/76)
Formerly GA-4

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

TRANSMITTAL SLIP

TO: Ronald Iannucci, Sr.: Kaddis Manufacturing

FROM: David Chiusano, NYSDEC - Albany | DATE: 9/9/93

RE: Enarc-O Machine Products, Site # 8-26-011

FYI: Sample results from NYSDOH Sampling of [redacted] Sump on 8/12/93.

CC: V. Dick (H&A)

FOR ACTION AS INDICATED:

- ☐ Please Handle
- ☐ Prepare Reply
- ☐ Prepare Reply for _____ Signature
- ☒ Information
- ☐ Approval
- ☐ Prepare final/draft in _____ Copies
- ☐ Comments
- ☐ Signature
- ☐ File
- ☐ Return to me
- ☐ _____
- ☐ _____

RECEIVED
SEP 13 1993
H & A OF NEW YORK

1647 NEW YORK STATE DEPARTMENT OF HEALTH 072
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 1 RESULTS OF EXAMINATION FINAL REPORT

SAMPLE ID: 931969 SAMPLE RECEIVED:93/08/13/ CHARGE: 8.00
PROGRAM: 110:STATE SUPERFUND ANALYTICAL SERVICES
SOURCE ID: DRAINAGE BASIN: GAZETTEER CODE:2524
POLITICAL SUBDIVISION:LIMA V. COUNTY:LIVINGSTON
LATITUDE: . LONGITUDE: . Z DIRECTION:
LOCATION: 826011 ENARC-O
DESCRIPTION: [redacted], SUMP
REPORTING LAB: TOX:LAB FOR ORGANIC ANALYTICAL CHEMISTRY
TEST PATTERN: VH05021:VOLATILE HALOGENATED ORGANICS
SAMPLE TYPE: 230:SEEPAGE
TIME OF SAMPLING: 93/08/12 10:30 DATE PRINTED:93/08/24

ANALYSIS: VH05021 VOLATILE HALOGENATED ORGANICS (DES 310-29)
DATE PRINTED: 93/08/24 FINAL REPORT

----------PARAMETER----------	----------RESULT----------
CHLOROMETHANE	< 0.5 MCG/L
BROMOMETHANE	< 0.5 MCG/L
VINYL CHLORIDE	< 0.5 MCG/L
DICHLORODIFLUOROMETHANE (FREON-12)	< 0.5 MCG/L
CHLOROETHANE	< 0.5 MCG/L
METHYLENE CHLORIDE (DICHLOROMETHANE)	0.5 MCG/L
TRICHLOROFLUOROMETHANE (FREON-11)	< 0.5 MCG/L
1,1-DICHLOROETHENE	< 0.5 MCG/L
BROMOCHLOROMETHANE	< 0.5 MCG/L
1,1-DICHLOROETHANE	< 0.5 MCG/L
TRANS-1,2-DICHLOROETHENE	< 0.5 MCG/L
CIS-1,2-DICHLOROETHENE	5. MCG/L
CHLOROFORM	5. MCG/L
1,2-DICHLOROETHANE	0.5 MCG/L
DIBROMOMETHANE	< 0.5 MCG/L
2,2-DICHLOROPROPANE	< 0.5 MCG/L
1,1,1-TRICHLOROETHANE	2. MCG/L
CARBON TETRACHLORIDE	< 0.5 MCG/L
BROMODICHLOROMETHANE	< 0.5 MCG/L
1,2-DICHLOROPROPANE	< 0.5 MCG/L
CIS-1,3-DICHLOROPROPENE	< 0.5 MCG/L
1,1-DICHLOROPROPENE	< 0.5 MCG/L
TRICHLOROETHENE	56. MCG/L
1,3-DICHLOROPROPANE	< 0.5 MCG/L
DIBROMOCHLOROMETHANE	< 0.5 MCG/L
TRANS-1,3-DICHLOROPROPENE	< 0.5 MCG/L
1,1,2-TRICHLOROETHANE	< 0.5 MCG/L
1,2-DIBROMOETHANE (EDB)	< 0.5 MCG/L
BROMOFORM	< 0.5 MCG/L
1,1,1,2-TETRACHLOROETHANE	< 0.5 MCG/L

**** CONTINUED ON NEXT PAGE ****

COPIES SENT TO: CO(1), RO(1), LPHE(1), FED( ), INFO-P( ), INFO-L( )

REGIONAL DIRECTOR OF PH ENGINEERING
NEW YORK STATE DEPARTMENT OF HEALTH
42 SOUTH WASHINGTON ST.
ROCHESTER, N.Y. 14608

SUBMITTED BY:NAPIER

1648 NEW YORK STATE DEPARTMENT OF HEALTH 072
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 2 RESULTS OF EXAMINATION FINAL REPORT

SAMPLE ID: 931969 SAMPLE RECEIVED:93/08/13/ CHARGE: 8.00
POLITICAL SUBDIVISION:LIMA V. COUNTY:LIVINGSTON
LOCATION: 826011 ENARC-O
TIME OF SAMPLING: 93/08/12 10:30 DATE PRINTED:93/08/24

PARAMETER	RESULT
1,2,3-TRICHLOROPROPANE	< 0.5 MCG/L
1,1,2,2-TETRACHLOROETHANE	< 0.5 MCG/L
TETRACHLOROETHENE	1. MCG/L
CHLOROBENZENE	< 0.5 MCG/L
BROMOBENZENE	< 0.5 MCG/L
O-CHLOROTOLUENE	< 0.5 MCG/L
P-CHLOROTOLUENE	< 0.5 MCG/L
1,3-DICHLOROBENZENE	< 0.5 MCG/L
1,2-DICHLOROBENZENE	< 0.5 MCG/L
1,4-DICHLOROBENZENE	< 0.5 MCG/L
PH OF HALOGENATED ALIQUOT	2

**** END OF REPORT ****

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233

Thomas C. Jorling
Commissioner

MAY 18 1993

Mr. Ronald Iannucci, President
Kaddis Manufacturing Corporation
P.O. Box 92985
1100 Beahan Road
Rochester, NY 14692-9085

Dear Mr. Iannucci:

Re: Residential Water Sample, Enarc-O Machine Products Site,
#8-26-011, Livingston County

For your information I have enclosed the data generated from the NYSDOH's sampling of [redacted]'s basement sump on 4/19/93. As you can see, low levels of volatile organic contamination were again detected.

If you have any questions, please do not hesitate to contact Mr. David Napier, NYSDOH, at (716) 423-8071, or myself at (518) 457-8373.

Sincerely,

David J. Chiusano
Environmental Engineer
Remedial Section C
Bureau of Western Remedial Action
Division of Hazardous Waste Remediation

Enclosure

cc: D. Napier, NYSDOH-Rochester
R. Van Houten, LCHD
V. Dick, H&A
W. Helferich, (Harter, Secrest & Emery)

0535 NEW YORK STATE DEPARTMENT OF HEALTH 072
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 1 RESULTS OF EXAMINATION FINAL REPORT

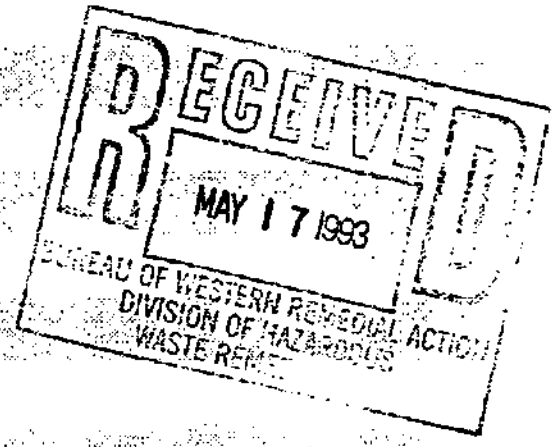
SAMPLE ID: 930842 SAMPLE RECEIVED:93/04/20/ CHARGE: 8.00
PROGRAM: 110:STATE SUPERFUND ANALYTICAL SERVICES
SOURCE ID: DRAINAGE BASIN: GAZETTEER CODE:2524
POLITICAL SUBDIVISION:LIMA V. COUNTY:LIVINGSTON
LATITUDE: . LONGITUDE: . Z DIRECTION:
LOCATION: 826011 ENARC-O
DESCRIPTION: [redacted], SUMP
REPORTING LAB: TOX:LAB FOR ORGANIC ANALYTICAL CHEMISTRY
TEST PATTERN: VH05021:VOLATILE HALOGENATED ORGANICS
SAMPLE TYPE: 230:SEEPAGE
TIME OF SAMPLING: 93/04/19 08:10 DATE PRINTED:93/05/07

New York State Department of Health
MAY 13 1993
Rochester Area Office

ANALYSIS: VH05021 VOLATILE HALOGENATED ORGANICS (DES 310-29)
DATE PRINTED: 93/05/07 FINAL REPORT

PARAMETER	RESULT
CHLOROMETHANE	< 0.5 MCG/L
BROMOMETHANE	< 0.5 MCG/L
VINYL CHLORIDE	< 0.5 MCG/L
DICHLORODIFLUOROMETHANE (FREON-12)	< 0.5 MCG/L
CHLOROETHANE	< 0.5 MCG/L
METHYLENE CHLORIDE (DICHLOROMETHANE)	< 0.5 MCG/L
TRICHLOROFLUOROMETHANE (FREON-11)	< 0.5 MCG/L
1,1-DICHLOROETHENE	< 0.5 MCG/L
BROMOCHLOROMETHANE	< 0.5 MCG/L
1,1-DICHLOROETHANE	< 0.5 MCG/L
TRANS-1,2-DICHLOROETHENE	< 0.5 MCG/L
CIS-1,2-DICHLOROETHENE	4.7 MCG/L
CHLOROFORM	2.5 MCG/L
1,2-DICHLOROETHANE	< 0.5 MCG/L
DIBROMOMETHANE	< 0.5 MCG/L
2,2-DICHLOROPROPANE	< 0.5 MCG/L
1,1,1-TRICHLOROETHANE	2.4 MCG/L
CARBON TETRACHLORIDE	< 0.5 MCG/L
BROMODICHLOROMETHANE	< 0.5 MCG/L
1,2-DICHLOROPROPANE	< 0.5 MCG/L
CIS-1,3-DICHLOROPROPENE	< 0.5 MCG/L
1,1-DICHLOROPROPENE	< 0.5 MCG/L
TRICHLOROETHENE	22. MCG/L
1,3-DICHLOROPROPANE	< 0.5 MCG/L
DIBROMOCHLOROMETHANE	< 0.5 MCG/L
TRANS-1,3-DICHLOROPROPENE	< 0.5 MCG/L
1,1,2-TRICHLOROETHANE	< 0.5 MCG/L
1,2-DIBROMOETHANE (EDB)	< 0.5 MCG/L
BROMOFORM	< 0.5 MCG/L
1,1,1,2-TETRACHLOROETHANE	< 0.5 MCG/L

**** CONTINUED ON NEXT PAGE ****



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REGIONAL DIRECTOR OF PH ENGINEERING
NEW YORK STATE DEPARTMENT OF HEALTH
42 SOUTH WASHINGTON ST.
ROCHESTER, N.Y. 14608

SUBMITTED BY:NAPIER

SAMPLE ID: 930842 SAMPLE RECEIVED:93/04/20/ CHARGE: 8.00
POLITICAL SUBDIVISION:LIMA V. COUNTY:LIVINGSTON
LOCATION: 826011 ENARC-O
TIME OF SAMPLING: 93/04/19 08:10 DATE PRINTED:93/05/07

PARAMETER	RESULT
1,2,3-TRICHLOROPROPANE	< 0.5 MCG/L
1,1,2,2-TETRACHLOROETHANE	< 0.5 MCG/L
TETRACHLOROETHENE	< 0.5 MCG/L
CHLOROBENZENE	< 0.5 MCG/L
BROMOBENZENE	< 0.5 MCG/L
O-CHLOROTOLUENE	< 0.5 MCG/L
P-CHLOROTOLUENE	< 0.5 MCG/L
1,3-DICHLOROBENZENE	< 0.5 MCG/L
1,2-DICHLOROBENZENE	< 0.5 MCG/L
1,4-DICHLOROBENZENE	< 0.5 MCG/L
PH OF HALOGENATED ALIQUOT	2

**** END OF REPORT ****

STATE OF NEW YORK
DEPARTMENT OF HEALTH

Western Region — Rochester Field Office 42 S. Washington Street Rochester, New York 14608

Letter #55-92

May 27, 1992

Lorna McBarnette
Executive Deputy Commissioner

OFFICE OF PUBLIC HEALTH
Sue Kelly
Executive Deputy Director
Olivia Smith-Blackwell, M.D., M.P.H.
Regional Health Director

Mr. and Mrs. [redacted]
[redacted] Martin Road
Honeoye Fall, N.Y. 14485

RE: Indoor Air and Sump Sample Results
Enarc-O, Site #826011
Lima, Livingston Co.

Dear Mr. and Mrs. [redacted]:

Attached are results of the analysis of indoor air samples collected on March 3, 1992 and two sump water samples collected on January 15, 1992 and March 3, 1992 in your home by the New York State Department of Health. Also attached is a summary chart (Table 1) of the indoor air sample results from your home and the control home for comparison. The indoor air samples were taken to determine whether there is an influence from the chemicals found in your sump water on the indoor air quality in your home. Indoor air samples taken last summer did not show any impact from your sump water, but additional sampling was conducted to determine if a seasonal variation exists. Included for comparison is data from the U.S. Environmental Protection Agency's (EPA) Indoor Air Quality Database for Organic Compounds (Table 2). This publication is a summary of indoor air sampling results from studies performed nationwide.

The results from the sump water samples shows that the level of contamination in your sump water continues to be present at approximately the same concentration. There were no chemical compounds detected in your basement air samples. This would indicate that there is not an impact on the indoor air quality of your house from the chemicals in your sump water. Benzene, toluene, ethylbenzene, xylenes, trimethylbenzene, p-cymene and n-butylbenzene were all found in the indoor air sample collected in your living room. Several of these chemicals were found in indoor air samples collected in your home last summer and were also found in samples from the control home. All of these chemicals are constituents of kerosine and other petroleum products. Their presence may be due to the use of a kerosene heater on the first floor of your home during the sampling.

TABLE 1

Positive Indoor Air Results
Values in Micrograms Per Cubic Meter (mcg/m^3)

	[redacted] Residence		Control Residence	
	Basement	Living Room	Basement	Living Room
benzene		32	10 PL	10 PL
toluene		34	20	24
ethylbenzene		9		
m/p-xylene		24	10 PL	11
o-xylene		14		10 PL
1,2,4-trimethylbenzene		20		10 PL
4-isopropyltoluene		12		
n-butylbenzene		17		

PL = Present but less than the instrument can detect acurately.

#20830385

0361 NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 1 RESULTS OF EXAMINATION FINAL REPORT

SAMPLE ID: 920906 SAMPLE RECEIVED:92/03/04/ CHARGE: 11.00
PROGRAM: 110:STATE SUPERFUND ANALYTICAL SERVICES
SOURCE ID: DRAINAGE BASIN: GAZETTEER CODE:2524
POLITICAL SUBDIVISION:LIMA V. COUNTY:LIVINGSTON
LATITUDE: . LONGITUDE: . Z DIRECTION:
LOCATION: 826011-ENARCO - [redacted] RES., [redacted] MARTIN RD.
DESCRIPTION:BASEMENT, TUBE #T05286-29.68 LITERS,T05303-32.37 LITERS
REPORTING LAB: IOX:LAB FOR ORGANIC ANALYTICAL CHEMISTRY
TEST PATTERN: VOL3-AIR:VOLATILE ORGANICS IN AIR
SAMPLE TYPE: 902:AMBIENT AIR - INDOOR
TIME OF SAMPLING: 92/03/03 09:24 TO 92/03/03 10:47 DATE PRINTED:92/03/10

ANALYSIS: VOL3-AIR VOLATILE ORGANICS IN AIR (DES 311-6)
DATE PRINTED: 92/03/10 FINAL REPORT

PARAMETER	RESULT
METHYLENE CHLORIDE (DICHLOROMETHANE)	< 10. MCG/CU.M.
TRANS-1,2-DICHLOROETHENE	< 10. MCG/CU.M.
1,1-DICHLOROETHANE	< 10. MCG/CU.M.
CIS-1,2-DICHLOROETHENE	< 10. MCG/CU.M.
CHLOROFORM	< 10. MCG/CU.M.
1,1,1-TRICHLOROETHANE	< 10. MCG/CU.M.
1,1-DICHLOROPROPENE	< 10. MCG/CU.M.
CARBON TETRACHLORIDE	< 10. MCG/CU.M.
1,2-DICHLOROETHANE	< 10. MCG/CU.M.
BENZENE	< 10. MCG/CU.M.
TRICHLOROETHENE	< 10. MCG/CU.M.
1,2-DICHLOROPROPANE	< 10. MCG/CU.M.
BROMODICHLOROMETHANE	< 10. MCG/CU.M.
CIS-1,3-DICHLOROPROPENE	< 10. MCG/CU.M.
TOLUENE	< 10. MCG/CU.M.
TRANS-1,3-DICHLOROPROPENE	< 10. MCG/CU.M.
1,1,2-TRICHLOROETHANE	< 10. MCG/CU.M.
TETRACHLOROETHENE	< 10. MCG/CU.M.
DIBROMOCHLOROMETHANE	< 10. MCG/CU.M.
CHLOROBENZENE	< 10. MCG/CU.M.
1,1,1,2-TETRACHLOROETHANE	< 10. MCG/CU.M.
ETHYLBENZENE	< 10. MCG/CU.M.
M/P-XYLENE	< 10. MCG/CU.M.
O-XYLENE	< 10. MCG/CU.M.
STYRENE	< 10. MCG/CU.M.
ISOPROPYLBENZENE (CUMENE)	< 10. MCG/CU.M.
BROMOFORM	< 10. MCG/CU.M.
1,1,2,2-TETRACHLOROETHANE	< 10. MCG/CU.M.
N-PROPYLBENZENE	< 10. MCG/CU.M.
BROMOBENZENE	< 10. MCG/CU.M.

