Former EMCA Site
Mamaroneck, New York

FINAL DRAFT

REMEDIAL INVESTIGATION REPORT

prepared for:

ROHM AND HAAS COMPANY

submitted by:

URS GREINER WOODWARD CLYDE

DECEMBER 20, 2000

G3093

REMEDIAL INVESTIGATION REPORT

FORMER EMCA SITE
SITE No. 360025
MAMARONECK, NEW YORK

Prepared For:

ROHM AND HAAS COMPANY

FINAL DRAFT

Prepared by:

URS CORPORATION

DECEMBER 20, 2000

TABLE OF CONTENTS

TABLES

(Following Text)

FIGURES

(Following Tables)

APPENDICES

(Following Figures)

1.0 INTRODUCTION

Rohm and Haas Company tasked URS Corporation (URS) with preparing this remedial investigation (RI) report, which presents, summarizes, and provides interpretations and conclusions regarding data gathered during RI field activities at the Former EMCA Site (Site No. 360025) located in Mamaroneck, Westchester County, New York. The RI was performed as per Consent Order between Rohm and Haas Company and the New York State Department of Environmental Conservation (NYSDEC). Unless otherwise noted, RI activities were performed in accordance with the *Field Investigation Plan* (including the Field Sampling Plan and Health and Safety Plan), and the *Quality Assurance Project Plan*. Both of these plans were submitted to the NYSDEC in September 1999 and were approved by NYSDEC prior to initiating September 1999 field investigations. The Field Investigation Plan was amended in May 2000 prior to conducting a secondary field investigation in July 2000. All changes to the work plan were reviewed by Rohm and Haas Company and NYSDEC.

1.1 Purpose of the Remedial Investigation

The purpose of the RI was to collect the data necessary to characterize subsurface contamination at the Former EMCA Site. The primary goal of RI activities was to obtain data for defining the level of concern with regard to remnant 1,1,2-trichlorotrifluoroethane (Freon 113) (previously identified at the site) and other potential contaminants. The RI was designed: to refine the current understanding of groundwater flow direction; to evaluate the presence of other organic/metal contaminants and their source(s); and to support discussion of exposure and potential impact to human and environmental receptors and the need for remedial action at the site. In addition, data collected as part of this RI will be used to evaluate whether the site can be removed from NYSDEC's list of Inactive Hazardous Waste Disposal Sites.

1.2 Site Description and History

The EMCA property is a 0.6-acre site located in a mixed residential/industrial area in Mamaroneck, New York (Figures 1 and 2). EMCA, formerly owned by Rohm and Haas Company, manufactured high conductivity precious metal paste used in circuits by the electronics industry. Manufacturing at the EMCA site began in 1960, Rohm and Haas purchased the site in 1984, and manufacturing ceased in 1988. Rohm and Haas transferred site ownership to UA-

Columbia Cablevision who later merged with TCI Cablevision of Westchester and then with Cablevision of Westchester, the current site owner.

1.3 Previous Investigations

As part of the real property transfer, UA-Continental Cablevision retained Goldberg-Zoino and Associates of New York (GZANY) to perform a preliminary site investigation. In 1988, GZANY conducted a field investigation that included advancing several soil borings and installing nine monitoring wells. Based on their investigation, GZANY identified soil and water contamination at the site.

In 1989, EMCA/Rohm and Haas Company retained Woodward-Clyde Consultants (WCC) to review GZANY's data, conduct follow-up investigations, and evaluate risks associated with site contamination. Based on these efforts, WCC concluded there is no significant risk to human health or the environment, and that remediation of groundwater and site soils is not warranted.

In 1992, TCI Cable of Westchester, Inc. (the owner at that time), subcontracted ENVIRON Corporation to collect indoor and outdoor air samples to evaluate potential health risk with regard to air quality. Based on this investigation, ENVIRON concluded there was no evidence to suggest that air quality at the facility would produce any adverse health effects to the occupants of the building.

Based on the site history and environmental site data existing at the time (1991), NYSDEC listed the former EMCA property as a NYSDEC Class 2 Inactive Hazardous Waste Site based on the presence of Freon 113. In March 1999, Rohm and Haas Company signed a Consent Order with the NYSDEC, agreeing to conduct additional investigations to further evaluate the nature and extent of site contamination.

On April 27, 1999, Rohm and Haas Company met onsite with representatives from the NYSDEC, New York State Department of Health (NYSDOH), Cablevision of Westchester, and URS Corporation (URS) to discuss the planned remedial investigation and to assess the condition of the monitoring wells installed during previous investigations. Three of the nine former onsite

wells (GZ-3, GZ-6, and GZ-9) were located. However, well GZ-9 had been cut down below ground surface and paved over. Moreover, GZ-9 showed evidence of asphalt staining and it is likely that surface run-off drains into it. Only two of the nine former wells (GZ-3 and GZ-6) were deemed acceptable for re-sampling. The remaining six wells, installed during the prior studies, could not be found.

1.4 Summary of Site Contamination From Previous Investigations

During previous investigations, groundwater, air, and soil were sampled and analyzed. Based upon the results of previous investigations, the medium of primary concern at the site is groundwater. The discussions provided below are based on data presented in the reports entitled, *Assessment of Subsurface Conditions, 605-609 Center Avenue, 604 and 612 Fayette Avenue, Mamaroneck, New York* (GZANY, 1988), *Groundwater Sampling Results, Former EMCA Site, Mamaroneck, New York* (WCC, 1989a) and *Risk Assessment, Former EMCA Site, Mamaroneck, New York* (WCC, 1989b). A summary of previously detected analytes is provided in Appendix A. The chemicals of potential concern (CPCs) in these media have been identified by comparing the previous results to the following current NYSDEC standards and guidelines:

- New York Sate Department of Environmental Conservation (NYSDEC). 2000. "Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations." *Technical and Operational Guidance Series* (1.1.1) (TOGS 1.1.1). April. Albany, NY: Division of Water.

- New York State Department of Environmental Conservation (NYSDEC). 1994. "Determination of Soil Cleanup Objectives and Cleanup Levels." *Technical and Administrative Guidance Memorandum* HWR-94-4046. Albany, NY: Bureau of Hazardous Waste Remediation.

These standards and guidelines were not available at the time previous samples were collected, and are used herein for comparison purposes only.

Chemicals found during previous investigations, which when compared to today's standards may be considered CPCs, are summarized below:

- Groundwater - Volatile organic compounds (VOCs) are the primary CPCs in this medium. Two rounds of analyses previously were conducted (Appendix A), the first in May 1988 and the second in March 1989. When the May 1988 results are compared to the current New York State Class GA drinking water standards, the following VOCs are exceeded: benzene, chloroethane, 1,2-dichloroethene (total), ethylbenzene, trichloroethene, 1,1,1-trichloroethane, and Freon 113. In March 1989, three additional compounds were detected at levels above current Class GA standards: acetone, tetrachloroethene, and vinyl chloride. However, one compound, chloroethane, which was present at a level of potential concern in May 1988, decreased to a level below current Class GA standards in 1989. Also, the distribution of detected analytes suggested an offsite source for benzene, ethylbenzene, and the chlorinated volatile compounds. Freon 113 was the only compound believed to be attributable to previous EMCA site activities. Refer to Figures 3 and 4 for results and distribution of previous groundwater analyses. Two groundwater samples also were analyzed for the following metals in May 1988: barium, copper, lead, silver and zinc. The metals results are all below current Class GA standards. It is noted however, the 1988 samples were analyzed for dissolved metals rather than total metals. Current NYSDEC standards require total metals analysis (follow-up metals analyses were conducted for this RI – refer to Section 4.3).

- Ambient Air - During August 1992, ENVIRON collected eight indoor and two outdoor ambient air samples at the facility. The samples were analyzed for acetone, benzene, 2-butanone, chloroethane, chloroform, 1,1-dichloroethane, cis-1,2-dichloroethene, trans-1,2-dichloroethene, ethylbenzene, Freon 113, methylene chloride, 1,1,2,2-tetrachloroethane, tetrachloroethene, 1,1,1-trichloroethane, trichloroethene, and toluene. Traces of several of these compounds were detected, although their presence may be related to use of cleaning solvents for janitorial use or other sources inherent to the building infrastructure (e.g,. chloroform emitted from tap water). It also was found that Freon 113 was used onsite to maintain video tape equipment. ENVIRON concluded that the level of contamination identified at the site was not a health concern to site workers. The results of the ENVIRON study are provided in Appendix B.

- Surface Soil – Surface soil was not analyzed during previous investigations. Refer to Section 4.3 for surface soil analyses (metals only) conducted as part of this RI.

- Subsurface Soil – During the GZANY May 1988 investigation, 14 priority pollutant volatile organics were detected in the soil samples. Of these 14 compounds, methylene chloride and toluene were detected in the laboratory method blank and, therefore, their presence in the soil samples is questionable. A summary of detected volatile organics is provided in Appendix A. In addition to the priority pollutant volatiles, several unknown volatile organics were tentatively identified in the library search. No priority pollutant acid extractable (AE) or base neutral (BN) extractable compounds were detected. However, several AE and BN extractable compounds were tentatively identified in the library search.

Except for Freon 113, the majority of volatile compounds were detected in highest concentration along the southeastern site boundary in the upgradient groundwater flow direction. This distribution suggested an offsite upgradient source for these compounds. The highest Freon 113 detections were found within the parking area along the northeastern portion of the site. None of the soil concentrations exceeded the standards, criteria, and guidance values (SCGs) provided in TAGM 4046. Therefore further investigation of subsurface soil was not included in the work plans for this RI nor is subsurface soil considered a media of primary concern.

1.5 Report Organization

This report is categorized into seven sections: Section 2.0 presents the physical characteristics of the site; Section 3.0 discusses the field investigation activities performed during the RI; Section 4.0 discusses the nature and extent of contamination; Section 5.0 describes contaminant fate and transport; Section 6.0 presents preliminary alternatives for site remediation; and Section 7.0 summarizes findings and presents recommendations.

2.0 PHYSICAL CHARACTERISTICS OF THE SITE

2.1 Site Topography and Land Use

The former EMCA site is located in a mixed use residential/industrial area. As shown in Figure 7, there are several industrial, manufacturing, and warehousing facilities within an approximate 500-foot radius of the site including: a dry cleaner, automotive and welding facilities, an auto collision shop, a furniture restoration and stripping facility, a garbage hauling facility, and other general light industrial businesses. There are also six residential properties within the 500-foot radius. Surrounding the industrialized area, the dominant land use is medium and high density residential.

Site topography is generally flat, although grades gradually decrease to the northwest toward the Sheldrake River (there is approximately 10 feet of relief between the site and the Sheldrake River). The surface of the site is almost entirely paved or covered by existing structures, although minor grassy areas exist generally along median strips between sidewalks and roadways.

As per a 1963 Village of Mamaroneck Sanborn Map (Appendix F), the EMCA property was the former site of three residential structures and associated garages.

A review of local potable water supplies was previously conducted and documented in the report entitled, *Risk Assessment, Former EMCA Site* (WCC 1989b). This review indicated that the primary water supply for Southern Westchester County was obtained from the New York City water supply system which is taken from a reservoir greater than 8 miles from the site. There were no known domestic groundwater users within a 1/2-mile radius of the site, and the closest potential potable water source is the Sheldrake Reservoir, located approximately 1.5 miles upstream from the site. At the time of the study, the Sheldrake Reservoir was used as an emergency water source only.

2.2 Climate

The climate in Westchester County is characterized as humid-continental and, thus, exhibits highly variable weather systems and strong seasonal contrasts. Continental air masses provide the predominant influence on Westchester County weather systems, although maritime air masses also influence the area and provide milder temperatures than continental areas located to the west along the same latitude. Average winter temperatures vary from 20 to 30 degrees Fahrenheit, whereas summer temperatures generally average in the 80 degree Fahrenheit range. Average precipitation is on the order of 45 inches per year.

2.3 Surface Water Hydrology and Site Drainage

Surface water at the former EMCA site drains into the Sheldrake River drainage basin of the lower Long Island Sound watershed. Sheldrake waters discharge into the Mamaroneck River and in turn to the Atlantic Ocean at Mamaroneck Harbor. The Sheldrake River is classified as a NYSDEC "Class C" water body as per Title 6 Parts 701 (Article 9) and 935 (Article18) of the New York Code of Rules and Regulations (NYCRR). This classification indicates these waters are suitable for fishing and primary and secondary contact recreation, although other factors may limit the use for these purposes. Surface drainage is primarily controlled by a storm sewer system that likely conveys stormwater to the Sheldrake River via subsurface pipes.

2.4 Geology and Hydrogeology

Geologic conditions at the site are characterized by unconsolidated deposits composed predominantly of stratified medium to fine sand with localized beds of coarse sand, gravel, silt, and clay. The deepest site boring was advanced to 32 feet below ground surface and bedrock is assumed at an approximate depth of 40 feet [as per *Risk Assessment, Former EMCA Site* (WCC 1989b)]. Groundwater conditions consist of a water table aquifer encountered at a depth of approximately 6 feet below ground surface. Groundwater generally flows to the northwest towards the Sheldrake River.

As shown in Figure 8, there was a considerable mounding effect on the water table in the vicinity of monitoring well GZ-03 in October 1999. This mound is believed to be the result of roof drains from surrounding buildings that discharge in the vicinity of this well. This mounding effect is likely limited to the uppermost water table; deeper groundwater flow is likely conveyed in a more direct northwesterly course towards the Sheldrake River. The mounding was significantly less pronounced during the July 2000 monitoring event (Figure 9).

3.0 SITE INVESTIGATIONS

URS personnel mobilized to the site twice, once during the week of October 4, 1999, and again during the week of July 10, 2000. Field investigations were performed to meet the objectives of this RI, in accordance with the approved work plans. Remedial investigation field activities included conducting: soil gas sampling, surface soil sampling, well and piezometer installation, well development, groundwater sampling, surveying and obtaining groundwater level data. During field investigation activities, representatives from NYSDEC and Rohm and Haas Company were onsite full time, and a NYSDOH representative was onsite part time during the October 1999 event. Details and procedures pertaining to each investigated medium are described in the following subsections.

3.1 Soil Gas Sampling

Soil gas sampling consisted of screening total organic vapor concentrations in the field and collecting soil gas samples for subsequent laboratory analysis. A summary of the soil gas monitoring program is provided in the following sections.

3.1.1 Soil Gas FID Screening

Soil gas concentrations were measured in the field using a flame ionization detector (FID) at the locations listed in Table 1 and shown in Figure 5. The FID readings were taken directly from a soil gas sampling probe that was driven a few feet into vadose zone soils. Soil gas readings were conducted using the methods outlined in the work plan, except that the probe was mechanically driven to depth using a Geoprobe rig, rather than manually driven to the stated depth. At each location, the probe was directly connected to a FID, and direct soil gas readings were recorded. As per the work plan, soil gas FID readings for the October 1999 event should have been collected at all five locations. The FID used for evaluating soil gas at SG-02 and SG-05 malfunctioned, therefore, no usable FID data was obtained at these locations. However, an analytical soil gas sample was collected as SG-05, and FID soil screening and groundwater analysis was conducted at MW-02 (adjacent to the SG-02 location). The readings collected at locations SG-01, SG-03, SG-04, SG-06 and SG-07 were taken with a separate FID. These readings were recorded in accordance with the work plan and are considered to be accurate.

3.1.2 Analytical Soil Gas Sampling

URS obtained soil gas (SUMMA canister) samples for subsequent laboratory analysis from location SG-03,SG-05, SG-06 and SG-07. In addition, an ambient air sample was collected for laboratory analysis near SG-04 during the October 1999 event, and an ambient air sample was collected near SG-07 during the July 2000 event. The samples were collected in accordance with the work plan, except for the following deviations:

- The collection rate used for obtaining soil gas was decreased to 0.2 liter/minute as per NYSDEC request (each SUMMA canister took approximately 30 minutes to fill)
- The collection rate used for obtaining ambient air during the October 1999 event was less than 0.1 liter/minute due to a faulty flow regulator (sample quality was unaffected)
- The samples were analyzed by Air Toxics Ltd. of Folsom, California using Method TO14 protocols.

3.2 Surface Soil Sampling

One grab soil sample was collected from 0 to 6 inches below the existing asphalt and sub-base layers at location SS-01 (Figure 6) using a Geoprobe macro-sampler. In addition, one composite sample was collected from surface soils 0 to 6 inches below turf from the grass area near the corner of Fayette and Ogden Avenues. The soil samples were analyzed for barium, copper, lead, silver, and zinc. Surface soil sample locations are shown in Figure 6 and in Table 2.

3.3 NYSDOH Air Sampling

On July 11, 2000, the NYSDOH collected ambient air samples at two houses near the former EMCA Site (530 Fayette Avenue and 614 Center Avenue) and within the existing Cablevision of Westchester facility located on the site. NYSDEC has provided URS and Rohm and Haas with the Freon 113 results from this sampling effort. These data are provided in Appendix I.

3.4 Groundwater Investigations

The groundwater investigation consisted of installing five Geoprobe monitoring wells, two temporary piezometers, and collecting two rounds of samples from new and existing wells for subsequent laboratory analysis.

3.4.1 Monitoring Well Installation and Development

Five Geoprobe wells (mill-slot well points) were installed to replace former wells (that could no longer be found) and expand the area of investigation. Well locations are shown in Figure 2. It should be noted, former wells GZ-02 and GZ-05 were not replaced, since these locations were not needed to adequately characterize site contamination. The replacement wells were constructed in small diameter boreholes advanced using a Geoprobe. A field geologist provided a soil log for each new well location using visual classification in accordance with the Unified Soil Classification System. Upon boring completion, 1-inch inside diameter (ID) Schedule 40 polyvinyl chloride (PVC) monitoring wells were installed in the open borehole to the same approximate depths as the former site wells. The wells were sealed with bentonite grout and steel surface casings with locking caps were installed. Boring logs and well construction diagrams are provided in Appendix D.

Prior to each sampling event, each monitoring well (including the five new temporary Geoprobe monitoring wells and the two existing monitoring wells) was developed until the discharge water was relatively sediment free and the water quality parameters (pH, temperature, and specific conductivity) stabilized. Development was conducted in accordance with the work plan, except that groundwater was evacuated by bailing rather than pumping. Well development logs are provided in Appendix E.

3.4.2 Piezometer Installation

Two temporary piezometers—used for monitoring groundwater elevation—were installed at the locations shown in Figure 2. They were installed in accordance with the work plan, except that 1-inch well riser pipe and screen were used rather than the specified 3/4-inch well pipe (the change was made since 3/4-inch well pipe was not readily available). The piezometers were developed using the same procedures as site monitoring wells. Both

piezometers were pulled and abandoned in accordance with the work plan following the October 1999 sampling event.

3.4.3 Groundwater Sampling

3.4.3.1 October 1999 Groundwater Sampling

Groundwater samples were collected from six monitoring wells (GZ-03, GZ-06, and MW-01 through MW-04) on October 7, 1999. All wells were purged (using low flow purging procedures) in accordance with the work plan prior to obtaining samples. Water quality parameters were measured during well purging and sampling. In addition, one deep sample (GRAB-01 from 29 to 31 feet below ground surface) was collected adjacent to MW-04 using a temporary Geoprobe screen point sampler. Each groundwater sample was analyzed for Target Compound List volatiles, Freon 113, and tentatively identified compounds. Two wells (MW-01 and MW-04) also were analyzed for barium, copper, lead, silver, and zinc. The October 1999 groundwater sample summary is shown in Table 3, and well purging and sampling logs are presented in Appendix E.

During field sampling, the NYSDEC collected split samples from wells MW-01, MW-03, and MW-04. The NYSDEC contracted a separate laboratory for the split sample data analysis, these results are presented in Appendix H.

3.4.3.2 July 2000 Groundwater Sampling

Groundwater samples were collected from five monitoring wells (GZ-06, MW-01, MW-02, MW-03, and MW-05) on July 13, 2000. The wells were purged in accordance with the Field Investigation Plan (as amended May 30, 2000). The groundwater samples were analyzed for Target Compound List volatiles, Freon 113, and tentatively identified compounds. The July 2000 groundwater sample summary is shown in Table 3, and well purging and sampling logs are presented in Appendix E.

3.5 Data Usability

URS conducted a review of data quality in accordance with the document entitled, *Guidance for the Development of Data Usability Summary Reports* (NYSDEC 1999) and the approved work plan. Data Usability Summary Reports for the October 1999 and July 2000 events are provided in Appendix C.1 and C.2 respectively.

3.6 Survey

An engineering survey was conducted to provide horizontal and vertical control of the new Geoprobe wells and piezometers. For the well and piezometer locations, the vertical elevations were recorded at the ground surface adjacent to the wells and on the north side of the top of well risers (the PVC well pipes). Existing wells GZ-3, GZ-6, and GZ-9 were also surveyed. In addition, horizontal/vertical control was established for four points along the Sheldrake River for recording surface water elevations.

The northings and eastings identified for wells, piezometers, and stream gauges were referenced to an assumed coordinate system that is exclusive to this site. Similarly, reported elevations were referenced to the elevation of the finish floor in a doorway at the northern Cablevision of Westchester building corner. The datum for this benchmark was assumed at 100.00 feet. Refer to Table 4 for a summary of survey results.

4.0 NATURE AND EXTENT OF CONTAMINATION

This section discusses the analytical data as it pertains to soil gas, surface soil, and groundwater samples collected during the RI. It characterizes the nature and extent of site contaminants, and compares soil and aqueous contaminant concentrations to applicable regulatory criteria.

Groundwater sample analytical results were compared to the NYSDEC Division of Water's "Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations," *Technical and Operational Guidance Series* (TOGS) 1.1.1, (NYSDEC 2000). The ambient water quality standards and guidance values are derived from Article 17 of the Environmental Conservation Law and Title 6 of the New York Code of Rules and Regulations (NYCRR) Parts 700-706, "Water Quality Regulations." Standards and guidance values are ambient water quality values that are established to protect the state's waters. Groundwater Class GA criteria were used to evaluate groundwater analytical results.

Soil sample analytical results were compared to the standards, criteria, and guidance values (SCGs) in TAGM 4046 (NYSDEC 1994). As indicated on the attached tables, some of the inorganics (metals) analyzed at this site do not have SCGs. For these inorganic parameters, soil criteria are based upon SCGs, where available, or the range of soil concentrations occurring naturally in Eastern United States soils. For inorganic parameters, the results of the single offsite soil sample, SS-02, is considered representative of site background conditions.

There are no New York State guidance values for soil gas samples, although, as a conservative approach, the detected soil gas concentrations have been compared to ambient air quality standards reported in the DAR-1 (Air Guide-1) Annual and Short Term Guidance Concentrations (NYSDEC 2000). This document provides guideline concentrations for toxic ambient air contaminants that are present in ambient air. As such, since soil gas would be substantially diluted upon release to ambient conditions, this standard is considered an exceptionally stringent criteria for soil gas comparisons.

Soil gas laboratory analyses were performed by Air Toxics Ltd. in Folsom, California. The Data Usability Summary Report, along with the validated analytical data, are presented in Appendix C. Sample analytical results are discussed below.

4.1 Soil Gas Analytical Results

Soil gas concentrations were measured in Geoprobe borings at the locations shown in Figure 5. A high FID reading was recorded at soil gas probe SG-01 (Figure 5), which is offsite and upgradient of the site with respect to groundwater flow. This corroborates previous reports which indicate there may be an offsite, upgradient source of contamination to the south or southeast of the site.

Soil gas samples were collected for laboratory analysis of volatile organics, Freon 113, and tentatively identified compounds (TICs). Samples were collected from locations SG-03 and SG-05 during the October 1999 sampling event and from SG-06 and SG-07 during the July 2000 sampling event. Ambient air samples were collected during each sampling event near the soil gas probe locations.

Samples SG-03 and SG-05 both exhibited quantifiable concentrations of Freon 113, although, Freon 113 was not detected at SG-06 and SG-07. As shown on Figure 5 and Table 5, several other compounds (including chlorinated hydrocarbons and BTEX compounds) were detected in soil gas. The ambient air samples exhibited only low levels of acetone (a common laboratory contaminant) and chloromethane (Table 5).

The soil gas samples also were evaluated to determine whether soil gas is a potential contaminant pathway. However, there are no NYSDEC soil gas guidance values available for evaluating whether these results are of concern. Therefore, as a first approximation, the soil gas results were compared to New York State Air Guide concentrations for ambient air (Table 5). The guideline concentrations provide a very conservative criteria for this comparison. A review of Table 5 shows that benzene (at SG-05, SG-06 and SG-07) and chloroform, methylene chloride, and tetrachloroethene (at SG-06) exceeded the New York State Air Guide criteria.

The detected soil gas concentrations for Freon 113 are believed to be a minor concern, since they are well below the New York State air guidelines. As such, soil gas should not be considered a medium of concern at this site. The remaining compounds detectected in soil gas are thought to be related to off-site contamination.

4.2 NYSDOH Ambient Air Results

Data collected by NYSDOH on July 11, 2000 indicates the concentrations of Freon 113 are exceptionally low in the residential structures and business facilities on and adjacent to the site. NYSDOH's data provides further evidence that soil gas, which could theoretically migrate to off-site buildings, is not a medium of concern.

4.3 Surface Soil Analytical Results

Two surface soil samples were analyzed for barium, copper, lead, silver, and zinc. One of these samples (SS-02) is considered an offsite "background" sample. The other sample (SS-01) was taken from a location near the center of the site in an area that was actively used during EMCA's former industrial activities. Refer to Table 2 and Figure 6 for results of the surface soil analytical sampling efforts.

Both samples had comparable results except for somewhat elevated concentrations of lead at the onsite location (SS-01). The lead result at SS-01 was 445 ppm, which is well within the range of concentrations which would be considered "normal" for such an industrialized area. As stated in the NYSDEC TAGM - Revised April 1995 "Background levels for lead vary widely. Average background levels in metropolitan or suburban areas near highways are much higher and typically range from 200-500 ppm. The USEPA's Interim Lead Hazard Guidance (July 14, 1994) establishes a residential screening level of 400 ppm." As such, based on these results, and given that the highest lead value was from below a paved area, surface soils should not be considered a primary medium of concern at this site.

4.4 Groundwater Analytical Results

4.4.1 October 1999 Groundwater Data

Groundwater samples were collected from two existing overburden monitoring wells (GZ-03 and GZ-06), four newly-installed overburden monitoring wells (MW-01 through MW-04), and one Geoprobe sample collected in the vicinity of monitoring well MW-04 (but deeper). Based on the northwesterly direction of groundwater flow, MW-01 and GZ-06 are considered upgradient wells (Figure 8). Table 3 summarizes the detected analytes and identifies detections above New York State Class GA groundwater standards, and Figure 10 shows a summary and location of these exceedances.

As shown in Figure 10, the following organic compounds were detected at concentrations exceeding Class GA standards: benzene, 1,2-dichloroethene (total), tetrachloroethene, trichloroethene, Freon 113, and vinyl chloride. Except for Freon 113, the highest concentration of each of these compounds was in upgradient well MW-01. The highest concentration of Freon 113 was at monitoring well MW-03. This indicates that there is an onsite source only for Freon 113; all other contaminants appear to have migrated onto the former EMCA site from an upgradient source. A cursory review of spill records conducted as part of this RI revealed several past offsite petroleum-related spills recorded by NYSDEC (Appendix G). There is no indication of past chlorinated hydrocarbon spills at this time.

Five metals (barium, copper, lead, silver, and zinc) were analyzed from monitoring wells MW-01 and MW-04. Both unfiltered and filtered samples were collected. All metals concentrations were below Class GA standards and, therefore, are not considered to be a concern at this site. It should be noted, NYSDEC representatives collected split samples from wells MW-01, MW-03 and MW-04. A comparison of URS and NYSDEC sample results is provided in Appendix H. In general, the samples are within a reasonable range of variation, except for Freon 113 results from MW-03. NYSDEC's result for this compound is approximately one order of magnitude lower than URS's result. However, NYSDEC's laboratory did not specifically analyze for this compound, but rather it was detected as a TIC. Therefore, NYSDEC's result is

an estimate; the URS value has been verified through quality assurance/quality control procedures and is considered to be the more accurate value.

4.4.2 July 2000 Groundwater Data

Groundwater samples were collected from six wells (GZ-06, MW-01, MW-02, MW-03, MW-04 and MW-05) during the July 2000 sampling event. Sample results are presented in Table 3 and in Figure 11. As shown in Figure 11, the following compounds exceeded the Class GA standards during the July 2000 sampling event: acetone, benzene, chloroform, Freon 113, 1,2-dichloroethene, tetrachloroethene, trichloroethene, and vinyl chloride. In general, the data indicates similar compounds as detected in the past, although there are some notable differences between the October 1999 and July 2000 sampling events. These include:

- Acetone was detected at wells GZ-06, MW-02, and MW-03
- Chloroform was detected at wells MW-02 and MW-03 and exceeded Class GA standards at well GZ-06
- Freon 113 levels increased at monitoring well GZ-06

Acetone (a common laboratory contaminant) has been detected at the site in the past. However, the current acetone detections are suspect for two reasons. First, acetone is relatively soluble in water and highly volatile. Therefore, it is doubtful that acetone has remained onsite (virtually undetected) for more than 12 years. Second, the presence of Freon 113 in groundwater interfered with the laboratory's ability to verify the presence of acetone. As stated in the *Data Usability Summary Report*, (Appendix C), "the sample spectra did not conclusively illustrate it's (i.e., acetone's) presence."

Chloroform, has been detected at the site previously, although it was not present during the October 1999 sampling event. Chloroform is a breakdown product of chlorinated hydrocarbons, and therefore, it is most likely related to the plume of contamination migrating onsite from an upgradient source.

At well GZ-06, Freon 113 levels increased from 49 ug/l in October 1999 to 900 ug/l in July 2000. The reason for this increase may be related to a variety of factors such as the intake depth of the sampling device, or changes in physical well parameters. Well GZ-06 does have a history of high Freon 113. A concentration of 1274 ug/l was detected in May 1988, although until now, concentrations at this well were steadily declining.

4.4.3 Summary of Groundwater Analyses

The level of concern with regard to groundwater is considered minimal since there is little risk of human contact. For example:

- There is no municipal, domestic, or industrial use of groundwater within ½ mile of the site
- The nearest municipal water supply relying on groundwater is the City of White Plains – approximately 9.5 miles from the site
- The Sheldrake River is not classified as a source of drinking water within 1.5 miles of the site
- The closest potable surface water supply reservoir, Lake Sheldrake, is located 1.5 miles upstream of the site and is used only as an emergency source of drinking water.

Groundwater is, however, a potential transport mechanism for the offsite migration of contamination and, therefore, further discussion regarding this medium is provided in Section 5.

5.0 CONTAMINANT FATE AND TRANSPORT

5.1 Groundwater Fate and Transport

The EMCA site was formerly a manufacturing facility for high conductivity precious metal paste used in circuits by the electronics industry. The remedial investigations conducted at this site were designed to evaluate potential environmental concerns related to this industry and assess their potential impact to the community. Towards this end, four rounds of groundwater samples were collected (May 1988, March 1989, October 1999 and July 2000). These samples were analyzed for volatiles, Freon 113 and filtered and unfiltered metals.

Based on these evaluations, there is no appreciable metals contamination in groundwater at the site. However, volatile contaminants and Freon 113 were detected in groundwater above the NYSDEC Class GA drinking water standards. The only compound thought to be related to the former manufacturing process at the EMCA facility is Freon 113. The remaining compounds detected in groundwater are believed to be migrating onto the site from other industrial facilities in the area. There is a potential for offsite migration of groundwater containing Freon 113. Therefore, groundwater is considered a potential media of concern with respect to site contamination.

Migration theoretically could result in direct discharge of contaminated groundwater to the Sheldrake River or provide a source for volatilization and secondary transport of gases through unsaturated soil. Both of these transport mechanisms were evaluated in a previous Risk Assessment which concluded that there was not a significant risk to human health or the environment. Recent air quality analytical sampling of Freon 113 conducted by the NYSDOH in area homes and the Cablevision of Westchester facility indicates that Freon 113 is not a health concern at these locations. Therefore, NYSDOH's data further validates the conclusions of the previous Risk Assessment.

The primary mechanisms for contaminant transport via groundwater are advection, dispersion, and diffusion. The extent of travel depends on the flow of the groundwater and on the contaminant properties. The VOCs which have been identified at this site can be considered relatively mobile, although, given that ten years has passed since the site was actively used for industrial processes, it is plausible that contaminant transport has reached static or near static conditions for Freon 113. This is evidenced by low Freon 113 concentrations at downgradient well locations.

Figures 12 and 13 provide a conceptual model of groundwater contaminant plumes based on groundwater samples and groundwater elevation data from October 1999 and July 2000 respectively. As shown in Figures 12 and 13, it appears there are two separate plumes. The first plume, consisting of Freon 113 (identified as 1,1,2-trichlorotrifluoroethane on the Figures), is located to the northeastern portion of the site adjacent to Ogden Avenue. The second plume, consisting of chlorinated hydrocarbons and benzene, trends north/south across the site and appears to be migrating onto the site from an upgradient source.

In general, the Freon 113 plume has decreased in concentration since samples were collected in 1988 and 1989, except in the vicinity of MW-03 and GZ-06. Significantly lower concentrations at the downgradient monitoring wells (MW-04 and MW-05) indicate that it is unlikely that the Freon 113 plume extends beyond Fayette Avenue. It is also noted that Freon 113 contamination remains relatively shallow, as confirmed by the absence of Freon 113 at Geoprobe sample location GRAB-01. Based on October 1999 and July 2000 results, it is unlikely that Freon 113 discharges to the Sheldrake River (approximately 200 feet downgradient of the site).

Based on the results of the soil gas sampling, it is evident that volatilization of Freon 113 in groundwater is affecting the unsaturated soil zone. However, this soil gas is not present at levels of concern even in the area of MW-03, where the highest groundwater levels were detected. The soil gas results from SG-03 (adjacent to MW-03) show a concentration of 3,300 parts per billion by volume (ppbv) (or 25,654 µg/m3). This value is well below the assumed value used in the previous risk assessment (18,266 ppbv or 142,000 µg/m3) which indicates there is no risk from Freon 113. Soil gas samples taken in July 2000 on the north side of Ogden Avenue (SG-06 and SG-07) show that Freon 113 is not present in soil gas in this area. This

indicates that Freon 113 is not migrating in the gaseous state through unsaturated soils towards residences located north of the former EMCA site. All soil gas samples analyzed for Freon 113 were below New York State Air Guide criteria (Table 5).

This RI was conducted to characterize subsurface contamination at the Former EMCA Site. Through this effort, it has been determined that the only groundwater contaminant related to the former EMCA process is Freon 113. Although there is a remnant plume of Freon 113 contaminated groundwater at the site (approximately two-tenths of an acre in size), the potential exposure and potential impact to human and environmental receptors is minimal. This is evidenced by:

- Groundwater samples show very low levels of Freon 113 in groundwater at the downgradient site boundary
- Soil gas samples show that secondary volatilization of groundwater contamination is low risk
- Air samples collected by NYSDOH in area homes and the Cablevision of Westchester facility indicate Freon is not a risk to residents or area workers

This RI was also conducted to evaluate other groundwater contamination at the site and various volatile organics, i.e. chlorinated hydrocarbons and benzene, were identified. As previously noted, the data indicates these compounds are migrating onto the EMCA site from upgradient sources. The chlorinated hydrocarbon/benzene plume appears to be taking a deeper course beneath the site (as evidenced by benzene detected at GRAB-01 but not at MW-04), although this plume co-exists with the Freon 113 plume in the vicinity of MW-02 and MW-03. Based on high FID screening levels at upgradient soil gas screening location SG-01, it appears that volatilization from groundwater to soil gas potentially could be a route of migration for chlorinated hydrocarbons and benzene.

5.2 Soil Fate and Transport

Soils analyses were conducted to evaluate volatiles, Freon 113, and metals at various onsite locations. The volatile and Freon 113 concentrations detected onsite were compared to NY State standards, criteria, and guidance values (SCGs) provided in TAGM 4046, and none of the detected compounds exceeded the guidance levels. The metals detections were compared to the NYSDEC TAGM guidance and to USEPA's guidance and, in general, metals concentrations were considered "normal" for industrial areas.

Since soil at the site is covered by structures or pavement, there is very little potential for offsite transport for soil contamination. Furthermore, the level of soil contamination detected at the site does not warrant remedial action.

6.0 PRELIMINARY REMEDIAL ALTERNATIVES

Site data indicates low risk with respect to the Freon 113 in groundwater. However, because there is a small area where Class GA groundwater standards are exceeded, the NYSDEC suggested that a feasibility study be considered. Accordingly, URS has prepared the following preliminary list of mechanisms that could be used for destroying and/or removing Freon 113.

Monitored Natural Attenuation: Under this alternative, contaminated groundwater would remain in place and be sampled periodically. Groundwater monitoring would verify that the Freon 113 contamination does not spread away from the site, and that it decreases with time, as natural attenuation occurs. Deed restrictions on the groundwater use may be required to prevent future human exposure to site contaminants, until remediation would be complete. Remediation under this alternative can last for a long period, however contaminants will be efficiently removed from the groundwater, without impacting offsite users. Should the contaminant plume start migrating downgradient, another treatment technology would then need to be implemented.

Hydrogen Release Compound (HRC): This is an in-situ technology that offers a passive, effective, and low-cost approach to rapidly remediating groundwater contaminated with chlorinated solvents. It includes the introduction into the ground of a patented polylactate ester, which when hydrated, slowly releases lactic acid in a multi-step process. During this process, chlorinated compounds and their derivatives degrade. This technology would be appropriate for the groundwater contamination at the former EMCA site.

Air Sparging: This is an in-situ remedial technology that rapidly and efficiently reduces the concentrations of volatile chemicals that are dissolved in the groundwater. This technology involves the injection of chemical-free air into the subsurface, enabling dissolved volatile chemicals to transfer from the liquid phase to the vapor phase. The air is then vented through the unsaturated zone from which it is captured by a vacuum extraction process. The extracted contaminant-laden air passes through a treatment process, such as an activated carbon adsorption unit, which captures the contaminants, before they are released to the atmosphere. However, the

vacuum extraction process may cause excessive noise. Noise issues will need to be considered for this site due to the nearby homes and businesses.

Bioremediation: This is an in-situ technology, which encourages the growth of indigenous microorganisms by adding nutrients to the subsurface, and thereby, enhancing biodegradation of organic constituents in the saturated zone. Bioremediation can effectively degrade organic chemicals that are dissolved in the groundwater. There is aerobic (oxygen respiration), anoxic (nitrogen respiration), and anaerobic (non-oxygen respiration) bioremediation for treating chlorinated and non-chlorinated chemicals. At the EMCA site, where Freon 113 is the site-related contaminant, anoxic and/or anaerobic bioremediation would be appropriate.

7.0 SUMMARY AND RECOMMENDATIONS

Based on this RI, two overlapping plumes of contamination were found to remain at the former EMCA site. The first plume consists of Freon 113, is relatively shallow, and appears to be confined to the northeastern portion of the site. The second plume contains chlorinated hydrocarbons and benzene and appears to have migrated onto the former EMCA site from an offsite upgradient source.

The Freon 113 plume has decreased over the past ten years at all locations except MW-03 and possibly GZ-06. However, MW-03 and GZ-06 have decreased slightly since the initial sampling round in 1988. Given the results of this RI, the Freon 113 contamination at the site is considered less of a problem today than when previous investigations were conducted during the late 1980s.

When Rohm and Haas initiated site investigations during the late 1980's, two rounds of site sampling were conducted, and that data was used to evaluate health risk concerns to area residents and workers. Based on the initial 1980's data it was determined that there was no significant risk to human health or the environment with respect to Freon 113 contamination (the only site contaminant related to manufacturing at the former EMCA site) (WCC 1989b). Since that time, Rohm and Haas has conducted two additional rounds of investigations consisting of soil sampling, groundwater sampling, groundwater level evaluations, surface water level evaluations, and soil gas sampling. These recent data indicate the conclusions made during the late 1980's are still valid – there is still no significant risk to human health or the environment at the site. This conclusion is augmented by NYSDOH's air sampling results from residential homes and the Cablevision of Westchester facility that verify there is low risk to human health due to Freon 113 within these structures.

Even though there is no significant risk associated with Freon 113, there is a remnant groundwater plume onsite with concentrations above the Class GA standards. As such, NYSDEC requested that Rohm and Haas investigate preliminary remedial alternatives for the remnant plume. The preliminary remedial alternatives have been provided as a platform for Rohm and Haas and NYSDEC to discuss possible future activities at the former EMCA site.

REFERENCES

Goldberg-Zoino and Associates of New York (GZANY). 1988. *Assessment of Subsurface Conditions, 605-609 Center Avenue, 604 and 612 Fayette Avenue, Mamaroneck, New York.* 22 July.

NYSDEC. 1999. Guidance for the Development of Data Usability Summary Reports. June.

New York State Department of Environmental Conservation (NYSDEC). 2000. "Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations." *Technical and Operational Guidance Series* (1.1.1) (TOGS 1.1.1). April. Albany, NY: Division of Water.

New York State Department of Environmental Conservation (NYSDEC). 1994. "Determination of Soil Cleanup Objectives and Cleanup Levels." *Technical and Administrative Guidance Memorandum* HWR-94-4046. Albany, NY: Bureau of Hazardous Waste Remediation.

New York State Department of Environmental Conservation (NYSDEC). 2000. DAR-1 (Air Guide-1) Annual and Short Term Guidance Concentrations (AGC/SGC) Tables. Albany.

Woodward-Clyde Consultants (WCC). 1989a *Groundwater Sampling Results, Former EMCA Site, Mamaroneck, New York* . 22 May.

Woodward-Clyde Consultants (WCC). 1989b. *Risk Assessment, Former EMCA Site.* 15 July.

TABLE 1
SUMMARY OF SOIL GAS LOCATIONS/DEPTH
FORMER EMCA SITE

LOCATION ID	DATE	FID READING (ppm)	SAMPLE DEPTH (ft.)	REMARKS
SG-01	10/5/1999	>1000	3 to 5	
SG-02	10/4/1999	-	-	located adjacent to MW-02
SG-03	10/5/1999	>1000	4.5 to 5	Analytical Sample Collected
SG-04	10/5/1999	250	4.5 to 5	
SG-05	10/4/1999	-	2 to 4	Analytical Sample Collected
SG-06	7/11/2000	ND	4 to 4.5	Analytical Sample Collected
SG-07	7/11/2000	ND	4 to 4.5	Analytical Sample Collected

- FID reading not taken
ND - Not Detected

TABLE 2
ANALYTICAL SOIL SAMPLE RESULTS
FORMER EMCA SITE

Location I.D.			SS-01	SS-02
Matrix			Soil	Soil
Sample Depth			0.2' - 0.7'	0.0 - 0.5'
Date Sampled			10/04/99	10/06/99
Parameter	Units	Criteria*		
Metals				
Barium	MG/KG	300 or SB	176	134
Copper	MG/KG	25 or SB	62.4	56.8
Lead	MG/KG	SB	445	214
Silver	MG/KG	SB	0.37 B	1.1 B
Zinc	MG/KG	20 or SB	158	167

NOTES:

* - NYSDEC TAGM: Determination of Soil Cleanup Objectives and Cleanup Levels; HWR-94-4046 April 1, 1995 (Revised).
SS-02 is considered site background.
Data Qualifiers:
B - Value between Instrument Detection Limit and Contract Required Detection Limit.
D - Diluted analysis
J - Estimated result
NA - Not Analyzed
SB - Site Background
U - Non Detect

TABLE 3
ANALYTICAL GROUNDWATER SAMPLE RESULTS
FORMER EMCA SITE

Location ID			GRAB-01	GZ-03	GZ-06	GZ-06	MW-01
Sample ID			GRAB-01	GZ-03	GZ-06	GZ-06	MW-01
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft.)			29.0-31.0	3.0-13.0	3.0-13.0	3.0-13.0	4.3-16.3
Date Sampled			10/05/99	10/07/99	10/07/99	07/13/00	10/07/99
Parameter	**Units**	**Criteria***					
Volatiles							
Acetone	UG/L	50	10 UJ	10 UJ	10 U	160 NJ	10 UJ
Benzene	UG/L	1	18	10 U	10 U	10 U	20
Bromodichloromethane	UG/L	50	10 U	10 U	10 U	10 U	10 U
Bromoform	UG/L	50	10 U	10 U	10 U	10 U	10 U
Bromomethane	UG/L	5	10 U	10 U	10 U	10 U	10 U
Methyl ethyl ketone (2-Butanone)	UG/L	50	10 UJ	10 UJ	10 U	10 UJ	10 UJ
Carbon Disulfide	UG/L	60	10 UJ	10 UJ	10 U	10 U	10 UJ
Carbon Tetrachloride	UG/L	5	10 U	10 U	10 U	10 U	10 U
Chlorobenzene	UG/L	5	10 U	10 U	10 U	10 U	10 U
Chloroethane	UG/L	5	10 U	10 U	10 U	10 U	10 U
Chloroform	UG/L	7	10 U	10 U	10 U	10	10 U
Chloromethane	UG/L	5	10 U	10 U	10 U	10 UJ	10 U
Dibromochloromethane	UG/L	50	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethane	UG/L	5	10 U	10 U	10 U	10 U	2 J
1,2-Dichloroethane	UG/L	0.6	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethene	UG/L	5	10 U	10 U	10 U	10 U	1 J
1,2-Dichloroethene (total)	UG/L	5	1 J	10 UJ	10 U	1 J	1600 DJ
1,2-Dichloropropane	UG/L	1	10 U	10 U	10 U	10 U	10 U
cis-1,3-Dichloropropene	UG/L	0.4	10 U	10 U	10 U	10 U	10 U
trans-1,3-Dichloropropene	UG/L	0.4	10 U	10 U	10 U	10 UJ	10 U
Ethylbenzene	UG/L	5	10 U	10 U	10 U	10 U	10 U
2-Hexanone	UG/L	50	10 UJ	10 UJ	10 U	10 UJ	10 UJ

Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, Class GA, Revised April 2000.

Flags assigned during chemistry validation are shown.

( ) Concentration Exceeds Criteria.

B - Value between Instrument Detection Limit and Contract Required Detection Limit.
D - Diluted analysis J - Estimated result.
N - Tenatively identified NA - Not analyzed
U - Non-Detect

Detection Limits shown are PQL

TABLE 3
ANALYTICAL GROUNDWATER SAMPLE RESULTS
FORMER EMCA SITE

Location ID			GRAB-01	GZ-03	GZ-06	GZ-06	MW-01
Sample ID			GRAB-01	GZ-03	GZ-06	GZ-06	MW-01
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft.)			29.0-31.0	3.0-13.0	3.0-13.0	3.0-13.0	4.3-16.3
Date Sampled			10/05/99	10/07/99	10/07/99	07/13/00	10/07/99
Parameter	**Units**	**Criteria***					
Volatiles							
4-Methyl-2-Pentanone	UG/L	-	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	UG/L	5	10 U	10 U	10 U	10 U	10 U
Styrene	UG/L	5	10 U	10 U	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	UG/L	5	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	UG/L	5	10 U	10 U	10 U	2 J	240 D
1,1,1-Trichloroethane	UG/L	5	10 U	10 U	10 U	10 U	10 U
1,1,2-Trichloroethane	UG/L	1	10 U	10 U	10 U	10 U	10 U
Trichloroethene	UG/L	5	10 U	10 U	10 U	10 U	130
1,1,2-Trichlorotrifluoroethane	UG/L	5	10 U	10 U	49	900 DJ	10 U
Toluene	UG/L	5	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	UG/L	2	2 J	10 U	10 U	10 UJ	49
Xylene (total)	UG/L	5	10 U	10 U	10 U	10 U	10 U
Metals							
Barium	UG/L	1000	NA	NA	NA	NA	501
Copper	UG/L	200	NA	NA	NA	NA	20.7 B
Lead	UG/L	25	NA	NA	NA	NA	8.3
Silver	UG/L	50	NA	NA	NA	NA	0.60 U
Zinc	UG/L	2000	NA	NA	NA	NA	62.3
Filtered Metals							
Barium	UG/L	1000	NA	NA	NA	NA	207
Copper	UG/L	200	NA	NA	NA	NA	2.1 B
Lead	UG/L	25	NA	NA	NA	NA	1.0 U

Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, Class GA, Revised April 2000.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria.

B - Value between Instrument Detection Limit and Contract Required Detection Limit.
D - Diluted analysis J - Estimated result.
N - Tenatively identified NA - Not analyzed
U - Non-Detect

Detection Limits shown are PQL

Advanced Selection WG_99_URS
J:\35673.00\db\PROGRAM\program.mde
Printed 12/5/00 3:04:24 PM
[MATRIX] = 'WG' AND [LOGDATE] >= #10/4/99# AND [LOGCODE] = 'URS0'

TABLE 3
ANALYTICAL GROUNDWATER SAMPLE RESULTS
FORMER EMCA SITE

Location ID			GRAB-01	GZ-03	GZ-06	GZ-06	MW-01
Sample ID			GRAB-01	GZ-03	GZ-06	GZ-06	MW-01
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft.)			29.0-31.0	3.0-13.0	3.0-13.0	3.0-13.0	4.3-16.3
Date Sampled			10/05/99	10/07/99	10/07/99	07/13/00	10/07/99
Parameter	Units	Criteria*					
Filtered Metals							
Silver	UG/L	50	NA	NA	NA	NA	0.60 U
Zinc	UG/L	2000	NA	NA	NA	NA	74.0

Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, Class GA, Revised April 2000.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria.

B - Value between Instrument Detection Limit and Contract Required Detection Limit.
D - Diluted analysis J - Estimated result.
N - Tenatively identified NA - Not analyzed
U - Non-Detect

Detection Limits shown are PQL

Advanced Selection: WD_99_URS
J:\35673.00\db\PROGRAM\program.mde
Printed: 12/5/00 3:04:24 PM
[MATRIX] = 'WG' AND [LOGDATE] >= #10/4/99# AND [LOGCODE] = 'URSG'

TABLE 3
ANALYTICAL GROUNDWATER SAMPLE RESULTS
FORMER EMCA SITE

Location ID			MW-01	MW-02	MW-02	MW-03	MW-03
Sample ID			MW-01	MW-02	MW-02	MW-03	MW-03
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft.)			4.3-16.3	3.0-16.0	3.0-16.0	4.8-14.8	4.8-14.8
Date Sampled			07/13/00	10/07/99	07/13/00	10/07/99	07/13/00
Parameter	**Units**	**Criteria***					
Volatiles							
Acetone	UG/L	50	10 UJ	10 UJ	160 DNJ	10 UJ	1500 DNJ
Benzene	UG/L	1	7 J	10 U	10 U	10 U	10 U
Bromodichloromethane	UG/L	50	10 U	10 U	10 U	10 U	10 U
Bromoform	UG/L	50	10 U	10 U	10 U	10 U	10 U
Bromomethane	UG/L	5	10 U	10 U	10 U	10 U	10 U
Methyl ethyl ketone (2-Butanone)	UG/L	50	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
Carbon Disulfide	UG/L	60	10 U	10 UJ	10 U	10 UJ	10 U
Carbon Tetrachloride	UG/L	5	10 U	10 U	10 U	10 U	10 U
Chlorobenzene	UG/L	5	10 U	10 U	10 U	10 U	10 U
Chloroethane	UG/L	5	10 U	10 U	10 U	10 U	10 U
Chloroform	UG/L	7	10 U	10 U	7 J	10 U	3 J
Chloromethane	UG/L	5	10 UJ	10 U	10 UJ	10 U	10 UJ
Dibromochloromethane	UG/L	50	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethane	UG/L	5	2 J	10 U	10 U	10 U	10 U
1,2-Dichloroethane	UG/L	0.6	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethene	UG/L	5	10 U	1 J	10 U	10 U	10 U
1,2-Dichloroethene (total)	UG/L	5	1000 D	10 UJ	10 U	4 J	3 J
1,2-Dichloropropane	UG/L	1	10 U	10 U	10 U	10 U	10 U
cis-1,3-Dichloropropene	UG/L	0.4	10 U	10 U	10 U	10 U	10 U
trans-1,3-Dichloropropene	UG/L	0.4	10 UJ	10 U	10 UJ	10 U	10 UJ
Ethylbenzene	UG/L	5	10 U	10 U	10 U	10 U	10 U
2-Hexanone	UG/L	50	10 UJ	10 UJ	10 UJ	10 U	10 UJ

Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, Class GA, Revised April 2000.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria.

B - Value between Instrument Detection Limit and Contract Required Detection Limit.
D - Diluted analysis J - Estimated result.
N - Tenatively identified NA - Not analyzed
U - Non-Detect

Detection Limits shown are PQL

TABLE 3
ANALYTICAL GROUNDWATER SAMPLE RESULTS
FORMER EMCA SITE

Location ID			MW-01	MW-02	MW-02	MW-03	MW-03
Sample ID			MW-01	MW-02	MW-02	MW-03	MW-03
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft.)			4.3-16.3	3.0-16.0	3.0-16.0	4.8-14.8	4.8-14.8
Date Sampled			07/13/00	10/07/99	07/13/00	10/07/99	07/13/00
Parameter	**Units**	**Criteria***					
Volatiles							
4-Methyl-2-Pentanone	UG/L	-	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	UG/L	5	10 U	10 U	10 U	10 U	10 U
Styrene	UG/L	5	10 U	10 U	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	UG/L	5	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	UG/L	5	180	10 U	1 J	10 U	10 U
1,1,1-Trichloroethane	UG/L	5	2 J	10 U	10 U	10 U	10 U
1,1,2-Trichloroethane	UG/L	1	10 U	10 U	10 U	10 U	10 U
Trichloroethene	UG/L	5	95	10 U	10 U	10 U	10 U
1,1,2-Trichlorotrifluoroethane	UG/L	5	10 UJ	740 D	1700 DJ	17000 D	11000 DJ
Toluene	UG/L	5	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	UG/L	2	16 J	10 U	10 UJ	6 J	6 J
Xylene (total)	UG/L	5	10 U	10 U	10 U	10 U	10 U
Metals							
Barium	UG/L	1000	NA	NA	NA	NA	NA
Copper	UG/L	200	NA	NA	NA	NA	NA
Lead	UG/L	25	NA	NA	NA	NA	NA
Silver	UG/L	50	NA	NA	NA	NA	NA
Zinc	UG/L	2000	NA	NA	NA	NA	NA
Filtered Metals							
Barium	UG/L	1000	NA	NA	NA	NA	NA
Copper	UG/L	200	NA	NA	NA	NA	NA
Lead	UG/L	25	NA	NA	NA	NA	NA

Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, Class GA, Revised April 2000.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria.

B - Value between Instrument Detection Limit and Contract Required Detection Limit.
D - Diluted analysis J - Estimated result.
N - Tenatively identified NA - Not analyzed
U - Non-Detect

Detection Limits shown are PQL

TABLE 3
ANALYTICAL GROUNDWATER SAMPLE RESULTS
FORMER EMCA SITE

Location ID			MW-01	MW-02	MW-02	MW-03	MW-03
Sample ID			MW-01	MW-02	MW-02	MW-03	MW-03
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft.)			4.3-16.3	3.0-16.0	3.0-16.0	4.8-14.8	4.8-14.8
Date Sampled			07/13/00	10/07/99	07/13/00	10/07/99	07/13/00
Parameter	Units	Criteria*					
Filtered Metals							
Silver	UG/L	50	NA	NA	NA	NA	NA
Zinc	UG/L	2000	NA	NA	NA	NA	NA

Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, Class GA, Revised April 2000.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria.

B - Value between Instrument Detection Limit and Contract Required Detection Limit.
D - Diluted analysis J - Estimated result.
N - Tenatively identified NA - Not analyzed
U - Non-Detect

Detection Limits shown are PQL

Advanced Selection: WG_99_URS
J:\35673.00\db\PROGRAM\program.mde
Printed: 12/5/00 3:04:24 PM
[MATRIX] = 'WG' AND [LOGDATE] >= #10/4/99# AND [LOGCODE] = 'URSG'

TABLE 3
ANALYTICAL GROUNDWATER SAMPLE RESULTS
FORMER EMCA SITE

Location ID			MW-04	MW-04	MW-05
Sample ID			MW-04	MW-04	MW-05
Matrix			Groundwater	Groundwater	Groundwater
Depth Interval (ft.)			4.7-14.7	4.7-14.7	4.0-16.0
Date Sampled			10/07/99	07/13/00	07/13/00
Parameter	**Units**	**Criteria***			
Volatiles					
Acetone	UG/L	50	10 U	10 UJ	10 UJ
Benzene	UG/L	1	10 U	10 U	10 U
Bromodichloromethane	UG/L	50	10 U	10 U	10 U
Bromoform	UG/L	50	10 U	10 U	10 U
Bromomethane	UG/L	5	10 U	10 U	10 U
Methyl ethyl ketone (2-Butanone)	UG/L	50	10 UJ	10 UJ	10 UJ
Carbon Disulfide	UG/L	60	10 U	10 U	10 U
Carbon Tetrachloride	UG/L	5	10 U	10 U	10 U
Chlorobenzene	UG/L	5	10 U	10 U	10 U
Chloroethane	UG/L	5	10 U	10 U	10 U
Chloroform	UG/L	7	10 U	10 U	10 U
Chloromethane	UG/L	5	10 U	10 UJ	10 UJ
Dibromochloromethane	UG/L	50	10 U	10 U	10 U
1,1-Dichloroethane	UG/L	5	10 U	10 U	10 U
1,2-Dichloroethane	UG/L	0.6	10 U	10 U	10 U
1,1-Dichloroethene	UG/L	5	10 U	10 U	10 U
1,2-Dichloroethene (total)	UG/L	5	10 U	10 U	10 U
1,2-Dichloropropane	UG/L	1	10 U	10 U	10 U
cis-1,3-Dichloropropene	UG/L	0.4	10 U	10 U	10 U
trans-1,3-Dichloropropene	UG/L	0.4	10 U	10 UJ	10 UJ
Ethylbenzene	UG/L	5	10 U	10 U	10 U
2-Hexanone	UG/L	50	10 U	10 UJ	10 UJ

Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, Class GA, Revised April 2000.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria.

B - Value between Instrument Detection Limit and Contract Required Detection Limit.
D - Diluted analysis J - Estimated result.
N - Tentatively identified NA - Not analyzed
U - Non-Detect

Detection Limits shown are PQL

TABLE 3
ANALYTICAL GROUNDWATER SAMPLE RESULTS
FORMER EMCA SITE

Location ID			MW-04	MW-04	MW-05
Sample ID			MW-04	MW-04	MW-05
Matrix			Groundwater	Groundwater	Groundwater
Depth Interval (ft.)			4.7-14.7	4.7-14.7	4.0-16.0
Date Sampled			10/07/99	07/13/00	07/13/00
Parameter	**Units**	**Criteria***			
Volatiles					
4-Methyl-2-Pentanone	UG/L	-	10 U	10 U	10 U
Methylene Chloride	UG/L	5	10 U	10 U	10 U
Styrene	UG/L	5	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	UG/L	5	10 U	10 U	10 U
Tetrachloroethene	UG/L	5	10 UJ	10 U	2 J
1,1,1-Trichloroethane	UG/L	5	10 U	10 U	10 U
1,1,2-Trichloroethane	UG/L	1	10 U	10 U	10 U
Trichloroethene	UG/L	5	10 UJ	10 U	10 U
1,1,2-Trichlorotrifluoroethane	UG/L	5	11	10 UJ	7 J
Toluene	UG/L	5	10 U	10 U	10 U
Vinyl Chloride	UG/L	2	10 U	10 UJ	10 UJ
Xylene (total)	UG/L	5	10 U	10 U	10 U
Metals					
Barium	UG/L	1000	91.3 B	NA	NA
Copper	UG/L	200	1.0 U	NA	NA
Lead	UG/L	25	1.7 B	NA	NA
Silver	UG/L	50	0.60 U	NA	NA
Zinc	UG/L	2000	6.7 B	NA	NA
Filtered Metals					
Barium	UG/L	1000	97.6 B	NA	NA
Copper	UG/L	200	1.0 U	NA	NA
Lead	UG/L	25	1.0 U	NA	NA

Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, Class GA, Revised April 2000.

Flags assigned during chemistry validation are shown.

(oval) Concentration Exceeds Criteria.

B - Value between Instrument Detection Limit and Contract Required Detection Limit.
D - Diluted analysis J - Estimated result.
N - Tenatively identified NA - Not analyzed
U - Non-Detect

Detection Limits shown are PQL

TABLE 3
ANALYTICAL GROUNDWATER SAMPLE RESULTS
FORMER EMCA SITE

Location ID			MW-04	MW-04	MW-05
Sample ID			MW-04	MW-04	MW-05
Matrix			Groundwater	Groundwater	Groundwater
Depth Interval (ft.)			4.7-14.7	4.7-14.7	4.0-16.0
Date Sampled			10/07/99	07/13/00	07/13/00
Parameter	Units	Criteria*			
Filtered Metals					
Silver	UG/L	50	0.60 U	NA	NA
Zinc	UG/L	2000	14.8 B	NA	NA

Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, Class GA, Revised April 2000.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria.

B - Value between Instrument Detection Limit and Contract Required Detection Limit.
D - Diluted analysis J - Estimated result.
N - Tenatively identified NA - Not analyzed
U - Non-Detect

Detection Limits shown are PQL

TABLE 4
SUMMARY OF SURVEY RESULTS
FORMER EMCA SITE

LOCATION ID	NORTHING	EASTING	GROUND ELEV. (ft.)	MEASUREMENT POINT ELEV. (ft.)	REMARKS
GRAB-01	2101	2746	98.85	98.85	Measurement point is top of well riser
GZ-03	1981	2713	100.28	102.71	Measurement point is top of well riser
GZ-06	1987	2890	99.9	101.55	Measurement point is top of well riser
GZ-09	2057	2810	99.61	99.57	Measurement point is top of well riser
MW-01	1872	2795	99.5	99.22	Measurement point is top of well riser
MW-02	2038	2846	99.18	99.18	Measurement point is top of well riser
MW-03	2059	2809	99.61	99.35	Measurement point is top of well riser
MW-04	2101	2746	98.84	98.61	Measurement point is top of well riser
MW-05	2160	2784	98.25	98.14	Measurement point is top of well riser
PZ-01	1925	2849	99.51	103.96	Measurement point is top of well riser
PZ-02	1964	2666	100.22	101.06	Measurement point is top of well riser
SG-01	1833	2827	99.37		
SG-02	2038	2846	99.18		
SG-03	2057	2804	99.61		
SG-04	2099	2748	98.98		
SG-05	2041	2761	99.88		
SG-06	2136	2809	98.18		
SG-07	2114	2833	98.83		
SS-01	2040	2762	99.86		
SS-02	2118	2734	97.87		
WS-01	2252	2592		92.00	Measurement point marked on lath
WS-02	2080	2496		92.00	Measurement point marked on lath
WS-03	1939	2425		92.00	Measurement point marked on lath
WS-04				97.00	Loacated approx. 460' upstream of WS-03 on north face of Rockland Ave. Bridge abutment. Measurement point is marked on abutment
Benchmark	2029	2805		100.00	First Floor Doorway

TABLE 5
ANALYTICAL AIR SAMPLE RESULTS
FORMER EMCA SITE

Location ID			AMBIENT AIR	AMBIENT AIR	SG-03	SG-05	SG-06
Sample ID			AMBIENT AIR	AMBIENT AIR	SG-03	SG-05	SG-06
Matrix			Gaseous Effluent	Gaseous Effluent	Gaseous Effluent	Gaseous Effluent	Gaseous Effluent
Depth Interval (ft.)			-	-	4.5-5.0	2.0-4.0	4.0-4.5
Date Sampled			10/04/99	07/11/00	10/05/99	10/04/99	07/11/00
Parameter	**Units**	**Criteria***					
Volatiles							
Acetone	PPBV	11613 (28000)	6.5	7.3	83	420	52
Benzene	PPBV	0.04 (0.13)	1.2 U	0.80 U	15 U	6.1	8.4
Bromodichloromethane	PPBV	0.03 (0.2)	5.0 U	3.2 U	60 U	21 U	3.1 U
Bromoform	PPBV	0.086 (0.9)	5.0 U	3.2 U	60 U	21 U	3.1 U
Bromomethane	PPBV	-	1.2 U	0.80 U	15 U	5.4 U	0.78 U
Methyl ethyl ketone (2-Butanone)	PPBV	334 (1000)	5.0 U	3.2 U	60 U	37	11
Carbon Disulfide	PPBV	222 (700)	5.0 U	3.2 U	60 U	21 U	3.1 U
Carbon Tetrachloride	PPBV	0.105 (0.67)	1.2 U	0.80 U	15 U	5.4 U	0.78 U
Chlorobenzene	PPBV	-	1.2 U	0.80 U	15 U	5.4 U	0.78 U
Chloroethane	PPBV	-	1.2 U	0.80 U	15 U	5.4 U	0.78 U
Chloroform	PPBV	0.0086 (0.043)	1.2 U	0.80 U	15 U	5.4 U	1.2
Chloromethane	PPBV	367 (770)	1.2 U	5.0	15 U	5.4 U	0.78 U
Dibromochloromethane	PPBV	0.012 (0.1)	5.0 U	3.2 U	60 U	21 U	3.1 U
1,1-Dichloroethane	PPBV	4.86 (20)	1.2 U	0.80 U	15 U	5.4 U	0.97
1,2-Dichloroethane	PPBV	0.009 (0.038)	1.2 U	0.80 U	15 U	5.4 U	0.78 U
1,1-Dichloroethene	PPBV	-	1.2 U	0.80 U	15 U	5.4 U	0.78 U
cis-1,2-Dichloroethene	PPBV	476 (1900)	1.2 U	0.80 U	15 U	5.4 U	0.78 U
trans-1,2-Dichloroethene	PPBV	476 (1900)	5.0 U	3.2 U	60 U	21 U	3.1 U
1,2-Dichloropropane	PPBV	-	1.2 U	0.80 U	15 U	5.4 U	0.78 U
cis-1,3-Dichloropropene	PPBV	0.054 (0.25)	1.2 U	0.80 U	15 U	5.4 U	0.78 U
trans-1,3-Dichloropropene	PPBV	0.054 (0.25)	1.2 U	0.80 U	15 U	5.4 U	0.78 U
Ethylbenzene	PPBV	227 (1000)	1.2 U	0.80 U	15 U	5.4 U	12

Criteria- NYSDEC 2000, DAR-1 (Air Guide-1) Annual and Short Term Guidance Concentrations.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria.