**** CONTINUED ON NEXT PAGE ****

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BUR. ENVIRONMENTAL EXPOSURE INVESTIGAT.
NY STATE DEP'T. HEALTH
II UNIVERSITY PLACE - RM. 205
ALBANY, NY 12203 *INTERAGENCY MAIL*

SUBMITTED BY:HOUSE

SAMPLE ID: 920906 SAMPLE RECEIVED:92/03/04/ CHARGE: 11.00
POLITICAL SUBDIVISION:LIMA V. COUNTY:LIVINGSTON
LOCATION: 920611-ENARCO - [redacted] RES., [redacted] MARTIN RD,
TIME OF SAMPLING: 92/03/03 09:24 TO 92/03/03 10:47 DATE PRINTED:92/03/10

PARAMETER	RESULT
1,3,5-TRIMETHYLBENZENE	< 10. MCG/CU.M.
O-CHLOROTOLUENE	< 10. MCG/CU.M.
P-CHLOROTOLUENE	< 10. MCG/CU.M.
TERT-BUTYLBENZENE	< 10. MCG/CU.M.
1,2,4-TRIMETHYLBENZENE	< 10. MCG/CU.M.
SEC-BUTYLBENZENE	< 10. MCG/CU.M.
4-ISOPROPYLTOLUENE (P-CYMENE)	< 10. MCG/CU.M.
1,3-DICHLOROBENZENE	< 10. MCG/CU.M.
1,4-DICHLOROBENZENE	< 10. MCG/CU.M.
N-BUTYLBENZENE	< 10. MCG/CU.M.
1,2-DICHLOROBENZENE	< 10. MCG/CU.M.
1,2,4-TRICHLOROBENZENE	< 10. MCG/CU.M.
NAPHTHALENE	< 10. MCG/CU.M.
1,2,3-TRICHLOROBENZENE	< 10. MCG/CU.M.
AIR VOLUME	0.0299 CU.M.

**** END OF REPORT ****

0351 NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 1 RESULTS OF EXAMINATION FINAL REPORT

SAMPLE ID: 920904 SAMPLE RECEIVED:92/03/04/ CHARGE: 11.00
PROGRAM: 110:STATE SUPERFUND ANALYTICAL SERVICES
SOURCE ID: DRAINAGE BASIN: GAZETTEER CODE:2524
POLITICAL SUBDIVISION:LIMA V. COUNTY:LIVINGSTON
LATITUDE: . LONGITUDE: . Z DIRECTION:
LOCATION: 926011 ENARCO
DESCRIPTION: [redacted] RES., [redacted] MARTIN RD., LIVING ROOM
DESCRIPTION:TUBE #I05283 - 30.1 LITERS,I05308 - 30.1 LITERS
REPORTING LAB: TOX:LAB FOR ORGANIC ANALYTICAL CHEMISTRY
TEST PATTERN: VOL3-AIR:VOLATILE ORGANICS IN AIR
SAMPLE TYPE: 902:AMBIENT AIR - INDOOR
TIME OF SAMPLING: 92/03/03 09:09 TO 92/03/03 10:35 DATE PRINTED:92/03/10

ANALYSIS: VOL3-AIR VOLATILE ORGANICS IN AIR (DES 311-6)
DATE PRINTED: 92/03/10 FINAL REPORT

PARAMETER	RESULT
METHYLENE CHLORIDE (DICHLOROMETHANE)	< 10. MCG/CU.M.
TRANS-1,2-DICHLOROETHENE	< 10. MCG/CU.M.
1,1-DICHLOROETHANE	< 10. MCG/CU.M.
CIS-1,2-DICHLOROETHENE	< 10. MCG/CU.M.
CHLOROFORM	< 10. MCG/CU.M.
1,1,1-TRICHLOROETHANE	< 10. MCG/CU.M.
1,1-DICHLOROPROPENE	< 10. MCG/CU.M.
CARBON TETRACHLORIDE	< 10. MCG/CU.M.
1,2-DICHLOROETHANE	< 10. MCG/CU.M.
BENZENE	32. MCG/CU.M.
TRICHLOROETHENE	< 10. MCG/CU.M.
1,2-DICHLOROPROPANE	< 10. MCG/CU.M.
BROMODICHLOROMETHANE	< 10. MCG/CU.M.
CIS-1,3-DICHLOROPROPENE	< 10. MCG/CU.M.
TOLUENE	34. MCG/CU.M.
TRANS-1,3-DICHLOROPROPENE	< 10. MCG/CU.M.
1,1,2-TRICHLOROETHANE	< 10. MCG/CU.M.
TETRACHLOROETHENE	< 10. MCG/CU.M.
DIBROMOCHLOROMETHANE	< 10. MCG/CU.M.
CHLOROBENZENE	< 10. MCG/CU.M.
1,1,1,2-TETRACHLOROETHANE	< 10. MCG/CU.M.
ETHYLBENZENE	9. MCG/CU.M.
M/P-XYLENE	24. MCG/CU.M.
O-XYLENE	14. MCG/CU.M.
STYRENE	< 10. MCG/CU.M.
ISOPROPYLBENZENE (CUMENE)	< 10. MCG/CU.M.
BROMOFORM	< 10. MCG/CU.M.
1,1,2,2-TETRACHLOROETHANE	< 10. MCG/CU.M.
N-PROPYLBENZENE	< 10. MCG/CU.M.

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SUR. ENVIRONMENTAL EXPOSURE INVESTIGAT.
NY STATE DEPT. HEALTH SUBMITTED BY:HOUSE
II UNIVERSITY PLACE - RM. 205
ALBANY, NY 12203 *INTERAGENCY MAIL*

SAMPLE ID: 920904 SAMPLE RECEIVED:92/03/04/ CHARGE: 11.00
POLITICAL SUBDIVISION:LIMA V. COUNTY:LIVINGSTON
LOCATION: 826011 ENARCO
TIME OF SAMPLING: 92/03/03 09:09 TO 92/03/03 10:35 DATE PRINTED:92/03/10

PARAMETER	RESULT
BROMOBENZENE	< 10. MCG/CU.M.
1,3,5-TRIMETHYLBENZENE	< 10. MCG/CU.M.
O-CHLOROTOLUENE	< 10. MCG/CU.M.
P-CHLOROTOLUENE	< 10. MCG/CU.M.
TERT-BUTYLBENZENE	< 10. MCG/CU.M.
1,2,4-TRIMETHYLBENZENE	20. MCG/CU.M.
SEC-BUTYLBENZENE	< 10. MCG/CU.M.
4-ISOPROPYLTOLUENE (P-CYMENE)	12. MCG/CU.M.
1,3-DICHLOROBENZENE	< 10. MCG/CU.M.
1,4-DICHLOROBENZENE	< 10. MCG/CU.M.
N-BUTYLBENZENE	17. MCG/CU.M.
1,2-DICHLOROBENZENE	< 10. MCG/CU.M.
1,2,4-TRICHLOROBENZENE	< 10. MCG/CU.M.
NAPHTHALENE	< 10. MCG/CU.M.
1,2,3-TRICHLOROBENZENE	< 10. MCG/CU.M.
AIR VOLUME	0.0301 CU.M.

**** END OF REPORT ****

0357 NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 1 RESULTS OF EXAMINATION FINAL REPORT

SAMPLE ID: 920905 SAMPLE RECEIVED:92/03/04/ CHARGE: 11.00
PROGRAM: 110:STATE SUPERFUND ANALYTICAL SERVICES
SOURCE ID: DRAINAGE BASIN: GAZETTEER CODE:2524
POLITICAL SUBDIVISION:LIMA V. COUNTY:LIVINGSTON
LATITUDE: . LONGITUDE: . Z DIRECTION:
LOCATION: 920911-BWARCO- [redacted] RES., [redacted] MARTIN RD.
DESCRIPTION:OUTDOORS, TUBE #T05296-33.81 LITER, T05295-26.22 LITERS
REPORTING LAB: TOX:LAB FOR ORGANIC ANALYTICAL CHEMISTRY
TEST PATTERN: VOL3-AIR:VOLATILE ORGANICS IN AIR
SAMPLE TYPE: 909:AMBIENT AIR - OUTDOOR
TIME OF SAMPLING: 92/03/03 09:17 TO 92/03/03 10:26 DATE PRINTED:92/03/10

ANALYSIS: VOL3-AIR VOLATILE ORGANICS IN AIR (DES 311-6)
DATE PRINTED: 92/03/10 FINAL REPORT

PARAMETER	RESULT
METHYLENE CHLORIDE (DICHLOROMETHANE)	< 10. MCG/CU.M.
TRANS-1,2-DICHLOROETHENE	< 10. MCG/CU.M.
1,1-DICHLOROETHANE	< 10. MCG/CU.M.
CIS-1,2-DICHLOROETHENE	< 10. MCG/CU.M.
CHLOROFORM	< 10. MCG/CU.M.
1,1,1-TRICHLOROETHANE	< 10. MCG/CU.M.
1,1-DICHLOROPROPENE	< 10. MCG/CU.M.
CARBON TETRACHLORIDE	< 10. MCG/CU.M.
1,2-DICHLOROETHANE	< 10. MCG/CU.M.
BENZENE	< 10. MCG/CU.M.
TRICHLOROETHENE	< 10. MCG/CU.M.
1,2-DICHLOROPROPANE	< 10. MCG/CU.M.
BROMODICHLOROMETHANE	< 10. MCG/CU.M.
CIS-1,3-DICHLOROPROPENE	< 10. MCG/CU.M.
TOLUENE	< 10. MCG/CU.M.
TRANS-1,3-DICHLOROPROPENE	< 10. MCG/CU.M.
1,1,2-TRICHLOROETHANE	< 10. MCG/CU.M.
TETRACHLOROETHENE	< 10. MCG/CU.M.
DIBROMOCHLOROMETHANE	< 10. MCG/CU.M.
CHLOROBENZENE	< 10. MCG/CU.M.
1,1,1,2-TETRACHLOROETHANE	< 10. MCG/CU.M.
ETHYLBENZENE	< 10. MCG/CU.M.
M/P-XYLENE	< 10. MCG/CU.M.
O-XYLENE	< 10. MCG/CU.M.
STYRENE	< 10. MCG/CU.M.
ISOPROPYLBENZENE (CUMENE)	< 10. MCG/CU.M.
BROMOFORM	< 10. MCG/CU.M.
1,1,2,2-TETRACHLOROETHANE	< 10. MCG/CU.M.
N-PROPYLBENZENE	< 10. MCG/CU.M.
BROMOBENZENE	< 10. MCG/CU.M.

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II UNIVERSITY PLACE - RM. 205
ALBANY, NY 12203 *INTERAGENCY MAIL*

SUBMITTED BY:HOUSE

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

RESULTS OF EXAMINATION

FINAL REPORT

SAMPLE ID: 920905 SAMPLE RECEIVED:92/03/04/ CHARGE: 11.00
POLITICAL SUBDIVISION:LIMA V. COUNTY:LIVINGSTON
LOCATION: 826011 ENARCO - [redacted] RES., [redacted] MARTIN RD.
TIME OF SAMPLING: 92/03/03 09:17 TO 92/03/03 10:26 DATE PRINTED:92/03/10

PARAMETER	RESULT
1,3,5-TRIMETHYLBENZENE	< 10. MCG/CU.M.
O-CHLOROTOLUENE	< 10. MCG/CU.M.
P-CHLOROTOLUENE	< 10. MCG/CU.M.
TERT-BUTYLBENZENE	< 10. MCG/CU.M.
1,2,4-TRIMETHYLBENZENE	< 10. MCG/CU.M.
SEC-BUTYLBENZENE	< 10. MCG/CU.M.
4-ISOPROPYLTOLUENE (P-CYMENE)	< 10. MCG/CU.M.
1,3-DICHLOROBENZENE	< 10. MCG/CU.M.
1,4-DICHLOROBENZENE	< 10. MCG/CU.M.
N-BUTYLBENZENE	< 10. MCG/CU.M.
1,2-DICHLOROBENZENE	< 10. MCG/CU.M.
1,2,4-TRICHLOROBENZENE	< 10. MCG/CU.M.
NAPHTHALENE	< 10. MCG/CU.M.
1,2,3-TRICHLOROBENZENE	< 10. MCG/CU.M.
AIR VOLUME	0.0338 CU.M.

**** END OF REPORT ****

0431 NEW YORK STATE DEPARTMENT OF HEALTH 072
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 1 RESULTS OF EXAMINATION FINAL REPORT

SAMPLE ID: 920889 SAMPLE RECEIVED:92/03/04/ CHARGE: 8.00
PROGRAM: 110:STATE SUPERFUND ANALYTICAL SERVICES
SOURCE ID: DRAINAGE BASIN: GAZETTEER CODE:2524
POLITICAL SUBDIVISION:LIMA V. COUNTY:LIVINGSTON
LATITUDE: LONGITUDE: Z DIRECTION:
LOCATION: 826011 ENARCO
DESCRIPTION: [redacted]
REPORTING LAB: TOX:LAB FOR ORGANIC ANALYTICAL CHEMISTRY
TEST PATTERN: VH05021:VOLATILE HALOGENATED ORGANICS
SAMPLE TYPE: 230:SEEPAGE
TIME OF SAMPLING: 92/03/03 09:30 DATE PRINTED:92/05/14

<> >>>>> INQUIRED 920402 BY D.E.H. (LDRO2) <<<<< <>
<> >>>>> INQUIRED 920514 BY D.E.H. (LDRO2) <<<<< <>

ANALYSIS: VH05021 VOLATILE HALOGENATED ORGANICS (DES 310-29)
DATE PRINTED: 92/05/14 FINAL REPORT

PARAMETER	RESULT
CHLOROMETHANE	< 0.5 MCG/L
BROMOMETHANE	< 0.5 MCG/L
VINYL CHLORIDE	< 0.5 MCG/L
DICHLORODIFLUOROMETHANE (FREON-12)	< 0.5 MCG/L
CHLOROETHANE	< 0.5 MCG/L
METHYLENE CHLORIDE (DICHLOROMETHANE)	< 0.5 MCG/L
TRICHLOROFLUOROMETHANE (FREON-11)	< 0.5 MCG/L
1,1-DICHLOROETHENE	< 0.5 MCG/L
BROMOCHLOROMETHANE	< 0.5 MCG/L
1,1-DICHLOROETHANE	< 0.5 MCG/L
TRANS-1,2-DICHLOROETHENE	< 0.5 MCG/L
CIS-1,2-DICHLOROETHENE	28. MCG/L
CHLOROFORM	10. MCG/L
1,2-DICHLOROETHANE	0.5 MCG/L
DIBROMOMETHANE	< 0.5 MCG/L
2,2-DICHLOROPROPANE	< 0.5 MCG/L
1,1,1-TRICHLOROETHANE	2.0 MCG/L
CARBON TETRACHLORIDE	< 0.5 MCG/L
BROMODICHLOROMETHANE	2.0 MCG/L
1,2-DICHLOROPROPANE	< 0.5 MCG/L
CIS-1,3-DICHLOROPROPENE	< 0.5 MCG/L
1,1-DICHLOROPROPENE	< 0.5 MCG/L
TRICHLOROETHENE	76. MCG/L
1,3-DICHLOROPROPANE	< 0.5 MCG/L
DIBROMOCHLOROMETHANE	< 0.5 MCG/L
TRANS-1,3-DICHLOROPROPENE	< 0.5 MCG/L
1,1,2-TRICHLOROETHANE	< 0.5 MCG/L

**** CONTINUED ON NEXT PAGE ****

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REGIONAL DIRECTOR OF PH ENGINEERING
NEW YORK STATE DEPARTMENT OF HEALTH
42 SOUTH WASHINGTON ST. SUBMITTED BY:NAPIER
ROCHESTER, N.Y. 14608

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

RESULTS OF EXAMINATION

FINAL REPORT

SAMPLE ID: 920889 SAMPLE RECEIVED:92/03/04/ CHARGE: 8.00
POLITICAL SUBDIVISION:LIMA V. COUNTY:LIVINGSTON
LOCATION: 826011 ENARCO
TIME OF SAMPLING: 92/03/03 09:30
DATE PRINTED:92/05/14

PARAMETER	RESULT
1,2-DIBROMOETHANE (EDB)	< 0.5 MCG/L
BROMOFORM	< 0.5 MCG/L
1,1,1,2-TETRACHLOROETHANE	< 0.5 MCG/L
1,2,3-TRICHLOROPROPANE	< 0.5 MCG/L
1,1,2,2-TETRACHLOROETHANE	< 0.5 MCG/L
TETRACHLOROETHENE	0.7 MCG/L
CHLOROBENZENE	< 0.5 MCG/L
BROMOBENZENE	< 0.5 MCG/L
O-CHLOROTOLUENE	< 0.5 MCG/L
P-CHLOROTOLUENE	< 0.5 MCG/L
1,3-DICHLOROBENZENE	< 0.5 MCG/L
1,2-DICHLOROBENZENE	< 0.5 MCG/L
1,4-DICHLOROBENZENE	< 0.5 MCG/L
pH of Halogenated Aliquot	2