( ) - New York State Air Guide Concentration in ug/m³.

J - Estimated result

U - Non-Detect

Detection Limits shown are PQL

TABLE 5
ANALYTICAL AIR SAMPLE RESULTS
FORMER EMCA SITE

Location ID			AMBIENT AIR	AMBIENT AIR	SG-03	SG-05	SG-06
Sample ID			AMBIENT AIR	AMBIENT AIR	SG-03	SG-05	SG-06
Matrix			Gaseous Effluent	Gaseous Effluent	Gaseous Effluent	Gaseous Effluent	Gaseous Effluent
Depth Interval (ft.)			-	-	4.5-5.0	2.0-4.0	4.0-4.5
Date Sampled			10/04/99	07/11/00	10/05/99	10/04/99	07/11/00
Parameter	**Units**	**Criteria***					
Volatiles							
2-Hexanone	PPBV	-	5.0 U	3.2 U	60 U	21 U	3.1 U
4-Methyl-2-Pentanone	PPBV	118 (490)	5.0 U	3.2 U	60 U	21 U	3.1 U
Methylene Chloride	PPBV	0.594 (2.1)	1.2 U	0.80 U	15 U	5.4 U	1.0
Styrene	PPBV	231 (1000)	1.2 U	0.80 U	15 U	5.4 U	0.78 U
1,1,2,2-Tetrachloroethane	PPBV	0.002 (0.017)	1.2 U	0.80 U	15 U	5.4 U	0.78 U
Tetrachloroethene	PPBV	0.145 (1.0)	1.2 U	0.80 U	15 U	5.4 U	2.2
1,1,1-Trichloroethane	PPBV	0.081 (0.45)	1.2 U	0.80 U	15 U	5.4 U	11
1,1,2-Trichloroethane	PPBV	0.011 (0.063)	1.2 U	0.80 U	15 U	5.4 U	0.78 U
Trichloroethene	PPBV	0.083 (0.45)	1.2 U	0.80 U	15 U	5.4 U	0.92
1,1,2-Trichlorotrifluoroethane	PPBV	23108 (180000)	1.2 U	0.80 U	3300	11	0.78 U
Toluene	PPBV	104 (400)	1.2 U	0.88	15	15	9.4
Vinyl Acetate	PPBV	55.9 (200)	5.0 U	3.2 U	60 U	21 U	3.1 U
Vinyl Chloride	PPBV	0.008 (0.02)	1.2 U	0.80 U	15 U	5.4 U	0.78 U
m,p-Xylene	PPBV	159 (700)	1.2 U	0.80 U	15 U	9.1	60
o-Xylene	PPBV	159 (700)	1.2 U	0.80 U	15 U	5.4 U	32

Criteria- NYSDEC 2000, DAR-1 (Air Guide-1) Annual and Short Term Guidance Concentrations.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria.

( ) - New York State Air Guide Concentration in ug/m³.

J - Estimated result

U - Non-Detect

Detection Limits shown are PQL

TABLE 5
ANALYTICAL AIR SAMPLE RESULTS
FORMER EMCA SITE

Location ID			SG-07
Sample ID			SG-07
Matrix			Gaseous Effluent
Depth Interval (ft.)			4.0-4.5
Date Sampled			07/11/00
Parameter	**Units**	**Criteria***	
Volatiles			
Acetone	PPBV	11613 (28000)	9.8 U
Benzene	PPBV	0.04 (0.13)	660 J
Bromodichloromethane	PPBV	0.03 (0.2)	9.8 U
Bromoform	PPBV	0.086 (0.9)	9.8 U
Bromomethane	PPBV	-	2.4 U
Methyl ethyl ketone (2-Butanone)	PPBV	334 (1000)	9.8 U
Carbon Disulfide	PPBV	222 (700)	28 J
Carbon Tetrachloride	PPBV	0.105 (0.67)	2.4 U
Chlorobenzene	PPBV	-	2.4 U
Chloroethane	PPBV	-	2.4 U
Chloroform	PPBV	0.0086 (0.043)	2.4 U
Chloromethane	PPBV	367 (770)	2.4 U
Dibromochloromethane	PPBV	0.012 (0.1)	9.8 U
1,1-Dichloroethane	PPBV	4.86 (20)	2.4 U
1,2-Dichloroethane	PPBV	0.009 (0.038)	2.4 U
1,1-Dichloroethene	PPBV	-	2.4 U
cis-1,2-Dichloroethene	PPBV	476 (1900)	2.4 U
trans-1,2-Dichloroethene	PPBV	476 (1900)	9.8 U
1,2-Dichloropropane	PPBV	-	2.4 U
cis-1,3-Dichloropropene	PPBV	0.054 (0.25)	2.4 U
trans-1,3-Dichloropropene	PPBV	0.054 (0.25)	2.4 U
Ethylbenzene	PPBV	227 (1000)	11 J

Criteria- NYSDEC 2000, DAR-1 (Air Guide-1) Annual and Short Term Guidance Concentrations.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria.

( ) - New York State Air Guide Concentration in ug/m³.

J - Estimated result

U - Non-Detect

Detection Limits shown are PQL

TABLE 5
ANALYTICAL AIR SAMPLE RESULTS
FORMER EMCA SITE

Location ID			SG-07
Sample ID			SG-07
Matrix			Gaseous Effluent
Depth Interval (ft.)			4.0-4.5
Date Sampled			07/11/00
Parameter	**Units**	**Criteria***	
Volatiles			
2-Hexanone	PPBV	-	9.8 U
4-Methyl-2-Pentanone	PPBV	118 (490)	9.8 U
Methylene Chloride	PPBV	0.594 (2.1)	2.4 U
Styrene	PPBV	231 (1000)	2.4 U
1,1,2,2-Tetrachloroethane	PPBV	0.002 (0.017)	2.4 U
Tetrachloroethene	PPBV	0.145 (1.0)	2.4 U
1,1,1-Trichloroethane	PPBV	0.081 (0.45)	2.4 U
1,1,2-Trichloroethane	PPBV	0.011 (0.063)	2.4 U
Trichloroethene	PPBV	0.083 (0.45)	2.4 U
1,1,2-Trichlorotrifluoroethane	PPBV	23108 (180000)	2.4 U
Toluene	PPBV	104 (400)	2.4 U
Vinyl Acetate	PPBV	55.9 (200)	9.8 U
Vinyl Chloride	PPBV	0.008 (0.02)	2.4 U
m,p-Xylene	PPBV	159 (700)	40 J
o-Xylene	PPBV	159 (700)	25 J

Criteria- NYSDEC 2000, DAR-1 (Air Guide-1) Annual and Short Term Guidance Concentrations.

Flags assigned during chemistry validation are shown.

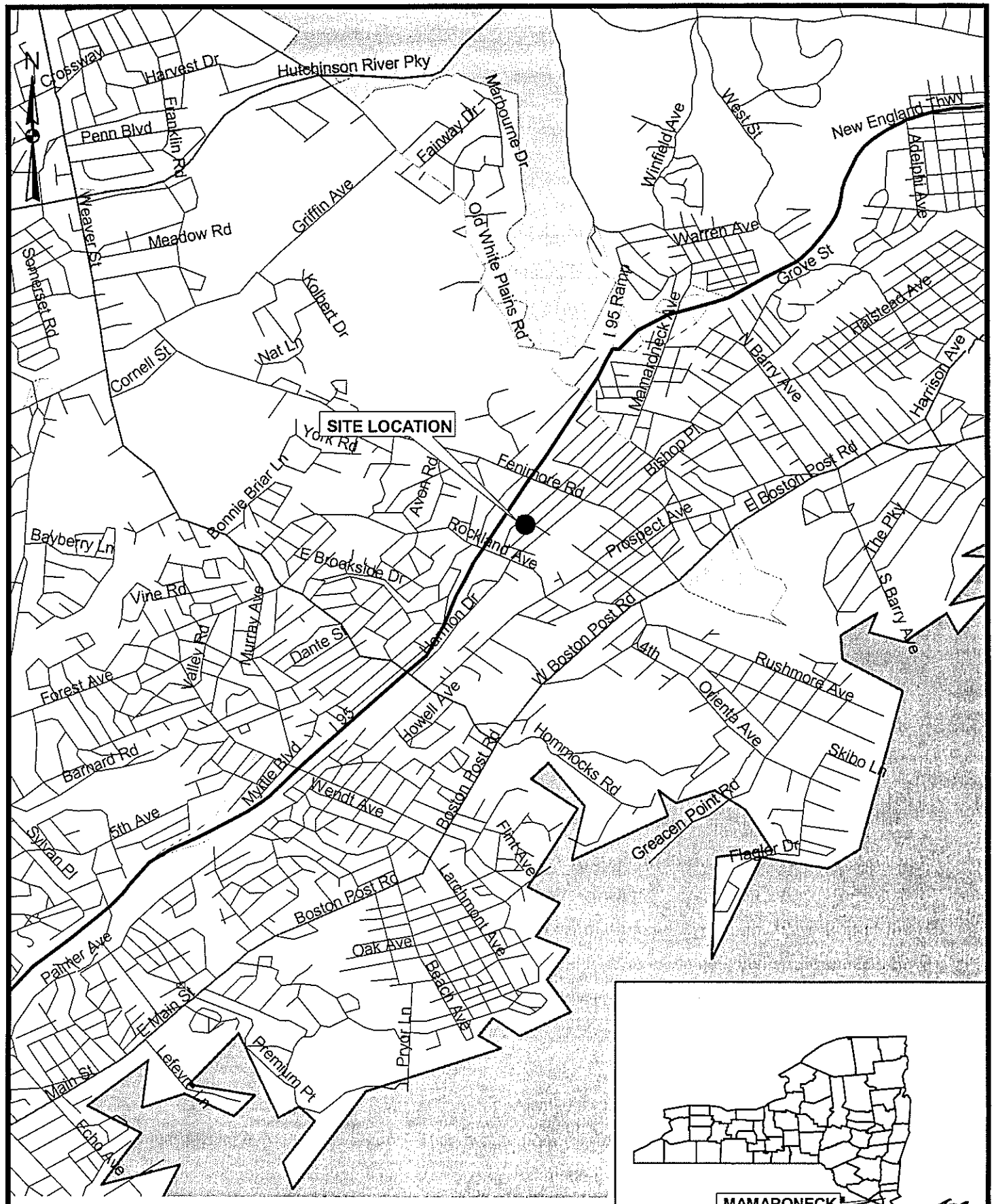
Concentration Exceeds Criteria.

( ) - New York State Air Guide Concentration in ug/m³.

J - Estimated result

U - Non-Detect

Detection Limits shown are PQL



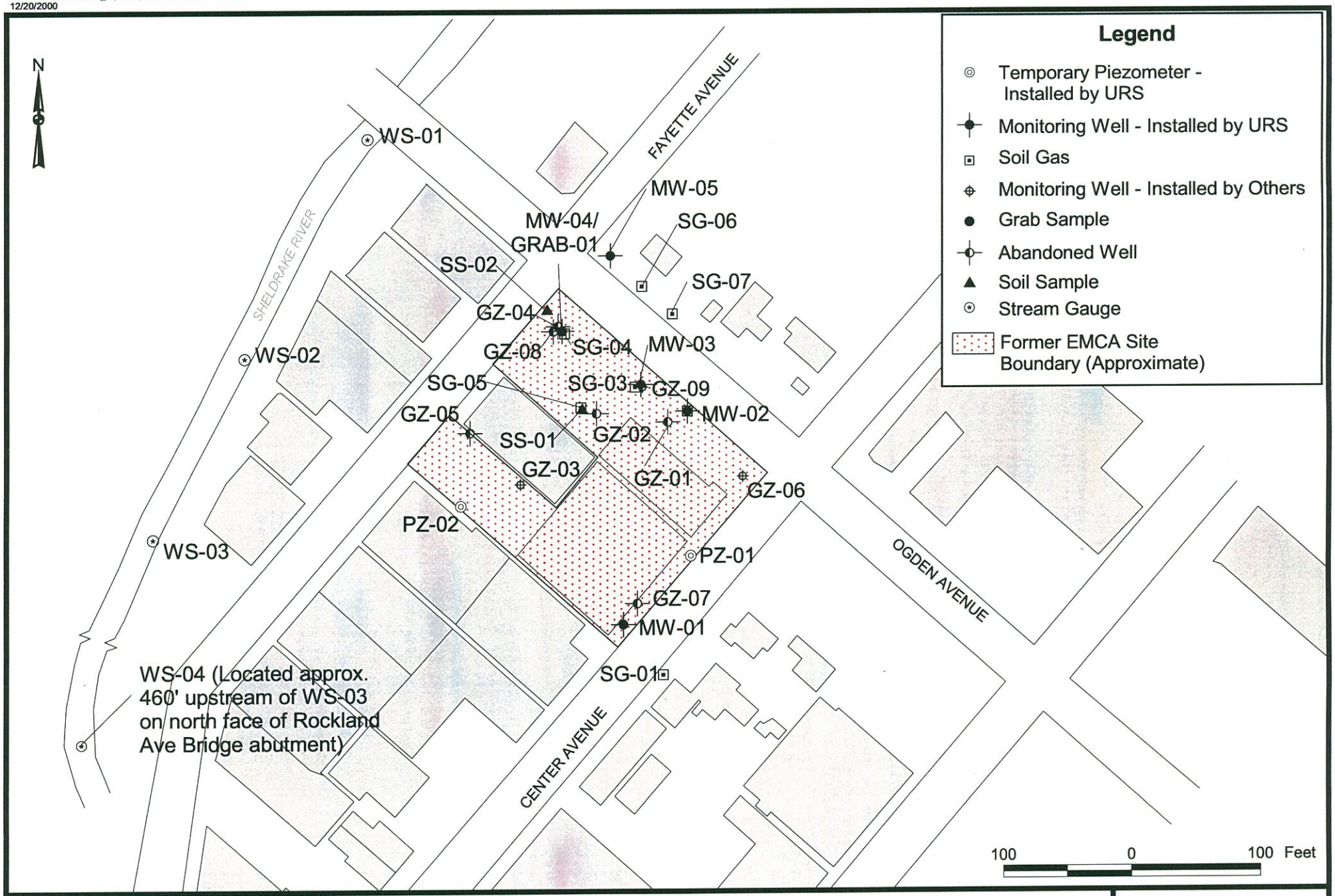
J:\35673.00\dbl\GIS\sitelocation apr SITEPLAN
11/29/2000

URS

FORMER EMCA SITE
AREA MAP

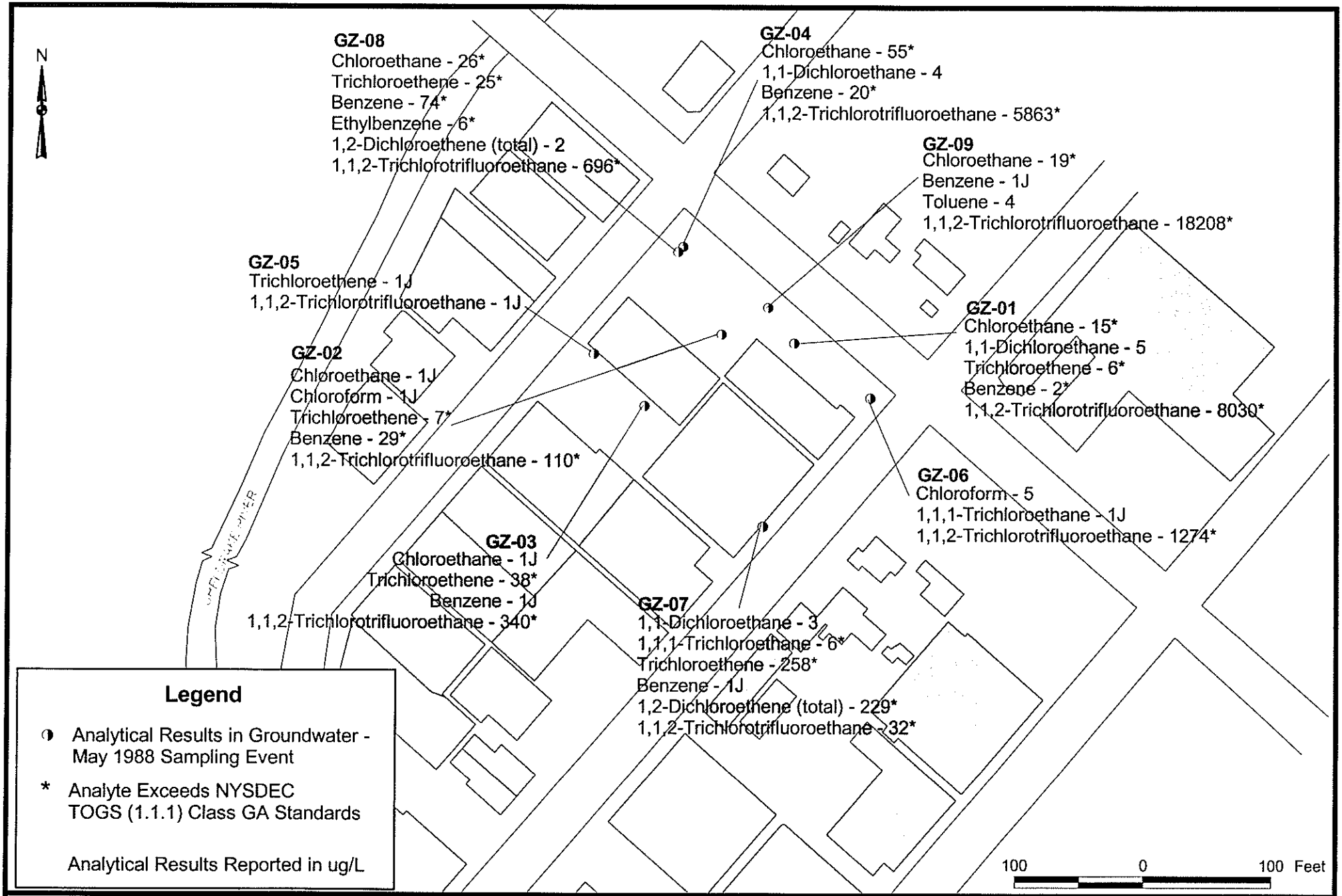
FIGURE 1

J:\35673.00\db\GIS\ri_report.apr MONITORING WELL/SAMPLING LOCATIONS
12/20/2000



URS	FORMER EMCA SITE MONITORING WELL/SAMPLING LOCATIONS	FIGURE 2

J:\35673.00\db\GIS\vi_report.apr PREVIOUS GROUNDWATER ANALYTICAL RESULTS-MAY 1988
12/20/2000

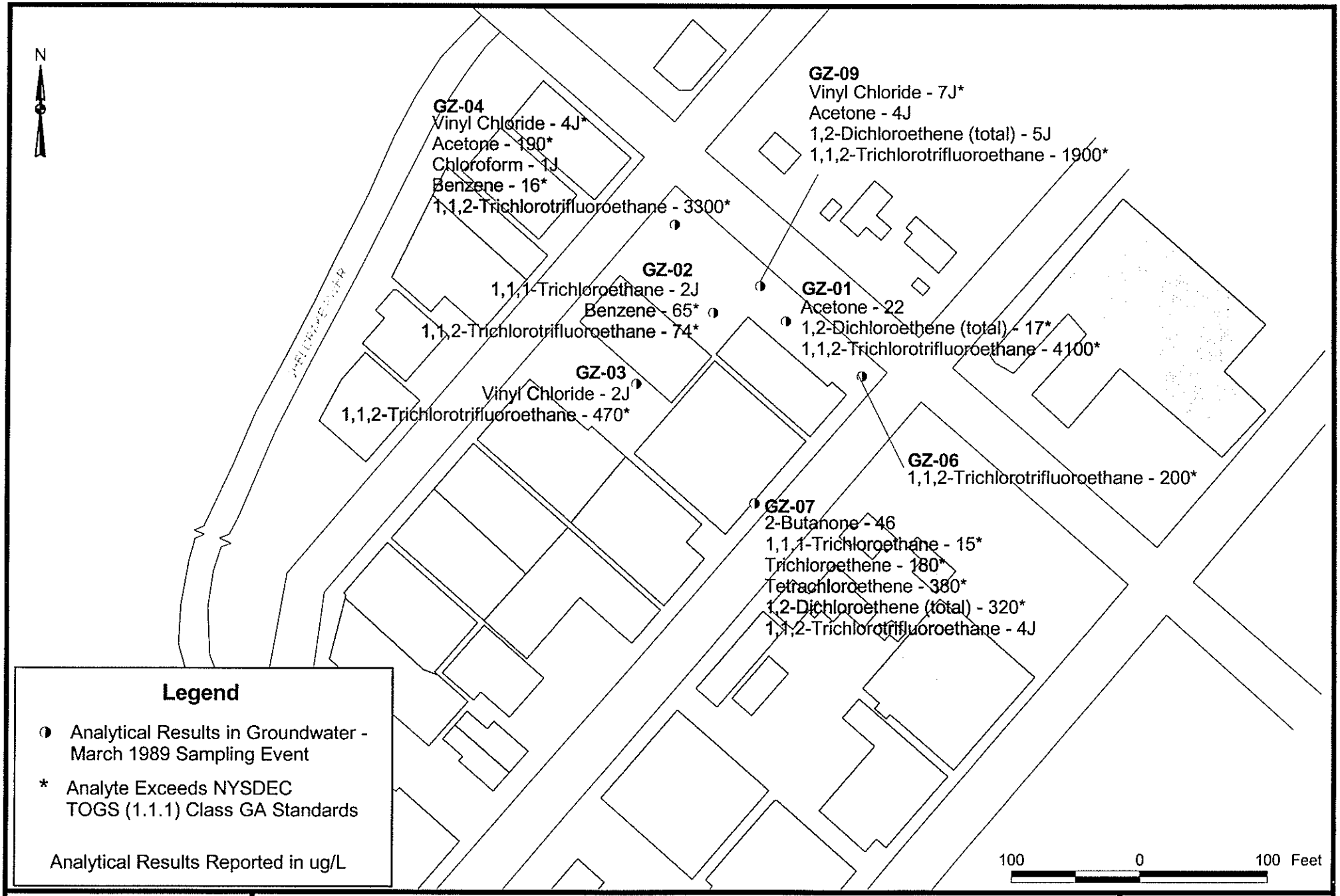


URS

PREVIOUS GROUNDWATER ANALYTICAL RESULTS
MAY 1988

FIGURE 3

J:\35673.00\db\GIS\vi_report apr PREVIOUS GROUNDWATER ANALYTICAL RESULTS- MARCH 1989
12/20/2000

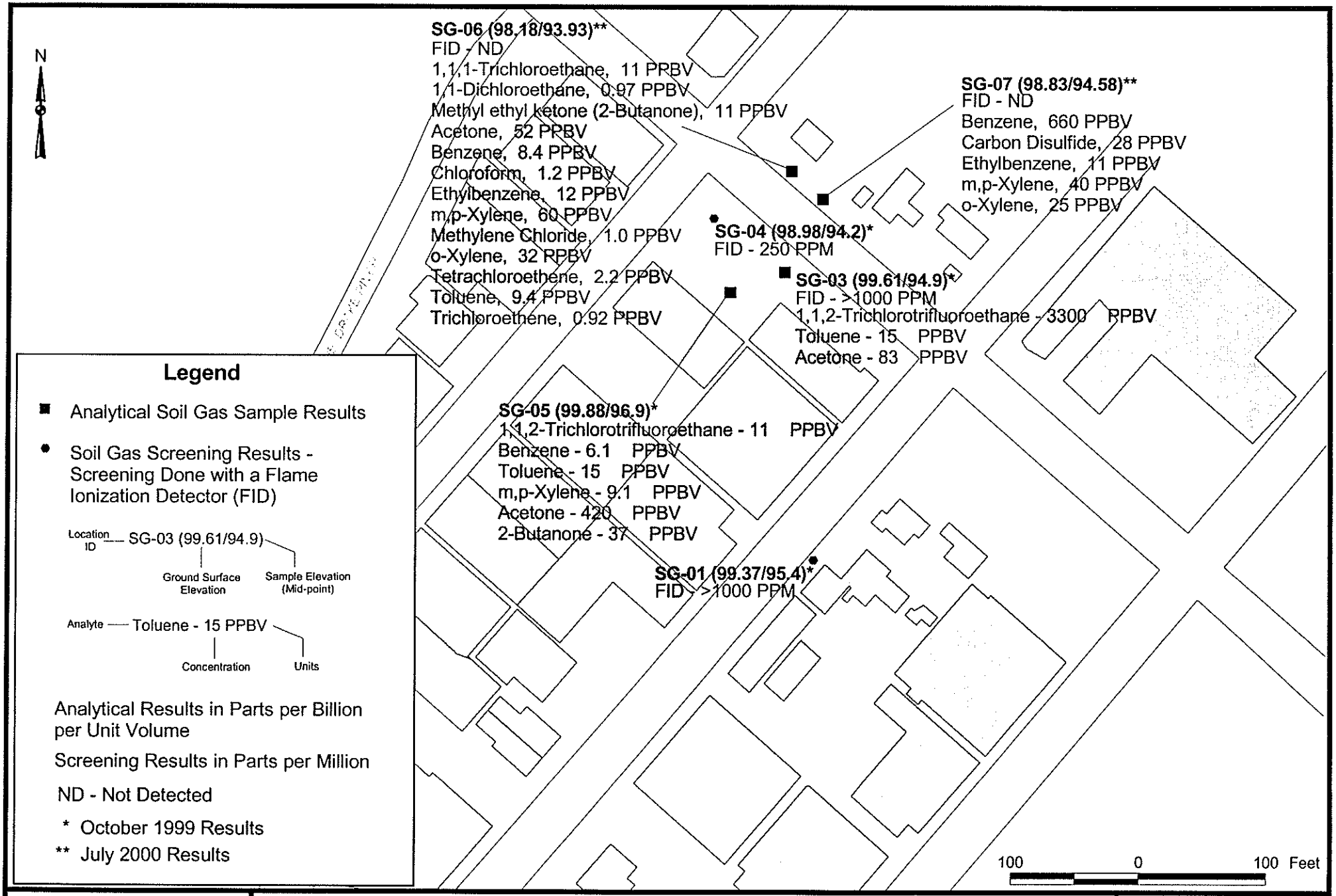


URS

PREVIOUS GROUNDWATER ANALYTICAL RESULTS
MARCH 1989

FIGURE 4

J:\35673.00\db\GIS\rl_report.apr SOIL GAS SCREENING AND ANALYTICAL RESULTS OCTOBER 1999 / JULY 2000
12/20/2000



Legend

- Analytical Soil Gas Sample Results
- Soil Gas Screening Results - Screening Done with a Flame Ionization Detector (FID)

Location ID — SG-03 (99.61/94.9)
Ground Surface Elevation
Sample Elevation (Mid-point)

Analyte — Toluene - 15 PPBV
Concentration
Units

Analytical Results in Parts per Billion per Unit Volume

Screening Results in Parts per Million

ND - Not Detected

* October 1999 Results

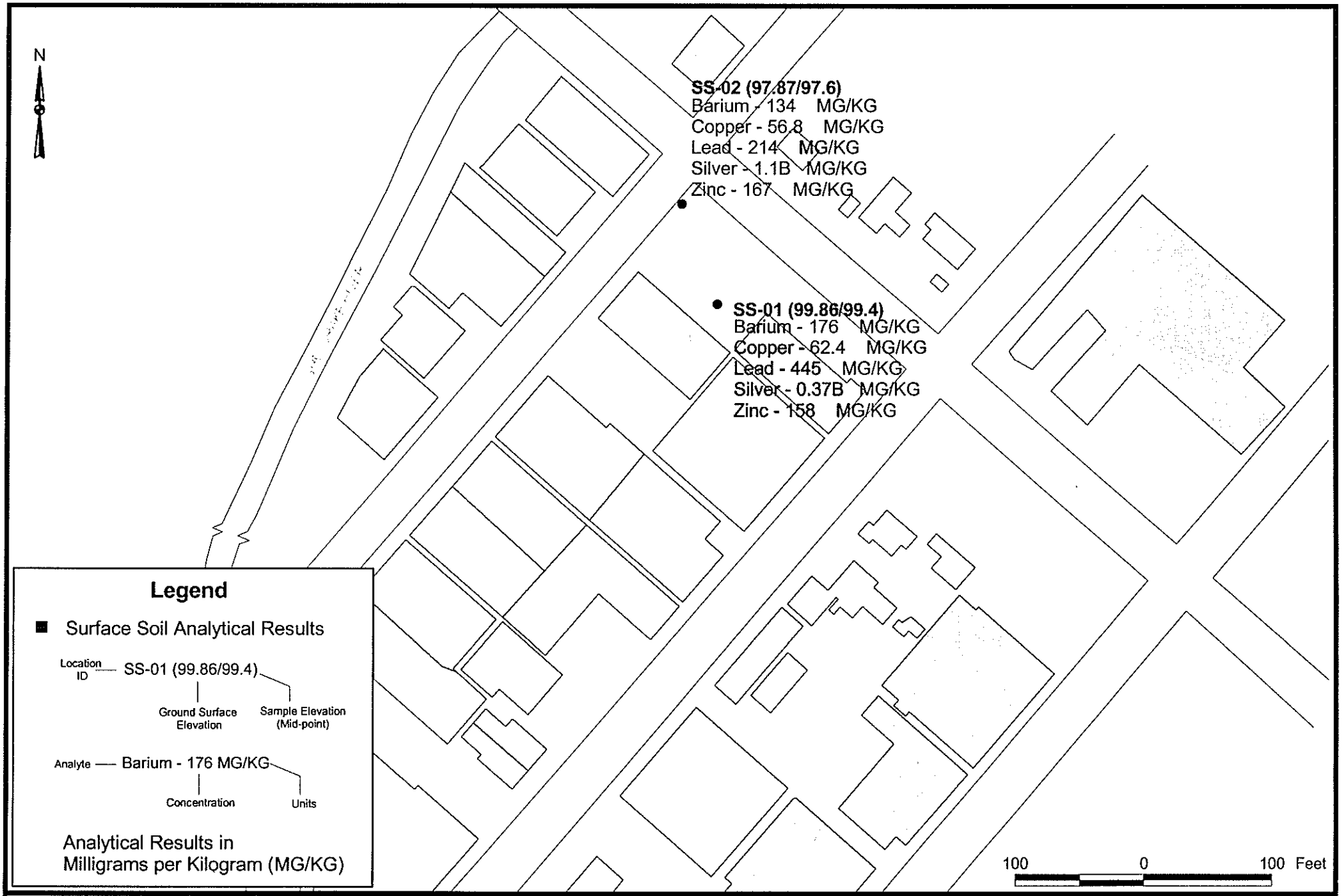
** July 2000 Results

URS

SOIL GAS SCREENING AND ANALYTICAL RESULTS
OCTOBER 1999 AND JULY 2000

FIGURE 5

J:\35673.00\db\GIS\ri_report.apr SURFACE SOIL ANALYTICAL RESULTS OCTOBER 1999
12/20/2000

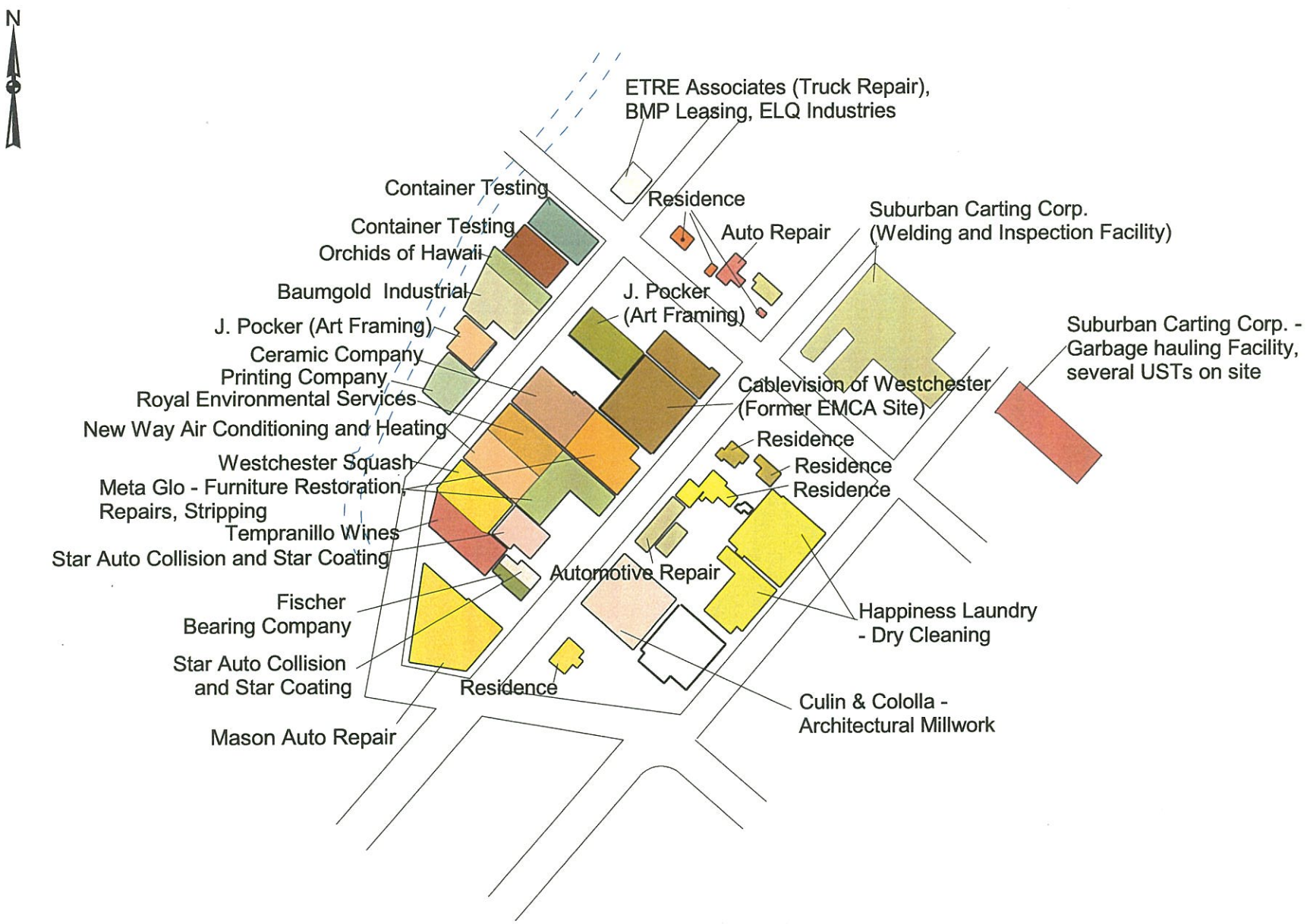


URS

SURFACE SOIL ANALYTICAL RESULTS
OCTOBER1999

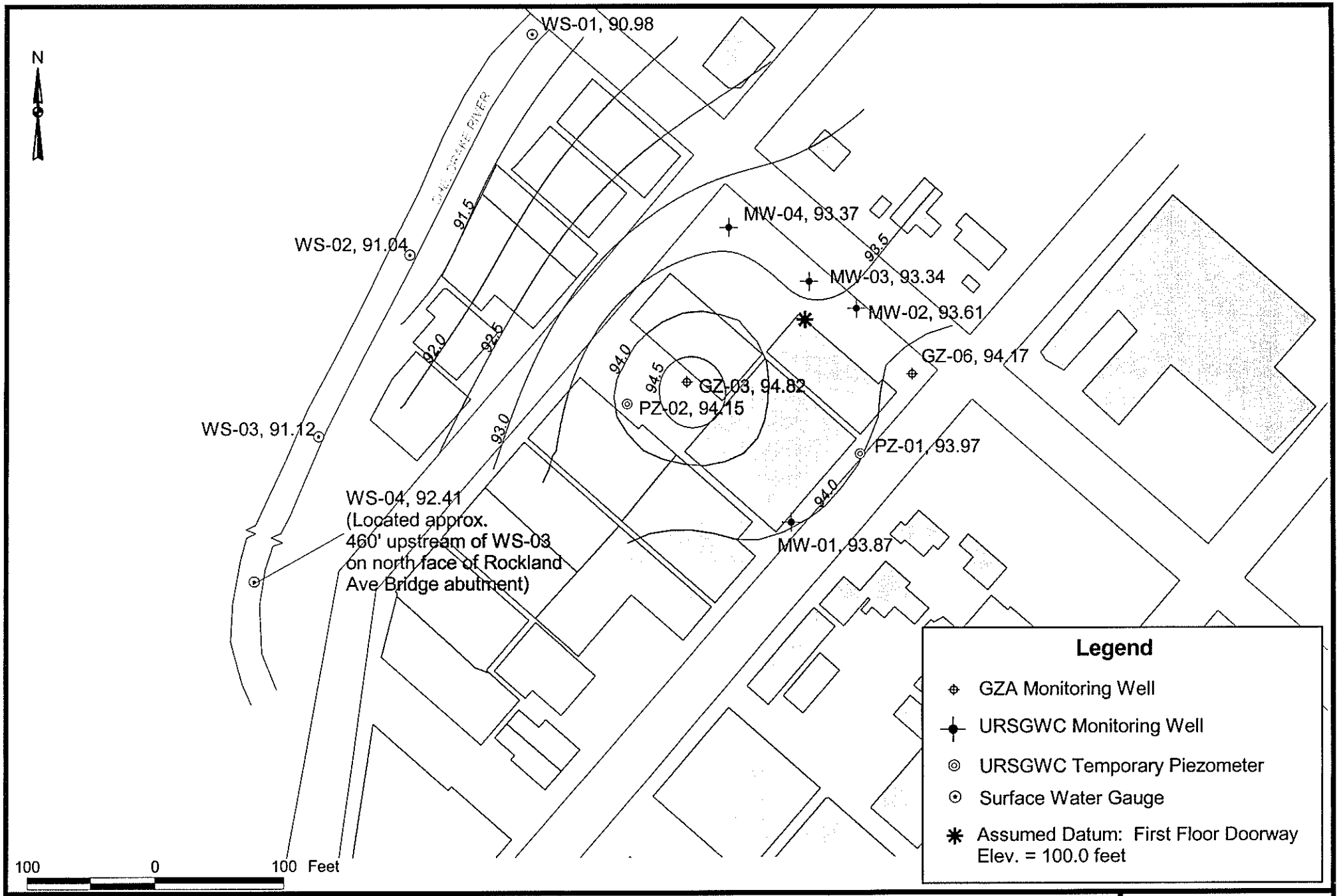
FIGURE 6

J:\35673.00\db\GIS\maps.apr Surrounding Properties
8/19/1999



URS	MAP OF SURROUNDING PROPERTIES FORMER EMCA SITE, MAMARONECK, NY	FIGURE 7

J:\35673.00\db\GIS\rl_report.apr GROUNDWATER CONTOUR MAP
12/20/2000

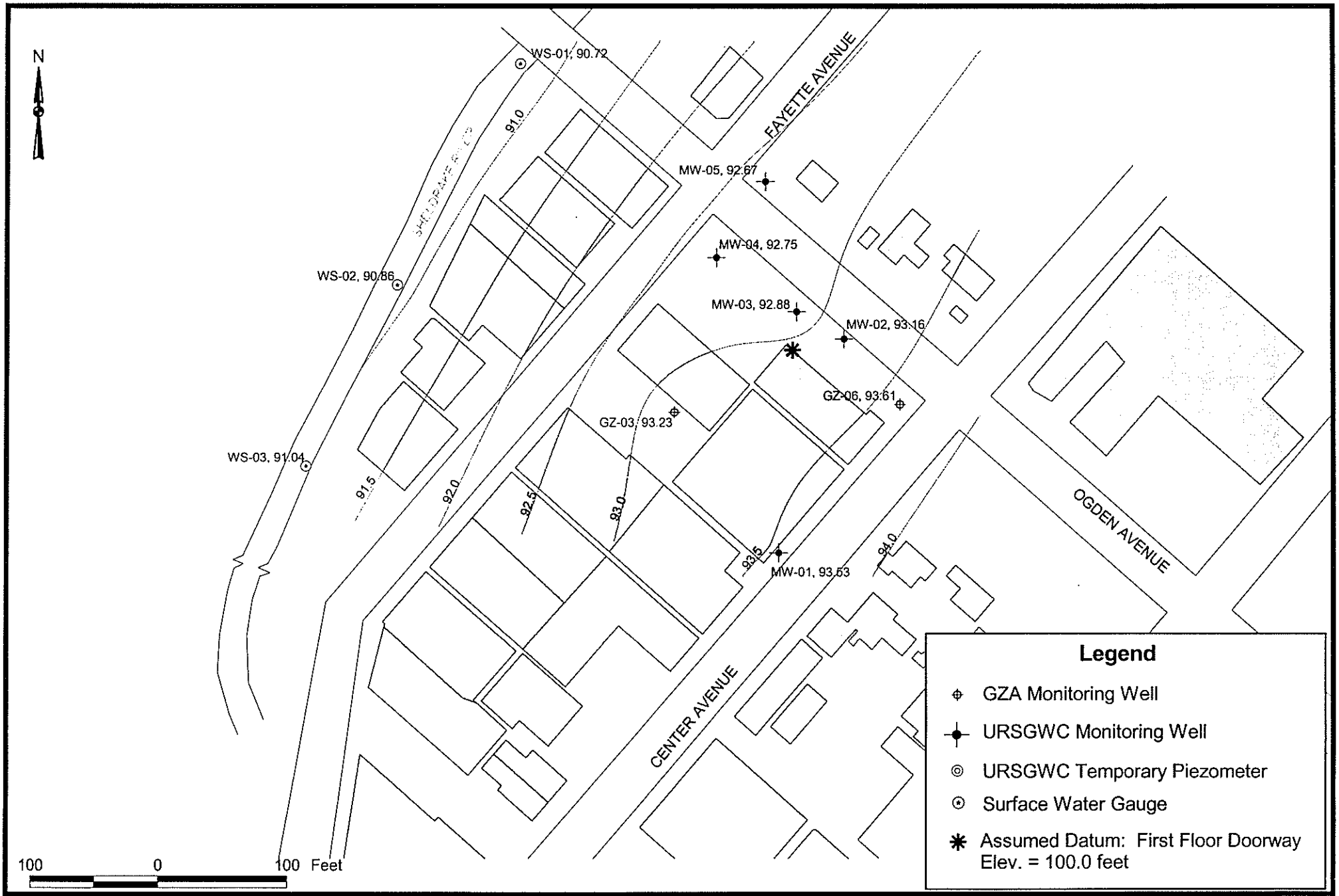


URS

GROUNDWATER CONTOUR MAP
OCTOBER 1999

FIGURE 8

J:\35673.00\db\GIS\vi_report.apr GROUNDWATER CONTOUR MAP JULY 2000
12/20/2000

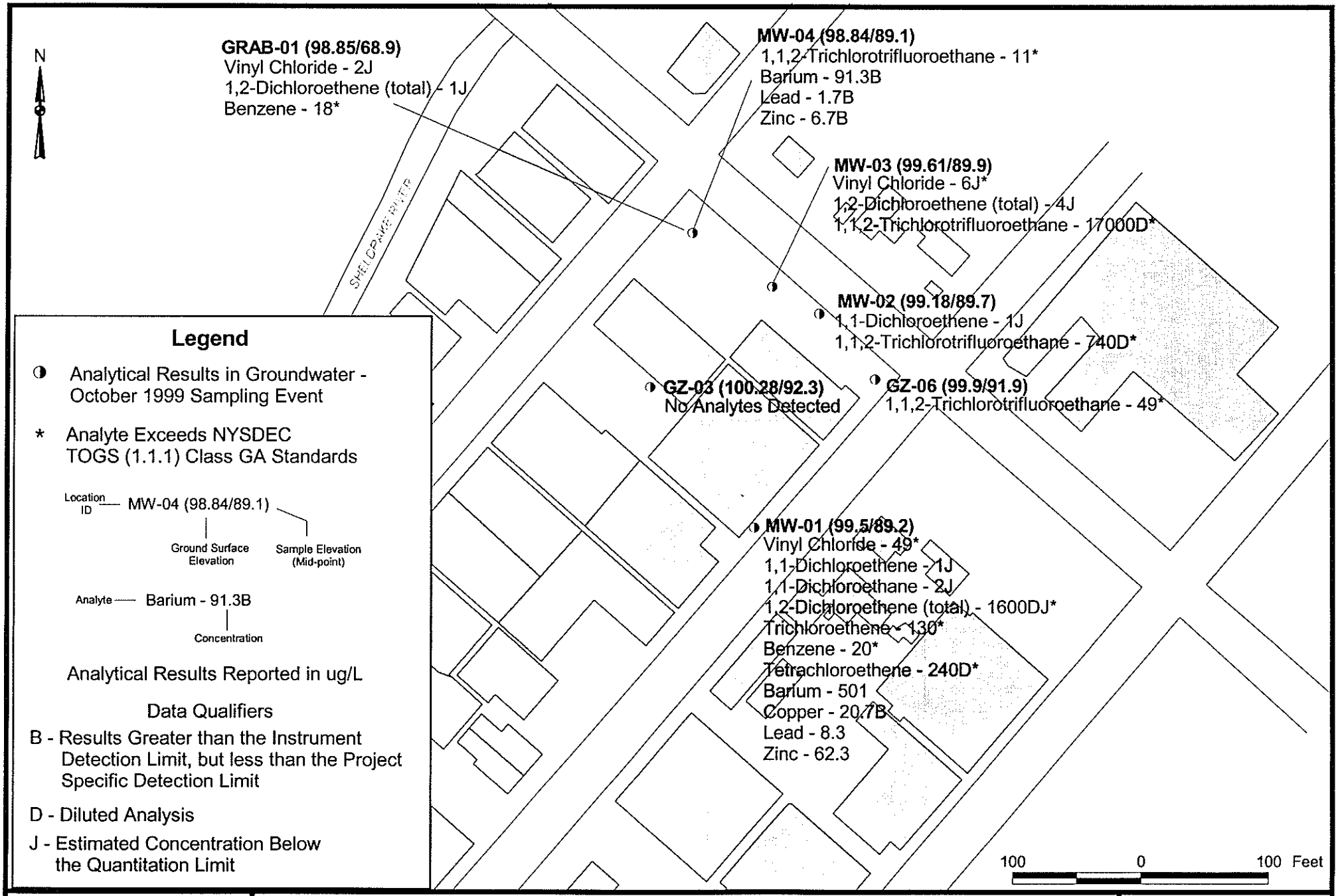


URS

GROUNDWATER CONTOUR MAP
JULY 2000

FIGURE 9

J:\35673.00\db\GIS\vi_report.apr GROUNDWATER ANALYTICAL RESULTS OCTOBER 1999
12/20/2000



Legend

◑ Analytical Results in Groundwater - October 1999 Sampling Event

* Analyte Exceeds NYSDEC TOGS (1.1.1) Class GA Standards

Location ID — MW-04 (98.84/89.1)
Ground Surface Elevation
Sample Elevation (Mid-point)

Analyte — Barium - 91.3B
Concentration

Analytical Results Reported in ug/L

Data Qualifiers

B - Results Greater than the Instrument Detection Limit, but less than the Project Specific Detection Limit

D - Diluted Analysis

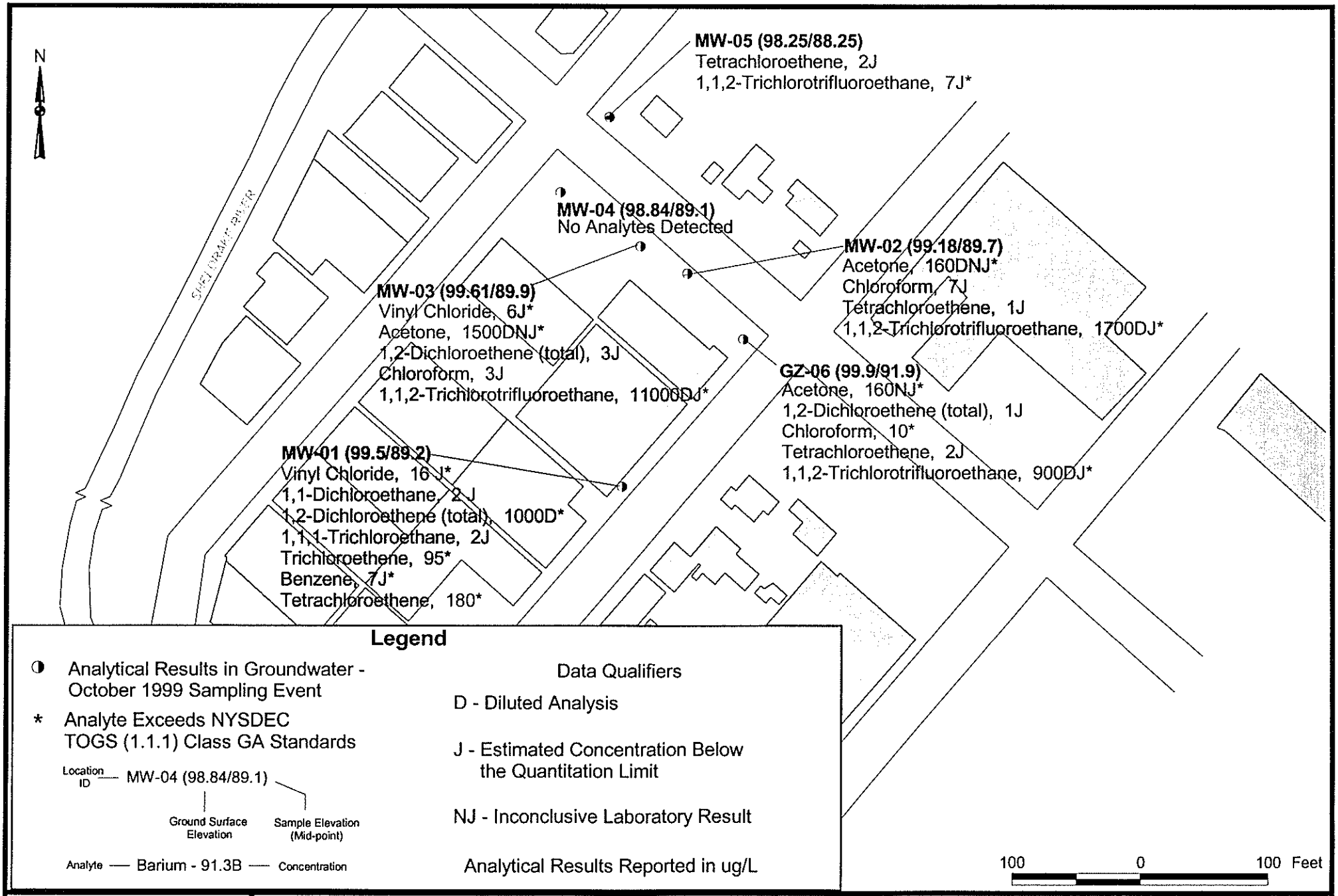
J - Estimated Concentration Below the Quantitation Limit

URS

GROUNDWATER ANALYTICAL RESULTS
OCTOBER 1999

FIGURE 10

J:\35673.00\db\GIS\ri_report.apr JULY 2000 GROUNDWATER RESULTS
12/20/2000

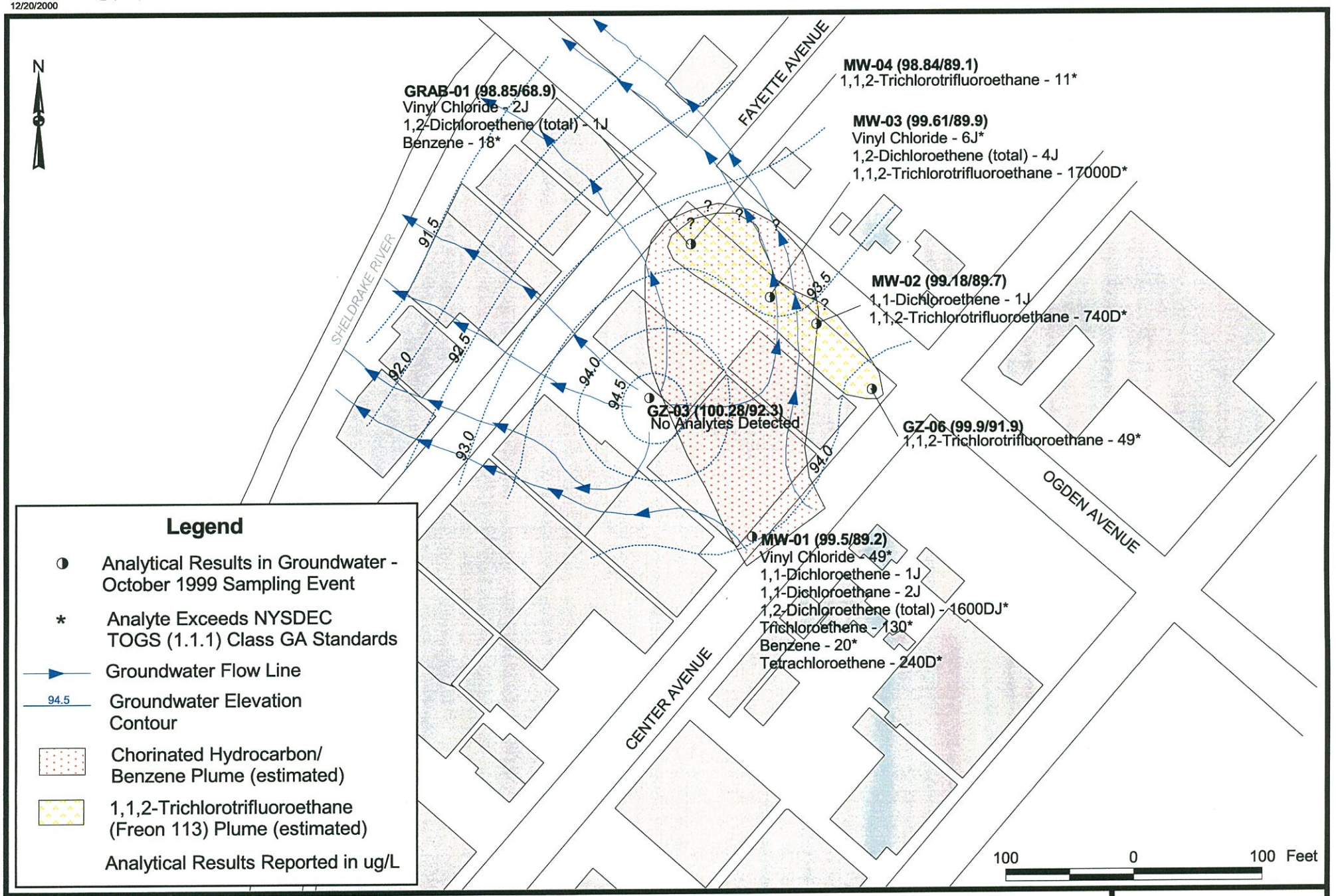


URS

GROUNDWATER ANALYTICAL RESULTS
JULY 2000

FIGURE 11

J:\35673.00\db\GIS\ri_report.apr CONCEPT MODEL - October 1999
12/20/2000



Legend

- Analytical Results in Groundwater - October 1999 Sampling Event
- * Analyte Exceeds NYSDEC TOGS (1.1.1) Class GA Standards
- Groundwater Flow Line
- 94.5 Groundwater Elevation Contour
- Chorinated Hydrocarbon/ Benzene Plume (estimated)
- 1,1,2-Trichlorotrifluoroethane (Freon 113) Plume (estimated)

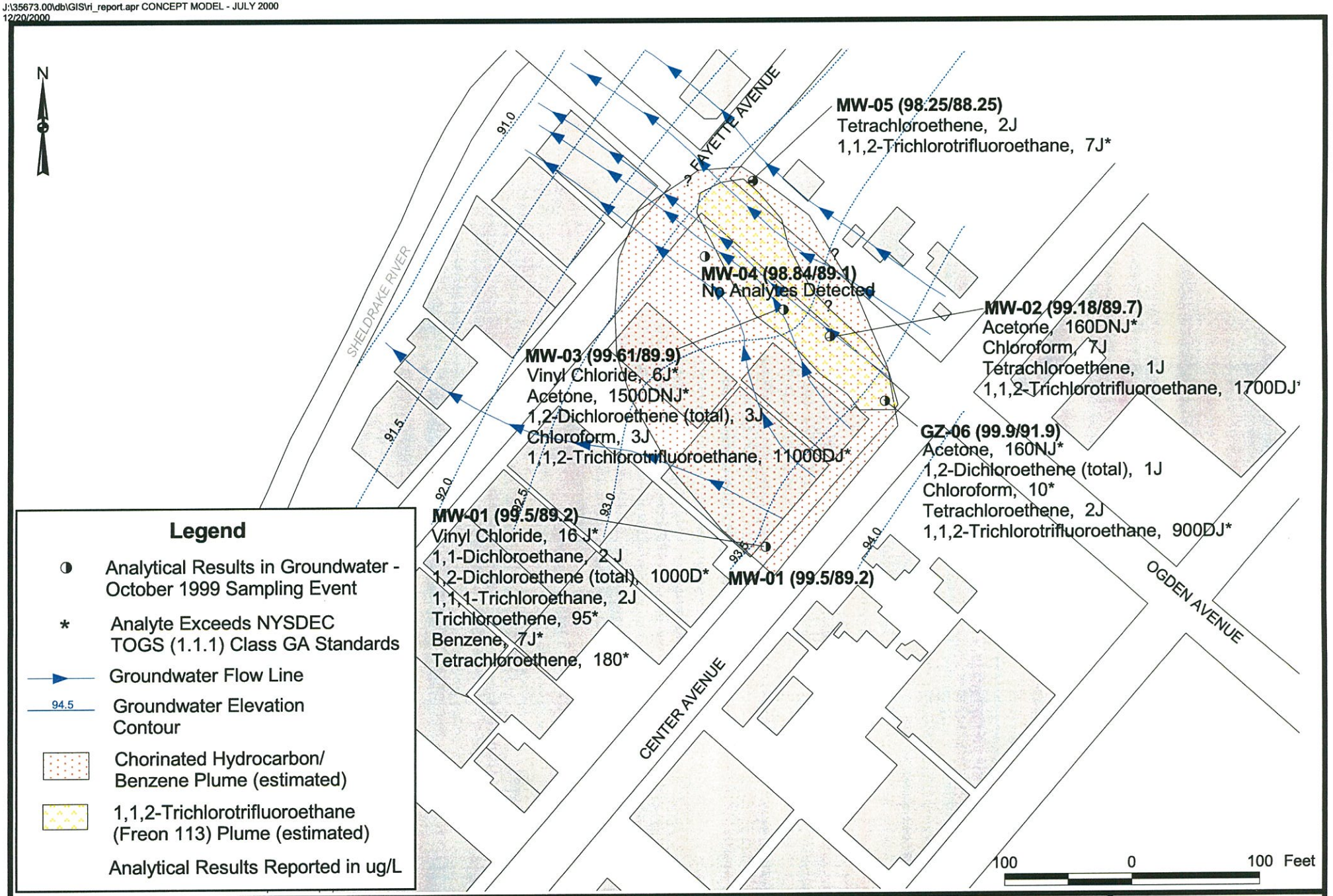
Analytical Results Reported in ug/L

URS

GROUNDWATER CONTAMINATION AND FLOW
CONCEPTUAL MODEL - OCTOBER 1999

FIGURE 12

J:\35673.00\db\GIS\ri_report.apr CONCEPT MODEL - JULY 2000
12/20/2000



URS

GROUNDWATER CONTAMINATION AND FLOW
CONCEPTUAL MODEL - JULY 2000

FIGURE 13

APPENDIX A

HISTORICAL ANALYTICAL RESULTS

TABLE 2-2

SOIL ANALYTICAL RESULTS (ppb)
GZANY INVESTIGATION
MAY 12 AND 13, 1988
FORMER EMCA SITE
MAMARONECK, NEW YORK

Compound Detected	B-1 0-2'	B-1 4-6'	B-2 2-4'	B-2 4-6'	B-3 2-4'	B-3 4-6'	B-5 2-4'	B-5 6-8'	B-6 2-4'	B-6 4-6'	B-7 2-4'	B-7 4-6'	B-8 0-2'
1,1,2-Trichloro-1,2,2-Trifluoroethane					1200	760	350			61			
Methylene chloride	4JB*	5JB	5JB		68*	4JB*		4JB	3JB	4JB	3JB	4JB	4JB
Toluene	3JB				2JB	1JB	130B	3JB		4JB	2JB		3JB
Trichloroethylene	4J	3J						6			6	4J	52
1,1-dichloroethane													18
1,2-dichloroethenes													
Chloroform										5J			5J
Tetrachloroethylene													
1,1,2,2-tetrachloroethylene													1J
Ethyl benzene													
1,2-dichloroethane													
Acrolein													
Acrylotnitrile													
Benzene													

* = Estimated Concentration of Peak Identified in Library Search.
B = Detected in Method Blank.
J = Estimate Concentration Below Method Detection Limits.
Blank Spaces Indicate Compound Not Detected.

TABLE 2-2
(continued)

Compound Detected	B-8 4-6'	B-9 0-2'	B-9 4-6'	B-10 2-4'	B-10 4-6'	GZ-4 0-2'	GZ-4 19-21	GZ-5 2-4	GZ-6 2-4	GZ-6 4-6	GZ-7 0-2	GZ-7 6-8	GZ-9 0-2
1,1,2-Trichloro-1,2,2-Trifluoroethane					650								
Methylene chloride		4JB	3JB		3JB	3JB	3JB*	3JB*			3JB*		
Toluene	2JB	3JB	2JB	2JB	2JB	2JB	2JB*	2JB*	1JB	2JB	3JB	7JB	2JB*
Trichloroethylene	5J	6	21	7		3J	2J		9	7	10	270	12
1,1-dichloroethane									1J*		1J	102	
1,2-dichloroethenes			11										
Chloroform												6J	
Tetrachloroethylene			14								27	580	
1,1,2,2-tetrachloroethylene		10								4J	4J	15J	5J
Ethyl benzene												13J	
1,2-dichloroethane	0.9J									1J			1J
Acrolein			4J										
Acrylotnitrile			11J										
Benzene					5J								

* = Estimated Concentration of Peak Identified in Library Search.
B = Detected in Method Blank.
J = Estimate Concentration Below Method Detection Limits.
Blank Spaces Indicate Compound Not Detected.

/WM-43H

TABLE 2-3

ANALYTICAL DATA SUMMARY (ppb)
DETECTED VOLATILE ORGANICS IN GROUNDWATER
FORMER EMCA SITE, MAMARONECK, NEW YORK

Compounds*	GZ-1		GZ-2		GZ-3		GZ-4		GZ-5	
	GZANY 5/31/88	WCC 3/2/89	GZANY 5/31/88	WCC 3/2/89	GZANY 5/31/88	WCC 3/2/89	GZANY 5/31/88	WCC 3/2/89	GZANY 5/31/88	WCC 3/2/89
Acetone	NA	22	NA	ND	NA	ND	NA	190	NA	ND
Benzene	2	ND	29	65	1J	ND	20	16	ND	ND
2-Butanone	NA	ND	NA	ND	NA	ND	NA	ND	NA	ND
Chloroethane	15	ND	1J	ND	1J	ND	55	ND	ND	ND
Chloroform	ND	ND	1J	ND	ND	ND	ND	1J	ND	ND
1,1-Dichloroethane	5	ND	ND	ND	ND	ND	4	ND	ND	ND
1,2-Dichloroethenes	ND	17	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	2J	ND	ND	ND	ND	ND	ND
Trichloroethene	6	ND	7	ND	38	ND	ND	ND	1J	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	2J	ND	4J	ND	ND
1,1,2-Trichloro-1,2,2-Trifluoroethane	8030	4100	110	74	340	470	5863	3300	1J	ND

* All concentrations in ppb.
ND Not Detected
NA Not Analyzed
J Below Method Detection Limits

/WM-43H

TABLE 2-3
(continued)

Compounds*	GZ-6		GZ-7		GZ-8		GZ-9	
	GZANY 5/31/88	WCC 3/2/89	GZANY 5/31/88	WCC 3/2/89	GZANY 5/31/88	WCC** 3/2/89	GZANY 5/31/88	WCC 3/2/89
Acetone	NA	ND	NA	ND	NA	NA	NA	4J
Benzene	ND	ND	1J	ND	74	NA	1J	ND
2-Butanone	NA	ND	NA	46	NA	NA	NA	ND
Chloroethane	ND	ND	ND	ND	26	NA	19	ND
Chloroform	5	ND	ND	ND	ND	NA	ND	ND
1,1-Dichloroethane	ND	ND	3	ND	ND	NA	ND	ND
1,2-Dichloroethenes	ND	ND	229	320	2	NA	ND	5J
Ethylbenzene	ND	ND	ND	ND	6	NA	ND	ND
Toluene	ND	ND	ND	ND	ND	NA	4	ND
1,1,1-Trichloroethane	1J	ND	6	15	ND	NA	ND	ND
Trichloroethene	ND	ND	258	180	25	NA	ND	ND
Tetrachloroethene	ND	ND	ND	380	ND	NA	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	NA	ND	7J
1,1,2-Trichloro-1,2,2-Trifluoroethane	1274	200	32	4J	696	NA	18,208	1,900

* All concentrations in ppb.
** GZ-8 was damaged and unable to be sampled March 2, 1989.
ND Not Detected
NA Not Analyzed
J Below Method Detection Limits

/WM-43H

APPENDIX B

ENVIRON AIR SAMPLING REPORT

Indoor Air Sampling at TCI Cable of Westchester, Inc. Mamaroneck, New York

Prepared for

TCI Cable of Westchester, Inc.
Mamaroneck, New York

Prepared by

ENVIRON Corporation
Princeton, New Jersey

September 1992

CONTENTS

APPENDICES

TABLES

CONTENTS
(continued)

Page

FIGURES

I. INTRODUCTION

A. Site Background

During the property transfer of the former EMCA site to United Artists Columbia Cablevision (UACC), now TCI Cable of Westchester, Inc. (TCI Cable), a preliminary site assessment and an assessment of subsurface conditions was conducted. These assessments indicated the presence of 1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113) and several other volatile organic compounds in the soil and ground water. Woodward-Clyde Consultants (WCC) conducted a risk assessment to evaluate the possibility of any impact from the migration of chemicals in the soil and ground water. Based on their evaluation WCC concluded that the soil and ground water contaminants did not demonstrate a risk to human health or the environment.