**** END OF REPORT ****

0425

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

 072

RESULTS OF EXAMINATION FINAL REPORT

SAMPLE ID: 920888 SAMPLE RECEIVED:92/03/04/ CHARGE: 8.00
PROGRAM: 110:STATE SUPERFUND ANALYTICAL SERVICES
SOURCE ID: DRAINAGE BASIN:
POLITICAL SUBDIVISION:LIMA V. GAZETTEER CODE:2524
LATITUDE: LONGITUDE: COUNTY:LIVINGSTON
LOCATION: 826011 ENARCO Z DIRECTION:
DESCRIPTION:YEARS
REPORTING LAB: TOX:LAB FOR ORGANIC ANALYTICAL CHEMISTRY
TEST PATTERN: VH05021:VOLATILE HALOGENATED ORGANICS
SAMPLE TYPE: 230:SEEPAGE
TIME OF SAMPLING: 92/03/03 10:12

DATE PRINTED:92/05/14

<> >>>>> INQUIRED 920402 BY O.E.H. (LDRO2) <<<<< <>

ANALYSIS: VH05021 VOLATILE HALOGENATED ORGANICS (DES 310-29)
DATE PRINTED: 92/05/14 FINAL REPORT

PARAMETER	RESULT
CHLOROMETHANE	< 0.5 MCG/L
BROMOMETHANE	< 0.5 MCG/L
VINYL CHLORIDE	< 0.5 MCG/L
DICHLORODIFLUOROMETHANE (FREON-12)	< 0.5 MCG/L
CHLOROETHANE	< 0.5 MCG/L
METHYLENE CHLORIDE (DICHLOROMETHANE)	< 0.5 MCG/L
TRICHLOROFLUOROMETHANE (FREON-11)	< 0.5 MCG/L
1,1-DICHLOROETHENE	< 0.5 MCG/L
BROMOCHLOROMETHANE	< 0.5 MCG/L
1,1-DICHLOROETHANE	< 0.5 MCG/L
TRANS-1,2-DICHLOROETHENE	< 0.5 MCG/L
CIS-1,2-DICHLOROETHENE	< 0.5 MCG/L
CHLOROFORM	< 0.5 MCG/L
1,2-DICHLOROETHANE	< 0.5 MCG/L
DIBROMOMETHANE	< 0.5 MCG/L
2,2-DICHLOROPROPANE	< 0.5 MCG/L
1,1,1-TRICHLOROETHANE	< 0.5 MCG/L
CARBON TETRACHLORIDE	< 0.5 MCG/L
BROMODICHLOROMETHANE	< 0.5 MCG/L
1,2-DICHLOROPROPANE	< 0.5 MCG/L
CIS-1,3-DICHLOROPROPENE	< 0.5 MCG/L
1,1-DICHLOROPROPENE	< 0.5 MCG/L
TRICHLOROETHENE	< 0.5 MCG/L
1,3-DICHLOROPROPANE	< 0.5 MCG/L
DIBROMOCHLOROMETHANE	< 0.5 MCG/L
TRANS-1,3-DICHLOROPROPENE	< 0.5 MCG/L
1,1,2-TRICHLOROETHANE	< 0.5 MCG/L
1,2-DIBROMOETHANE (EDB)	< 0.5 MCG/L

**** CONTINUED ON NEXT PAGE ****

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ROCHESTER, N.Y. 14608

SUBMITTED BY:NAPIER

SAMPLE ID: 920888 SAMPLE RECEIVED:92/03/04/ CHARGE: 8.00
POLITICAL SUBDIVISION:LIMA V. COUNTY:LIVINGSTON
LOCATION: 826011 ENARCO
TIME OF SAMPLING: 92/03/03 10:12 DATE PRINTED:92/05/14

PARAMETER	RESULT
BROMOFORM	< 0.5 MCG/L
1,1,1,2-TETRACHLOROETHANE	< 0.5 MCG/L
1,2,3-TRICHLOROPROPANE	< 0.5 MCG/L
1,1,2,2-TETRACHLOROETHANE	< 0.5 MCG/L
TETRACHLOROETHENE	< 0.5 MCG/L
CHLOROBENZENE	< 0.5 MCG/L
BROMOBENZENE	< 0.5 MCG/L
O-CHLOROTOLUENE	< 0.5 MCG/L
P-CHLOROTOLUENE	< 0.5 MCG/L
1,3-DICHLOROBENZENE	< 0.5 MCG/L
1,2-DICHLOROBENZENE	< 0.5 MCG/L
1,4-DICHLOROBENZENE	< 0.5 MCG/L
pH of Halogenated Aliquot	2

**** END OF REPORT ****

0216 NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 1 RESULTS OF EXAMINATION FINAL REPORT

SAMPLE ID: 920295 SAMPLE RECEIVED:92/01/17/ CHARGE: 8.00
PROGRAM: 110:STATE SUPERFUND ANALYTICAL SERVICES
SOURCE ID: DRAINAGE BASIN: GAZETTEER CODE:2556
POLITICAL SUBDIVISION:LIMA COUNTY:LIVINGSTON
LATITUDE: LONGITUDE: Z DIRECTION:
LOCATION: 826011 ENARC-O
DESCRIPTION: [redacted]. SUMP
REPORTING LAB: TOX:LAB FOR ORGANIC ANALYTICAL CHEMISTRY
TEST PATTERN: VH05021:VOLATILE HALOGENATED ORGANICS
SAMPLE TYPE: 230:SEEPAGE
TIME OF SAMPLING: 92/01/15 15:00 DATE PRINTED:92/02/11

ANALYSIS: VH05021 VOLATILE HALOGENATED ORGANICS (DES 310-29)
DATE PRINTED: 92/02/11 FINAL REPORT

PARAMETER	RESULT
CHLOROMETHANE	< 0.5 MCG/L
BROMOMETHANE	< 0.5 MCG/L
VINYL CHLORIDE	< 0.5 MCG/L
DICHLORODIFLUOROMETHANE (FREON-12)	< 0.5 MCG/L
CHLOROETHANE	< 0.5 MCG/L
METHYLENE CHLORIDE (DICHLOROMETHANE)	< 0.5 MCG/L
TRICHLOROFLUOROMETHANE (FREON-11)	< 0.5 MCG/L
1,1-DICHLOROETHENE	< 0.5 MCG/L
BROMOCHLOROMETHANE	< 0.5 MCG/L
1,1-DICHLOROETHANE	< 0.5 MCG/L
TRANS-1,2-DICHLOROETHENE	< 0.5 MCG/L
CIS-1,2-DICHLOROETHENE	65. MCG/L
CHLOROFORM	8. MCG/L
1,2-DICHLOROETHANE	< 0.5 MCG/L
DIBROMOMETHANE	< 0.5 MCG/L
2,2-DICHLOROPROPANE	< 0.5 MCG/L
1,1,1-TRICHLOROETHANE	3. MCG/L
CARBON TETRACHLORIDE	< 0.5 MCG/L
BROMODICHLOROMETHANE	3. MCG/L
1,2-DICHLOROPROPANE	< 0.5 MCG/L
CIS-1,3-DICHLOROPROPENE	< 0.5 MCG/L
1,1-DICHLOROPROPENE	< 0.5 MCG/L
TRICHLOROETHENE	87. MCG/L
1,3-DICHLOROPROPANE	< 0.5 MCG/L
DIBROMOCHLOROMETHANE	< 0.5 MCG/L
TRANS-1,3-DICHLOROPROPENE	< 0.5 MCG/L
1,1,2-TRICHLOROETHANE	< 0.5 MCG/L
1,2-DIBROMOETHANE (EDB)	< 0.5 MCG/L
BROMOFORM	< 0.5 MCG/L
1,1,1,2-TETRACHLOROETHANE	< 0.5 MCG/L

**** CONTINUED ON NEXT PAGE ****

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0217

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 2 RESULTS OF EXAMINATION FINAL REPORT

SAMPLE ID: 920295 SAMPLE RECEIVED:92/01/17 CHARGE: 8.00
POLITICAL SUBDIVISION:LIMA COUNTY:LIVINGSTON
LOCATION: 926011 ENARC-O
TIME OF SAMPLING: 92/01/15 15:00 DATE PRINTED:92/02/11

PARAMETER	RESULT
1,2,3-TRICHLOROPROPANE	< 0.5 MCG/L
1,1,2,2-TETRACHLORDETHANE	< 0.5 MCG/L
TETRACHLORDETHENE	1. MCG/L
CHLOROBENZENE	< 0.5 MCG/L
BROMOBENZENE	< 0.5 MCG/L
O-CHLOROTOLUENE	< 0.5 MCG/L
P-CHLOROTOLUENE	< 0.5 MCG/L
1,3-DICHLORDBENZENE	< 0.5 MCG/L
1,2-DICHLORDBENZENE	< 0.5 MCG/L
1,4-DICHLORDBENZENE	< 0.5 MCG/L
PH OF HALOGENATED ALIQUOT	2

**** END OF REPORT ****

0361 NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 1 RESULTS OF EXAMINATION FINAL REPORT

SAMPLE ID: 914245 SAMPLE RECEIVED:91/11/15/ CHARGE: 8.00
PROGRAM: 110:STATE SUPERFUND ANALYTICAL SERVICES
SOURCE ID: DRAINAGE BASIN: GAZETTEER CODE:2556
POLITICAL SUBDIVISION:LIMA COUNTY:LIVINGSTON
LATITUDE: . LONGITUDE: . Z DIRECTION:
LOCATION: 826011 ENARC-0
DESCRIPTION: [redacted], BASEMENT CROCK
REPORTING LAB: TOX:LAB FOR ORGANIC ANALYTICAL CHEMISTRY
TEST PATTERN: VH05021:VOLATILE HALOGENATED ORGANICS
SAMPLE TYPE: 230:SEEPAGE
TIME OF SAMPLING: 91/11/13 08:40 DATE PRINTED:92/01/07

<> >>>>> INQUIRED 920103 BY D.E.H.(LDR02) <<<<< <>

ANALYSIS: VH05021 VOLATILE HALOGENATED ORGANICS (DES 310-29)
DATE PRINTED: 92/01/07 FINAL REPORT

PARAMETER	RESULT
CHLOROMETHANE	< 0.5 MCG/L
BROMOMETHANE	< 0.5 MCG/L
VINYL CHLORIDE	< 0.5 MCG/L
DICHLORODIFLUOROMETHANE (FREON-12)	< 0.5 MCG/L
CHLOROETHANE	< 0.5 MCG/L
METHYLENE CHLORIDE (DICHLOROMETHANE)	< 0.5 MCG/L
TRICHLOROFLUOROMETHANE (FREON-11)	< 0.5 MCG/L
1,1-DICHLOROETHENE	< 0.5 MCG/L
BROMOCHLOROMETHANE	< 0.5 MCG/L
1,1-DICHLOROETHANE	< 0.5 MCG/L
TRANS-1,2-DICHLOROETHENE	< 0.5 MCG/L
CIS-1,2-DICHLOROETHENE	2. MCG/L
CHLOROFORM	6. MCG/L
1,2-DICHLOROETHANE	< 0.5 MCG/L
DIBROMOMETHANE	< 0.5 MCG/L
2,2-DICHLOROPROPANE	< 0.5 MCG/L
1,1,1-TRICHLOROETHANE	1. MCG/L
CARBON TETRACHLORIDE	< 0.5 MCG/L
BROMODICHLOROMETHANE	< 0.5 MCG/L
1,2-DICHLOROPROPANE	< 0.5 MCG/L
CIS-1,3-DICHLOROPROPENE	< 0.5 MCG/L
1,1-DICHLOROPROPENE	< 0.5 MCG/L
TRICHLOROETHENE	16. MCG/L
1,3-DICHLOROPROPANE	< 0.5 MCG/L
DIBROMOCHLOROMETHANE	< 0.5 MCG/L
TRANS-1,3-DICHLOROPROPENE	< 0.5 MCG/L
1,1,2-TRICHLOROETHANE	< 0.5 MCG/L
1,2-DIBROMOETHANE (EDB)	< 0.5 MCG/L

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0362 NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 2 RESULTS OF EXAMINATION FINAL REPORT

SAMPLE ID: 914245 SAMPLE RECEIVED:91/11/15/ CHARGE: 8.00
POLITICAL SUBDIVISION:LIMA COUNTY:LIVINGSTON
LOCATION: 826011 ENARC-0
TIME OF SAMPLING: 91/11/13 08:40 DATE PRINTED:92/01/07

PARAMETER	RESULT
BROMOFORM	< 0.5 MCG/L
1,1,1,2-TETRACHLOROETHANE	< 0.5 MCG/L
1,2,3-TRICHLOROPROPANE	< 0.5 MCG/L
1,1,2,2-TETRACHLOROETHANE	< 0.5 MCG/L
TETRACHLOROETHENE	< 0.5 MCG/L
CHLOROBENZENE	< 0.5 MCG/L
BROMOBENZENE	< 0.5 MCG/L
O-CHLOROTOLUENE	< 0.5 MCG/L
P-CHLOROTOLUENE	< 0.5 MCG/L
1,3-DICHLOROBENZENE	< 0.5 MCG/L
1,2-DICHLOROBENZENE	< 0.5 MCG/L
1,4-DICHLOROBENZENE	< 0.5 MCG/L
PH OF HALOGENATED ALIQUOT	2

**** END OF REPORT ****

STATE OF NEW YORK
DEPARTMENT OF HEALTH
Rochester Field Office-42 S. Washington Street- Rochester, NY 14608-2099

David Axelrod, M.D.
Commissioner

OFFICE OF PUBLIC HEALTH
Linda A. Randolph, M.D., M.P.H.
Director

Olivia Smith-Blackwell, M.D., M.P.H.
Regional Health Director

Letter #639-91

July 30, 1991

Mr. and Mrs. [redacted]
[redacted] Martin Road
Lima, NY 14485

RE: Enarc-O Machine Products
Site # 826011
Lima, Livingston County

Dear Mr. and Mrs. [redacted]:

Attached are results of the analysis of samples of indoor air and the basement sump collected at your home by representatives of the New York State Department of Health on June 14th. Also attached is a summary chart of results for comparison. The indoor air samples were taken to determine whether there is an influence from the chemicals found in your sump water on the indoor air quality in your home. Samples were also collected in a control home, a house similar in construction to yours and in the same area, but believed not to be impacted by the Enarc-O site. These samples were analyzed for volatile organic chemicals at the NYS Department of Health's Wadsworth Center for Laboratories and Research in Albany. Based on these results, it appears that the contaminated groundwater continues to be impacting your sump water, but does not seem to be affecting the indoor air quality of your house.

Three compounds were found in your sump sample: 1,1,1 trichloroethane, trichloroethene, and tetrachloroethene. The level of trichloroethene found was higher than we found in the previous sump sample taken at your house. The values for the other two compounds were the same as in the previous sample collected. Based on these and previous sample results, it appears that the level of trichloroethene in your sump water has increased, which may indicate that the levels in the groundwater are also increasing over time.

Benzene, toluene and xylene were detected in the indoor air samples from your basement and living room at low levels. Naphthalene and 1,2,4-trimethylbenzene were also found in the living room samples at low levels. These levels are similar to the levels found in the control home. The results also concur with the values reported by the Environmental Protection Agency for indoor air. A summary of these results are given in the attached chart. None of these chemicals were found in your sump water and all of them are constituents of gasoline and other petroleum products. The presence of these compounds is probably due to the use of household

products containing petroleum distillates. It is not uncommon to find petroleum product constituents at low concentrations in indoor air.

If you have any questions concerning these results please call me at 423-8071.

Sincerely,

David Napier

David L. Napier
Regional Toxics Coordinator
Bureau of Environmental Exposure
Investigation

ceb/11970164

Attachment

cc: Mr. Tramontano/Dr. Carlson
Dr. Smith-Blackwell
Mr. Hudson/Ms. Buckingham
Mr. Van Houten - Livingston County HD
Mr. Chiusano - DEC

INDOOR AIR RESULTS

Values in Micrograms Per Cubic Meter (mcg/m^3)

	[redacted] Residence		Control Residence		EPA Data
	Basement	Living Room	Basement	Living Room	
Benzene	10	10			10
Toluene	10	22	10	11	32
M/P-Xylene	10	12		10	13
O-Xylene		10			5
1,2,4-Trimethyl-Benzene		10			1
Naphthalene		23			

* EPA figures from the "National Ambient Volatile Organic Compounds Database Update"
March 1988

12100820

0266 NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 1 RESULTS OF EXAMINATION FINAL REPORT

SAMPLE ID: 912031 SAMPLE RECEIVED:91/06/17/ CHARGE: 11.00
PROGRAM: 110:STATE SUPERFUND ANALYTICAL SERVICES
SOURCE ID: DRAINAGE BASIN: GAZETTEER CODE:2556
POLITICAL SUBDIVISION:LIMA COUNTY:LIVINGSTON
LATITUDE: . LONGITUDE: . Z DIRECTION:
LOCATION: 320011 ENARCO
DESCRIPTION:LIVING ROOM [redacted] RES., [redacted] MARTIN RD.,T04805,T04806
REPORTING LAB: TOX:LAB FOR ORGANIC ANALYTICAL CHEMISTRY
TEST PATTERN: VOL3-AIR:VOLATILE ORGANICS IN AIR
SAMPLE TYPE: 902:AMBIENT AIR - INDOOR
TIME OF SAMPLING: 91/06/14 09:14 TO 91/06/14 10:11 DATE PRINTED:91/07/01

ANALYSIS: VOL3-AIR VOLATILE ORGANICS IN AIR
DATE PRINTED: 91/07/01 FINAL REPORT

PARAMETER	RESULT
METHYLENE CHLORIDE (DICHLOROMETHANE)	< 10. MCG/CU.M.
TRANS-1,2-DICHLOROETHENE	< 10. MCG/CU.M.
1,1-DICHLOROETHANE	< 10. MCG/CU.M.
CIS-1,2-DICHLOROETHENE	< 10. MCG/CU.M.
CHLOROFORM	< 10. MCG/CU.M.
1,1,1-TRICHLOROETHANE	< 10. MCG/CU.M.
1,1-DICHLOROPROPENE	< 10. MCG/CU.M.
CARBON TETRACHLORIDE	< 10. MCG/CU.M.
1,2-DICHLOROETHANE	< 10. MCG/CU.M.
BENZENE	10. MCG/CU.M. [PL]
TRICHLOROETHENE	< 10. MCG/CU.M.
1,2-DICHLOROPROPANE	< 10. MCG/CU.M.
BROMODICHLOROMETHANE	< 10. MCG/CU.M.
CIS-1,3-DICHLOROPROPENE	< 10. MCG/CU.M.
TOLUENE	22. MCG/CU.M.
TRANS-1,3-DICHLOROPROPENE	< 10. MCG/CU.M.
1,1,2-TRICHLOROETHANE	< 10. MCG/CU.M.
TETRACHLOROETHENE	< 10. MCG/CU.M.
DIBROMOCHLOROMETHANE	< 10. MCG/CU.M.
CHLOROBENZENE	< 10. MCG/CU.M.
1,1,1,2-TETRACHLOROETHANE	< 10. MCG/CU.M.
ETHYLBENZENE	< 10. MCG/CU.M.
M/P-XYLENE	12. MCG/CU.M.
O-XYLENE	10. MCG/CU.M. [PL]
STYRENE	< 10. MCG/CU.M.
ISOPROPYLBENZENE (CUMENE)	< 10. MCG/CU.M.
BROMOFORM	< 10. MCG/CU.M.
1,1,2,2-TETRACHLOROETHANE	< 10. MCG/CU.M.
N-PROPYLBENZENE	< 10. MCG/CU.M.
BROMOBENZENE	< 10. MCG/CU.M.