B. Purpose of Conducting Indoor Air Sampling

To address the concerns of current occupants of the TCI Cable building that the previously identified chemicals may nonetheless present a health risk, indoor air sampling was conducted. The air sampling protocol was designed to determine if the previously identified chemicals in soil and ground water are migrating into the workplace environment.

ENVIRON reviewed the soil and ground water data presented in the WCC risk assessment and identified 16 compounds (Table 1) at levels above the detection limit. The indoor air sampling protocol was developed to analyze for these 16 compounds.

TABLE 1
Target Compounds for Indoor Air Sampling Analysis

Acetone
Benzene
Butanone, 2-
Chloroethane
Chloroform
Dichloroethane, 1,1-
Dichloroethene, cis-1,2-
Dichloroethene, trans-1,2-
Ethylbenzene
Freon 113
Methylene chloride
Tetrachloroethane, 1,1,2,2-
Tetrachloroethylene
Trichloroethane, 1,1,1-
Trichloroethylene
Toluene

2860A:PAA02EAF.W51

II. SAMPLING METHODOLOGY

A. Sampling Locations

A site walk-through was conducted prior to collecting the indoor air samples. Because of the extreme sensitivity of the analytic procedures employed in the investigation, an effort was made to isolate potential minor sources of the chemical constituents prior to the indoor air sampling. These minor sources would include routine cleaning fluids, solvents, or "dust-off" propellent-containing spray cans. Prior to collecting the indoor air samples, the locations of sumps and drains were identified and the proposed sampling locations were finalized.

Eight indoor locations (four on each floor) were identified. The first floor locations were selected to represent potential areas where soil and ground water chemicals could enter the building floor. Considerations were given to areas with potential impact from sumps, drains and elevator shafts. These first floor locations include Head End Room, Men's Room, Utility Room and outside the elevator. The second floor samples were selected to represent the indoor air quality of the TCI Cable building. The second floor locations include the Lunch Room, hallway adjacent to Human Resources, Marketing Office and hallway near the elevator. Indoor air sampling locations are indicated on the TCI Cable building floor plans, provided as Attachment A. Two outdoor samples were collected from the two air intake vents located on the roof of the building. The outdoor samples were collected to represent the ambient outdoor air quality.

B. Sampling Methodology

All air samples were collected in stainless steel SUMMA canisters by an experienced certified industrial hygienist (CIH). Since the indoor atmospheric environment in the TCI Cable building is homogeneous, with no specific air contaminant source or operation in the building, the indoor air samples were collected as grab samples. The canisters used to

collect the outdoor samples were equipped with a precalibrated flow controller such that the outdoor air samples represented a time-weighted average sample, obtained during the time period which the indoor air samples were collected (i.e., about two hours). The direction of the wind socks were noted at the initiation and termination of the outdoor air sampling. Photographs of outdoor sampling methodology, documenting wind direction, are provided in Appendix B.

C. Additional Parameters

At each sampling location, temperature and relative humidity readings were recorded. Carbon dioxide measurements (using Draeger tubes) were taken at select locations. Field data and report of air sample collection, prepared by the CIH, are provided as Appendix C.

D. Quality Assurance/Quality Control

A chain of custody record analytical services request was completed and submitted to the analytical laboratory with the 10 air samples. A copy of the chain-of-custody record is provided as Appendix D. The samples were received and processed by the analytical laboratory the day following the sample collection.

III. ANALYTICAL METHODOLOGY

The air samples were analyzed by combined gas chromatography/mass spectrometry (GC/MS) for 16 volatile organic compounds. The analyses were performed according to the methodology outlined in USEPA Method TO-14 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air (USEPA 1988). This methodology allowed positive identification of the 16 target compounds and provided detection limits in the parts per billion (ppb) range.

Quality assurance/quality control procedures included analysis of a laboratory method blank and a laboratory duplicate. The results of the laboratory method blank and the laboratory duplicate were within the acceptable range.

IV. INTERPRETATION OF RESULTS

Of the 16 chemicals previously identified in the soil and ground water, nine were detected at low levels in both the indoor and outdoor air. This is an expected result because all of these chemicals are common air contaminants and are frequently detected at these levels. Chloroform was detected at trace concentrations in two indoor air samples and was not detected in the outdoor air. Based on the sampling locations where chloroform was detected (i.e., Men's Room and Utility Room) the source of the chloroform was probably due to the presence of chlorinated drinking water in these areas.

The chemical concentrations were slightly higher in the indoor air samples than the outdoor air samples. This is not atypical and most likely due to air recycling, and other possible sources such as routine cleaning use of these chemicals within the building. Specifically, some of these common chemicals are present in cleaning solvents used on site and Freon 113 is used in the maintenance of the video tape equipment.

A chemical-specific comparison of the average indoor air concentration of the nine chemicals to reference levels is provided in Figures 1 through 9. Reference levels used for comparison were obtained from the National Air Toxics Information Clearinghouse (NATICH) database, Agency for Toxic Substance Disease Registry (ATSDR), Occupational Safety and Health Administration (OSHA), and the United States Environmental Protection Agency (USEPA) Total Exposure Assessment Methodology (TEAM) Study.

The NATICH database provides state-specific acceptable ambient air concentration guidelines or standards. The nine compounds detected in indoor air were compared to the acceptable ambient concentration guidelines/standards for New York State, when available. The levels detected in the TCI Cable air sampling were well below any ambient air quality guidelines proposed by the State of New York. Ambient air background concentrations (either as ranges or maximum reported values) were compiled from the ATSDR toxicological profiles on select chemicals, when available. These ambient concentrations

were compared to levels detected in the TCI Cable indoor air. The air concentrations of the 9 target compounds detected in indoor air were also compared to the OSHA-Permissible Exposure Levels (PELs). The OSHA-PELs are time-weighted average concentrations that must not be exceeded during any 8-hour work shift of a 40-hour work-week. Indoor air sample results indicate that all target compounds were at least 300 times below the OSHA-PEL.

Air concentrations detected on-site were compared to ambient indoor air concentrations reported in the USEPA TEAM study, when available. The TEAM study reported average indoor air concentrations for trichloroethylene; 1,1,1-trichloroethane; tetrachloroethylene; and ethylbenzene. A comparison of the indoor air concentrations in the TCI Cable building were all below the ambient indoor air concentrations reported in the TEAM study.

A summary of results of air sampling at TCI Cable is provided in Table 2, along with average indoor and outdoor air concentrations. The analytical laboratory report is provided as Appendix E.

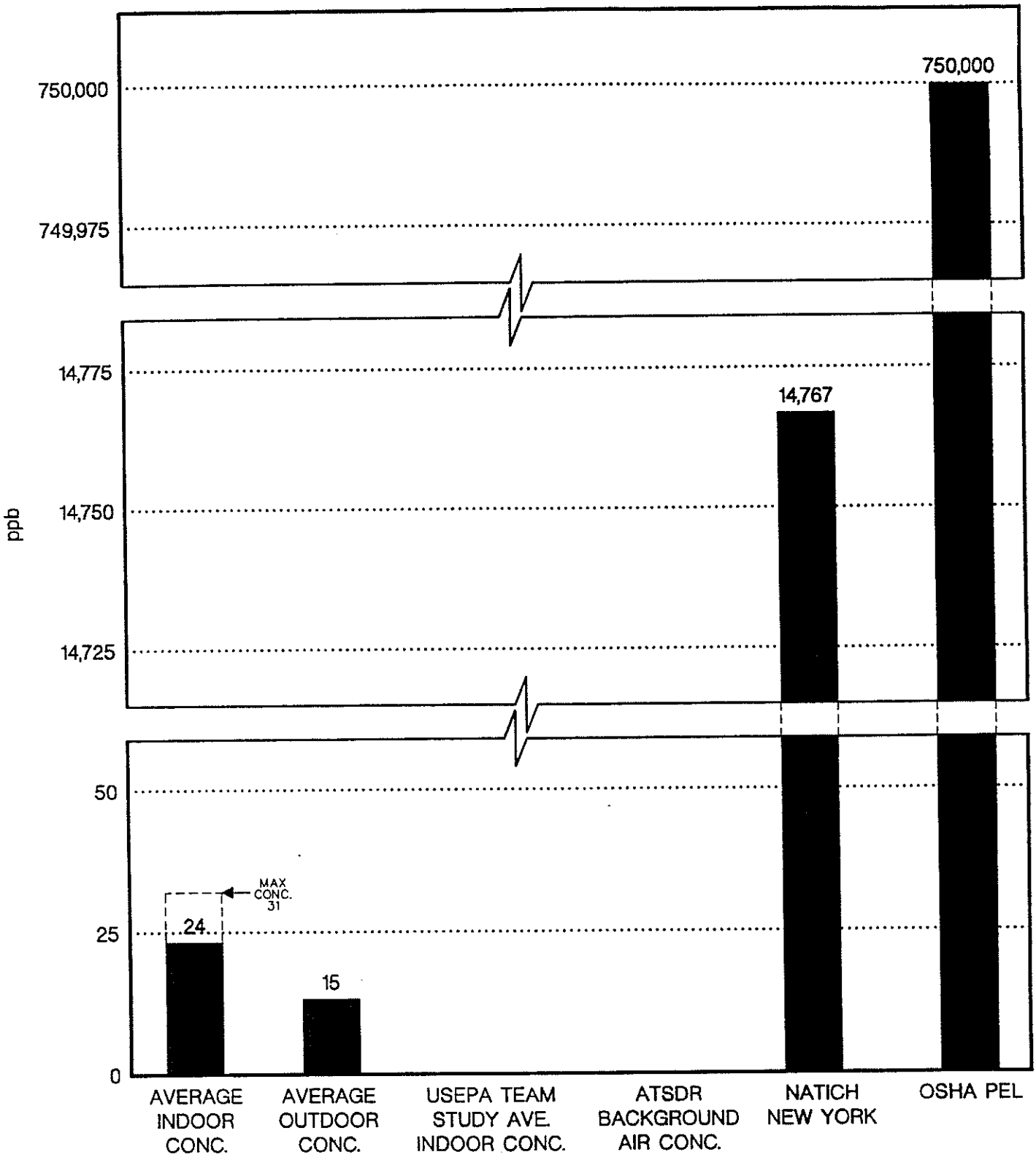
TABLE 2. Summary of Results of Indoor Air Sampling
TCI Cable, Mamaroneck, NY

COMPOUND	Detection Limit (ppb)	1st Floor				2nd Floor				Average Indoor Conc. (ppb)	Outdoor		Average Outdoor Conc. (ppb)
		8192-5 Outside Elevator (ppb)	8192-6 Head End Room (ppb)	8192-7 Men's Room (ppb)	8192-8 Utility Room (ppb)	8192-3 Lunch Room (ppb)	8192-4 Human Resources (ppb)	8192-9 Marketing Office (ppb)	8192-10 Hallway Near Elev. (ppb)		8192-1 Lower Roof (ppb)	8192-2 Upper Roof (ppb)	
Acetone	4.20	16.0	19.0	28.0	31.0	30.0	25.0	23.0	22.0	24.25	14.0	15.0	14.50
Benzene	1.6	1.9	3.7	3.1	3.0	2.8	2.6	2.0	2.1	2.65	0.96TR	0.91TR	0.94
Butanone, 2-	3.4	ND	ND	ND	ND	ND	ND	ND	ND	0.00	ND	ND	0.00
Chloroethane	1.9	ND	ND	ND	ND	ND	ND	ND	ND	0.00	ND	ND	0.00
Chloroform	1	ND	ND	0.63TR	0.60TR	ND	ND	ND	ND	0.15	ND	ND	0.00
Dichloroethane, 1,1-	1.2	ND	ND	ND	ND	ND	ND	ND	ND	0.00	ND	ND	0.00
Dichloroethene, cis-1,2-	1.3	ND	ND	ND	ND	ND	ND	ND	ND	0.00	ND	ND	0.00
Dichloroethene, trans-1,2-	1.3	ND	ND	ND	ND	ND	ND	ND	ND	0.00	ND	ND	0.00
Ethylbenzene	1.2	1.9	4.5	3.2	3.1	2.4	2.1	0.65TR	2.4	2.53	0.65TR	0.63TR	0.64
Freon 113	0.66	1.6	12.0	3.1	3.6	1.7	1.6	1.9	2.0	3.44	0.66	0.81TR	0.74
Methylene chloride	1.5	1.7	2.6	2.5	3.5	2.3	2.1	2.5	2.5	2.46	1.1TR	1.4TR	1.25
Tetrachloroethane, 1,1,2,2-	0.74	ND	ND	ND	ND	ND	ND	ND	ND	0.00	ND	ND	0.00
Tetrachloroethylene	0.75	0.84	1.1	1.1	1.1	0.88	1	1.1	1.2	1.04	0.42TR	0.32TR	0.37
Trichloroethane, 1,1,1-	0.93	5.1	7.3	10	6.2	5.7	5.2	8.5	7.8	6.98	1.1	1.2TR	1.15
Trichloroethylene	0.94	0.91TR	0.96	3.2	5	3.1	2.8	2.2	2.3	2.56	0.77TR	ND	0.39
Toluene	1.3	13.0	24.0	24.0	31.0	27.0	21.0	19.0	17.0	22.0	6.0	5.6	5.80

ppb - parts per billion.
TR - Trace level-below indicated detection limit.
ND - Not detected.

2860A:PAA02EAF.W51

ACETONE



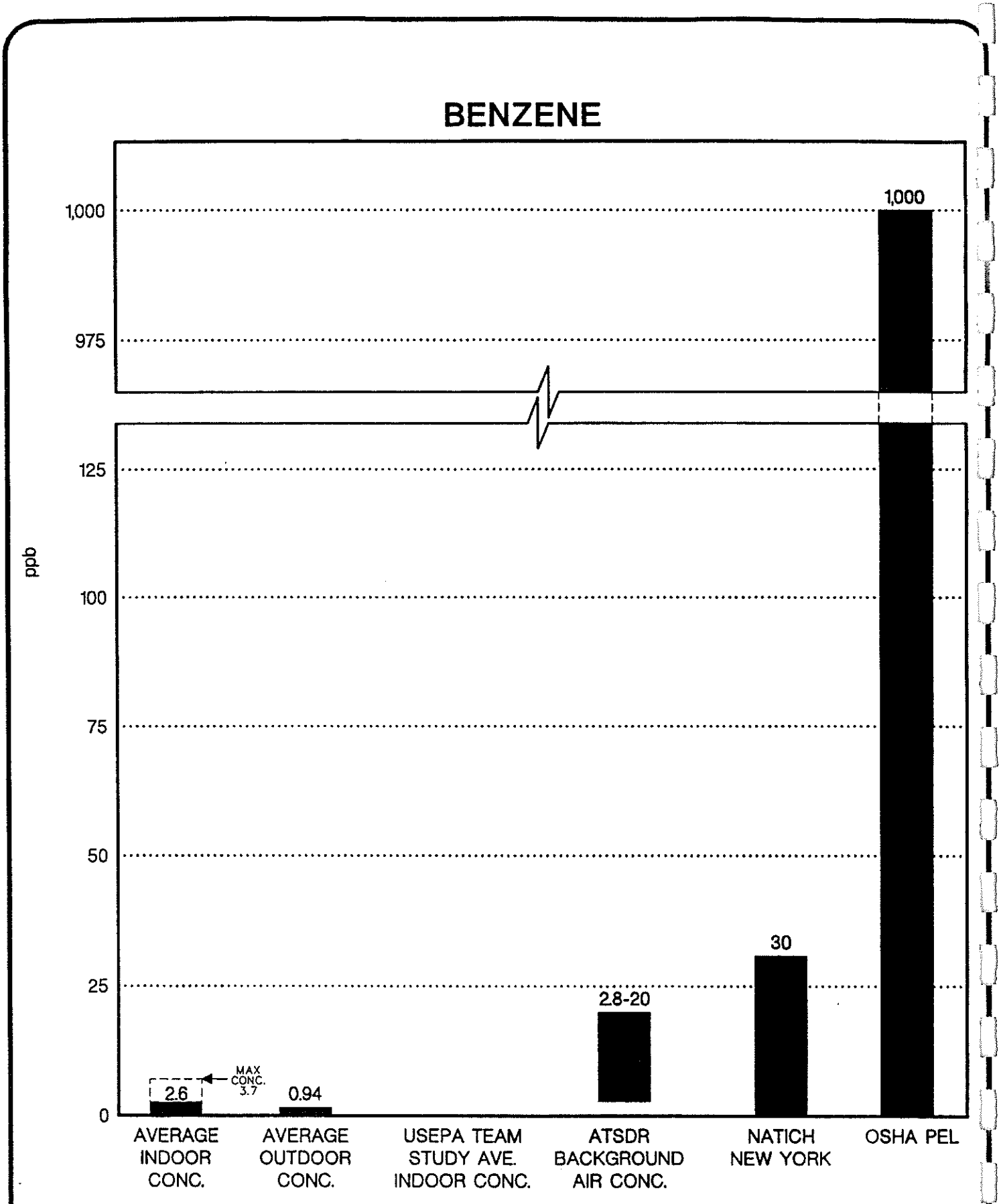
ENVIRON
Counsel in Health and Environmental Science

DRAFTED BY: TJF/JWH | DATE: 9/15/92

COMPARISON OF INDOOR AIR CONCENTRATION WITH REFERENCE LEVELS
TCI CABLE, MAMARONECK, NEW YORK

Figure 1

2860AG01



ENVIRON
Counsel in Health and Environmental Science

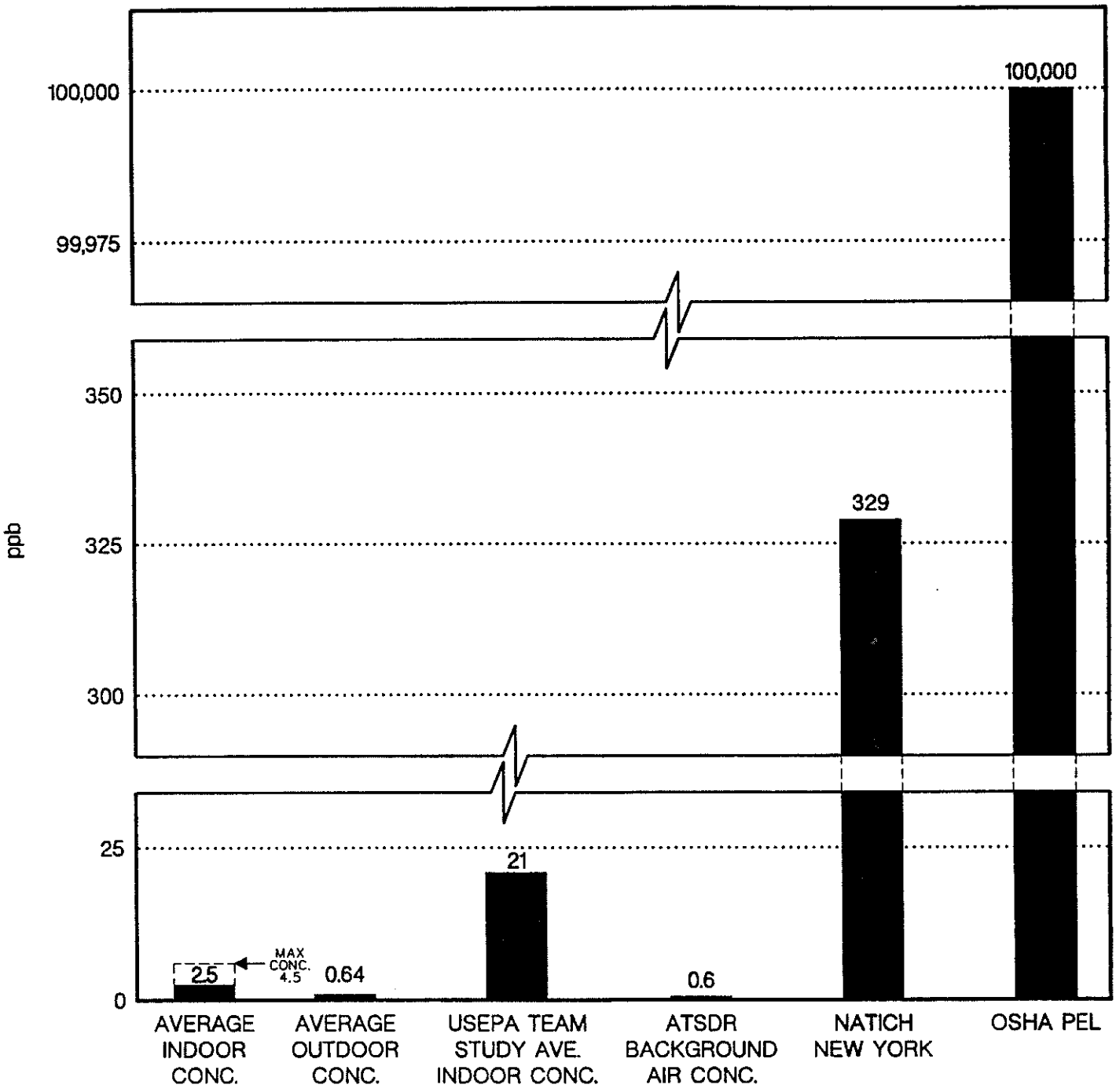
DRAFTED BY: TJF/JWH | DATE: 9/15/92

COMPARISON OF INDOOR AIR CONCENTRATION WITH REFERENCE LEVELS
TCI CABLE, MAMARONECK, NEW YORK

Figure 2

2860AG02

ETHYLBENZENE



ENVIRON
Counsel in Health and Environmental Science

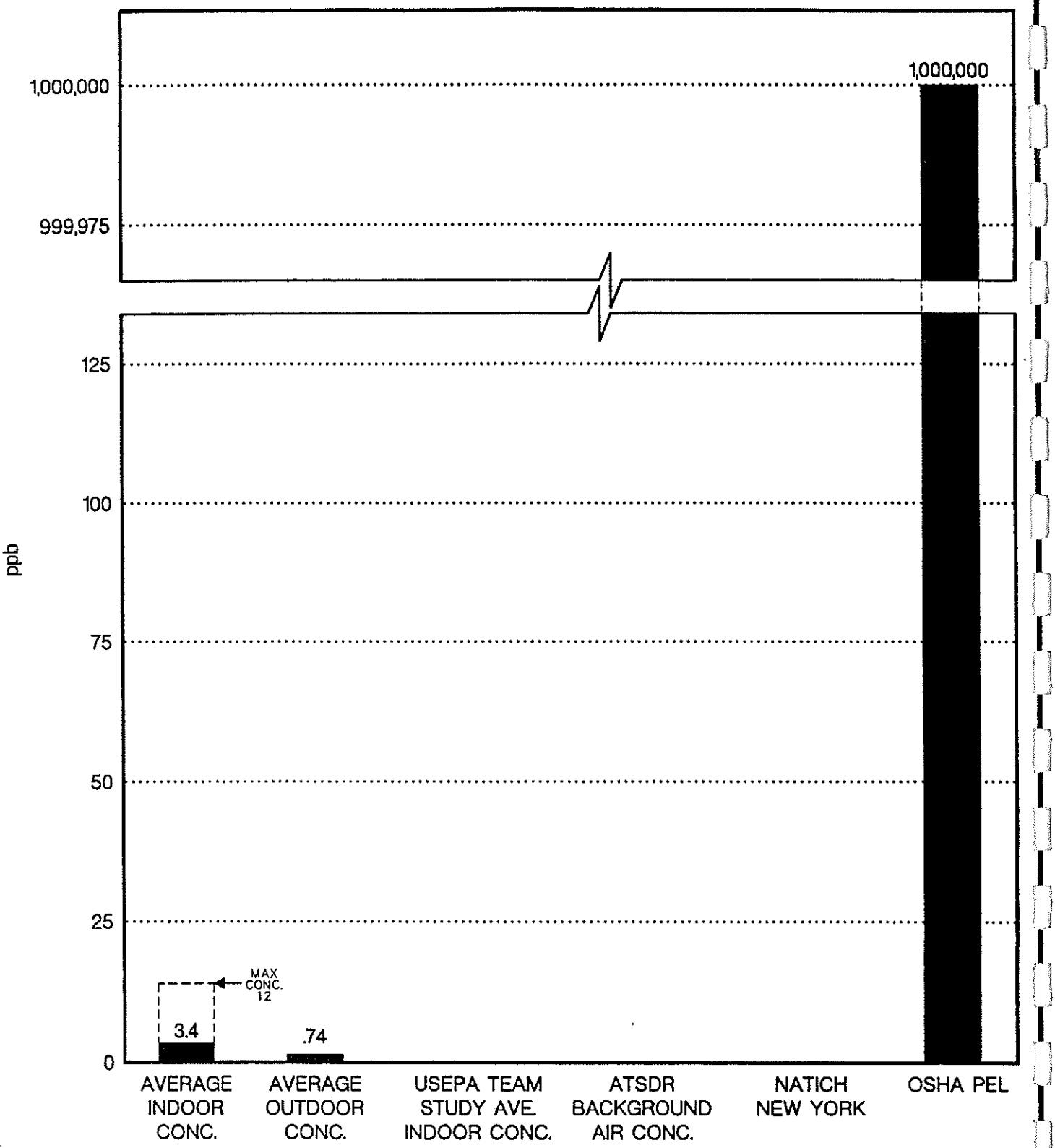
DRAFTED BY: TJF/JWH | DATE: 9/15/92

COMPARISON OF INDOOR AIR CONCENTRATION WITH REFERENCE LEVELS
TCI CABLE, MAMARONECK, NEW YORK

Figure 3

2860AG03

FREON 113



ENVIRON
Counsel in Health and Environmental Science

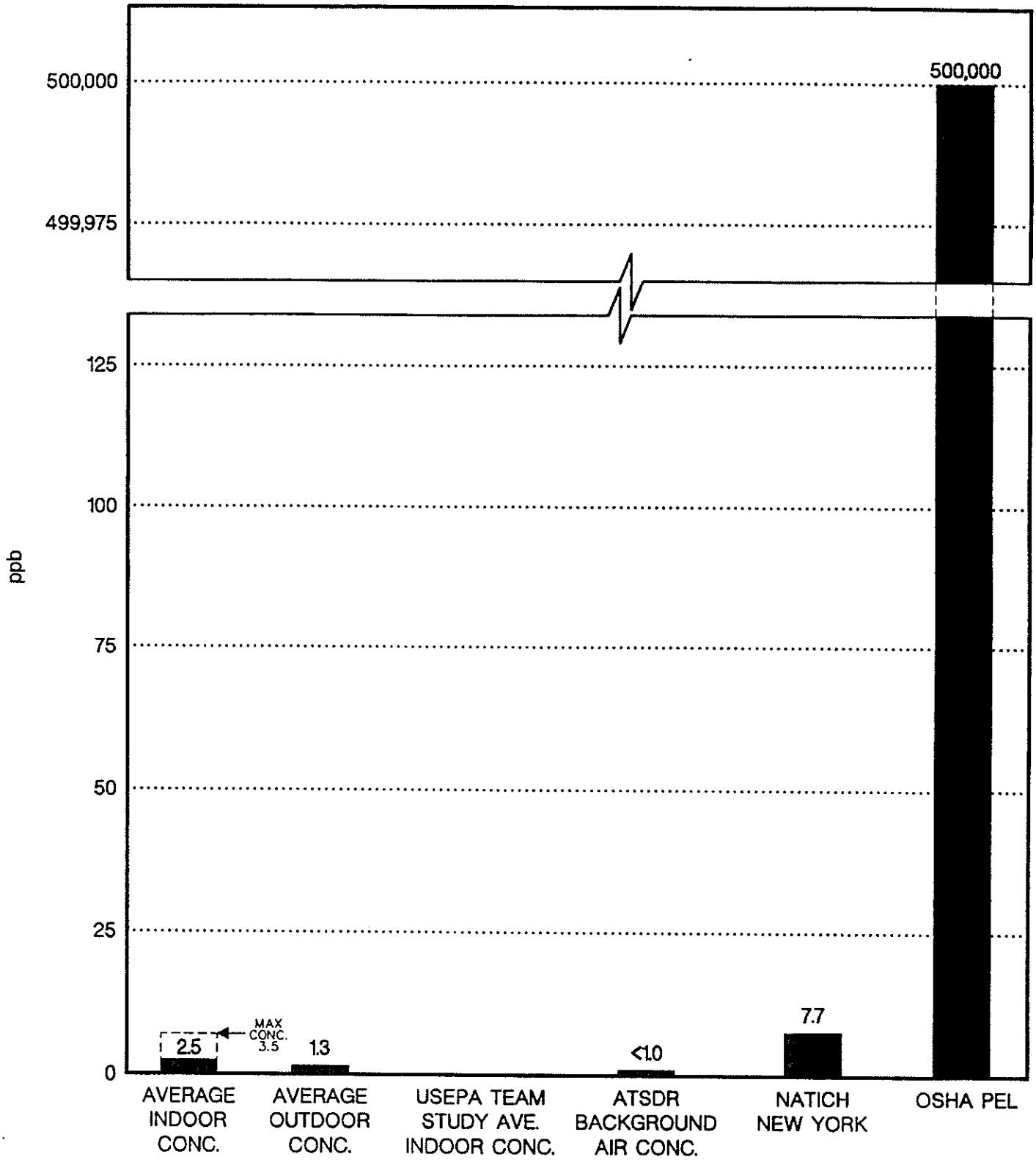
DRAFTED BY: TJF/JWH | DATE: 9/15/92

COMPARISON OF INDOOR AIR CONCENTRATION WITH REFERENCE LEVELS TCI CABLE, MAMARONECK, NEW YORK

Figure 4

2860AG04

METHYLENE CHLORIDE



ENVIRON
Counsel in Health and Environmental Science

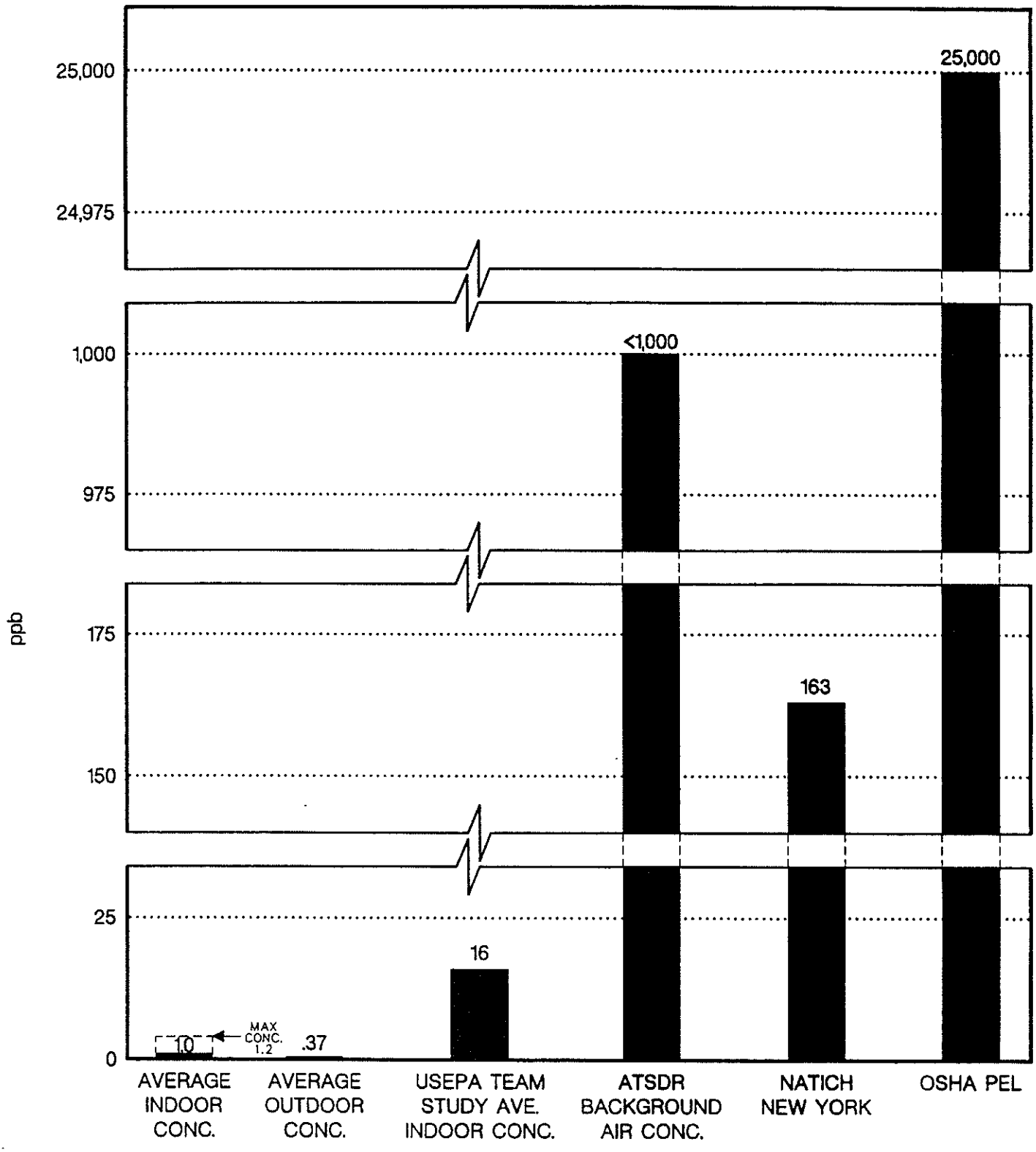
DRAFTED BY: TJF/JWH | DATE: 9/15/92

COMPARISON OF INDOOR AIR CONCENTRATION WITH REFERENCE LEVELS
TCI CABLE, MAMARONECK, NEW YORK

Figure 5

2860AG05

TETRACHLOROETHYLENE



ENVIRON
Counsel in Health and Environmental Science

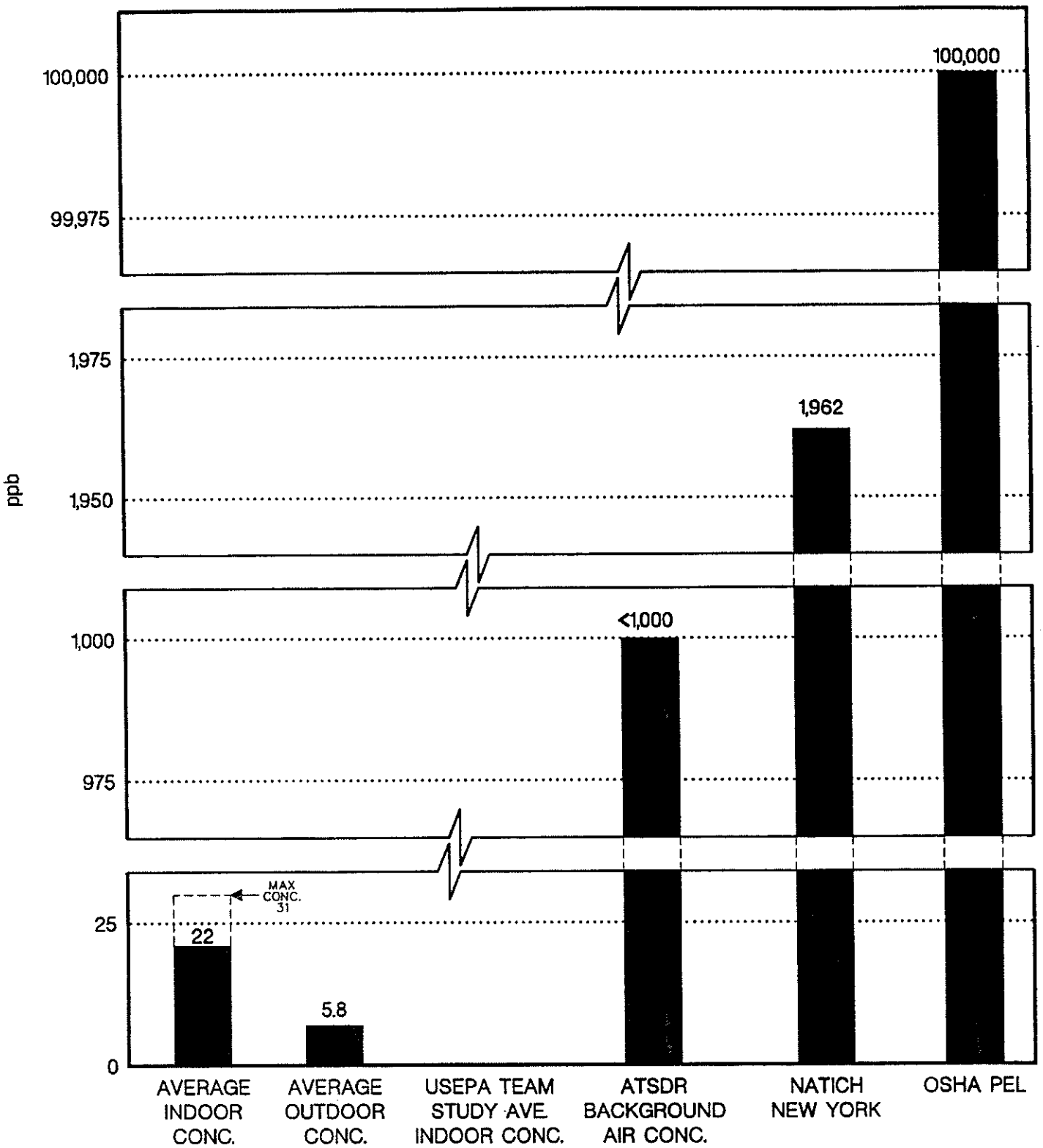
DRAFTED BY: TJF/JWH | DATE: 9/15/92

COMPARISON OF INDOOR AIR CONCENTRATION WITH REFERENCE LEVELS TCI CABLE, MAMARONECK, NEW YORK

Figure 6

2860AG06

TOLUENE



ENVIRON
Counsel in Health and Environmental Science

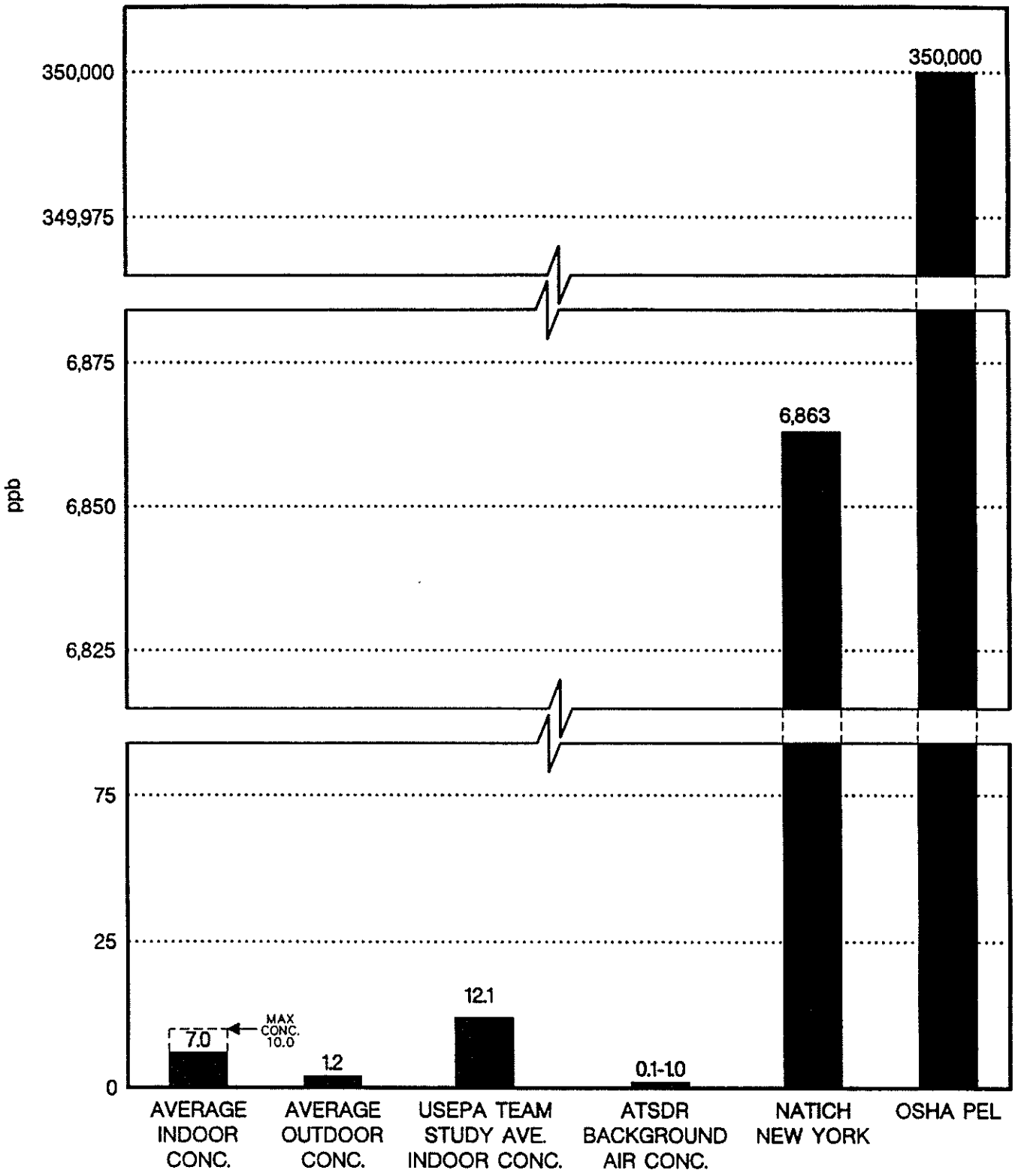
DRAFTED BY: TJF/JWH | DATE: 9/15/92

COMPARISON OF INDOOR AIR CONCENTRATION WITH REFERENCE LEVELS
TCI CABLE, MAMARONECK, NEW YORK

Figure 7

2860AG09

TRICHLOROETHANE, 1,1,1-



ENVIRON
Counsel in Health and Environmental Science

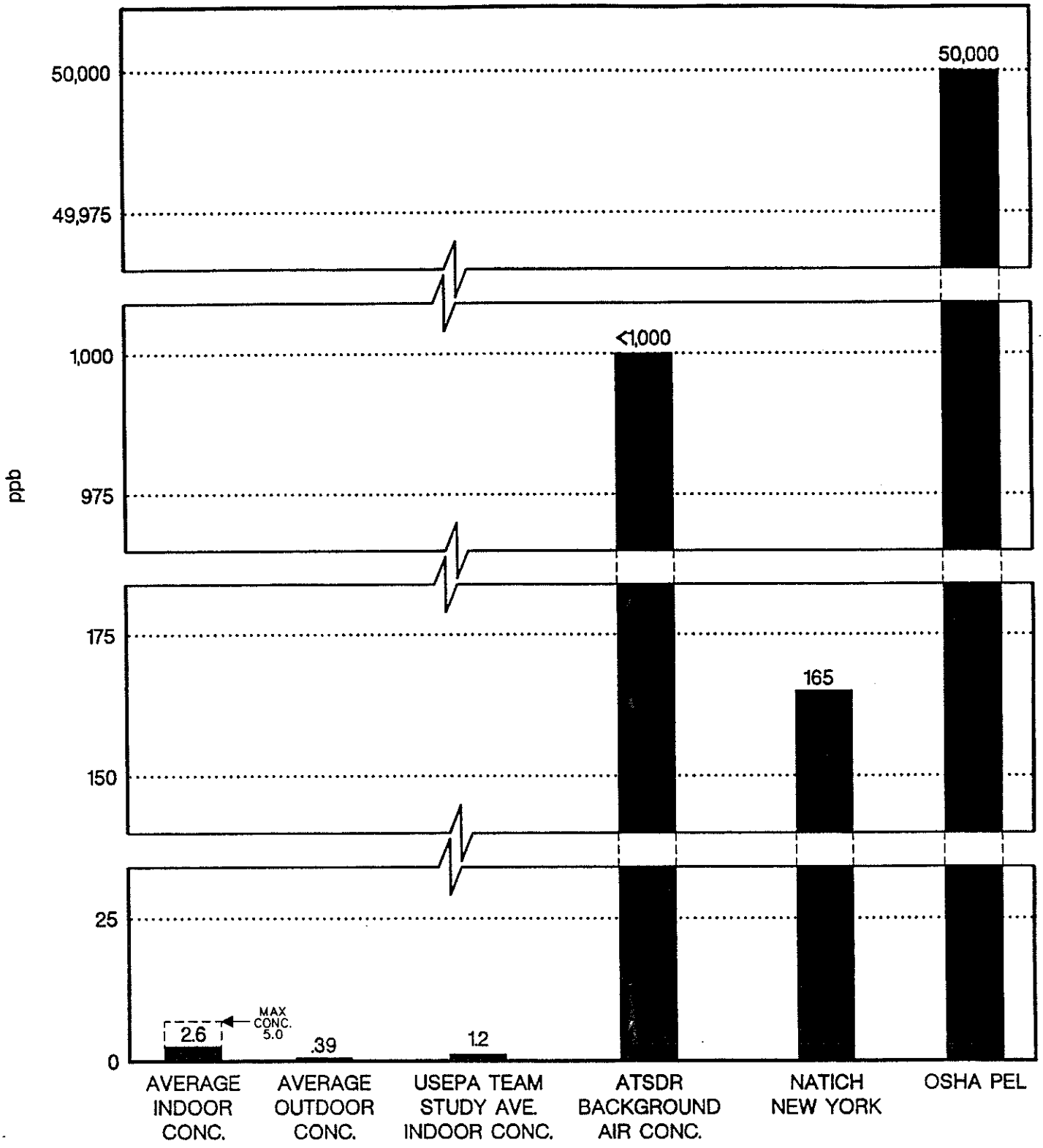
DRAFTED BY: TJF/JWH | DATE: 9/15/92

COMPARISON OF INDOOR AIR CONCENTRATION WITH REFERENCE LEVELS
TCI CABLE, MAMARONECK, NEW YORK

Figure 8

2860AC07

TRICHLOROETHYLENE



ENVIRON
Counsel in Health and Environmental Science

DRAFTED BY: TJF/JWH | DATE: 9/15/92

COMPARISON OF INDOOR AIR CONCENTRATION WITH REFERENCE LEVELS TCI CABLE, MAMARONECK, NEW YORK

Figure 9

2860AG08

Figure Legend for Figures 1 through 9

Average Indoor Conc.	-	Average indoor air concentration for the eight indoor air samples collected in the TCI Cable building. The maximum concentration detected in the TCI Cable building are indicated by the arrow and dotted line.
Average Outdoor Conc.	-	Average outdoor air concentration for the two outdoor samples collected from the roof of the TCI Cable building.
USEPA TEAM Study Ave. Indoor Conc.	-	These values represent weighted mean personal air concentrations for select chemicals collected from 110,000 Elizabeth-Bayonne residents during the summer of 1982 (USEPA TEAM Study, Table 21). United States Environmental Protection Agency (USEPA) Total Exposure Assessment Methodology (TEAM) Study was designed to develop methods to measure individual total exposure (exposure through food, air and water) and resulting body burden of toxic and carcinogenic chemicals; and to apply these methods with a probability-based sampling framework to estimate the exposures and body burdens of urban populations in several U.S. cities.
ATSDR Background Air Conc.	-	Ambient air concentrations the general population may be exposed to provided by the Agency for Toxic Substance Disease Registry (ATSDR). These values may be reported as ranges or maximum values not expected to be exceeded in any background area.
NATICH New York	-	New York State acceptable ambient concentration guidelines as provided in the National Air Toxics Information Clearinghouse (NATICH) database.
OSHA PEL	-	The Occupational Safety and Health Administration (OSHA) Permissible Exposure Levels (PELs) are time-weighted average

concentrations that must not be exceeded during any 8-hour work shift of a 40-hour work week.

ppb - Parts per billion.

V. CONCLUSIONS

The indoor air sampling results do not indicate any evidence of chemicals previously identified in the soil and ground water beneath the TCI Cable building migrating into the indoor air of the building. Of the 16 target compounds, nine were detected at low levels and seven were not detected with detection limits in the 1-4 ppb range. The concentrations of the nine chemicals detected in indoor air were slightly higher than the outdoor air, probably due to air recycling. The chemicals identified in the indoor air are common indoor air contaminants and are commonly present in the environment. Other possible sources of these chemicals include routine use within the building, such as in cleaning fluids and spray propellants.

A comparison of the indoor air sampling results to specific reference levels showed that all chemicals were well below the acceptable Ambient Air Quality guidelines proposed by the State of New York, and are at least 300 times below the occupational OSHA permissible exposure limit (PEL) mandated by OSHA.

Based on the indoor air sampling results, there is no evidence to suggest that the levels of chemicals detected would produce any adverse health effects to the occupants of the TCI Cable building.

2860A:PAA02EAF.W51

REFERENCES

Agency for Toxic Substances and Disease Registry (ATSDR). 1992. *Toxicological profile for benzene*. (Draft) U.S. Public Health Service.

Agency for Toxic Substances and Disease Registry (ATSDR). 1990. *Toxicological profile for ethylbenzene*. U.S. Public Health Service.

Agency for Toxic Substances and Disease Registry (ATSDR). 1992. *Toxicological profile for methylene chloride*. (Draft) U.S. Public Health Service.

Agency for Toxic Substances and Disease Registry (ATSDR). 1992. *Toxicological profile for tetrachloroethylene*. (Draft) U.S. Public Health Service.

Agency for Toxic Substances and Disease Registry (ATSDR). 1989. *Toxicological profile for toluene*. U.S. Public Health Service.

Agency for Toxic Substances and Disease Registry (ATSDR). 1990. *Toxicological profile for 1,1,1-trichloroethane*. U.S. Public Health Service.

Agency for Toxic Substances and Disease Registry (ATSDR). 1992. *Toxicological profile for trichloroethylene*. (Draft) U.S. Public Health Service.

Integrated Risk Information System (IRIS). 1992. U.S. Environmental Protection Agency.

McClenny, William A., J.D. Plell, G.F. Evans, K.D. Oliver, M.W. Holdren and W.T. Winberry. 1991. Canister-based method for monitoring toxic VOCs in ambient air. J. Air Waste Manage. Assoc. 41(10):1308-1318.

United States Department of Health and Human Services (USDHHS). 1990. National Institute for Occupational Safety and Health (NIOSH) *Pocket guide to chemical hazards*. No. 90-117.

United States Environmental Protection Agency (USEPA). 1992. National Air Toxics Information Clearinghouse (NATICH). Office of Air Quality Planning and Standards. Washington, D.C.

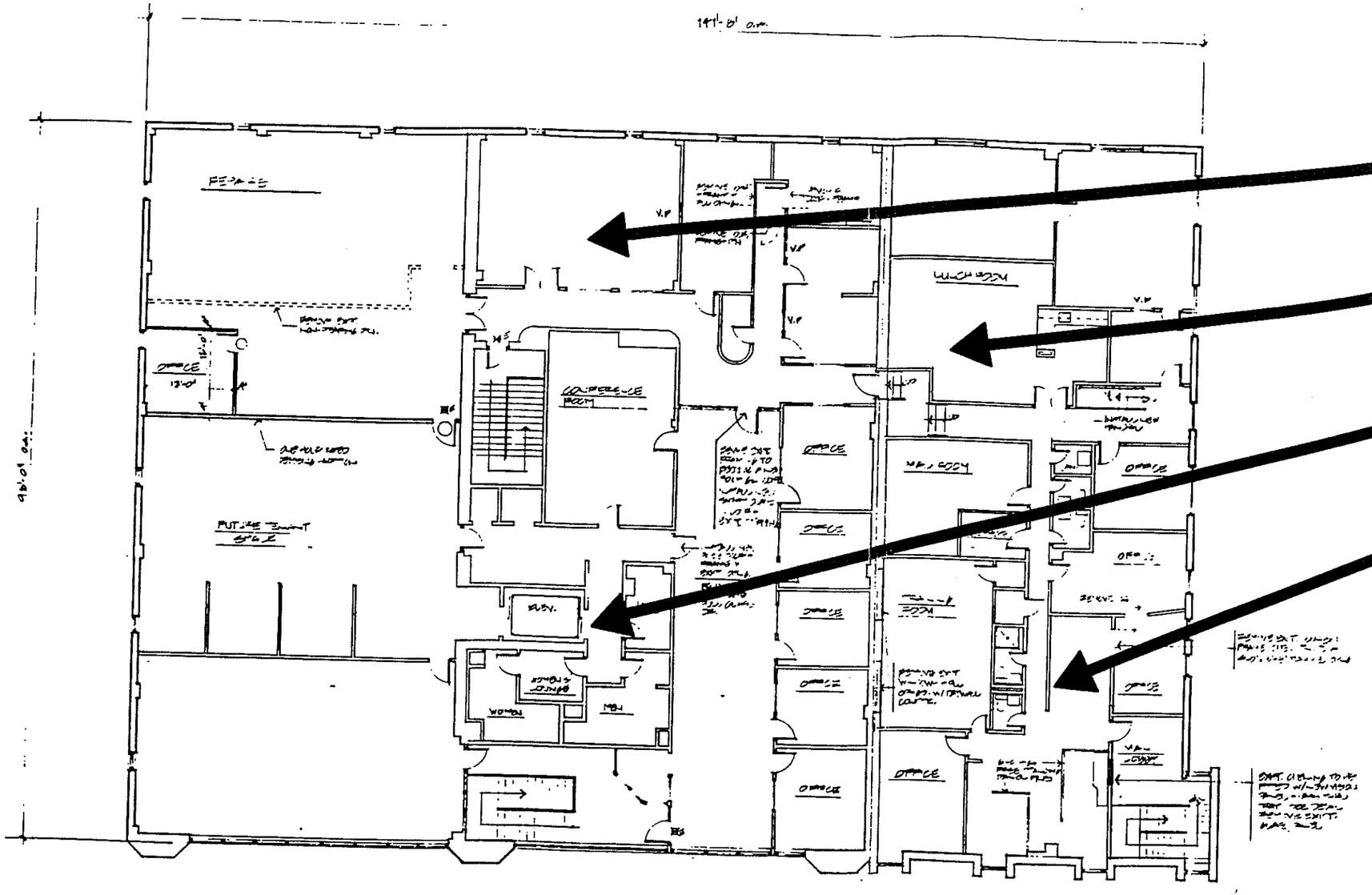
United States Environmental Protection Agency (USEPA). 1990. Office of Research and Development, Atmospheric Research and Exposure Assessment Laboratory. *Compendium of methods for the determination of air pollutants in indoor air.* Research Triangle Park, NC. EPA-600/4-89/-017.

United State Environmental Protection Agency (USEPA). 1987. *The total exposure assessment methodology (TEAM) study: Summary and analysis: Volume I.* Office of Research and Development. Washington, D.C. EPA/600/6-87/002a.

2860A:PAA02EAF.W51

APPENDIX A

Indoor Air Sampling Locations



MARKETING OFFICE
SAMPLE ID. 8192-9

LUNCH ROOM
SAMPLE ID. 8192-3

HALLWAY NEAR ELEVATOR
SAMPLE ID. 8192-10

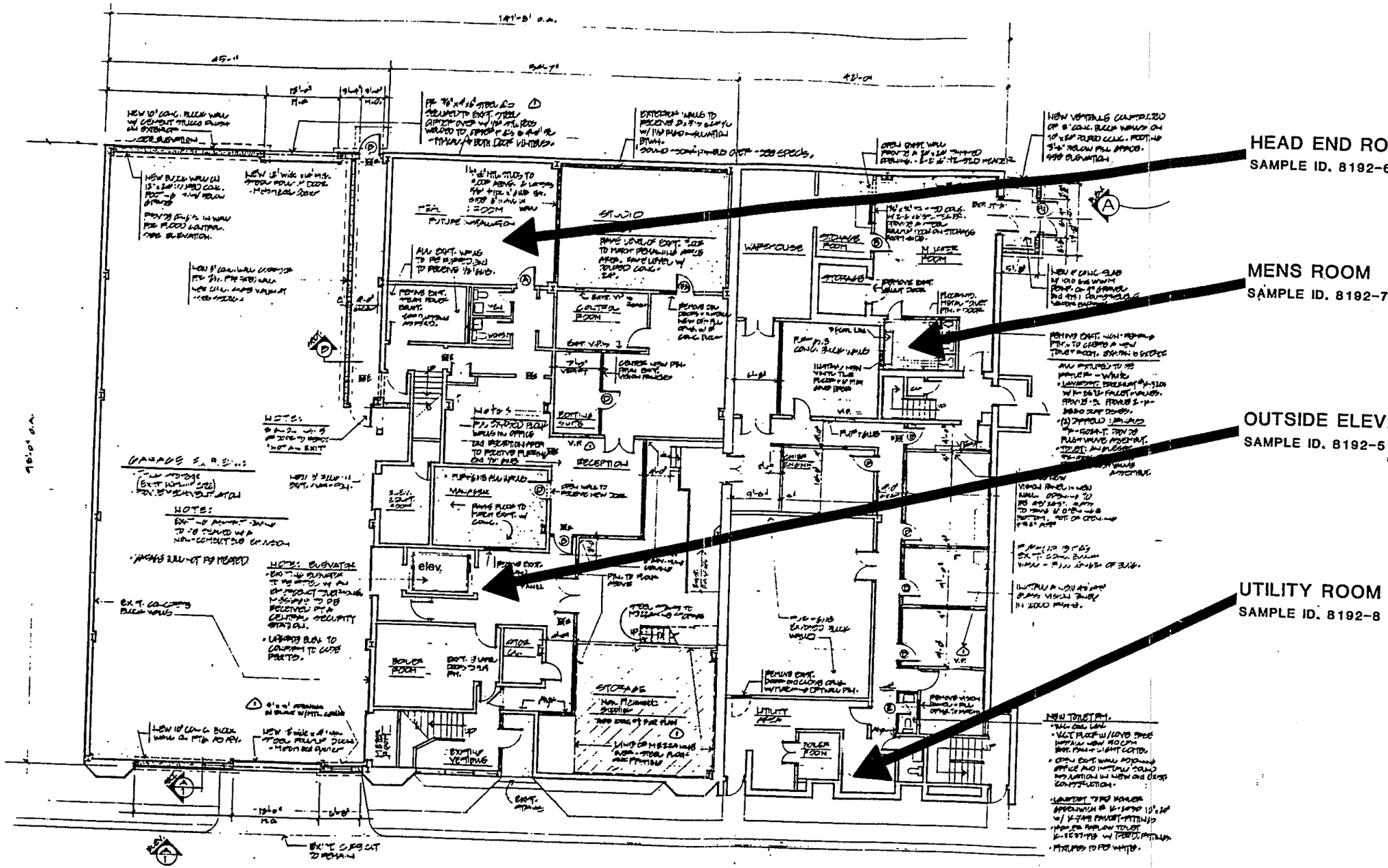
HALLWAY ADJACENT TO HUMAN RESOURCES
SAMPLE ID. 8192-4

SECOND FLOOR PLAN

1/8" = 1'-0"

Unite tists
Cablesystems Corp.

ERT STANZIALE AIA



FIRST FLOOR PLAN

1/8" = 1'-0"

APPENDIX B

Photographs of Outdoor Air Sampling Methodology

Photo A: Field Sample Number 8192-1 located underneath AHU nearest the corner of Ogden and Center Avenue. Windsock direction: north-northeast.

Photo B: Field Sample Number 8192-2 located underneath large AHU near center of the building.

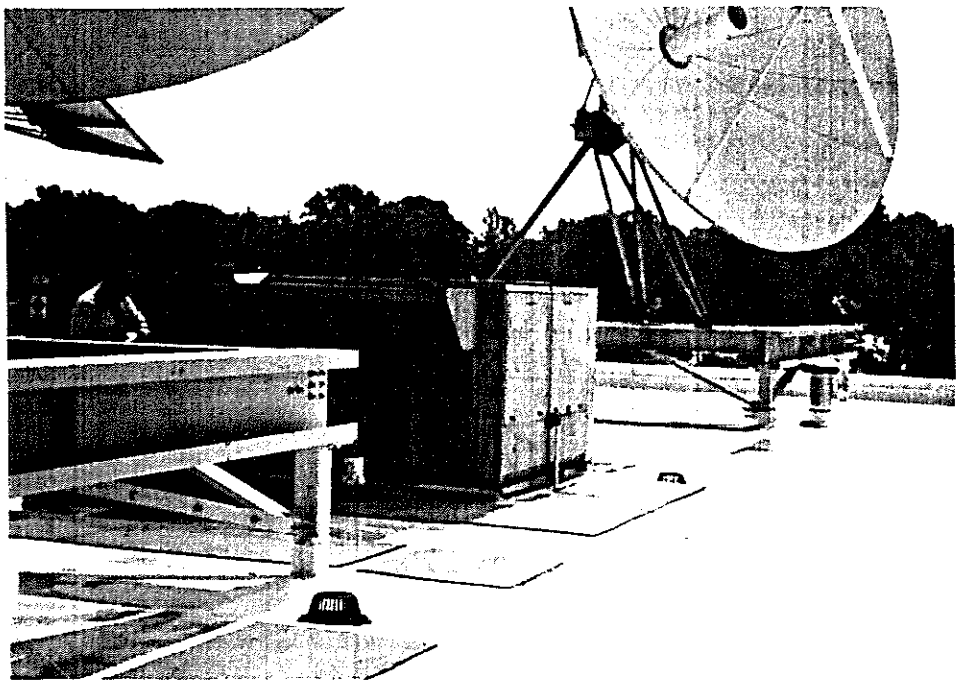


Photo C: Termination of Field Sample Number 8192-1. Windsock direction: north-northeast.

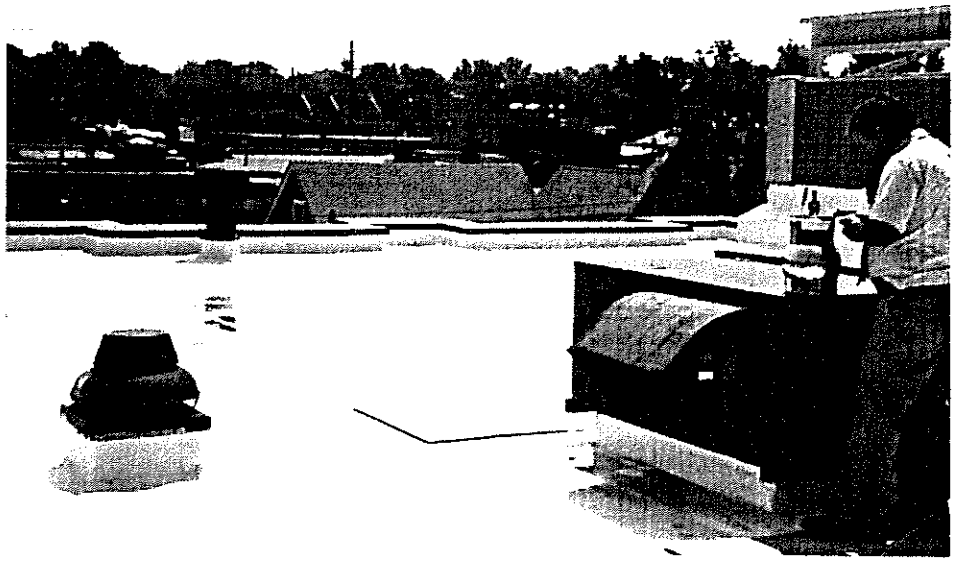


Photo D: Termination of Field Sample 8192-2.

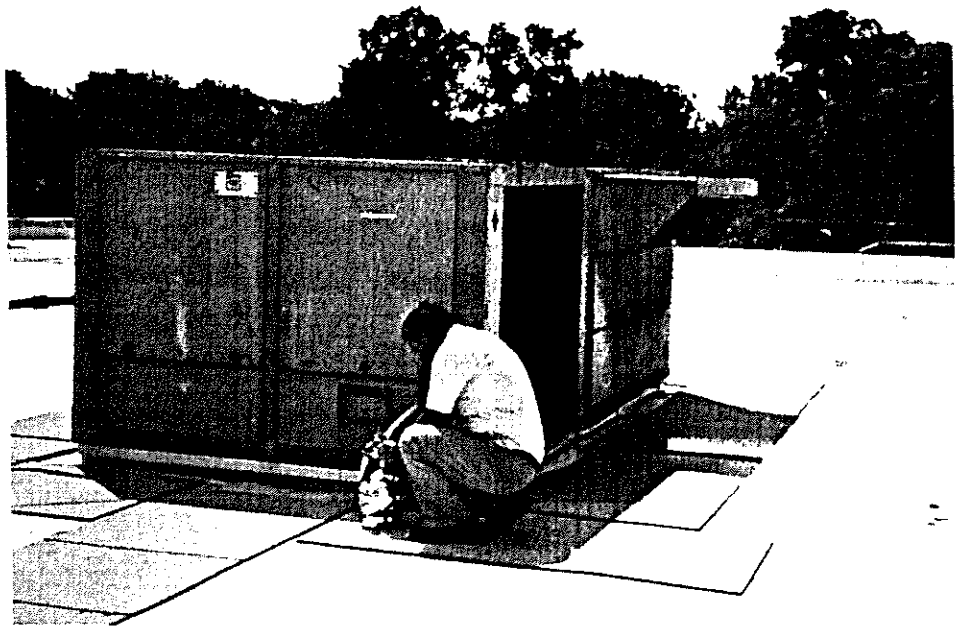
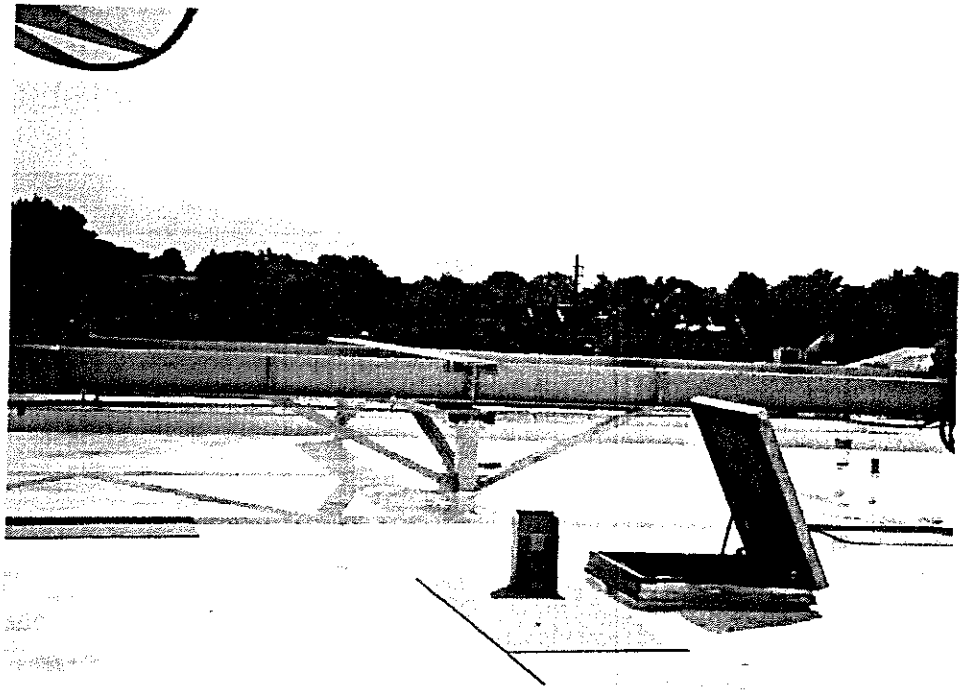


Photo E: Windsock direction is north-northeast at the termination of the air sampling.