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ROCHESTER, N.Y. 14608

SUBMITTED BY:WILSON

SAMPLE TO: 912031 SAMPLE RECEIVED:91/06/17/ CHARGE: 11.00
POLITICAL SUBDIVISION:LIMA COUNTY:LIVINGSTON
LOCATION: 326011 ENARCO
TIME OF SAMPLING: 91/06/14 09:14 TO 91/06/14 10:11 DATE PRINTED:91/07/01

PARAMETER	RESULT
1,3,5-TRIMETHYLBENZENE	10. MCG/CU.M. [PL]
O-CHLOROTOLUENE	< 10. MCG/CU.M.
P-CHLOROTOLUENE	< 10. MCG/CU.M.
TERT-BUTYLBENZENE	< 10. MCG/CU.M.
1,2,4-TRIMETHYLBENZENE	10. MCG/CU.M. [PL]
SEC-BUTYLBENZENE	< 10. MCG/CU.M.
4-ISOPROPYLTOLUENE (P-CYMENE)	< 10. MCG/CU.M.
1,3-DICHLOROBENZENE	< 10. MCG/CU.M.
1,4-DICHLOROBENZENE	< 10. MCG/CU.M.
N-BUTYLBENZENE	< 10. MCG/CU.M.
1,2-DICHLOROBENZENE	< 10. MCG/CU.M.
1,2,4-TRICHLOROBENZENE	< 10. MCG/CU.M.
NAPHTHALENE	23. MCG/CU.M.
1,2,3-TRICHLOROBENZENE	< 10. MCG/CU.M.
AIR VOLUME	0.0251 CU.M.

**** END OF REPORT ****

0262 NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 1 RESULTS OF EXAMINATION FINAL REPORT

SAMPLE ID: 912030 SAMPLE RECEIVED:91/06/17/ CHARGE: 11.00
PROGRAM: 110:STATE SUPERFUND ANALYTICAL SERVICES
SOURCE ID: DRAINAGE BASIN: GAZETTEER CODE:2556
POLITICAL SUBDIVISION:LIMA COUNTY:LIVINGSTON
LATITUDE: . LONGITUDE: . Z DIRECTION:
LOCATION: 926011 EMARCO
DESCRIPTION:BASEMENT [redacted] RES., [redacted] MARTIN
DESCRIPTION:CART# T04795, T04797
REPORTING LAB: TOX:LAB FOR ORGANIC ANALYTICAL CHEMISTRY
TEST PATTERN: VOL3-AIR:VOLATILE ORGANICS IN AIR
SAMPLE TYPE: 902:AMBIENT AIR - INDOOR
TIME OF SAMPLING: 91/06/14 09:52 TO 91/06/14 08:57 DATE PRINTED:91/07/01

ANALYSIS: VOL3-AIR VOLATILE ORGANICS IN AIR
DATE PRINTED: 91/07/01 FINAL REPORT

PARAMETER	RESULT
METHYLENE CHLORIDE (DICHLOROMETHANE)	< 10. MCG/CU.M.
TRANS-1,2-DICHLOROETHENE	< 10. MCG/CU.M.
1,1-DICHLOROETHANE	< 10. MCG/CU.M.
CIS-1,2-DICHLOROETHENE	< 10. MCG/CU.M.
CHLOROFORM	< 10. MCG/CU.M.
1,1,1-TRICHLOROETHANE	< 10. MCG/CU.M.
1,1-DICHLOROPROPENE	< 10. MCG/CU.M.
CARBON TETRACHLORIDE	< 10. MCG/CU.M.
1,2-DICHLOROETHANE	< 10. MCG/CU.M.
BENZENE	10. MCG/CU.M. [PL]
TRICHLOROETHENE	< 10. MCG/CU.M.
1,2-DICHLOROPROPANE	< 10. MCG/CU.M.
BROMODICHLOROMETHANE	< 10. MCG/CU.M.
CIS-1,3-DICHLOROPROPENE	< 10. MCG/CU.M.
TOLUENE	10. MCG/CU.M. [PL]
TRANS-1,3-DICHLOROPROPENE	< 10. MCG/CU.M.
1,1,2-TRICHLOROETHANE	< 10. MCG/CU.M.
TETRACHLOROETHENE	< 10. MCG/CU.M.
DIBROMOCHLOROMETHANE	< 10. MCG/CU.M.
CHLOROBENZENE	< 10. MCG/CU.M.
1,1,1,2-TETRACHLOROETHANE	< 10. MCG/CU.M.
ETHYLBENZENE	< 10. MCG/CU.M.
M/P-XYLENE	10. MCG/CU.M. [PL]
O-XYLENE	< 10. MCG/CU.M.
STYRENE	< 10. MCG/CU.M.
ISOPROPYLBENZENE (CUMENE)	< 10. MCG/CU.M.
BROMOFORM	< 10. MCG/CU.M.
1,1,2,2-TETRACHLOROETHANE	< 10. MCG/CU.M.
N-PROPYLBENZENE	< 10. MCG/CU.M.

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ROCHESTER, N.Y. 14608

SUBMITTED BY:WILSON

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

RESULTS OF EXAMINATION

FINAL REPORT

SAMPLE ID: 912030 SAMPLE RECEIVED:91/06/17/ CHARGE: 11.00
POLITICAL SUBDIVISION:LIMA COUNTY:LIVINGSTON
LOCATION: 826011 ENARCO
TIME OF SAMPLING: 91/06/14 09:52 TO 91/06/14 08:57 DATE PRINTED:91/07/01

PARAMETER	RESULT
BROMOBENZENE	< 10. MCG/CU.M.
1,3,5-TRIMETHYLBENZENE	< 10. MCG/CU.M.
O-CHLOROTOLUENE	< 10. MCG/CU.M.
P-CHLOROTOLUENE	< 10. MCG/CU.M.
TERT-BUTYLBENZENE	< 10. MCG/CU.M.
1,2,4-TRIMETHYLBENZENE	< 10. MCG/CU.M.
SEC-BUTYLBENZENE	< 10. MCG/CU.M.
4-ISOPROPYLTOLUENE (P-CYMENE)	< 10. MCG/CU.M.
1,3-DICHLOROBENZENE	< 10. MCG/CU.M.
1,4-DICHLOROBENZENE	< 10. MCG/CU.M.
N-BUTYLBENZENE	< 10. MCG/CU.M.
1,2-DICHLOROBENZENE	< 10. MCG/CU.M.
1,2,4-TRICHLOROBENZENE	< 10. MCG/CU.M.
NAPHTHALENE	< 10. MCG/CU.M.
1,2,3-TRICHLOROBENZENE	< 10. MCG/CU.M.
AIR VOLUME	0.0201 CU.M.

**** END OF REPORT ****

0260 NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 1 RESULTS OF EXAMINATION FINAL REPORT

SAMPLE ID: 912029 SAMPLE RECEIVED:91/06/17/ CHARGE: 11.00
PROGRAM: 110:STATE SUPERFUND ANALYTICAL SERVICES
SOURCE ID: DRAINAGE BASIN: GAZETTEER CODE:2556
POLITICAL SUBDIVISION:LIMA COUNTY:LIVINGSTON
LATITUDE: . LONGITUDE: . Z DIRECTION:
LOCATION: 626011 ENARCO
DESCRIPTION:AMBIENT AIR FRONT YARD [redacted] RES., [redacted] MARTIN RD.
DESCRIPTION:I04792 I0I04794
REPORTING LAB: TOX:LAB FOR ORGANIC ANALYTICAL CHEMISTRY
TEST PATTERN: VOL3-AIR:VOLATILE ORGANICS IN AIR
SAMPLE TYPE: 909:AMBIENT AIR - OUTDOOR
TIME OF SAMPLING: 91/06/14 : DATE PRINTED:91/07/01

ANALYSIS: VOL3-AIR VOLATILE ORGANICS IN AIR
DATE PRINTED: 91/07/01 FINAL REPORT

PARAMETER	RESULT
METHYLENE CHLORIDE (DICHLOROMETHANE)	< 10. MCG/CU.M.
TRANS-1,2-DICHLOROETHENE	< 10. MCG/CU.M.
1,1-DICHLOROETHANE	< 10. MCG/CU.M.
CIS-1,2-DICHLOROETHENE	< 10. MCG/CU.M.
CHLOROFORM	< 10. MCG/CU.M.
1,1,1-TRICHLOROETHANE	< 10. MCG/CU.M.
1,1-DICHLOROPROPENE	< 10. MCG/CU.M.
CARBON TETRACHLORIDE	< 10. MCG/CU.M.
1,2-DICHLOROETHANE	< 10. MCG/CU.M.
BENZENE	< 10. MCG/CU.M.
TRICHLOROETHENE	< 10. MCG/CU.M.
1,2-DICHLOROPROPANE	< 10. MCG/CU.M.
BROMODICHLOROMETHANE	< 10. MCG/CU.M.
CIS-1,3-DICHLOROPROPENE	< 10. MCG/CU.M.
TOLUENE	< 10. MCG/CU.M.
TRANS-1,3-DICHLOROPROPENE	< 10. MCG/CU.M.
1,1,2-TRICHLOROETHANE	< 10. MCG/CU.M.
TETRACHLOROETHENE	< 10. MCG/CU.M.
DIBROMOCHLOROMETHANE	< 10. MCG/CU.M.
CHLOROBENZENE	< 10. MCG/CU.M.
1,1,1,2-TETRACHLOROETHANE	< 10. MCG/CU.M.
ETHYLBENZENE	< 10. MCG/CU.M.
M/P-XYLENE	< 10. MCG/CU.M.
O-XYLENE	< 10. MCG/CU.M.
STYRENE	< 10. MCG/CU.M.
ISOPROPYLBENZENE (CUMENE)	< 10. MCG/CU.M.
BROMOFORM	< 10. MCG/CU.M.
1,1,2,2-TETRACHLOROETHANE	< 10. MCG/CU.M.
N-PROPYLBENZENE	< 10. MCG/CU.M.

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ROCHESTER, N.Y. 14608

SUBMITTED BY:WILSON

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

 RESULTS OF EXAMINATION FINAL REPORT

SAMPLE ID: 912029 SAMPLE RECEIVED:91/06/17/ CHARGE: 11.00
POLITICAL SUBDIVISION:LIMA COUNTY:LIVINGSTON
LOCATION: 326011 ENARCO
TIME OF SAMPLING: 91/06/14 : DATE PRINTED:91/07/01

PARAMETER	RESULT
BROMOBENZENE	< 10. MCG/CU.M.
1,3,5-TRIMETHYLBENZENE	< 10. MCG/CU.M.
O-CHLOROTOLUENE	< 10. MCG/CU.M.
P-CHLOROTOLUENE	< 10. MCG/CU.M.
TERT-BUTYLBENZENE	< 10. MCG/CU.M.
1,2,4-TRIMETHYLBENZENE	< 10. MCG/CU.M.
SEC-BUTYLBENZENE	< 10. MCG/CU.M.
4-ISOPROPYLTOLUENE (P-CYMENE)	< 10. MCG/CU.M.
1,3-DICHLOROBENZENE	< 10. MCG/CU.M.
1,4-DICHLOROBENZENE	< 10. MCG/CU.M.
N-BUTYLBENZENE	< 10. MCG/CU.M.
1,2-DICHLOROBENZENE	< 10. MCG/CU.M.
1,2,4-TRICHLOROBENZENE	< 10. MCG/CU.M.
NAPHTHALENE	< 10. MCG/CU.M.
1,2,3-TRICHLOROBENZENE	< 10. MCG/CU.M.
AIR VOLUME	0.0201 CU.M.

**** END OF REPORT ****

WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 1 RESULTS OF EXAMINATION FINAL REPORT

SAMPLE ID: 912016 SAMPLE RECEIVED:91/06/17/ CHARGE: 6.50
PROGRAM: 110:STATE SUPERFUND ANALYTICAL SERVICES
SOURCE ID: DRAINAGE BASIN: GAZETTEER CODE:2556
POLITICAL SUBDIVISION:LIMA COUNTY:LIVINGSTON
LATITUDE: . LONGITUDE: . Z DIRECTION:
LOCATION: 826011 E.ARCO
DESCRIPTION: [redacted], [redacted] HARTEL RD. Sump
REPORTING LAB: TOX:LAB FOR ORGANIC ANALYTICAL CHEMISTRY
TEST PATTERN: VHO5021:VOLATILE HALOGENATED ORGANICS
SAMPLE TYPE: 230:SEEPAGE
TIME OF SAMPLING: 91/06/14 09:25 DATE PRINTED:91/07/02

ANALYSIS: VHO5021 VOLATILE HALOGENATED ORGANICS (DES 310-29)
DATE PRINTED: 91/07/02 FINAL REPORT

PARAMETER	RESULT
CHLOROMETHANE	< 0.5 MCG/L
BROMOMETHANE	< 0.5 MCG/L
VINYL CHLORIDE	< 0.5 MCG/L
DICHLORODIFLUOROMETHANE (FREON-12)	< 0.5 MCG/L
CHLOROETHANE	< 0.5 MCG/L
METHYLENE CHLORIDE (DICHLOROMETHANE)	< 0.5 MCG/L
TRICHLOROFLUOROMETHANE (FREON-11)	< 0.5 MCG/L
1,1-DICHLOROETHENE	< 0.5 MCG/L
BROMOCHLOROMETHANE	< 0.5 MCG/L
1,1-DICHLOROETHANE	< 0.5 MCG/L
TRANS-1,2-DICHLOROETHENE	CO-ELUTE
CIS-1,2-DICHLOROETHENE	CO-ELUTE
CHLOROFORM	< 0.5 MCG/L
1,2-DICHLOROETHANE	< 0.5 MCG/L
DIBROMOMETHANE	< 0.5 MCG/L
2,2-DICHLOROPROPANE	< 0.5 MCG/L
1,1,1-TRICHLOROETHANE	4. MCG/L
CARBON TETRACHLORIDE	< 0.5 MCG/L
BROMODICHLOROMETHANE	< 0.5 MCG/L
1,2-DICHLOROPROPANE	< 0.5 MCG/L
CIS-1,3-DICHLOROPROPENE	< 0.5 MCG/L
1,1-DICHLOROPROPENE	< 0.5 MCG/L
TRICHLOROETHENE	118. MCG/L
1,3-DICHLOROPROPANE	< 0.5 MCG/L
DIBROMOCHLOROMETHANE	< 0.5 MCG/L
TRANS-1,3-DICHLOROPROPENE	< 0.5 MCG/L
1,1,2-TRICHLOROETHANE	< 0.5 MCG/L
1,2-DIBROMOETHANE (EDB)	< 0.5 MCG/L
BROMOFORM	< 0.5 MCG/L
1,1,1,2-TETRACHLOROETHANE	< 0.5 MCG/L

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SUBMITTED BY:NAPIER

SAMPLE ID: 912018 SAMPLE RECEIVED:91/06/17/ Rochester Area Office PH: 8.50
POLITICAL SUBDIVISION:LIMA COUNTY:LIVINGSTON
LOCATION: 826011 ENARCO
TIME OF SAMPLING: 91/06/14 09:25 DATE PRINTED:91/07/02

PARAMETER	RESULT
1,2,3-TRICHLOROPROPANE	< 0.5 MCG/L
1,1,2,2-TETRACHLOROETHANE	< 0.5 MCG/L
TETRACHLOROETHENE	1. MCG/L
CHLOROBENZENE	< 0.5 MCG/L
BROMOBENZENE	< 0.5 MCG/L
O-CHLOROTOLUENE	< 0.5 MCG/L
P-CHLOROTOLUENE	< 0.5 MCG/L
1,3-DICHLOROBENZENE	< 0.5 MCG/L
1,2-DICHLOROBENZENE	< 0.5 MCG/L
1,4-DICHLOROBENZENE	< 0.5 MCG/L
PH OF HALOGENATED ALIQUOT	2

FOLLOWING PARAMETERS NOT PART OF TEST PATTERN

PARAMETER	RESULT
CIS/TRANS-1,2-DICHLOROETHENE	30. MCG/L

**** END OF REPORT ****

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WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 1 RESULTS OF EXAMINATION FINAL REPORT

SAMPLE ID: 912017 SAMPLE RECEIVED:91/06/17/ CHARGE: 0.00
PROGRAM: 110:STATE SUPERFUND ANALYTICAL SERVICES
SOURCE ID: DRAINAGE BASIN: GAZETTEER CODE:2556
POLITICAL SUBDIVISION:LIMA COUNTY:LIVINGSTON
LATITUDE: . LONGITUDE: . Z DIRECTION:
LOCATION: 626011 DARCO
DESCRIPTION:YEARS - SUMP
REPORTING LAB: FOX:LAB FOR ORGANIC ANALYTICAL CHEMISTRY
TEST PATTERN: VH05021:VOLATILE HALOGENATED ORGANICS
SAMPLE TYPE: 230:SEEPAGE
TIME OF SAMPLING: 91/06/14 09:35 DATE PRINTED:91/07/01

ANALYSIS: VH05021 VOLATILE HALOGENATED ORGANICS (DES 310-29)
DATE PRINTED: 91/07/01 FINAL REPORT

PARAMETER	RESULT
CHLOROMETHANE	< 0.5 MCG/L
BROMOMETHANE	< 0.5 MCG/L
VINYL CHLORIDE	< 0.5 MCG/L
DICHLORODIFLUOROMETHANE (FREON-12)	< 0.5 MCG/L
CHLOROETHANE	< 0.5 MCG/L
METHYLENE CHLORIDE (DICHLOROMETHANE)	< 0.5 MCG/L
TRICHLOROFLUOROMETHANE (FREON-11)	< 0.5 MCG/L
1,1-DICHLOROETHENE	< 0.5 MCG/L
BROMOCHLOROMETHANE	< 0.5 MCG/L
1,1-DICHLOROETHANE	< 0.5 MCG/L
TRANS-1,2-DICHLOROETHENE	< 0.5 MCG/L
CIS-1,2-DICHLOROETHENE	< 0.5 MCG/L
CHLOROFORM	< 0.5 MCG/L
1,2-DICHLOROETHANE	< 0.5 MCG/L
DIBROMOMETHANE	< 0.5 MCG/L
2,2-DICHLOROPROPANE	< 0.5 MCG/L
1,1,1-TRICHLOROETHANE	< 0.5 MCG/L
CARBON TETRACHLORIDE	< 0.5 MCG/L
BROMODICHLOROMETHANE	< 0.5 MCG/L
1,2-DICHLOROPROPANE	< 0.5 MCG/L
CIS-1,3-DICHLOROPROPENE	< 0.5 MCG/L
1,1-DICHLOROPROPENE	< 0.5 MCG/L
TRICHLOROETHENE	< 0.5 MCG/L
1,3-DICHLOROPROPANE	< 0.5 MCG/L
DIBROMOCHLOROMETHANE	< 0.5 MCG/L
TRANS-1,3-DICHLOROPROPENE	< 0.5 MCG/L
1,1,2-TRICHLOROETHANE	< 0.5 MCG/L
1,2-DIBROMOETHANE (EDB)	< 0.5 MCG/L
BROMOFORM	< 0.5 MCG/L
1,1,1,2-TETRACHLOROETHANE	< 0.5 MCG/L

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SUBMITTED BY:NAPIER

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

RESULTS OF EXAMINATION

FINAL REPORT

SAMPLE ID: 912017 SAMPLE RECEIVED:91/06/17/ CHARGE: 8.00
POLITICAL SUBDIVISION:LIMA COUNTY:LIVINGSTON
LOCATION: 626011 ENARCO
TIME OF SAMPLING: 91/06/14 09:35 DATE PRINTED:91/07/01

PARAMETER	RESULT
1,2,3-TRICHLOROPROPANE	< 0.5 MCG/L
1,1,2,2-TETRACHLOROETHANE	< 0.5 MCG/L
TETRACHLOROETHENE	< 0.5 MCG/L
CHLOROBENZENE	< 0.5 MCG/L
BROMOBENZENE	< 0.5 MCG/L
O-CHLOROTOLUENE	< 0.5 MCG/L
P-CHLOROTOLUENE	< 0.5 MCG/L
1,3-DICHLOROBENZENE	< 0.5 MCG/L
1,2-DICHLOROBENZENE	< 0.5 MCG/L
1,4-DICHLOROBENZENE	< 0.5 MCG/L
PH OF HALOGENATED ALIQUOT	2

**** END OF REPORT ****

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 1 RESULTS OF EXAMINATION FINAL REPORT

SAMPLE ID: 911290 SAMPLE RECEIVED:91/04/19/ CHARGE: 8.00
PROGRAM: 110:STATE SUPERFUND ANALYTICAL SERVICES
SOURCE ID: DRAINAGE BASIN:03 GAZETTEER CODE:2556
POLITICAL SUBDIVISION:LIMA COUNTY:LIVINGSTON
LATITUDE: . LONGITUDE: . Z DIRECTION:
LOCATION: 826011 ENACO
DESCRIPTION: [redacted], BASEMENT CROCK
REPORTING LAB: TOX:LAB FOR ORGANIC ANALYTICAL CHEMISTRY
TEST PATTERN: VH05021:VOLATILE HALOGENATED ORGANICS
SAMPLE TYPE: 230:SEEPAGE
TIME OF SAMPLING: 91/04/16 16:00 DATE PRINTED:91/05/13

<> NO FIELD BLANK ACCOMPANIED THIS SAMPLE. <>
<> >>>>> INQUIRED 910430 BY D.E.H.(JJM05) <<<<< <>
<> >>>>> INQUIRED 910508 BY D.E.H.(JJM05) <<<<< <>
<> >>>>> INQUIRED 910508 BY D.E.H.(JJM05) <<<<< <>
<> >>>>> INQUIRED 910513 BY D.E.H.(JJM05) <<<<< <>
<> >>>>> INQUIRED 910513 BY D.E.H.(JJM05) <<<<< <>

ANALYSIS: VH05021 VOLATILE HALOGENATED ORGANICS (DES 310-29)
DATE PRINTED: 91/05/13 FINAL REPORT

PARAMETER	RESULT
CHLOROMETHANE	< 0.5 MCG/L
BROMOMETHANE	< 0.5 MCG/L
VINYL CHLORIDE	< 0.5 MCG/L
DICHLORODIFLUOROMETHANE (FREON-12)	< 0.5 MCG/L
CHLOROETHANE	< 0.5 MCG/L
METHYLENE CHLORIDE (DICHLOROMETHANE)	< 0.5 MCG/L
TRICHLOROFLUOROMETHANE (FREON-11)	< 0.5 MCG/L
1,1-DICHLOROETHENE	< 0.5 MCG/L
1,1-DICHLOROETHANE	< 0.5 MCG/L
TRANS-1,2-DICHLOROETHENE	< 0.5 MCG/L
CIS-1,2-DICHLOROETHENE	19. MCG/L
CHLOROFORM	< 0.5 MCG/L
1,2-DICHLOROETHANE	< 0.5 MCG/L
DIBROMOMETHANE	< 0.5 MCG/L
1,1,1-TRICHLOROETHANE	4. MCG/L
CARBON TETRACHLORIDE	< 0.5 MCG/L
BROMODICHLOROMETHANE	< 0.5 MCG/L
2,3-DICHLOROPROPENE	< 0.5 MCG/L
1,2-DICHLOROPROPANE	< 0.5 MCG/L
CIS-1,3-DICHLOROPROPENE	< 0.5 MCG/L
TRICHLOROETHENE	77. MCG/L
1,3-DICHLOROPROPANE	< 0.5 MCG/L
DIBROMOCHLOROMETHANE	< 0.5 MCG/L

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SUBMITTED BY:NAPIER

SAMPLE ID: 911290 SAMPLE RECEIVED:91/04/19/ CHARGE: 8.00
POLITICAL SUBDIVISION:LIMA COUNTY:LIVINGSTON
LOCATION: 826011 ENACO
TIME OF SAMPLING: 91/04/16 16:00 DATE PRINTED:91/05/13

PARAMETER	RESULT
TRANS-1,3-DICHLOROPROPENE	< 0.5 MCG/L
1,1,2-TRICHLOROETHANE	< 0.5 MCG/L
1,2-DIBROMOETHANE (EDB)	< 0.5 MCG/L
2-CHLOROETHYLVINYL ETHER	< 0.5 MCG/L
BROMOFORM	< 0.5 MCG/L
1,1,1,2-TETRACHLOROETHANE	< 0.5 MCG/L
1,2,3-TRICHLOROPROPANE	< 0.5 MCG/L
1,1,2,2-TETRACHLOROETHANE	< 0.5 MCG/L
TETRACHLOROETHENE	1. MCG/L
PENTACHLOROETHANE	< 0.5 MCG/L
1-CHLOROCYCLOHEXENE-1	< 0.5 MCG/L
CHLOROBENZENE	< 0.5 MCG/L
BIS(2-CHLOROETHYL)ETHER	< 0.5 MCG/L
1,2-DIBROMO-3-CHLOROPROPANE	< 0.5 MCG/L
BROMOBENZENE	< 0.5 MCG/L
O-CHLOROTOLUENE	< 0.5 MCG/L
BIS(2-CHLOROISOPROPYL)ETHER	< 0.5 MCG/L
1,3-DICHLOROBENZENE	< 0.5 MCG/L
1,2-DICHLOROBENZENE	< 0.5 MCG/L
1,4-DICHLOROBENZENE	< 0.5 MCG/L

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NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 1 RESULTS OF EXAMINATION FINAL REPORT

SAMPLE ID: 910904 SAMPLE RECEIVED:91/03/13/ CHARGE: 0.00
PROGRAM: 110:STATE SUPERFUND ANALYTICAL SERVICES
SOURCE ID: DRAINAGE BASIN:03 GAZETTEER CODE:2556
POLITICAL SUBDIVISION:LIMA COUNTY:LIVINGSTON
LATITUDE: . LONGITUDE: . Z DIRECTION:
LOCATION: 826011 ENARCO
DESCRIPTION: [redacted]-BASEMENT CRUCK
REPORTING LAB: TOX:LAB FOR ORGANIC ANALYTICAL CHEMISTRY
TEST PATTERN: VH05021:VOLATILE HALOGENATED ORGANICS
SAMPLE TYPE: 230:SEEPAGE
TIME OF SAMPLING: 91/03/11 15:15 DATE PRINTED:91/04/03

ANALYSIS: VH05021 VOLATILE HALOGENATED ORGANICS (DES 310-29)
DATE PRINTED: 91/04/01 FINAL REPORT

PARAMETER	RESULT
CHLOROMETHANE	< 0.5 MCG/L
BROMOMETHANE	< 0.5 MCG/L
VINYL CHLORIDE	< 0.5 MCG/L
DICHLORODIFLUOROMETHANE (FREON-12)	< 0.5 MCG/L
CHLOROETHANE	< 0.5 MCG/L
METHYLENE CHLORIDE (DICHLOROMETHANE)	< 0.5 MCG/L
TRICHLOROFLUOROMETHANE (FREON-11)	< 0.5 MCG/L
1,1-DICHLOROETHENE	< 0.5 MCG/L
1,1-DICHLOROETHANE	< 0.5 MCG/L
TRANS-1,2-DICHLOROETHENE	< 0.5 MCG/L
CIS-1,2-DICHLOROETHENE	< 0.5 MCG/L
CHLOROFORM	8. MCG/L
1,2-DICHLOROETHANE	< 0.5 MCG/L
DIBROMOMETHANE	< 0.5 MCG/L
1,1,1-TRICHLOROETHANE	4. MCG/L
CARBON TETRACHLORIDE	< 0.5 MCG/L
BROMODICHLOROMETHANE	< 0.5 MCG/L
2,3-DICHLOROPROPENE	< 0.5 MCG/L
1,2-DICHLOROPROPANE	< 0.5 MCG/L
CIS-1,3-DICHLOROPROPENE	< 0.5 MCG/L
TRICHLOROETHENE	54. MCG/L
1,3-DICHLOROPROPANE	< 0.5 MCG/L
DIBROMOCHLOROMETHANE	< 0.5 MCG/L
TRANS-1,3-DICHLOROPROPENE	< 0.5 MCG/L
1,1,2-TRICHLOROETHANE	< 0.5 MCG/L
1,2-DIBROMOETHANE (EDB)	< 0.5 MCG/L
2-CHLOROETHYLVINYL ETHER	< 0.5 MCG/L
BROMOFORM	< 0.5 MCG/L
1,1,1,2-TETRACHLOROETHANE	< 0.5 MCG/L
1,2,3-TRICHLOROPROPANE	< 0.5 MCG/L

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SUBMITTED BY:NAPIER

SAMPLE ID: 910904 SAMPLE RECEIVED:91/03/13/ CHARGE: 4.00
POLITICAL SUBDIVISION:LIMA COUNTY:LIVINGSTON
LOCATION: 826011 ENARCO
TIME OF SAMPLING: 91/03/11 15:15 DATE PRINTED:91/04/03

PARAMETER	RESULT
1,1,2,2-TETRACHLOROETHANE	< 0.5 MCG/L
TETRACHLOROETHENE	< 0.5 MCG/L
PENTACHLOROETHANE	< 0.5 MCG/L
1-CHLOROCYCLOHEXENE-1	< 0.5 MCG/L
CHLOROBENZENE	< 0.5 MCG/L
BIS(2-CHLOROETHYL)ETHER	< 0.5 MCG/L
1,2-DIBROMO-3-CHLOROPROPANE	< 0.5 MCG/L
BROMOBENZENE	< 0.5 MCG/L
O-CHLOROTOLUENE	< 0.5 MCG/L
BIS(2-CHLOROISOPROPYL)ETHER	< 0.5 MCG/L
1,3-DICHLOROBENZENE	< 0.5 MCG/L
1,2-DICHLOROBENZENE	< 0.5 MCG/L
1,4-DICHLOROBENZENE	< 0.5 MCG/L

**** END OF REPORT ****

0670 NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 1 RESULTS OF EXAMINATION FINAL REPORT

SAMPLE ID: 910905 SAMPLE RECEIVED:91/03/13/ CHARGE: 8.00
PROGRAM: 110:STATE SUPERFUND ANALYTICAL SERVICES
SOURCE ID: DRAINAGE BASIN:03 GAZETTEER CODE:2556
POLITICAL SUBDIVISION:LIMA COUNTY:LIVINGSTON
LATITUDE: . LONGITUDE: . Z DIRECTION:
LOCATION: 326011 ENARCO
DESCRIPTION:YEARS-BASEMENT SUMP
REPORTING LAB: TOX:LAB FOR ORGANIC ANALYTICAL CHEMISTRY
TEST PATTERN: VH05021:VOLATILE HALOGENATED ORGANICS
SAMPLE TYPE: 230:SEEPAGE
TIME OF SAMPLING: 91/03/11 15:25 DATE PRINTED:91/04/03

ANALYSIS: VH05021 VOLATILE HALOGENATED ORGANICS (DES 310-29)
DATE PRINTED: 91/04/01 FINAL REPORT

PARAMETER	RESULT
CHLOROMETHANE	< 0.5 MCG/L
BROMOMETHANE	< 0.5 MCG/L
VINYL CHLORIDE	< 0.5 MCG/L
DICHLORODIFLUOROMETHANE (FREON-12)	< 0.5 MCG/L
CHLOROETHANE	< 0.5 MCG/L
METHYLENE CHLORIDE (DICHLOROMETHANE)	< 0.5 MCG/L
TRICHLOROFLUOROMETHANE (FREON-11)	< 0.5 MCG/L
1,1-DICHLOROETHENE	< 0.5 MCG/L
1,1-DICHLOROETHANE	< 0.5 MCG/L
TRANS-1,2-DICHLOROETHENE	< 0.5 MCG/L
CIS-1,2-DICHLOROETHENE	< 0.5 MCG/L
CHLOROFORM	< 0.5 MCG/L
1,2-DICHLOROETHANE	< 0.5 MCG/L
DIBROMOMETHANE	< 0.5 MCG/L
1,1,1-TRICHLOROETHANE	< 0.5 MCG/L
CARBON TETRACHLORIDE	< 0.5 MCG/L
BROMODICHLOROMETHANE	< 0.5 MCG/L
2,3-DICHLOROPROPENE	< 0.5 MCG/L
1,2-DICHLOROPROPANE	< 0.5 MCG/L
CIS-1,3-DICHLOROPROPENE	< 0.5 MCG/L
TRICHLOROETHENE	< 0.5 MCG/L
1,3-DICHLOROPROPANE	< 0.5 MCG/L
DIBROMOCHLOROMETHANE	< 0.5 MCG/L
TRANS-1,3-DICHLOROPROPENE	< 0.5 MCG/L
1,1,2-TRICHLOROETHANE	< 0.5 MCG/L
1,2-DIBROMOETHANE (EDB)	< 0.5 MCG/L
2-CHLOROETHYLVINYL ETHER	< 0.5 MCG/L
BROMOFORM	< 0.5 MCG/L
1,1,1,2-TETRACHLOROETHANE	< 0.5 MCG/L
1,2,3-TRICHLOROPROPANE	< 0.5 MCG/L

**** CONTINUED ON NEXT PAGE ****

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REGIONAL DIRECTOR OF PH ENGINEERING
NEW YORK STATE DEPARTMENT OF HEALTH
42 SOUTH WASHINGTON ST.
ROCHESTER, N.Y. 14608