APPENDIX C

Report of Air Sample Collection at
TCI Cable of Westchester, Inc.

Report of

Air Sample Collection

at

United Artists Columbia Cable System

609 Center Avenue

Mamaroneck, New York

on

August 19, 1992

by

Garry M. Annibal, CIH
ABIH # 3700

Compliance Management, Incorporated
53 S. Jefferson Rd., Whippany, New Jersey 07981

Air Sampling at UACC in Mamaroneck, NY

On Wednesday, August 19, 1992, a certified industrial hygienist form Compliance Management, Incorporated, collected ten air samples at the United Artists Columbia Cable System (UACC) facility at 609 Center Avenue, Mamoroneck, New York. Eight of the samples were grab samples taken from various locations throughout the building; the remaining two samples were two hour time integrated samples collected outside of the building, on the roof, near two of the fresh air intakes for the building's HVAC system. The samples were collected in pre-evacuated, 6 liter, SUMMA canisters. The canisters were supplied by Performance Analytical Incorporated of Canoga Park, California and were returned to them for subsequent analysis. In addition, temperature and relative humidity were determined at each sampling point. Furthermore, carbon dioxide levels were determined at selected locations during the sampling. A summary of field data and sampling locations is presented in Table 1.

During the collection of the samples of outdoor air, the flow into the canisters was restricted by a flow controlled which allowed for the collection of a two hour integrated sample. It was during this time frame that the samples inside the building were collected. Sample number 8192-1 was collected under the fresh air intake of the air handling unit (AHU) closest to the corner of Ogden Street and Center Avenue. At the start and at the finish of the collection of this sample, the dampers on the AHU were in a closed position and thus a minimum amount of fresh air was entering through this point. Sample 8192-2 was collected under the fresh air intake of the large AHU in the center of the main building. At the start and at the finish of the sampling, the dampers were partially open, thus some fresh air was entering the building at this point.

The samples collected inside of the building were grab samples. The evacuated canisters had no limiting orifices or flow controllers. The time reported in Table 1 is the time that the valve to the canister was opened. It took between 10 and 15 seconds for the canisters to fill.

The temperature and humidity measurements of the indoor air indicate that the air was being conditioned by the HVAC system. The carbon dioxide levels at three locations inside the building approximated the outdoor levels, indicating an adequate supply of fresh air. The one indoor carbon dioxide level that was elevated was in the first floor storage room, which had limited conditioned air supply.

TABLE 1
Locations and Field Data

Field Sample Number	Lab. Canister Number	Location	Time of Sampling	Temperature (°F) Dry Bulb	Wet Bulb	Humidity (% RH)	Carbon Dioxide (ppm)
8192-1	00063	Roof, underneath AHU nearest the corner of Ogden and Center	Start - 10:40 Finish - 12:41	80 84	74 78	75 76	400
8192-2	00006	Roof, underneath large AHU near center of the building	Start - 10:50 Finish - 12-47	80 84	74 76	75 69	
8192-3	00016	Second Floor - Lunch room	11:03	70	63	68	400
8192-4	00084	Second Floor - Hallway outside of Human Resources	11:10	74	64	58	
8192-5	00147	First Floor - Just outside of elevator	11:23	74	65	61	
8192-6	00024	First Floor - Storage room near pit	11:28	73	63	65	950
8192-7	00158	First Floor - Men's room near vault	11:42	75	68	70	
8192-8	00056	First Floor - Sump pit	11:47	76	69	68	
8192-9	00132	Second Floor - Marketing Office	12:00	73	61	63	325
8192-10	00149	Second Floor - Near elevator	12:09	76	67	62	450

The results are in degrees Fahrenheit (°F), per cent relative humidity (%RH), or parts per million (ppm) as applicable.

Performance Analytical Inc.
Environmental Testing and Consulting

20954 Osborne Street
Canoga Park, California 91304
Phone 818 709-1139
Fax 818 709-2915

Chain of Custody Record
Analytical Services Request

Client/Project Name	Address/Phone	PAI Project No.
ENVIRON/Compliance Mgt.	210 Carnegie Ctr. Suite 201 Princeton, NJ 08540	
Project Location	**Client Project No.**	
UACC Mamaroneck, NY		
Contact	**Sampler (Signature)**	**P.O. No.**
Arleen Medeiros (609) 951-9041	[signature], CIH	

ANALYSES

Sample Identification No.	Date	Time	Lab Sample No.	Type of Sample	Expected Turnaround Time	Remarks
8192-1	8/19/92			2 hr Composite		Summa Canisters
8192-2	"			2 hr Composite		
8192-3	"	11:03		Grab		
8192-4	"	11:10		"		
8192-5	"	11:23		"		
8192-6	"	11:28		"		
8192-7	"	11:42		"		
8192-8	"	11:47		"		
8192-9	"	12:00		"		
8192-10	"	12:09		"		

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	8/19/92	3:50 PM			
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Disposal Method					
Disposed by: (Signature)	Date	Time			

White Copy : Accompanies Samples

Yellow Copy : Sampler

Performance Analytical Inc.
Environmental Testing and Consulting

Sampling Instructions for Summa Canisters and Flow Controllers

Enclosed you will find evacuated Summa sampling canisters and low volume flow controllers. The black colored valve at the top end of the controller adjusts the flow rate. Please do not change the setting on this valve. The valves have been calibrated precisely for the time period over which you will be sampling. First remove the brass cap at the top of the canister. The flow controller is then attached to the top of the Summa canister. Screw down initially with your fingers, then tighten gently with a 9/16 inch wrench.

The green colored valve on the Summa canister should be turned 1 and 1/4 turns counterclockwise to the open position to begin sampling. Close the green valve at the end of the specified time period. Then remove the flow controller from the canister replace the brass cap and return the flow controllers separately. Please return the canisters to the laboratory for analysis in the boxes in which they were shipped. When returning the flow controllers, please be sure to package carefully to insure that they are not damaged during shipment.

Use the identification labels provided and attach them to the Summa canister handle with the ties provided. PLEASE DO NOT STICK ANY KIND OF TAPE OR LABEL ONTO THE CANISTERS AND DO NOT WRITE ON THE CANISTERS WITH MARKER PENS. Also, do not remove PAI identification label or serial number label. Please complete a chain of custody form and include with the shipment. Thank you.

If you have any questions, please call:

PERFORMANCE ANALYTICAL INC.

(818) 709-1139

*Note: User assumes all responsibility for damages or loss of equipment. In the event of loss, user will pay full value of the equipment.

20954 Osborne Street, Canoga Park, CA 91304 • Phone 818 709-1139 • Fax 818 709-2915

Performance Analytical Inc.
Environmental Testing and Consulting

QUOTATION

Submitted to: Arlene Medeiros
ENVIRON
210 Carnegie Center, Suite 201
Princeton, NJ 08540

By: Maria Varallo
Project Manager
Performance Analytical Inc.

Project Reference: Indoor Air (10-12 samples)

SERVICES

Analysis of air samples from Summa Canisters for the 16 Volatile Organic Compounds (VOCs) listed below by Gas Chromatography/Mass Spectrometry (GC/MS) according to EPA Method TO-14.
Price per Sample: $ 275

Target Analytes:

Freon 113
TCE (Trichloroethene)
PCE (Tetrachloroethene)
Benzene
cis-1,2-DCE (cis-1,2-Dichloroethene)
Trans-1,2-DCE (Trans-1,2-Dichloroethene)
1,1-DCA (1,1-Dichloroethane)
Acetone
MEK (Methyl Ethyl Ketone)
Chloroethane
Chloroform
Ethylbenzene
Toluene
Methylene Chloride
1,1,1-TCA (1,1,1-Trichloroethane)
1,1,2,2-TCA(1,1,2,2-Tetrachloroethane)

Rental fee per week (10 days) for precleaned, certified and evacuated six (6) liter stainless steel Summa sampling canisters.
Price per Canister: $ 60 plus shipping

Rental fee per week (10 days) for a precalibrated variable constant differential low volume flow controller.
Price per Controller: $ 25

Thank you for the opportunity to bid on this project.

Date: 7/23/92

Approved by: MTT

This quotation is valid for ninety (90) days.

20954 Osborne Street, Canoga Park, CA 91304 • Phone 818 709-1339 • Fax 818 709-2915

APPENDIX D

Chain-of-Custody Record Analytical Services Request

Performance Analytical Inc.
Environmental Testing and Consulting

20954 Osborne Street
Canoga Park, California 91304
Phone 818 709-1139
Fax 818 709-2915

Chain of Custody Record
Analytical Services Request

Client/Project Name	Address/Phone	PAI Project No.
ENVIRON/Compliance Mgt.	210 Carnegie Ctr. Suite 201 Princeton, NJ 08540	4502
Project Location	**Client Project No.**	
UACC Mamaroneck, NY		
Contact	**Sampler (Signature)**	**P.O. No.**
Arleen Medeiros (609) 951-9041	[signature], CIH	

Sample Identification No.	Date	Time	Lab Sample No.	Type of Sample	ANALYSES P_i	ANALYSES P_s	Expected Turnaround Time	Remarks
8192-1	8/19/92	10:40 to 12:40	9204131	2 hr Composite	-2.9	+2.0		Summa Canisters 63
8192-2	"	10:50 to 12:42	132	2 hr Composite	-4.4	+2.0		6
8192-3	"	11:03	133	Grab	0.0	+2.1		16
8192-4	"	11:10	134	"	0.0	+2.0		84
8192-5	"	11:23	135	"	+0.1	+2.0		147
8192-6	"	11:28	136	"	+0.1	+2.0		24
8192-7	"	11:42	137	"	0.0	+2.0		158
8192-8	"	11:47	138	"	0.0	+2.1		56
8192-9	"	12:00	139	"	0.0	+2.0		132
8192-10	"	12:09	140	"	-0.1	+2.1		149
								FC-914, FC-915

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	8/19/92	3:50 PM	[signature]	8-20-92	14:22
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Disposal Method					
Disposed by: (Signature)	Date	Time			

White Copy : Accompanies Samples

Yellow Copy : Sample

APPENDIX E

Performance Analytical Inc.
Results of Analysis

Performance Analytical Inc.
Environmental Testing and Consulting

LABORATORY REPORT

Client:	ENVIRON	Date of Report:	08/28/92
Address:	210 Carnegie Center, Suite 201	Date Received:	08/20/92
	Princeton, NJ 08540	PAI Project No:	4502
Contact:	Ms. Arlene Medeiros	Purchase Order:	Verbal

Client Project ID: Compliance Mgt.

Ten (10) Stainless Steel "SUMMA" Polished Canisters labeled:

"8192-1"	"8192-2"	"8192-3"	"8192-4"	"8192-5"
"8192-6"	"8192-7"	"8192-8"	"8192-9"	"8192-10"

The samples were received at the laboratory under chain of custody on August 20, 1992. The samples were received intact. The dates of analysis are indicated on the attached data sheets.

Volatile Organic Compound Analysis

The samples were analyzed by combined gas chromatography/mass spectrometry (GC/MS) for sixteen Volatile Organic Compounds. The analyses were performed according to the methodology outlined in EPA Method TO-14 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, EPA 600/4-84-041, U.S. Environmental Protection Agency, Research Triangle Park, NC, April, 1984 and May, 1988. The analyses were performed by gas chromatography/ mass spectrometry, utilizing a direct cryogenic trapping technique. The analytical system used was comprised of a Finnigan Model 4500 GC/MS/DS interfaced to an Entech 2000 automated whole air inlet system/cryogenic concentrator. A thick film (5 micron) crossbonded 100% Dimethyl polysiloxane megabore column (RT_x-1, Restek Corporation, Bellefonte, PA) was used to achieve chromatographic separation.

The results of analyses are given on the attached data summary sheets.

Data Release Authorization:

Kathleen Aguilera
Analytical Chemist

Reviewed and Approved:

Michael Tuday
Laboratory Director

Performance Analytical Inc.
Environmental Testing and Consulting

PERFORMANCE ANALYTICAL INC.

RESULTS OF ANALYSIS

Client: ENVIRON

Client Sample ID: N/A

PAI Sample ID: PAI Method Blank

Test Code: GC/MS EPA TO-14
Analyst: Kathleen Aguilera
Instrument ID: Finnigan 4500B/Entech 2000
Verified by: Michael Tuday

Matrix: Summa Canister
Date Received: N/A
Date Analyzed: 08/20/92
Volume Analyzed: 1.00 Liter

CAS #	COMPOUND	RESULT (UG/M^3)	DETECTION LIMIT (UG/M^3)	RESULT (PPB)	DETECTION LIMIT (PPB)
75-00-3	CHLOROETHANE	ND	5.0	ND	1.9
67-64-1	ACETONE	ND	10	ND	4.2
75-09-2	METHYLENE CHLORIDE	ND	5.0	ND	1.5
76-13-1	TRICHLOROTRIFLUOROETHANE	ND	5.0	ND	0.66
156-60-5	TRANS-1,2-DICHLOROETHENE	ND	5.0	ND	1.3
156-59-2	CIS-1,2-DICHLOROETHENE	ND	5.0	ND	1.3
75-34-3	1,1-DICHLOROETHANE	ND	5.0	ND	1.2
78-93-3	2-BUTANONE	ND	10	ND	3.4
67-66-3	CHLOROFORM	ND	5.0	ND	1.0
71-55-6	1,1,1-TRICHLOROETHANE	ND	5.0	ND	0.93
71-43-2	BENZENE	ND	5.0	ND	1.6
79-01-6	TRICHLOROETHENE	ND	5.0	ND	0.94
108-88-3	TOLUENE	ND	5.0	ND	1.3
127-18-4	TETRACHLOROETHENE	ND	5.0	ND	0.75
100-41-4	ETHYLBENZENE	ND	5.0	ND	1.2
79-34-5	1,1,2,2-TETRACHLOROETHANE	ND	5.0	ND	0.74

ND = Not Detected TR = Trace Level - Below Indicated Detection Limit

20954 Osborne Street, Canoga Park, CA 91304 • Phone 818 709-1339 • Fax 818 709-2915

Performance Analytical Inc.
Environmental Testing and Consulting

PERFORMANCE ANALYTICAL INC.

RESULTS OF ANALYSIS

Client: ENVIRON

Client Sample ID: 8192-1 (08/19/92) (10:40 to 12:40)

PAI Sample ID: 9204131

Test Code: GC/MS EPA TO-14
Analyst: Kathleen Aguilera
Instrument ID: Finnigan 4500B/Entech 2000
Verified by: Michael Tuday

Matrix: Summa Canister
Date Received: 08/20/92
Date Analyzed: 08/20/92
Volume Analyzed: 1.00 Liter
P_i = -2.9 P_f = +2.0 DF= 1.42

CAS #	COMPOUND	RESULT (UG/M^3)	DETECTION LIMIT (UG/M^3)	RESULT (PPB)	DETECTION LIMIT (PPB)
75-00-3	CHLOROETHANE	ND	5.0	ND	1.9
67-64-1	ACETONE	34	10	14	4.2
75-09-2	METHYLENE CHLORIDE	3.8 TR	5.0	1.1 TR	1.5
76-13-1	TRICHLOROTRIFLUOROETHANE	5.0	5.0	0.66	0.66
156-60-5	TRANS-1,2-DICHLOROETHENE	ND	5.0	ND	1.3
156-59-2	CIS-1,2-DICHLOROETHENE	ND	5.0	ND	1.3
75-34-3	1,1-DICHLOROETHANE	ND	5.0	ND	1.2
78-93-3	2-BUTANONE	ND	10	ND	3.4
67-66-3	CHLOROFORM	ND	5.0	ND	1.0
71-55-6	1,1,1-TRICHLOROETHANE	5.7	5.0	1.1	0.93
71-43-2	BENZENE	3.1 TR	5.0	0.96 TR	1.6
79-01-6	TRICHLOROETHENE	4.1 TR	5.0	0.77 TR	0.94
108-88-3	TOLUENE	23	5.0	6.0	1.3
127-18-4	TETRACHLOROETHENE	2.8 TR	5.0	0.42 TR	0.75
100-41-4	ETHYLBENZENE	2.8 TR	5.0	0.65 TR	1.2
79-34-5	1,1,2,2-TETRACHLOROETHANE	ND	5.0	ND	0.74

ND = Not Detected TR = Trace Level - Below Indicated Detection Limit

Performance Analytical Inc.
Environmental Testing and Consulting

PERFORMANCE ANALYTICAL INC.

RESULTS OF ANALYSIS

Client: ENVIRON

Client Sample ID: 8192-2 (08/19/92) (10:50 to 12:47)

PAI Sample ID: 9204132

Test Code: GC/MS EPA TO-14
Analyst: Kathleen Aguilera
Instrument ID: Finnigan 4500B/Entech 2000
Verified by: Michael Tuday

Matrix: Summa Canister
Date Received: 08/20/92
Date Analyzed: 08/20/92
Volume Analyzed: 1.00 Liter
P_i = -4.4 P_f = +2.0 DF= 1.62

CAS #	COMPOUND	RESULT (UG/M^3)	DETECTION LIMIT (UG/M^3)	RESULT (PPB)	DETECTION LIMIT (PPB)
75-00-3	CHLOROETHANE	ND	10	ND	3.8
67-64-1	ACETONE	36	20	15	8.4
75-09-2	METHYLENE CHLORIDE	4.9 TR	10	1.4 TR	2.9
76-13-1	TRICHLOROTRIFLUOROETHANE	6.1 TR	10	0.81 TR	1.3
156-60-5	TRANS-1,2-DICHLOROETHENE	ND	10	ND	2.5
156-59-2	CIS-1,2-DICHLOROETHENE	ND	10	ND	2.5
75-34-3	1,1-DICHLOROETHANE	ND	10	ND	2.5
78-93-3	2-BUTANONE	ND	20	ND	6.8
67-66-3	CHLOROFORM	ND	10	ND	2.1
71-55-6	1,1,1-TRICHLOROETHANE	6.4 TR	10	1.2 TR	1.9
71-43-2	BENZENE	2.9 TR	10	0.91 TR	3.1
79-01-6	TRICHLOROETHENE	ND	10	ND	1.9
108-88-3	TOLUENE	21	10	5.6	2.7
127-18-4	TETRACHLOROETHENE	2.1 TR	10	0.32 TR	1.5
100-41-4	ETHYLBENZENE	2.7 TR	10	0.63 TR	2.3
79-34-5	1,1,2,2-TETRACHLOROETHANE	ND	10	ND	1.5

ND = Not Detected TR = Trace Level - Below Indicated Detection Limit

Performance Analytical Inc.
Environmental Testing and Consulting

PERFORMANCE ANALYTICAL INC.

RESULTS OF ANALYSIS

Client: ENVIRON

Client Sample ID: 8192-3 (08/19/92) (11:03)

PAI Sample ID: 9204133

Test Code: GC/MS EPA TO-14
Analyst: Kathleen Aguilera
Instrument ID: Finnigan 4500B/Entech 2000
Verified by: Michael Tuday

Matrix: Summa Canister
Date Received: 08/20/92
Date Analyzed: 08/20/92
Volume Analyzed: 1.00 Liter
P_i = 0.0 P_f = +2.1 DF= 1.14

CAS #	COMPOUND	RESULT (UG/M^3)	DETECTION LIMIT (UG/M^3)	RESULT (PPB)	DETECTION LIMIT (PPB)
75-00-3	CHLOROETHANE	ND	5.0	ND	1.9
67-64-1	ACETONE	71	10	30	4.2
75-09-2	METHYLENE CHLORIDE	8.0	5.0	2.3	1.5
76-13-1	TRICHLOROTRIFLUOROETHANE	13	5.0	1.7	0.66
156-60-5	TRANS-1,2-DICHLOROETHENE	ND	5.0	ND	1.3
156-59-2	CIS-1,2-DICHLOROETHENE	ND	5.0	ND	1.3
75-34-3	1,1-DICHLOROETHANE	ND	5.0	ND	1.2
78-93-3	2-BUTANONE	ND	10	ND	3.4
67-66-3	CHLOROFORM	ND	5.0	ND	1.0
71-55-6	1,1,1-TRICHLOROETHANE	31	5.0	5.7	0.93
71-43-2	BENZENE	8.9	5.0	2.8	1.6
79-01-6	TRICHLOROETHENE	17	5.0	3.1	0.94
108-88-3	TOLUENE	100	5.0	27	1.3
127-18-4	TETRACHLOROETHENE	5.9	5.0	0.88	0.75
100-41-4	ETHYLBENZENE	11	5.0	2.4	1.2
79-34-5	1,1,2,2-TETRACHLOROETHANE	ND	5.0	ND	0.74

ND = Not Detected TR = Trace Level - Below Indicated Detection Limit

23954 Osborne Street, Canoga Park, CA 91304 • Phone 818 729-1139 • Fax 818 729-2915

Performance Analytical Inc.
Environmental Testing and Consulting

PERFORMANCE ANALYTICAL INC.

RESULTS OF ANALYSIS

Client: ENVIRON

Client Sample ID: 8192-4 (08/19/92) (11:10)

PAI Sample ID: 9204134

Test Code: GC/MS EPA TO-14
Analyst: Kathleen Aguilera
Instrument ID: Finnigan 4500B/Entech 2000
Verified by: Michael Tuday

Matrix: Summa Canister
Date Received: 08/20/92
Date Analyzed: 08/20/92
Volume Analyzed: 1.00 Liter
P_i = 0.0 P_f = +2.0 DF= 1.13

CAS #	COMPOUND	RESULT (UG/M^3)	DETECTION LIMIT (UG/M^3)	RESULT (PPB)	DETECTION LIMIT (PPB)
75-00-3	CHLOROETHANE	ND	5.0	ND	1.9
67-64-1	ACETONE	60	10	25	4.2
75-09-2	METHYLENE CHLORIDE	7.1	5.0	2.1	1.5
76-13-1	TRICHLOROTRIFLUOROETHANE	12	5.0	1.6	0.66
156-60-5	TRANS-1,2-DICHLOROETHENE	ND	5.0	ND	1.3
156-59-2	CIS-1,2-DICHLOROETHENE	ND	5.0	ND	1.3
75-34-3	1,1-DICHLOROETHANE	ND	5.0	ND	1.2
78-93-3	2-BUTANONE	ND	10	ND	3.4
67-66-3	CHLOROFORM	ND	5.0	ND	1.0
71-55-6	1,1,1-TRICHLOROETHANE	28	5.0	5.2	0.93
71-43-2	BENZENE	8.4	5.0	2.6	1.6
79-01-6	TRICHLOROETHENE	15	5.0	2.8	0.94
108-88-3	TOLUENE	78	5.0	21	1.3
127-18-4	TETRACHLOROETHENE	6.9	5.0	1.0	0.75
100-41-4	ETHYLBENZENE	8.9	5.0	2.1	1.2
79-34-5	1,1,2,2-TETRACHLOROETHANE	ND	5.0	ND	0.74

ND = Not Detected TR = Trace Level - Below Indicated Detection Limit

Performance Analytical Inc.
Environmental Testing and Consulting

PERFORMANCE ANALYTICAL INC.

RESULTS OF ANALYSIS

Client: ENVIRON

Client Sample ID: 8192-5 (08/19/92) (11:23)

PAI Sample ID: 9204135

Test Code: GC/MS EPA TO-14
Analyst: Kathleen Aguilera
Instrument ID: Finnigan 4500B/Entech 2000
Verified by: Michael Tuday

Matrix: Summa Canister
Date Received: 08/20/92
Date Analyzed: 08/20/92
Volume Analyzed: 1.00 Liter
P_i = +0.1 P_f = +2.0 DF= 1.13

CAS #	COMPOUND	RESULT (UG/M^3)	DETECTION LIMIT (UG/M^3)	RESULT (PPB)	DETECTION LIMIT (PPB)
75-00-3	CHLOROETHANE	ND	5.0	ND	1.9
67-64-1	ACETONE	39	10	16	4.2
75-09-2	METHYLENE CHLORIDE	5.8	5.0	1.7	1.5
76-13-1	TRICHLOROTRIFLUOROETHANE	12	5.0	1.6	0.66
156-60-5	TRANS-1,2-DICHLOROETHENE	ND	5.0	ND	1.3
156-59-2	CIS-1,2-DICHLOROETHENE	ND	5.0	ND	1.3
75-34-3	1,1-DICHLOROETHANE	ND	5.0	ND	1.2
78-93-3	2-BUTANONE	ND	10	ND	3.4
67-66-3	CHLOROFORM	ND	5.0	ND	1.0
71-55-6	1,1,1-TRICHLOROETHANE	27	5.0	5.1	0.93
71-43-2	BENZENE	6.2	5.0	1.9	1.6
79-01-6	TRICHLOROETHENE	4.8 TR	5.0	0.91 TR	0.94
108-88-3	TOLUENE	49	5.0	13	1.3
127-18-4	TETRACHLOROETHENE	5.6	5.0	0.84	0.75
100-41-4	ETHYLBENZENE	8.2	5.0	1.9	1.2
79-34-5	1,1,2,2-TETRACHLOROETHANE	ND	5.0	ND	0.74

ND = Not Detected TR = Trace Level - Below Indicated Detection Limit

20954 Osborne Street, Canoga Park, CA 91304 • Phone 818 709-1339 • Fax 818 709-2915

Performance Analytical Inc.
Environmental Testing and Consulting

PERFORMANCE ANALYTICAL INC.

RESULTS OF ANALYSIS

Client: ENVIRON

Client Sample ID: 8192-6 (08/19/92) (11:28)

PAI Sample ID: 9204136

Test Code: GC/MS EPA TO-14
Analyst: Kathleen Aguilera
Instrument ID: Finnigan 4500B/Entech 2000
Verified by: Michael Tuday

Matrix: Summa Canister
Date Received: 08/20/92
Date Analyzed: 08/20/92
Volume Analyzed: 1.00 Liter
P_i = +0.1 P_f = +2.0 DF= 1.13

CAS #	COMPOUND	RESULT (UG/M^3)	DETECTION LIMIT (UG/M^3)	RESULT (PPB)	DETECTION LIMIT (PPB)
75-00-3	CHLOROETHANE	ND	5.0	ND	1.9
67-64-1	ACETONE	45	10	19	4.2
75-09-2	METHYLENE CHLORIDE	9.0	5.0	2.6	1.5
76-13-1	TRICHLOROTRIFLUOROETHANE	90	5.0	12	0.66
156-60-5	TRANS-1,2-DICHLOROETHENE	ND	5.0	ND	1.3
156-59-2	CIS-1,2-DICHLOROETHENE	ND	5.0	ND	1.3
75-34-3	1,1-DICHLOROETHANE	ND	5.0	ND	1.2
78-93-3	2-BUTANONE	ND	10	ND	3.4
67-66-3	CHLOROFORM	ND	5.0	ND	1.0
71-55-6	1,1,1-TRICHLOROETHANE	39	5.0	7.3	0.93
71-43-2	BENZENE	12	5.0	3.7	1.6
79-01-6	TRICHLOROETHENE	5.1	5.0	0.96	0.94
108-88-3	TOLUENE	90	5.0	24	1.3
127-18-4	TETRACHLOROETHENE	7.5	5.0	1.1	0.75
100-41-4	ETHYLBENZENE	20	5.0	4.5	1.2
79-34-5	1,1,2,2-TETRACHLOROETHANE	ND	5.0	ND	0.74

ND = Not Detected TR = Trace Level - Below Indicated Detection Limit

20954 Osborne Street, Canoga Park, CA 91304 • Phone 818 709-1339 • Fax 818 709-2915

Performance Analytical Inc.
Environmental Testing and Consulting

PERFORMANCE ANALYTICAL INC.

RESULTS OF ANALYSIS

Client: ENVIRON

Client Sample ID: 8192-7 (08/19/92) (11:42)

PAI Sample ID: 9204137

Test Code: GC/MS EPA TO-14
Analyst: Kathleen Aguilera
Instrument ID: Finnigan 4500B/Entech 2000
Verified by: Michael Tuday

Matrix: Summa Canister
Date Received: 08/20/92
Date Analyzed: 08/20/92
Volume Analyzed: 1.00 Liter
P_i = 0.0 P_f = +2.0 DF= 1.14

CAS #	COMPOUND	RESULT (UG/M^3)	DETECTION LIMIT (UG/M^3)	RESULT (PPB)	DETECTION LIMIT (PPB)
75-00-3	CHLOROETHANE	ND	5.0	ND	1.9
67-64-1	ACETONE	65	10	28	4.2
75-09-2	METHYLENE CHLORIDE	8.5	5.0	2.5	1.5
76-13-1	TRICHLOROTRIFLUOROETHANE	23	5.0	3.1	0.66
156-60-5	TRANS-1,2-DICHLOROETHENE	ND	5.0	ND	1.3
156-59-2	CIS-1,2-DICHLOROETHENE	ND	5.0	ND	1.3
75-34-3	1,1-DICHLOROETHANE	ND	5.0	ND	1.2
78-93-3	2-BUTANONE	ND	10	ND	3.4
67-66-3	CHLOROFORM	3.0 TR	5.0	0.63 TR	1.0
71-55-6	1,1,1-TRICHLOROETHANE	54	5.0	10	0.93
71-43-2	BENZENE	9.8	5.0	3.1	1.6
79-01-6	TRICHLOROETHENE	17	5.0	3.2	0.94
108-88-3	TOLUENE	91	5.0	24	1.3
127-18-4	TETRACHLOROETHENE	7.6	5.0	1.1	0.75
100-41-4	ETHYLBENZENE	14	5.0	3.2	1.2
79-34-5	1,1,2,2-TETRACHLOROETHANE	ND	5.0	ND	0.74

ND = Not Detected TR = Trace Level - Below Indicated Detection Limit

Performance Analytical Inc.
Environmental Testing and Consulting

PERFORMANCE ANALYTICAL INC.

RESULTS OF ANALYSIS

Client: ENVIRON

Client Sample ID: 8192-8 (08/19/92) (11:47)

PAI Sample ID: 9204138

Test Code: GC/MS EPA TO-14
Analyst: Kathleen Aguilera
Instrument ID: Finnigan 4500B/Entech 2000
Verified by: Michael Tuday

Matrix: Summa Canister
Date Received: 08/20/92
Date Analyzed: 08/20/92
Volume Analyzed: 1.00 Liter
P_i = 0.0 P_f = +2.1 DF= 1.14

CAS #	COMPOUND	RESULT (UG/M^3)	DETECTION LIMIT (UG/M^3)	RESULT (PPB)	DETECTION LIMIT (PPB)
75-00-3	CHLOROETHANE	ND	5.0	ND	1.9
67-64-1	ACETONE	75	10	31	4.2
75-09-2	METHYLENE CHLORIDE	12	5.0	3.5	1.5
76-13-1	TRICHLOROTRIFLUOROETHANE	27	5.0	3.6	0.66
156-60-5	TRANS-1,2-DICHLOROETHENE	ND	5.0	ND	1.3
156-59-2	CIS-1,2-DICHLOROETHENE	ND	5.0	ND	1.3
75-34-3	1,1-DICHLOROETHANE	ND	5.0	ND	1.2
78-93-3	2-BUTANONE	ND	10	ND	3.4
67-66-3	CHLOROFORM	2.9 TR	5.0	0.60 TR	1.0
71-55-6	1,1,1-TRICHLOROETHANE	34	5.0	6.2	0.93
71-43-2	BENZENE	9.7	5.0	3.0	1.6
79-01-6	TRICHLOROETHENE	26	5.0	5.0	0.94
108-88-3	TOLUENE	120	5.0	31	1.3
127-18-4	TETRACHLOROETHENE	7.3	5.0	1.1	0.75
100-41-4	ETHYLBENZENE	13	5.0	3.1	1.2
79-34-5	1,1,2,2-TETRACHLOROETHANE	ND	5.0	ND	0.74

ND = Not Detected TR = Trace Level - Below Indicated Detection Limit

[illegible] Street, Canoga Park, CA 91304 • Phone 818 709-1339 • Fax 818 709-2915

Performance Analytical Inc.
Environmental Testing and Consulting

PERFORMANCE ANALYTICAL INC.