SUBMITTED BY:NAPIER

SAMPLE ID: 910905 SAMPLE RECEIVED:91/03/13/ CHARGE: 8.00
POLITICAL SUBDIVISION:LIMA COUNTY:LIVINGSTON
LOCATION: 826011 ENARCO
TIME OF SAMPLING: 91/03/11 15:25 DATE PRINTED:91/04/03

PARAMETER	RESULT
1,1,2,2-TETRACHLOROETHANE	< 0.5 MCG/L
TETRACHLOROETHENE	< 0.5 MCG/L
PENTACHLOROETHANE	< 0.5 MCG/L
1-CHLOROCYCLOHEXENE-1	< 0.5 MCG/L
CHLOROBENZENE	< 0.5 MCG/L
BIS(2-CHLOROETHYL)ETHER	< 0.5 MCG/L
1,2-DIBROMO-3-CHLOROPROPANE	< 0.5 MCG/L
BROMOBENZENE	< 0.5 MCG/L
O-CHLOROTOLUENE	< 0.5 MCG/L
BIS(2-CHLOROISOPROPYL)ETHER	< 0.5 MCG/L
1,3-DICHLOROBENZENE	< 0.5 MCG/L
1,2-DICHLOROBENZENE	< 0.5 MCG/L
1,4-DICHLOROBENZENE	< 0.5 MCG/L

**** END OF REPORT ****

CDM FEDERAL PROGRAMS CORPORATION

June 6, 1991

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

CDM FEDERAL PROGRAMS CORPORATION

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
Work Assignment Manager

ATTACHMENT I

NORTH BLOOMFIELD
VOLATILE ORGANIC DATA
CONCENTRATIONS: water in UG/L, soil in UG/KG

SAMPLE LOCATION:	MW-1	MW-1	MW-3	MW-3	MW-5	MW-5	MW-5 (DUP)
SAMPLE NUMBER:	BGY02	BGY38	BGY01	BGY40	BGY03	BGY42	BFY32
SAMPLE DATE:	1/7/91	2/25/91	1/7/91	2/25/91	1/8/91	2/26/91	2/26/91
MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER
Chloromethane	10 U	10 UJ	10 U	10 UJ	10 U	10 U	10 U
Bromomethane	10 U	10 UJ	10 U	10 UJ	10 U	10 U	10 U
Vinyl Chloride	10 U	10 UJ	10 U	10 UJ	10 U	10 U	10 U
Chloroethane	10 U	10 UJ	10 U	10 UJ	10 U	10 U	10 U
Methylene Chloride	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
Acetone	10 U	10 UJ	10 U	10 UJ	10 UJ	10 U	10 U
Carbon Disulfide	5 U	5 UJ	5 U	5 UJ	12 U	5 U	5 U
1,1-Dichloroethene	5 U	5 UJ	28	9 J	2 J	5 U	5 U
1,1-Dichloroethane	5 U	5 UJ	27	11 J	1 J	5 U	5 U
1,2-Dichloroethene (total)	5 U	5 UJ	130	70 J	170	90	87
Chloroform	1 J	5 UJ	2 J	5 UJ	5 U	5 U	5 U
1,2-Dichloroethane	5 U	5 UJ	1 J	5 UJ	5 U	5 U	5 U
2-Butanone	10 U	10 UJ	10 U	10 UJ	10 U	10 U	10 U
1,1,1-Trichloroethane	5 U	5 UJ	990 D	370 J	18	10	B
Carbon Tetrachloride	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
Vinyl Acetate	10 U	10 UJ	10 U	10 UJ	10 U	10 U	10 U
Bromodichloromethane	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
1,2-Dichloropropane	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
cis-1,3-Dichloropropene	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
Trichloroethene	4 J	4 J	7900 D	3800 D	260 D	310 DJ	190
Dibromochloromethane	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
1,1,2-Trichloroethane	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
Benzene	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
trans-1,3-Dichloropropene	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
Bromoform	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
4-Methyl-2-Pentanone	10 U	10 UJ	10 U	10 UJ	10 U	10 U	10 U
2-Hexanone	10 U	10 UJ	10 U	10 UJ	10 U	10 U	10 U
Tetrachloroethene	5 U	5 UJ	150	75	1 J	5 U	5 U
1,1,2,2-Tetrachloroethane	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
Toluene	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
Chlorobenzene	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
Ethylbenzene	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
Styrene	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 U
Xylene (total)	5 U	5 UJ	5 U	5 UJ	5 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
VOLATILE ORGANIC DATA
CONCENTRATIONS: water in UG/L, soil in UG/KG

SAMPLE LOCATION:	TRIP BLANK	TRIP BLANK	FIELD BLANK	TRIP BLANK	FIELD BLANK	FIELD BLANK
SAMPLE NUMBER:	BGY06	BGY07	BGY04	BFY30	BFY29	BFY31
SAMPLE DATE:	1/7/91	1/8/91	1/8/91	2/26/91	2/25/91	2/26/91
MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER
Chloromethane	10 U	10 U	10 U	10 U	10 UJ	10 U
Bromomethane	10 U	10 U	10 U	10 U	10 UJ	10 U
Vinyl Chloride	10 U	10 U	10 U	10 U	10 UJ	10 U
Chloroethane	10 U	10 U	10 U	10 U	10 UJ	10 U
Methylene Chloride	1 BJ	5 B	3 BJ	5 U	5 UJ	5 U
Acetone	16	14 J	10 U	10 U	10 UJ	10 U
Carbon Disulfide	5 U	5 U	3 J	5 U	5 UJ	5 U
1,1-Dichloroethene	5 U	5 U	5 U	5 U	5 UJ	5 U
1,1-Dichloroethane	5 U	5 U	5 U	5 U	5 UJ	5 U
1,2-Dichloroethene (total)	5 U	5 U	5 U	5 U	5 UJ	5 U
Chloroform	5 U	5 U	5 U	5 U	10 J	11
1,2-Dichloroethane	5 U	5 U	5 U	5 U	5 UJ	5 U
2-Butanone	10 U	10 U	10 U	10 U	10 UJ	10 U
1,1,1-Trichloroethane	5 U	5 U	5 U	5 U	5 UJ	5 U
Carbon Tetrachloride	5	1 J	5 U	5 U	5 UJ	5 U
Vinyl Acetate	10 U	10 U	10 U	10 U	10 UJ	10 U
Bromodichloromethane	5 U	5 U	5 U	5 U	5 J	6
1,2-Dichloropropane	5 U	5 U	5 U	5 U	5 UJ	5 U
cis-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 UJ	5 U
Trichloroethene	5 U	5 U	5 U	5 U	5 UJ	5 U
Dibromochloromethane	5 U	5 U	5 U	5 U	3 J	3 J
1,1,2-Trichloroethane	5 U	5 U	5 U	5 U	5 UJ	5 U
Benzene	5 U	5 U	5 U	5 U	5 UJ	5 U
trans-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 UJ	5 U
Bromoform	5 U	5 U	5 U	5 U	5 UJ	5 U
4-Methyl-2-Pentanone	10 U	10 U	10 U	10 U	10 UJ	10 U
2-Hexanone	10 U	10 U	10 U	10 U	10 UJ	10 U
Tetrachloroethene	5 U	5 U	5 U	5 U	5 UJ	5 U
1,1,2,2-Tetrachloroethane	5 U	5 U	5 U	5 U	5 UJ	5 U
Toluene	2 J	2 J	5 U	5 U	5 UJ	5 U
Chlorobenzene	5 U	5 U	5 U	5 U	5 UJ	5 U
Ethylbenzene	5 U	5 U	5 U	5 U	5 UJ	5 U
Styrene	5 U	5 U	5 U	5 U	5 UJ	5 U
Xylene (total)	1 J	5 U	5 U	5 U	5 UJ	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:	MW-1	MW-3	MW-5	FIELD BLANK
SAMPLE NUMBER:	BGY02	BGY01	BGY03	BGY04
SAMPLE DATE:	1/7/91	1/7/91	1/8/91	1/8/91
MATRIX:	WATER	WATER	WATER	WATER
Phenol	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10 U	10 U	10 U	10 U
2-Chlorophenol	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10 U	10 U	10 U	10 U
Benzyl alcohol	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10 U	10 U	10 U	10 U
2-Methylphenol	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10 U	10 U	10 U	10 U
4-Methylphenol	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10 U	10 U	10 U	10 U
Hexachloroethane	10 U	10 U	10 U	10 U
Nitrobenzene	10 U	10 U	10 U	10 U
Isophorone	10 U	10 U	10 U	10 U
2-Nitrophenol	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10 U	10 U	10 U	10 U
Benzoic acid	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)methane	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10 U	10 U	10 U	10 U
Naphthalene	10 U	10 U	10 U	10 U
4-Chloroaniline	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10 U	10 U	10 U	10 U
2-Nitroaniline	50 U	50 U	50 U	50 U
Dimethylphthalate	10 U	10 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	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:	MW-1	MW-3	MW-5	FIELD BLANK
SAMPLE NUMBER:	BGY02	BGY01	BGY03	BGY04
SAMPLE DATE:	1/7/91	1/7/91	1/8/91	1/8/91
MATRIX:	WATER	WATER	WATER	WATER
3-Nitroaniline	50 U	50 U	50 U	50 U
Acenaphthene	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50 U	50 U	50 U	50 U
4-Nitrophenol	50 U	50 U	50 U	50 U
Dibenzofuran	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10 U	10 U	10 U	10 U
Diethylphthalate	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10 U	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U	10 U
4-Nitroaniline	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine (1)	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10 U	10 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	10 U	10 U
Pentachlorophenol	50 U	50 U	50 U	50 U
Phenanthrene	10 U	10 U	10 U	10 U
Anthracene	10 U	10 U	10 U	10 U
Di-n-Butylphthalate	10 U	10 U	10 U	10 U
Fluoranthene	10 U	10 U	10 U	10 U
Pyrene	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20 U	20 U	20 U	20 U
Benzo(a)anthracene	10 U	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	0.8 J	10 U	3 J	10 U
Di-n-octylphthalate	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	10 U	10 U	10 U	10 U
Benzo(a)pyrene	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	10 U	10 U	10 U	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
PESTICIDE/PCB DATA
CONCENTRATIONS: water in UG/L, soil in UG/KG

SAMPLE LOCATION:	MW-1	MW-3	MW-5	FIELD BLANK
SAMPLE NUMBER:	BGY02	BGY01	BGY03	BGY04
SAMPLE DATE:	1/7/91	1/7/91	1/8/91	1/8/91
MATRIX:	WATER	WATER	WATER	WATER
Alpha-BHC	0.05 U	0.05 U	0.05 U	0.05 U
Beta-BHC	0.05 U	0.05 U	0.05 U	0.05 U
Delta-BHC	0.05 U	0.05 U	0.05 U	0.05 U
Gamma-BHC (Lindane)	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor	0.05 U	0.05 U	0.05 U	0.05 U
Aldrin	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor Epoxide	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan I	0.05 U	0.05 U	0.05 U	0.05 U
Dieldrin	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDE	0.1 U	0.1 U	0.1 U	0.1 U
Endrin	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan II	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDD	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan Sulfate	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDT	0.1 U	0.1 U	0.1 U	0.1 U
Methoxychlor	0.5 U	0.5 U	0.5 U	0.5 U
Endrin Ketone	0.1 U	0.1 U	0.1 U	0.1 U
Alpha-Chlordane	0.5 U	0.5 U	0.5 U	0.5 U
Gamma-Chlordane	0.5 U	0.5 U	0.5 U	0.5 U
Toxaphene	1 U	1 U	1 U	1 U
Aroclor-1016	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1221	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1232	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1242	1.6	0.5 U	0.5 U	0.32 J
Aroclor-1248	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1254	1 U	1 U	1 U	1 U
Aroclor-1260	1 U	1 U	1 U	1 U

QUALIFIERS
U = Compound analyzed for but not detected.
J = Estimated value.

NORTH BLOOMFIELD
INORGANIC DATA
CONCENTRATIONS: water in UG/L, soil in MG/KG

SAMPLE LOCATION:	MW-1	MW-3	MW-5	FIELD BLANK
SAMPLE NUMBER:	MBEP02	MBEP01	MBEP03	MBEP04
SAMPLE DATE:	1/7/91	1/7/91	1/8/91	1/8/91
MATRIX:	WATER	WATER	WATER	WATER
Aluminum	1190	366	1080	19 U
Antimony	14 U	14 U	14 U	14 U
Arsenic	2.4 B	2.8 B	2 U	2 UW
Barium	192 B	58.1 B	51.8 B	2 U
Beryllium	1 U	1 U	1 U	1 U
Cadmium	3 U	3 U	3 U	3 U
Calcium	91000	88300	102000	131 B
Chromium	18.5	4.8 B	5.2 B	4 U
Cobalt	4 U	4.5 B	4 U	4 U
Copper	6 B	13.9 B	38.9	2 U
Iron	1520	626	2010	62 B
Lead	3.9	4.8 W*	4.4	1.9 B
Magnesium	34500	22100	20700	37.3 B
Manganese	60.5	30.7	45.1	1 U
Mercury	.2 UN*J	.64 N*J	.2 UN*J	.2 UN*J
Nickel	10.2 B	14.4 B	18.9 B	4 U
Potassium	2910 B	3060 B	3420 B	68 U
Selenium	4 UWJ	4 UWJ	4 UJ	4 UWJ
Silver	2 U	2 U	2 U	2 U
Sodium	11100	54100	11200	527 B
Thallium	2 UJNW	2 UJNW	2 UJNW	2 UJN
Vanadium	2.9 B	2 U	2 B	2 U
Zinc	20.9	41.6	59.1	14.7 B
Cyanide	10 U	16.7 U	10 U	10 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
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	400	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:	SB 1 (6'-8')	SB 3 (4'-6')	SB 4 (8'-10')	SB 4 (DUP)	SB 5B (2'-4')	FIELD BLANK
SAMPLE NUMBER:	BDE41	BDE37	BDE39	BDE40	BDE36	BDE38
SAMPLE DATE:	11/29/90	11/28/90	11/29/90	11/29/90	11/28/90	11/29/90
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	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:	SB 1 (6'-8')	SB 3 (4'-6')	SB 4 (8'-10')	SB 4 (DUP)	SB 5B (2'-4')	FIELD BLANK
SAMPLE NUMBER:	BDE41	BDE37	BDE39	BDE40	BDE36	BDE38
SAMPLE DATE:	11/29/90	11/28/90	11/29/90	11/29/90	11/28/90	11/29/90
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	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:	SB 1 (6'-8')	SB 3 (4'-6')	SB 4 (8'-10')	SB 4 (DUP)	SB 5B (2'-4')	FIELD BLANK
SAMPLE NUMBER:	BDE41	BDE37	BDE39	BDE40	BDE36	BDE38
SAMPLE DATE:	11/29/90	11/28/90	11/29/90	11/29/90	11/28/90	11/29/90
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	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

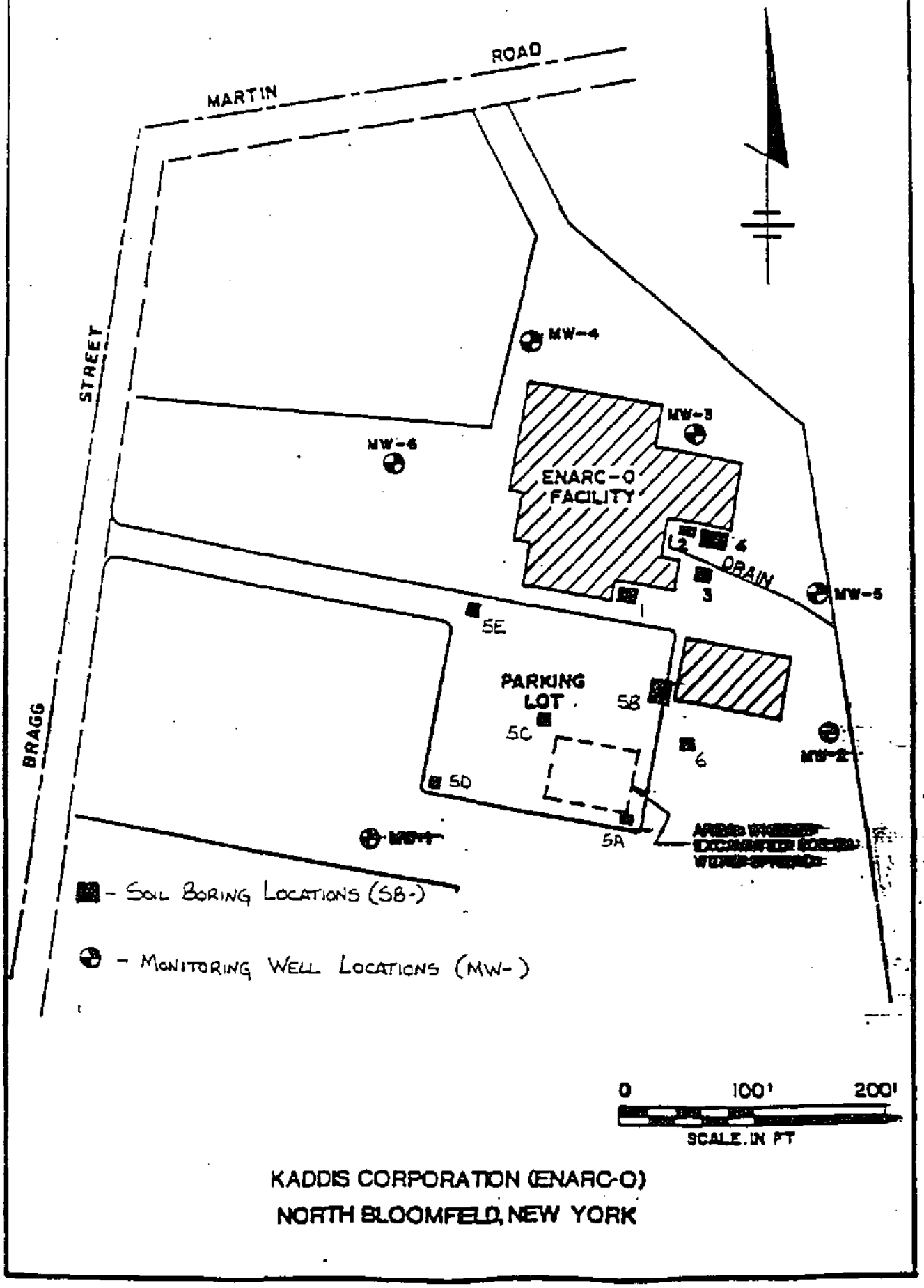
QUALIFIERS
U = Compound analyzed for but not detected.
J = Estimated value.

NORTH BLOOMFIELD
TOTAL PETROLEUM HYDROCARBONS
CONCENTRATIONS: water in MG/L

SAMPLE LOCATION:	MW-1	MW-2	MW-3	MW-4	MW-5	MW-5 (DUP)	MW-6	FIELD BLANK	FIELD BLANK
SAMPLE NUMBER:	BGY38	BGY39	BGY40	BGY41	BGY42	BFY32	BGY43	BFY29	BFY31
SAMPLE DATE:	2/25/91	2/26/91	2/26/91	2/25/91	2/26/91	2/26/91	2/25/91	2/25/91	2/26/91
MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
TPH	<1.0 R	<1.0 R	<1.0 R	<1.0 R	<1.0 R	<1.0 R	<1.0 R	<1.0 R	<1.0 R

QUALIFIERS
R = Sample result was rejected.

FIGURE 1



KADDIS CORPORATION (ENARC-O)

NORTH BLOOMFIELD, NEW YORK

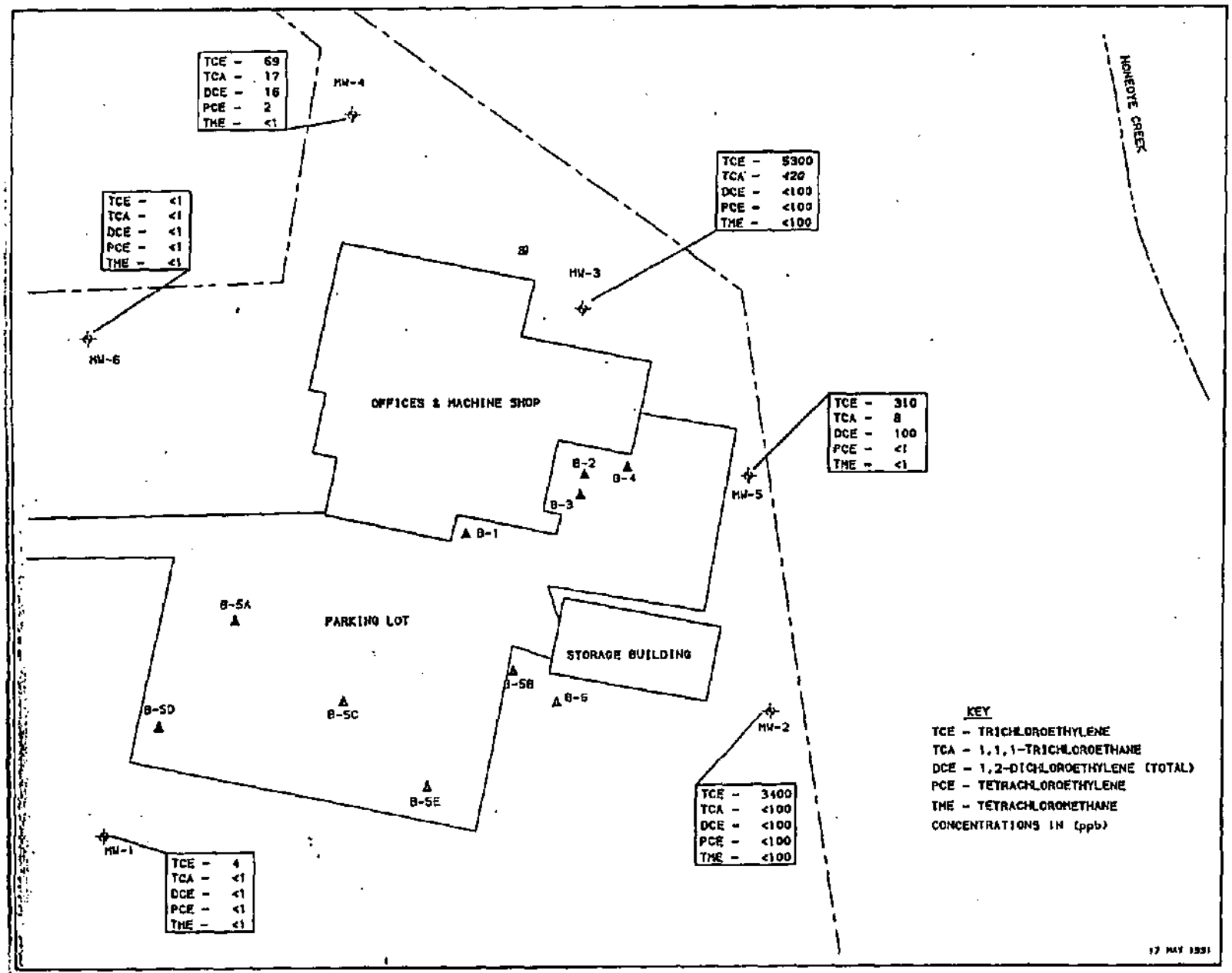


FIGURE 8

ENARC-O MACHINE PRODUCTS
NORTH BLOOMFIELD, NEW YORK

LEGEND

- MONITORING WELL LOCATION
- SOIL BORING LOCATION
- SUPPLY WELL LOCATION
- APPROXIMATE LOCATION OF PROPERTY LINE
- CREEK

GROUND WATER
QUALITY MAP
FEBRUARY 25 & 26, 1991

50 0 50
SCALE IN FEET

7387.006.730

O'BRIEN & GERE ENGINEERS, INC.

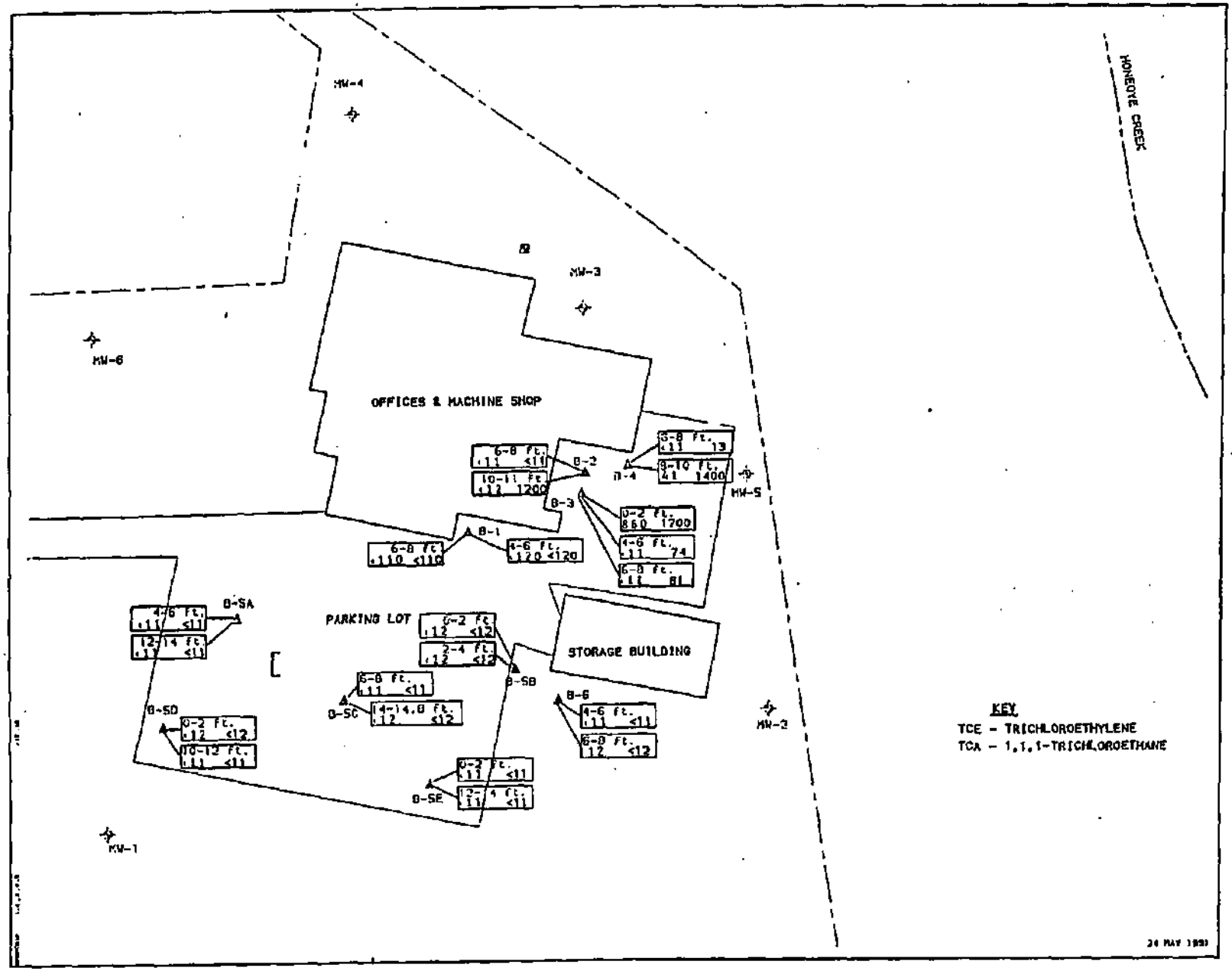


FIGURE 6

ENARC-O MACHINE PRODUCTS
NORTH BLOOMFIELD, NEW YORK

LEGEND

- MONITORING WELL LOCATION
- SOIL BORING LOCATION
- SUPPLY WELL LOCATION
- APPROXIMATE LOCATION OF PROPERTY LINE
- CREEK
- DEPTH / TCA / TCE

SOIL SAMPLE ANALYTICAL DATA

NOTE: CONCENTRATION IN ug/kg DRY WEIGHT.

SCALE IN FEET

2387.006.730

O'BRIEN & GERE ENGINEERS, INC.

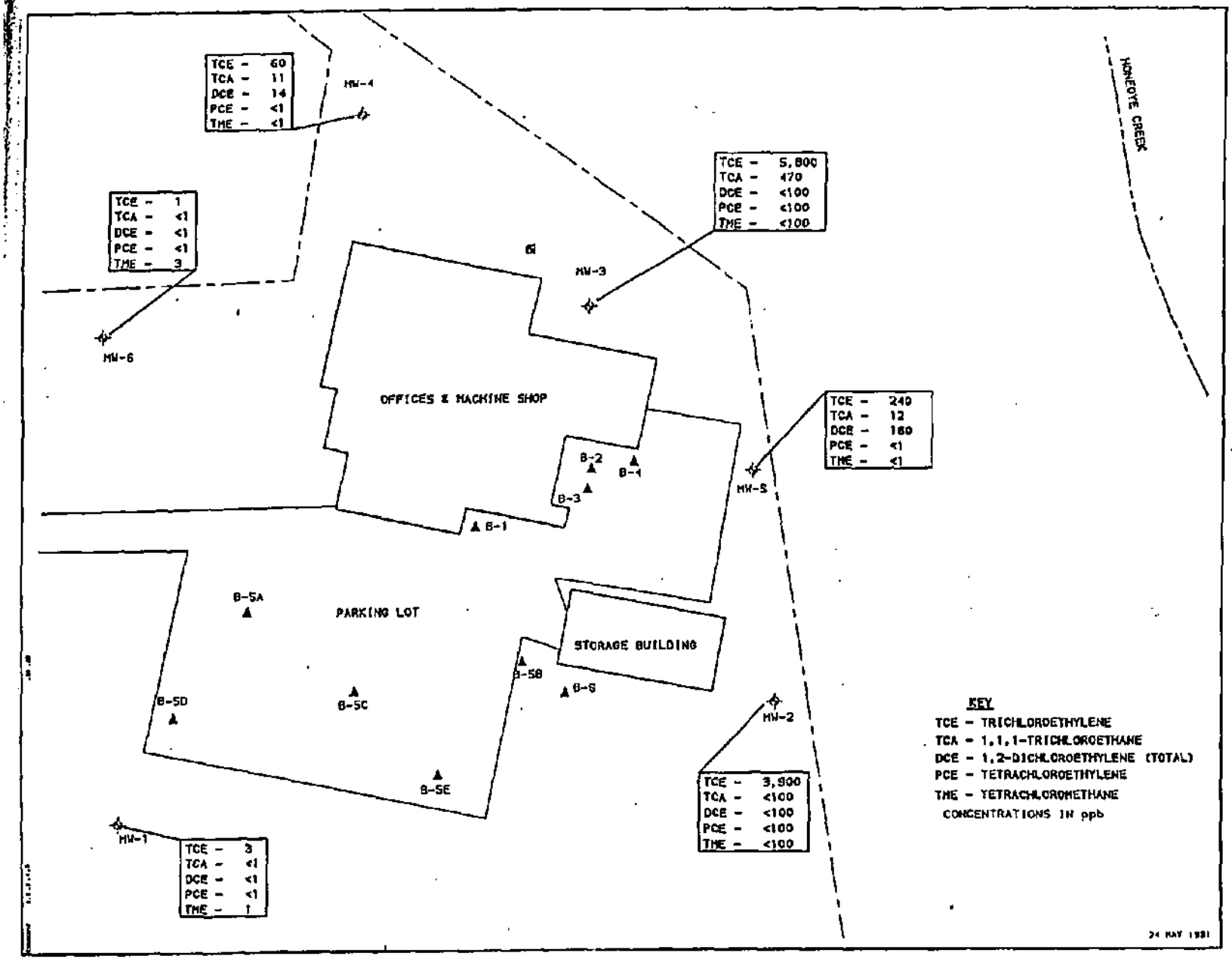


FIGURE 7

ENARC-O MACHINE PRODUCTS
NORTH BLOOMFIELD, NEW YORK

LEGEND

- MONITORING WELL LOCATION
- SOIL BORING LOCATION
- SUPPLY WELL LOCATION
- APPROXIMATE LOCATION OF PROPERTY LINE
- CREEK

GROUND WATER
QUALITY MAP
JANUARY 7 & 8, 1991

50 0 50

SCALE IN FEET

2387.006.730

O'BRIEN & GERE ENGINEERS, INC.

AQUIFER CONTAMINATION

STREET	ADDRESS	NAME	STATE D.O.H. STANDARD BACTERIAL TEST EXCEEDS STATE STANDARD	MAX "O" COLIFORM COUNT IF ABOVE STANDARD
Bragg Street	1167	Smalley		N.T.
	1175	Enarc-O	YES	B.G.
	1191	Tondryk		N.T.
	1382	Horan		N.T.
Ideson Rd.	1081	Miller	YES	5
	1090	Colavito	YES	540
	1091	Chambers	YES	540
	1108	Endicott	YES	8
	1111	Hart	YES	33
	1116	Maloy	YES	350
	1121	Cooper	YES	200
	1126		YES	280
	1129	Johnson	YES	19
	1140	Sackett	YES	4
	1146	Reano	YES	1
	1147	Freedman	YES	2
	1154	Shellman	YES	2
	1155	Tompkins	YES	12
Martin Rd.	7820	Johnson	YES	B.G.
	7838	Saunders	YES	7
	7852	Hopkins	YES	N.D.
	7859	Boonstra	YES	B.G.
	7865	Cavalier	YES	50
	7873	Years		N.T.
	7880	Rogers	YES	5
	7883	Garvey	YES	1 B.G.
	7886	Vellekoop		N.T.

	#	%
Total Sampled	22	100
Below Standard	0	-
Up to 1X Above Std.	2	9.10
Up to 2X Above Std.	2	9.10
Up to 3X Above Std.	0	-
Up to 4X Above Std.	1	4.55
Up to 5X Above Std.	2	9.10
Up to 10X Above Std.	2	9.10
Up to 50X Above Std.	4	18.20
Up to 100X Above Std.	0	-
Up to 200X Above Std.	1	4.55
Up to 300X Above Std.	1	4.55
Up to 500X Above Std.	1	4.55
Above 500X	2	9.10
N.D.	1	4.55
B.G.	3	13.60

Identifications based on information supplied by Livingston County Health Department.

B.G. = Confluent Growth over the entire area of the sample culture. The density of Growth prevents the reading of individual colonies. It should be interpreted as a positive reading and an indication of the requirement for another sample.

N.D. = Not Determined. Growth characteristics in the culture prevent isolation of individual colonies. It should be interpreted as a positive reading and an indication of the requirement for another sample.

N.T. = Not Tested.

APPENDIX I

RESIDENTIAL WELL SAMPLES RESULTS
FOR NORTH BLOOMFIELD, NEW YORK [1]

	SAMPLING	JUNE 19, 1985				JULY 1, 1985				JULY 24, 1985				AUGUST 7, 1985			
	LOCATION (NAME/ADDRESS)	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
	Boonstra 7859M					20	4	<1	<1								
	Bush 7787M													<1	<1	<1	<1
	Cavalier 7865M					22	2	1	<1								
	Colavito 10701													2	<1	<1	<1
***	Cooper 11211									24	8	1	<1				
**	Enarc-O 1175B	<10	<10	560	<10	8	4	22	<1								
	Endicott 11081													<1	<1	<1	<1
	Freedman 11471									49	8	1	<1				
	Garvey 7883M	290	75	8	<10	318	89	3	2								
	George 18860													<1	<1	<1	<1
***	Hart 11111									19	5	1	<1				

A- Trichloroethylene
B - Trans-1,2-Dichloroethene
C - 1,1,1-Trichloroethane
D - 1,2-Dichloroethane
A - Trichloroethylene

B - Bragg Street
BH - Bean Hill Road
I - Ideson Road
M - Martin Road
O - Ontario Road

* - Indicates that during August 7, 1985 sampling, chlorofo was found to be present when using gas chromotography
** - Indicates that during June 19, 1985 sampling, 1,1,2,2-Tetrachloroethane and Tetrachloroethene were found at concentrations of 100 ppb and 68 ppb, respectively.
*** - Indicates that during July 24, 1985 sampling, 1,1-Dichloroethane was found at a concentration of 1 ppb.
1 - All concentrations are reported in ppb.

APPENDIX 1 (Continued)

	SAMPLING	JUNE 19, 1985				JULY 1, 1985				JULY 24, 1985				AUGUST 7, 1985			
	LOCATION (NAME/ADDRESS)	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
	Hopkins 7852M					80	4	1	<1								
	Horan 1382B									<1	<1	<1	<1				
	Johnson 1127I									19	3	<1	<1				
	Johnson 1820M									31	4	<1	<1				
*	Maloy 1116I													8	1	<1	<1
	Mantegna 239 O													<1	<1	<1	<1
	Miller 1081I									<1	<1	<1	<1				
	Reano 1146I													46	8	2	<1
	Rogers 7880M	260	75	<10	<10	197	43	2	2								
	Sackett 1140I													29	5	1	<1
	Saunders 7038M													22	4	<1	<1

A - Trichloroethylene
B - Trans-1,2-Dichloroethene
C - 1,1,1-Trichloroethane
D - 1,2-Dichloroethane

B - Bragg Street
Bll - Bean Hill Road
I - Ideson Road
M - Martin Road
O - Ontario Road

* - Indicates that during August 7, 1985 sampling, chloroform was detected when using gas chromatograghy
** - Indicates that during June 19, 1985 sampling, Tetrachloroethane and Tetrachloroethene were found at concentrations ob 100 ppb and 68 ppb, respectively.
*** - Indicates that during July 24, 1985 sampling, 1, 1-Dichloroethane was found at a concentration of 1 ppb.
1 - All concentrations are reporting in ppb.

APPENDIX I (Continued)

	SAMPLING	JUNE 19, 1985				JULY 1, 1985				JULY 24, 1985				AUGUST 7, 1985			
	LOCATION (NAME/ADDRESS)	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
	Seltzer 7644BH									<1	<1	<1	<1				
	Shellman 1154I													<5	<5	<5	<5
	Smith 1167B	77	21	1	2	98	17	1	<1								
	Swanger 7750M													<1	<1	<1	<1
*	Tompkins 1155I													11	3	2	<1
	Tondryk 1191B	4	<2	<2	<2	3	<1	<1	<1								
	Vellekoop 7886M	110	41	8	<10	92	16	8	<1								
	Wagner 1897O									<1	<1	<1	<1				
	Years 7873M					72	19	1	<1								

A - Trichloroethylene
B - Trans-1,2-Dichloroethene
C - 1,1,1-Trichloroethane
D - 1,2-Dichloroethane

B - Bragg Street
BH - Bean Hill Road
I - Ideson Road
M - Martin Road
O - Ontario Road

* - Indicates that during August 7, 1985 sampling, chloroform was detected when using gas chromotograghy
** - Indicates that during June 19, 1985 sampling, 1,1,2,2-Tetrachloroethane and Tetrachloroethene were found at concentrations of 100 ppb and 68 ppb, respectively.
*** - Indicates that during July 24, 1985 sampling, 1, 1-Dichloroethane was found at a concentration of 1 ppb.
1 - All concentrations are reported in ppb.

(SEE NOTE ON NEXT PAGE)

NOTE: On March 22, 1985, the NYSDEC sampled drinking water supply well at the Enarc-O-Machine Products facility. The results are presented below:

CONTAMINANT	CONCENTRATION (ppb)
Trichloroethylene	1,800
1,1,1-Trichloroethane	370

On November 1, 1985, the NYSDOH forwarded results of their September 26, 1985 sampling activity. The results of the sampling indicated that no contaminants were found in the drinking water of the following residents:

RESIDENT	ADDRESS
Fessler	7783 Martin Road
Ghostlaw	7808 Martin Road
Slade	7796 Martin Road
Chambers	1091 Ideson Road
Stinson	1550 Ontario St.

On November 21, 1985, the NYSDOH forwarded results of their October 31, 1985 sampling activity. The results of the sampling are presented below.

RESIDENT	ADDRESS	CONTAMINANT
Miller	7744 Martin Rd.	None
Neverett	7829 Martin Rd.	2 ppb Trichloroethylene
Obrien	7801 Martin Rd.	None

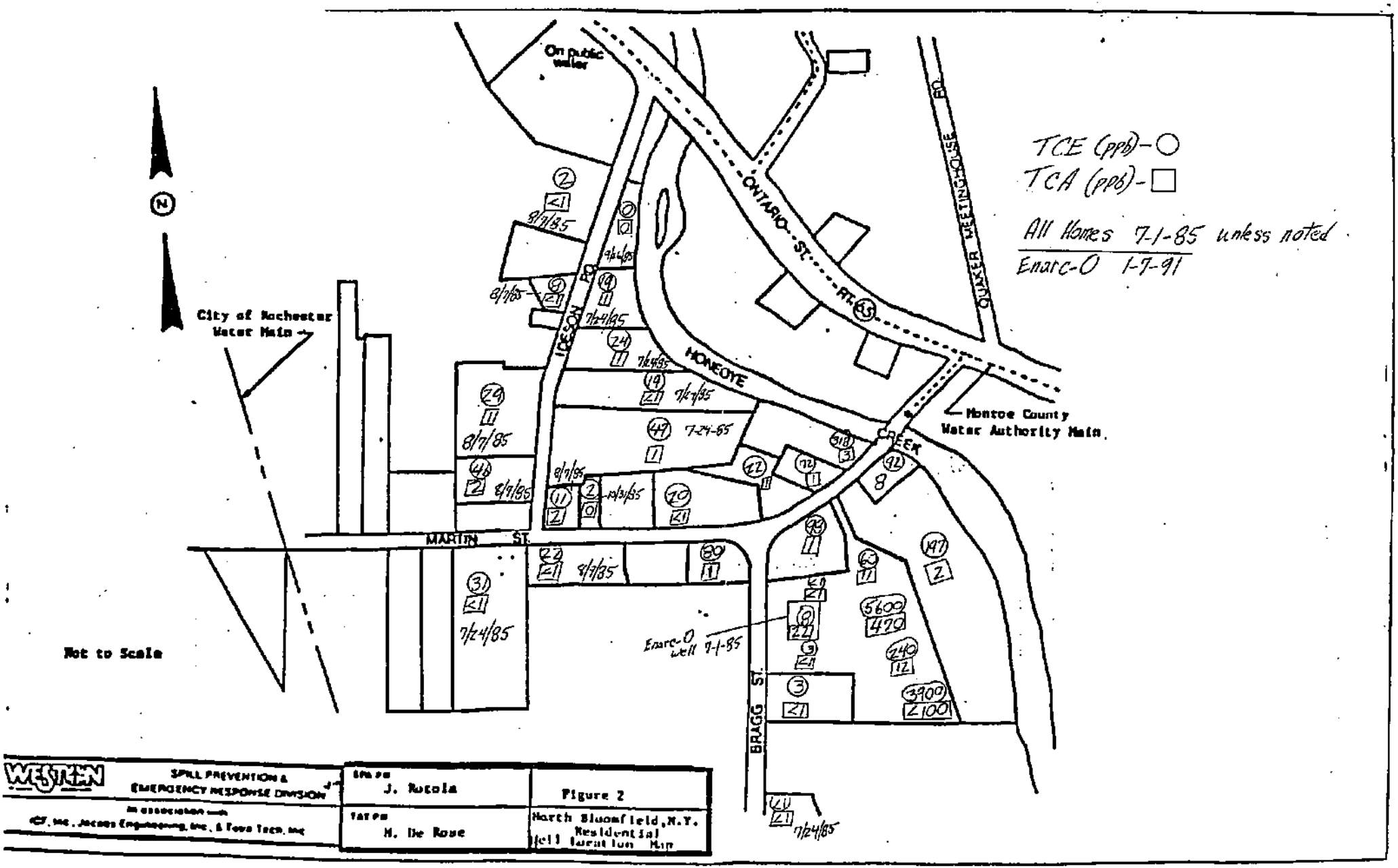
SUMMARY OF ALL SAMPLE READINGS

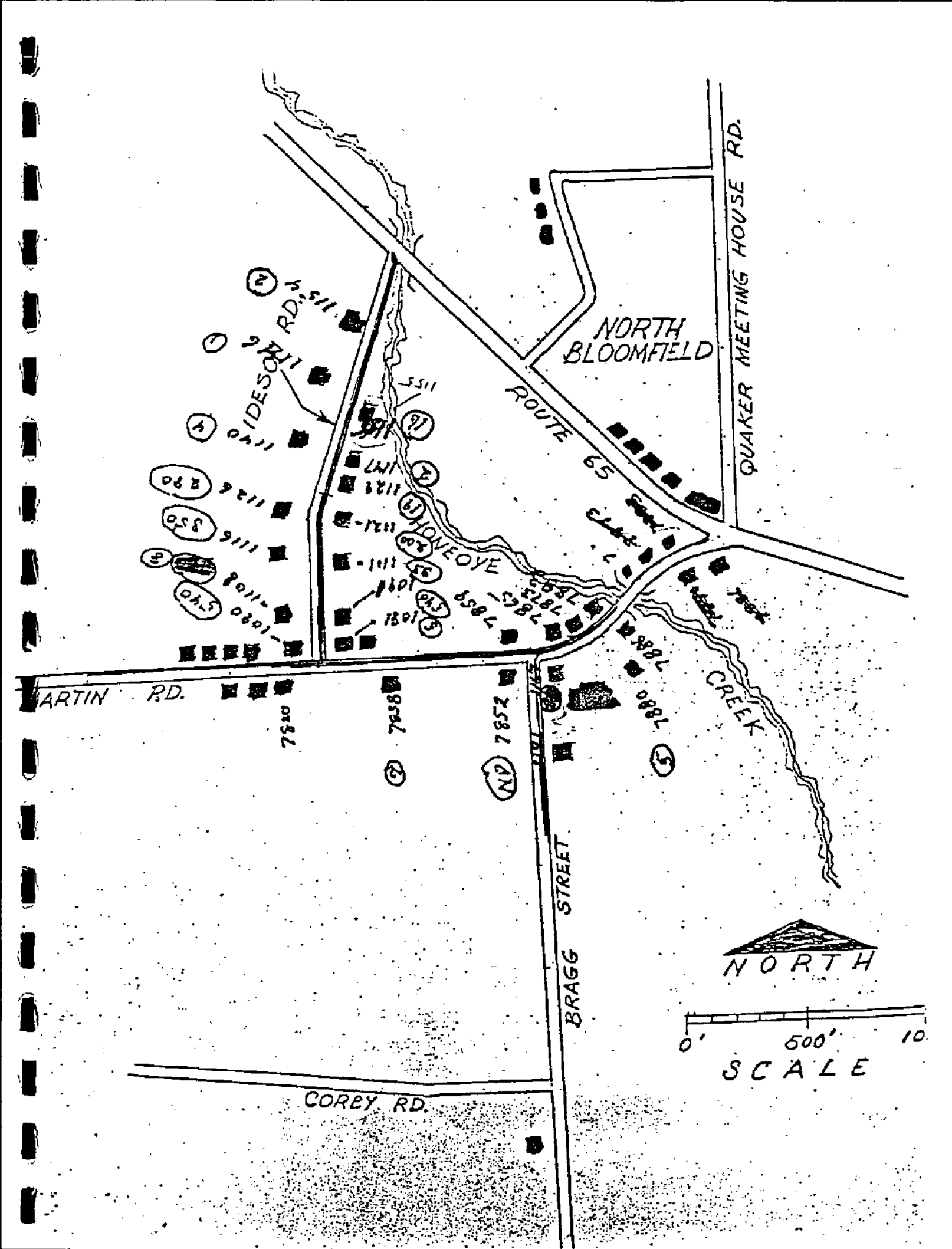
Enarco Machine Products
Sample Readings
EPA

Name	Street	No.	Sample Date	T41109 TRICHLOROETHYLENE	T61209 Trans-1, 2-DICHLOROETHENE	T23609 1, 1, 1-TRICHLOROETHANE	T50809 1,2-DICHLOROETHANE
Boonstra	Martin Rd.	7859	7/1/85	20	4	<1	<1
Bush	Martin Rd.	7787	8/7/85	<1	<1	<1	<1
Cavalier	Martin Rd.	7865	7/1/85	22	2	1	<1
Chambers	Ideson Rd.	1091	9/26/85	0	0	0	0
Colavito	Ideson Rd.	1090	8/7/85	2	<1	<1	<1
Cooper	Ideson Rd.	1121	7/24/85	24	8	1	<1
Enarco	Bragg St.	1175	7/1/85	8	4	22	<1
Endicott	Ideson Rd.	1108	8/7/85	<1	<1	<1	<1
Fessler	Martin Rd.	7783	9/26/85	0	0	0	0
Freedman	Ideson Rd.	1147	7/24/85	49	8	1	<1
Garvey,Robert	Martin Rd.	7883	6/19/85	290	75	8	<10
Garvey,Robert	Martin Rd.	7883	7/1/85	318	89	3	2
George, V.	Ontario St.	1886	8/7/85	<1	<1	<1	<1
Ghostlaw	Martin Rd.	7808	9/26/85	0	0	0	0
Hart	Ideson Rd.	1111	7/24/85	19	5	1	<1
Hopkins	Martin Rd.	7852	7/1/85	80	4	1	<1
Horan	Bragg St.	1382	7/24/85	<1	<1	<1	<1
Johnson	Ideson Rd.	1127	7/24/85	19	3	<1	<1
Johnson	Martin Rd.	7820	7/24/85	31	4	<1	<1
Maloy	Ideson Rd.	1116	8/7/85	8	1	<1	<1
Mantegna	Ontario St.	239	8/7/85	<1	<1	<1	<1
Miller	Ideson Rd.	1081	7/24/85	<1	<1	<1	<1
Miller	Martin Rd.	7744	10/31/85	0	0	0	0
Neverett	Martin Rd.	7829	10/31/85	2	0	0	0
Obrien	Martin Rd.	7801	10/31/85	0	0	0	0
Reano	Ideson Rd.	1146	8/7/85	46	8	2	<1
Rogers,Larry	Martin Rd.	7880	6/19/85	260	75	<10	<10
Rogers,Larry	Martin Rd.	7880	7/1/85	197	45	2	2
Sackett, L.	Ideson Rd.	1140	8/7/85	29	5	1	<1
Saunders,R.	Martin Rd.	7838	8/7/85	22	4	<1	<1
Seltzer	Bean Hill Rd.	9644	7/24/85	<1	<1	<1	<1
Shelman	Ideson Rd.	1154	8/7/85	<5	<5	<5	<5
Slade	Martin Rd.	7796	9/26/85	0	0	0	0
Smith	Bragg St.	1167	6/19/85	77	21	1	2
Smith	Bragg St.	1167	7/1/85	98	17	1	<1
Stinson	Ontario St.	155	9/26/85	0	0	0	0
Swager,C.	Martin Rd.	7750	8/7/85	<1	<1	<1	<1
Tompkins	Ideson Rd.	1155	8/7/85	11	3	2	<1
Tondryk,Edward	Bragg St.	1191	6/19/85	4	<2	<2	<2
Tondryk,Edward	Bragg St.	1191	7/1/85	3	<1	<1	<1
Vellekoop,Harry	Martin Rd.	7886	6/19/85	110	41	8	<10
Vellekoop,Harry	Martin Rd.	7886	7/1/85	92	16	8	<1
Wagner	Ontario St.	1897	7/24/85	<1	<1	<1	<1
Years,Ronald	Martin Rd.	7873	7/1/85	72	19	1	<1

EXCLUDES ENARC-0 READINGS OF 3/22/1985, 6/19/1985 TAKEN UNDER IMPROPER TEST PROCEDURES.

3 wells


On public water
ONTARIO ST.
RTE 63
QUAKER MEETINGHOUSE RD.
HONEOYE
CREEK
LOESSY RD.
MARTIN ST.
BRAGG ST.
City of Rochester Water Main
Monroe County Water Authority Main
TCE (ppb) - ○
TCA (ppb) - □
All Homes 7-1-85 unless noted
Enarc-O 1-7-91
Enarc-O well 7-1-85
Not to Scale
8/7/85
7/24/85
7-24-85
5600
420
240
12
3900
2100
WESTON
SPILL PREVENTION & EMERGENCY RESPONSE DIVISION
In association with
ICF, Inc., Jacobs Engineering, Inc., & Foos Tech, Inc
Drawn By J. Rutola
Tech By M. De Rose
Figure 2
North Bloomfield, N.Y. Residential Well Location Map


NORTH BLOOMFIELD
QUAKER MEETING HOUSE RD.
ROUTE 65
IDESDALE RD.
HOVEOYE
CREEK
MARTIN RD.
BRAGG STREET
COREY RD.
NORTH
0'
600'
SCALE