RESULTS OF ANALYSIS

Client: ENVIRON

Client Sample ID: 8192-9 (08/19/92) (12:00)

PAI Sample ID: 9204139

Test Code: GC/MS EPA TO-14
Analyst: Kathleen Aguilera
Instrument ID: Finnigan 4500B/Entech 2000
Verified by: Michael Tuday

Matrix: Summa Canister
Date Received: 08/20/92
Date Analyzed: 08/20/92
Volume Analyzed: 1.00 Liter
P_i = 0.0 P_f = +2.0 DF= 1.14

CAS #	COMPOUND	RESULT (UG/M^3)	DETECTION LIMIT (UG/M^3)	RESULT (PPB)	DETECTION LIMIT (PPB)
75-00-3	CHLOROETHANE	ND	5.0	ND	1.9
67-64-1	ACETONE	55	10	23	4.2
75-09-2	METHYLENE CHLORIDE	8.7	5.0	2.5	1.5
76-13-1	TRICHLOROTRIFLUOROETHANE	14	5.0	1.9	0.66
156-60-5	TRANS-1,2-DICHLOROETHENE	ND	5.0	ND	1.3
156-59-2	CIS-1,2-DICHLOROETHENE	ND	5.0	ND	1.3
75-34-3	1,1-DICHLOROETHANE	ND	5.0	ND	1.2
78-93-3	2-BUTANONE	ND	10	ND	3.4
67-66-3	CHLOROFORM	ND	5.0	ND	1.0
71-55-6	1,1,1-TRICHLOROETHANE	35	5.0	6.5	0.93
71-43-2	BENZENE	6.2	5.0	2.0	1.6
79-01-6	TRICHLOROETHENE	12	5.0	2.2	0.94
108-88-3	TOLUENE	72	5.0	19	1.3
127-18-4	TETRACHLOROETHENE	7.2	5.0	1.1	0.75
100-41-4	ETHYLBENZENE	2.8 TR	5.0	0.65 TR	1.2
79-34-5	1,1,2,2-TETRACHLOROETHANE	ND	5.0	ND	0.74

ND = Not Detected TR = Trace Level - Below Indicated Detection Limit

20654 Lassen Street, Chatsworth, CA 91364 • Phone 818-709-1339 • Fax 818-709-2915

Performance Analytical Inc.
Environmental Testing and Consulting

PERFORMANCE ANALYTICAL INC.

RESULTS OF ANALYSIS

Client: ENVIRON

Client Sample ID: 8192-10 (08/19/92) (12:09)

PAI Sample ID: 9204140

Test Code: GC/MS EPA TO-14
Analyst: Kathleen Aguilera
Instrument ID: Finnigan 4500B/Entech 2000
Verified by: Michael Tuday

Matrix: Summa Canister
Date Received: 08/20/92
Date Analyzed: 08/20/92
Volume Analyzed: 1.00 Liter
P_i = -0.1 P_f = +2.1 DF= 1.15

CAS #	COMPOUND	RESULT (UG/M^3)	DETECTION LIMIT (UG/M^3)	RESULT (PPB)	DETECTION LIMIT (PPB)
75-00-3	CHLOROETHANE	ND	5.0	ND	1.9
67-64-1	ACETONE	53	10	22	4.2
75-09-2	METHYLENE CHLORIDE	8.7	5.0	2.5	1.5
76-13-1	TRICHLOROTRIFLUOROETHANE	15	5.0	2.0	0.66
156-60-5	TRANS-1,2-DICHLOROETHENE	ND	5.0	ND	1.3
156-59-2	CIS-1,2-DICHLOROETHENE	ND	5.0	ND	1.3
75-34-3	1,1-DICHLOROETHANE	ND	5.0	ND	1.2
78-93-3	2-BUTANONE	ND	10	ND	3.4
67-66-3	CHLOROFORM	ND	5.0	ND	1.0
71-55-6	1,1,1-TRICHLOROETHANE	42	5.0	7.8	0.93
71-43-2	BENZENE	6.7	5.0	2.1	1.6
79-01-6	TRICHLOROETHENE	12	5.0	2.3	0.94
108-88-3	TOLUENE	64	5.0	17	1.3
127-18-4	TETRACHLOROETHENE	7.8	5.0	1.2	0.75
100-41-4	ETHYLBENZENE	10	5.0	2.4	1.2
79-34-5	1,1,2,2-TETRACHLOROETHANE	ND	5.0	ND	0.74

ND = Not Detected TR = Trace Level - Below Indicated Detection Limit

20554 Osborne Street, Canoga Park CA 91304 • Phone 818 709-1339 • Fax 818 709-2915

Performance Analytical Inc.
Environmental Testing and Consulting

PERFORMANCE ANALYTICAL INC.

RESULTS OF ANALYSIS

Client: ENVIRON

Client Sample ID: 8192-10 (08/19/92) (12:09)

PAI Sample ID: 9204140 (Laboratory Duplicate)

Test Code: GC/MS EPA TO-14
Analyst: Kathleen Aguilera
Instrument ID: Finnigan 4500B/Entech 2000
Verified by: Michael Tuday

Matrix: Summa Canister
Date Received: 08/20/92
Date Analyzed: 08/20/92
Volume Analyzed: 1.00 Liter
P_i = -0.1 P_f = +2.1 DF= 1.15

CAS #	COMPOUND	RESULT (UG/M^3)	DETECTION LIMIT (UG/M^3)	RESULT (PPB)	DETECTION LIMIT (PPB)
75-00-3	CHLOROETHANE	ND	5.0	ND	1.9
67-64-1	ACETONE	49	10	21	4.2
75-09-2	METHYLENE CHLORIDE	7.6	5.0	2.2	1.5
76-13-1	TRICHLOROTRIFLUOROETHANE	14	5.0	1.8	0.66
156-60-5	TRANS-1,2-DICHLOROETHENE	ND	5.0	ND	1.3
156-59-2	CIS-1,2-DICHLOROETHENE	ND	5.0	ND	1.3
75-34-3	1,1-DICHLOROETHANE	ND	5.0	ND	1.2
78-93-3	2-BUTANONE	ND	10	ND	3.4
67-66-3	CHLOROFORM	ND	5.0	ND	1.0
71-55-6	1,1,1-TRICHLOROETHANE	42	5.0	7.7	0.93
71-43-2	BENZENE	7.1	5.0	2.2	1.6
79-01-6	TRICHLOROETHENE	12	5.0	2.3	0.94
108-88-3	TOLUENE	64	5.0	17	1.3
127-18-4	TETRACHLOROETHENE	7.6	5.0	1.1	0.75
100-41-4	ETHYLBENZENE	11	5.0	2.5	1.2
79-34-5	1,1,2,2-TETRACHLOROETHANE	ND	5.0	ND	0.74

ND = Not Detected TR = Trace Level - Below Indicated Detection Limit

APPENDIX C

DATA USABILITY SUMMARY REPORT

APPENDIX C.1

OCTOBER 1999

DATA USABILITY SUMMARY REPORT

DATA USABILITY SUMMARY REPORT

FORMER EMCA SITE

MAMARONECK, NEW YORK

Analyses Performed by:

H2M LABS, INC.

Prepared for:

ROHM AND HAAS COMPANY

Prepared by:

URS GREINER WOODWARD CLYDE

NOVEMBER 1999

TABLE OF CONTENTS

I. INTRODUCTION

This Data Usability Summary Report (DUSR) has been prepared following the guidelines provided in New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation *Guidance for the Development of Data Usability Summary Reports*, dated June 1999 and the approved Remedial Investigation Work Plan.

II. ANALYTICAL METHODOLOGIES

The data being evaluated is from the October 5-8, 1999 sampling of 7 groundwaters, 2 soils, 3 air samples and one trip blank. One aqueous matrix spike/matrix spike duplicate/matrix spike blank (MS/MSD/MSB) was collected for volatile organic analysis. One aqueous matrix spike/matrix duplicate (MS/MD) was collected for analysis of metals (total and filtered). Also, one soil matrix spike/matrix duplicate (MS/MD) was collected for the analysis of metals. The analytical laboratory that performed the soil and groundwater analyses is H2M Labs, Inc. located in Melville, New York. Air sample analysis was performed by Air Toxics, LTD located in Folsom, California. A summary of the samples and analyses performed is presented in Table 1.

All of the groundwater samples (plus associated field QC samples) were analyzed for Target Compound List (TCL) volatile organic compounds (VOCs) plus Freon 113 by NYSDEC ASP Method 95-1. All of the soils and two of the groundwater samples were analyzed for 5 metals (barium, copper, lead, silver and zinc) (total and filtered) by NYSDEC ASP CLP-M. The two air samples were analyzed for TCL volatile organics compounds (VOCs) plus Freon 113 by Method TO-14A.

A limited data validation was performed following the general guidelines in United States Environmental Protection Agency (USEPA) Region II, Contract Laboratory Program (CLP) Organics Data Review (CLP/SOW OLM03.1), SOP No. HW-6, Revision #11, June 1996 and Evaluation of Metals Data for the CLP, SOP Revision XI, January 1992. Qualifications applied to the data include "J"/"UJ" (estimated result/quantitation limit), "D" (result reported from a diluted analysis) and "U" (not detected at the reported quantitation limit).

III. DATA DELIVERABLE COMPLETENESS

The laboratory deliverable data package for the air sample analyses was prepared in accordance with Air Toxics, LTD general reporting format, which is equivalent with NYSDEC Category B deliverables. The data packages from H_2M Labs, Inc. for all other sample analyses were prepared in accordance with NYSDEC ASP Category B requirements.

IV. HOLDING TIMES

All analyses were performed within NYSDEC contractual and USEPA Region II technical holding time criteria. It should be noted, however, that the sample cooler containing groundwater samples for metals analysis arrived at the laboratory at 20.0°C. There is no qualifications based upon sample temperature.

V. QUALITY CONTROL DATA

A. QC Blanks

No qualifications were made as a result of blank contamination.

B. Instrument Tune Criteria (Volatile Organics Only)

All NYSDEC ASP instrument tuning criteria were met for the volatile organics analyses.

C. Initial and Continuing Calibrations

The percent difference (%D) for carbon disulfide (50.0%), acetone (88.3%), 2-hexanone (51.5%), 2-butanone (50.2%), 1,2-dichloroethene (total) (29.4%) and tetrachloroethene (28.1%) exceeded the USEPA Region II QC limit of 25%D in one or more of the volatile organic continuing calibrations associated with the aqueous samples. Copies of continuing calibration forms (i.e., Forms 7s) are presented in

Attachment 1. Following USEPA Region II validation guidelines, the results for these compounds were qualified "J"/"UJ" in the associated soil samples. Not all compounds were qualified in all samples. It should be noted that all NYSDEC ASP contractual criteria were met.

All other initial and continuing calibration data for all matrices and fractions were compliant with contractual requirements and USEPA Region II validation criteria.

D. Surrogate/Internal Standard Recoveries (Volatile Organics Only)

All surrogate recoveries were within the QC limits specified in NYSDEC ASP Method 95-1.

E. Matrix Spike/Matrix Spike Duplicate/Matrix Duplicate/Matrix Spike Blank Analyses

The matrix spike percent recoveries for all parameters were within the applicable (i.e., NYSDEC ASP and USEPA Region II) QC limits, and no other qualifications were made.

F. Field Duplicates

No field duplicates were collected during this investigation.

G. Laboratory Control Samples (Metals Only)

The inorganic laboratory control samples (LCSs) were within USEPA Region II and method QC limits, and no qualifications were made to the data.

H. Contract Required Detection Limit Standards (Metals Only)

The Contract Required Detection Limit (CRDL) standards were within USEPA Region II limits, and no qualifications were made to the data.

I. Serial Dilutions (Metals Only)

All ICP serial dilution results were compliant with method and USEPA Region II QC requirements, and no other qualifications were made to the data.

VI. SAMPLE RESULTS

A. Raw Data vs. Reporting Forms

The final results as listed on the reporting forms were in agreement with the raw data, and no transcription/calculation errors were detected.

B. Sample Dilutions

Groundwater samples MW-01, MW-02 and MW-03 required diluted analyses due to elevated levels of target compounds. Results reported from diluted analyses were qualified "D".

C. Quantitation Limits

All quantitation limits were reported in accordance with method requirements, and were adjusted for dilution factors and percent moisture. Several volatile results were qualified "J" by the laboratory indicating an estimate concentration below the quantitation limit. Several metals results were qualified "B" by the laboratory indicating results greater than the instrument detection limit but less than the contract required detection limit.

D. Chromatography (Volatile Organics Only)

No chromatography problems were encountered.

E. Total/Filtered Metals Comparison

The concentration of zinc in the filtered metals analysis of groundwater sample MW-01 was more than 10% higher than the concentration in the total metals analysis of this sample. Following USEPA Region II validation guidelines, the results for zinc were qualified "J" in the total and filtered analyses of sample MW-01.

VII. SUMMARY

All sample analyses were found to be compliant with the method criteria, except where previously noted. Those results qualified "J"/"UJ" (estimated) are considered conditionally usable. URS Greiner Woodward Clyde does not recommend the recollection or reanalysis of any samples at this time.

TABLE 1
SUMMARY OF ANALYTICAL PARAMETERS
REMEDIAL INVESTIGATION
FORMER EMCA SITE, MAMARONECK, NEW YORK

			QA/QC Samples			
Parameter	**Method Number/ References [1,2]**	**Number of Samples**	**MS/MSD/MD/MSB**	**Rinse Blanks**	**Trip Blanks**	**Total No. of Samples**
I. Groundwater						
Groundwater (Geoprobe)						
Target Compound List (TCL)						
Volatiles + Freon 113 + TICs	ASP 95-1	7	1/1/0/1	0	2	12
Metals (5) - total	ASP CLP-M	2	1/0/1/0	0	0	4
Metals (5) - dissolved	ASP CLP-M	2	1/0/1/0	0	0	4
II. Soils						
Soils (Geoprobe)						
Target Analyte List						
Metals (5) - total	ASP CLP-M	2	1/0/1/0	0	0	4
III. Air						
Soil Gas Sampling						
Target Compound List (TCL)						
Volatiles + Freon 113 + TICs	TO-14A	3	0/0/0/0	0	0	3

NOTES:

[1] NYSDEC Analytical Services Protocol, 10/95 edition

[2] Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, 2nd Edition, January 1997.

Metals include barium, copper, lead, silver and zinc.

ATTACHMENT 1

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: H2M LABS,INC Contract:

Lab Code: H2M Case No.: SAS No.: SDG No.: URS091

Instrument ID: H5973 Calibration Date: 10/13/99 Time: 09:53

Lab File ID: F2186.D Init. Calib. Date(s): 08/25/99 08/25/99

Heated Purge: (Y/N) N Init. Calib. Times: 10:53 13:09

GC Column: RTX624 ID: 0.25 (mm)

COMPOUND	RRF	RRF50	MIN RRF	% D	MAX % D
Chloromethane	1.065	0.924		13.3	
Bromomethane	1.411	1.421	0.100	-0.7	25.0
Vinyl Chloride	2.014	1.867	0.100	7.3	25.0
Chloroethane	1.077	1.060		1.6	
Methylene Chloride	1.408	1.389		1.4	
Acetone	0.942	0.857		9.0	
Carbon Disulfide	5.212	4.830		7.3	
1,1-Dichloroethene	1.716	1.525	0.100	11.2	25.0
1,1-Dichloroethane	4.112	4.771	0.200	-16.0	25.0
1,1,2-trichlorotrifluoroethane	1.997	1.723		13.7	
1,2-Dichloroethene (total)	1.917	1.869		2.5	
2-Butanone	1.185	1.778		-50.0	
Chloroform	4.465	4.824	0.200	-8.0	25.0
1,2-Dichloroethane	3.594	4.190	0.100	-16.6	25.0
1,1,1-Trichloroethane	0.570	0.445	0.100	21.9	25.0
Carbon Tetrachloride	0.445	0.336	0.100	24.6	25.0
Bromodichloromethane	0.520	0.461	0.200	11.3	25.0
1,2-Dichloropropane	0.374	0.351		6.2	
cis-1,3-Dichloropropene	0.587	0.580	0.200	1.2	25.0
Trichloroethene	0.355	0.250	0.300	29.6	25.0
Benzene	1.367	1.143	0.500	16.4	25.0
Dibromochloromethane	0.389	0.337	0.100	13.3	25.0
trans-1,3-Dichloropropene	0.552	0.556	0.100	-0.7	25.0
1,1,2-Trichloroethane	0.330	0.306	0.100	7.2	25.0
Bromoform	0.218	0.204	0.100	6.6	25.0
4-Methyl-2-Pentanone	0.377	0.344		8.8	
2-Hexanone	0.280	0.305		-8.7	
Tetrachloroethene	0.282	0.203	0.200	28.1	25.0
1,1,2,2-Tetrachloroethane	0.361	0.344	~~0.500~~ 0.200	4.8	25.0
Toluene	0.999	0.778	0.400	22.1	25.0
Chlorobenzene	1.011	0.808	0.500	20.1	25.0
Ethylbenzene	0.510	0.410	0.100	19.7	25.0
Styrene	1.116	0.900	0.300	19.3	25.0
Xylene (total)	0.631	0.499	0.300	20.9	25.0
1,2-Dichloroethane-d4	3.029	3.941		-30.1	
Toluene-d8	1.349	1.401		-3.9	
Bromofluorobenzene	0.500	0.568	0.200	-13.5	25.0

All other compounds must meet a minimum RRF of 0.010.

11/1/99

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: H2M LABS,INC Contract:

Lab Code: H2M Case No.: SAS No.: SDG No.: URS091

Instrument ID: H5973 Calibration Date: 10/12/99 Time: 11:52

Lab File ID: F2159.D Init. Calib. Date(s): 08/25/99 08/25/99

Heated Purge: (Y/N) N Init. Calib. Times: 10:53 13:09

GC Column: RTX624 ID: 0.25 (mm)

COMPOUND	RRF	RRF50	MIN RRF	% D	MAX % D
Chloromethane	1.065	0.958		10.0	
Bromomethane	1.411	1.530	0.100	-8.4	25.0
Vinyl Chloride	2.014	2.065	0.100	-2.5	25.0
Chloroethane	1.077	1.137		-5.5	
Methylene Chloride	1.408	1.492		-5.9	
Acetone	0.942	0.111		88.3	
Carbon Disulfide	5.212	2.604		50.0	
1,1-Dichloroethene	1.716	1.596	0.100	7.0	25.0
1,1-Dichloroethane	4.112	4.919	0.200	-19.6	25.0
1,1,2-trichlorotrifluoroethane	1.997	1.895		5.1	
1,2-Dichloroethene (total)	1.917	2.481		-29.4	
2-Butanone	1.185	0.590		50.2	
Chloroform	4.465	5.106	0.200	-14.4	25.0
1,2-Dichloroethane	3.594	4.486	0.100	-24.8	25.0
1,1,1-Trichloroethane	0.570	0.515	0.100	9.6	25.0
Carbon Tetrachloride	0.445	0.389	0.100	12.7	25.0
Bromodichloromethane	0.520	0.491	0.200	5.6	25.0
1,2-Dichloropropane	0.374	0.369		1.2	
cis-1,3-Dichloropropene	0.587	0.619	0.200	-5.5	25.0
Trichloroethene	0.355	0.277	0.300	21.9	25.0
Benzene	1.367	1.245	0.500	8.9	25.0
Dibromochloromethane	0.389	0.358	0.100	7.9	25.0
trans-1,3-Dichloropropene	0.552	0.595	0.100	-7.9	25.0
1,1,2-Trichloroethane	0.330	0.322	0.100	2.3	25.0
Bromoform	0.218	0.222	0.100	-1.5	25.0
4-Methyl-2-Pentanone	0.377	0.364		3.4	
2-Hexanone	0.280	0.136		51.5	
Tetrachloroethene	0.282	0.232	0.200	17.7	25.0
1,1,2,2-Tetrachloroethane	0.361	0.378	~~0.500~~ 0.300	-4.8	25.0
Toluene	0.999	0.855	0.400	14.4	25.0
Chlorobenzene	1.011	0.871	0.500	13.8	25.0
Ethylbenzene	0.510	0.461	0.100	9.7	25.0
Styrene	1.116	0.988	0.300	11.5	25.0
Xylene (total)	0.631	0.554	0.300	12.1	25.0
1,2-Dichloroethane-d4	3.029	4.024		-32.8	
Toluene-d8	1.349	1.426		-5.7	
Bromofluorobenzene	0.500	0.578	0.200	-15.4	25.0

gms 11/1/99

All other compounds must meet a minimum RRF of 0.010.

TABLE 1
ANALYTICAL SOIL SAMPLE RESULTS
FORMER EMCA SITE

Location I.D.		SS-01	SS-02
Sample I.D.		SS-01	SS-02
Matrix		Soil	Soil
Date Sampled		10/04/1999	10/06/1999
Parameter	Units		
Metals			
Barium	MG/KG	176	134
Copper	MG/KG	62.4	56.8
Lead	MG/KG	445	214
Silver	MG/KG	0.37 B	1.1 B
Zinc	MG/KG	158	167

MADE BY: JT DATE: 11/19/99
CHKD. BY: MEB DATE: 11/22/99

J:\35873.00\DB\PROGRAM\RES.DBF(res frx,PRINT.PRG)
11/23/1999

TABLE 1
ANALYTICAL AIR SAMPLE RESULTS
FORMER EMCA SITE

Location I.D.		AMBIENT AIR	SG-03	SG-05
Sample I.D.		AMBIENT AIR	SG-03	SG-05
Matrix		Air	Air	Air
Date Sampled		10/04/1909	10/05/1909	10/04/1909
Parameter	Units			
Volatiles				
Chloromethane	PPBV	1.2 U	15 U	5.4 U
Bromomethane	PPBV	1.2 U	15 U	5.4 U
Vinyl Chloride	PPBV	1.2 U	15 U	5.4 U
Chloroethane	PPBV	1.2 U	15 U	5.4 U
1,1,2-Trichlorotrifluoroethane	PPBV	1.2 U	3300	11
Methylene Chloride	PPBV	1.2 U	15 U	5.4 U
Acetone	PPBV	6.5	83	420
Carbon Disulfide	PPBV	5.0 U	60 U	21 U
1,1-Dichloroethene	PPBV	1.2 U	15 U	5.4 U
1,1-Dichloroethane	PPBV	1.2 U	15 U	5.4 U
Chloroform	PPBV	1.2 U	15 U	5.4 U
1,2-Dichloroethane	PPBV	1.2 U	15 U	5.4 U
2-Butanone	PPBV	5.0 U	60 U	37
cis-1,2-Dichloroethene	PPBV	1.2 U	15 U	5.4 U
1,1,1-Trichloroethane	PPBV	1.2 U	15 U	5.4 U
trans-1,2-Dichloroethene	PPBV	5.0 U	60 U	21 U
Carbon Tetrachloride	PPBV	1.2 U	15 U	5.4 U
Bromidichloromethane	PPBV	5.0 U	60 U	21 U
1,2-Dichloropropane	PPBV	1.2 U	15 U	5.4 U
cis-1,3-Dichloropropene	PPBV	1.2 U	15 U	5.4 U
Trichloroethene	PPBV	1.2 U	15 U	5.4 U
Dibromochloromethane	PPBV	5.0 U	60 U	21 U
1,1,2-Trichloroethane	PPBV	1.2 U	15 U	5.4 U
Benzene	PPBV	1.2 U	15 U	6.1
trans-1,3-Dichloropropene	PPBV	1.2 U	15 U	5.4 U
Bromoform	PPBV	5.0 U	60 U	21 U
4-Methyl-2-Pentanone	PPBV	5.0 U	60 U	21 U
2-Hexanone	PPBV	5.0 U	60 U	21 U
Tetrachloroethene	PPBV	1.2 U	15 U	5.4 U
1,1,2,2-Tetrachloroethane	PPBV	1.2 U	15 U	5.4 U
Toluene	PPBV	1.2 U	15	15
Chlorobenzene	PPBV	1.2 U	15 U	5.4 U
Ethylbenzene	PPBV	1.2 U	15 U	5.4 U
Styrene	PPBV	1.2 U	15 U	5.4 U

TABLE 1
ANALYTICAL AIR SAMPLE RESULTS
FORMER EMCA SITE

Location I.D.		AMBIENT AIR	SG-03	SG-05
Sample I.D.		AMBIENT AIR	SG-03	SG-05
Matrix		Air	Air	Air
Date Sampled		10/04/1909	10/05/1909	10/04/1909
Parameter	Units			
Volatiles				
m,p-Xylene	PPBV	1.2 U	15 U	9.1
o-Xylene	PPBV	1.2 U	15 U	5.4 U
Vinyl Acetate	PPBV	5.0 U	60 U	21 U

TABLE 1
ANALYTICAL GROUNDWATER SAMPLE RESULTS
FORMER EMCA SITE

Location I.D.		GRAB-01	GZ-03	GZ-06	MW-01	MW-02
Sample I.D.		GRAB-01	GZ-03	GZ-06	MW-01	MW-02
Matrix		Water	Water	Water	Water	Water
Date Sampled		10/05/1999	10/07/1999	10/07/1999	10/07/1999	10/07/1999
Parameter	Units					
Volatiles						
Chloromethane	UG/L	10 U	10 U	10 U	10 U	10 U
Bromomethane	UG/L	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	UG/L	2 J	10 U	10 U	49	10 U
Chloroethane	UG/L	10 U	10 U	10 U	10 U	10 U
1,1,2-Trichlorotrifluoroethane	UG/L	10 U	10 U	49	10 U	740 D
Methylene Chloride	UG/L	10 U	10 U	10 U	10 U	10 U
Acetone	UG/L	10 UJ	10 UJ	10 U	10 UJ	10 UJ
Carbon Disulfide	UG/L	10 UJ	10 UJ	10 U	10 UJ	10 UJ
1,1-Dichloroethene	UG/L	10 U	10 U	10 U	1 J	1 J
1,1-Dichloroethane	UG/L	10 U	10 U	10 U	2 J	10 U
Chloroform	UG/L	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethane	UG/L	10 U	10 U	10 U	10 U	10 U
2-Butanone	UG/L	10 UJ	10 UJ	10 U	10 UJ	10 UJ
1,1,1-Trichloroethane	UG/L	10 U	10 U	10 U	10 U	10 U
Carbon Tetrachloride	UG/L	10 U	10 U	10 U	10 U	10 U
Bromidichloromethane	UG/L	10 U	10 U	10 U	10 U	10 U
1,2-Dichloropropane	UG/L	10 U	10 U	10 U	10 U	10 U
cis-1,3-Dichloropropene	UG/L	10 U	10 U	10 U	10 U	10 U
Trichloroethene	UG/L	10 U	10 U	10 U	130	10 U
Dibromochloromethane	UG/L	10 U	10 U	10 U	10 U	10 U
1,1,2-Trichloroethane	UG/L	10 U	10 U	10 U	10 U	10 U
Benzene	UG/L	18	10 U	10 U	20	10 U
trans-1,3-Dichloropropene	UG/L	10 U	10 U	10 U	10 U	10 U
Bromoform	UG/L	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	UG/L	10 U	10 U	10 U	10 U	10 U
2-Hexanone	UG/L	10 UJ	10 UJ	10 U	10 UJ	10 UJ
Tetrachloroethene	UG/L	10 U	10 U	10 U	240 D	10 U
1,1,2,2-Tetrachloroethane	UG/L	10 U	10 U	10 U	10 U	10 U
Toluene	UG/L	10 U	10 U	10 U	10 U	10 U
Chlorobenzene	UG/L	10 U	10 U	10 U	10 U	10 U
Ethylbenzene	UG/L	10 U	10 U	10 U	10 U	10 U
Styrene	UG/L	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethene (total)	UG/L	1 J	10 UJ	10 U	1600 DJ	10 UJ
Xylene (Total)	UG/L	10 U	10 U	10 U	10 U	10 U

TABLE 1
ANALYTICAL GROUNDWATER SAMPLE RESULTS
FORMER EMCA SITE

Location I.D.		GRAB-01	GZ-03	GZ-06	MW-01	MW-02
Sample I.D.		GRAB-01	GZ-03	GZ-06	MW-01	MW-02
Matrix		Water	Water	Water	Water	Water
Date Sampled		10/05/1999	10/07/1999	10/07/1999	10/07/1999	10/07/1999
Parameter	Units					
Metals						
Barium	UG/L	NA	NA	NA	501	NA
Copper	UG/L	NA	NA	NA	20.7 B	NA
Lead	UG/L	NA	NA	NA	8.3	NA
Silver	UG/L	NA	NA	NA	0.60 U	NA
Zinc	UG/L	NA	NA	NA	62.3	NA
Filtered Metals						
Barium	UG/L	NA	NA	NA	207	NA
Copper	UG/L	NA	NA	NA	2.1 B	NA
Lead	UG/L	NA	NA	NA	1.0 U	NA
Silver	UG/L	NA	NA	NA	0.60 U	NA
Zinc	UG/L	NA	NA	NA	74.0	NA

APPENDIX C.2

JULY 2000 DATA USABILITY SUMMARY REPORT

TABLE 1
ANALYTICAL GROUNDWATER SAMPLE RESULTS
FORMER EMCA SITE

Location I.D.		MW-03	MW-04
Sample I.D.		MW-03	MW-04
Matrix		Water	Water
Date Sampled		10/07/1999	10/07/1999
Parameter	Units		
Metals			
Barium	UG/L	NA	91.3 B
Copper	UG/L	NA	1.0 U
Lead	UG/L	NA	1.7 B
Silver	UG/L	NA	0.60 U
Zinc	UG/L	NA	6.7 B
Filtered Metals			
Barium	UG/L	NA	97.6 B
Copper	UG/L	NA	1.0 U
Lead	UG/L	NA	1.0 U
Silver	UG/L	NA	0.60 U
Zinc	UG/L	NA	14.8 B

TABLE 1
ANALYTICAL FIELD QC SAMPLE RESULTS
FORMER EMCA SITE

Location I.D.		FIELDQC
Sample I.D.		TRIP BLANK
Matrix		Water
Date Sampled		10/07/99
Parameter	Units	
Volatiles		
Chloromethane	UG/L	10 U
Bromomethane	UG/L	10 U
Vinyl Chloride	UG/L	10 U
Chloroethane	UG/L	10 U
1,1,2-Trichlorotrifluoroethane	UG/L	10 U
Methylene Chloride	UG/L	10 U
Acetone	UG/L	10 U
Carbon Disulfide	UG/L	10 U
1,1-Dichloroethene	UG/L	10 U
1,1-Dichloroethane	UG/L	10 U
Chloroform	UG/L	10 U
1,2-Dichloroethane	UG/L	10 U
2-Butanone	UG/L	10 UJ
1,1,1-Trichloroethane	UG/L	10 U
Carbon Tetrachloride	UG/L	10 U
Bromidichloromethane	UG/L	10 U
1,2-Dichloropropane	UG/L	10 U
cis-1,3-Dichloropropene	UG/L	10 U
Trichloroethene	UG/L	10 UJ
Dibromochloromethane	UG/L	10 U
1,1,2-Trichloroethane	UG/L	10 U
Benzene	UG/L	10 U
trans-1,3-Dichloropropene	UG/L	10 U
Bromoform	UG/L	10 U
4-Methyl-2-Pentanone	UG/L	10 U
2-Hexanone	UG/L	10 U
Tetrachloroethene	UG/L	10 UJ
1,1,2,2-Tetrachloroethane	UG/L	10 U
Toluene	UG/L	10 U
Chlorobenzene	UG/L	10 U
Ethylbenzene	UG/L	10 U
Styrene	UG/L	10 U
1,2-Dichloroethene (total)	UG/L	10 U
Xylene (Total)	UG/L	10 U

MADE BY: DATE: 11/18/99
CHKD. BY: DATE: 11/19/99

APPENDIX C.2

JULY 2000

DATA USABILITY SUMMARY REPORT

DATA USABILITY SUMMARY REPORT

FORMER EMCA SITE
MAMARONECK, NEW YORK

Analyses Performed by:
H2M LABS, INC.

Prepared for:
ROHM AND HAAS COMPANY

Prepared by:
URS CORPORATION

DECEMBER 2000

TABLE OF CONTENTS

ATTACHMENTS

I. INTRODUCTION

This Data Usability Summary Report (DUSR) has been prepared following the guidelines provided in New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation *Guidance for the Development of Data Usability Summary Reports* (Revised June 1999) and the approved Remedial Investigation Work Plan (September 1999).

II. ANALYTICAL METHODOLOGIES

The data being evaluated is from the July 11-13, 2000 sampling of 6 groundwater samples, one trip blank, and 3 air samples. No site-specific matrix spike/matrix spike duplicate/matrix spike blank (MS/MSD/MSB) samples, field duplicates, or rinse blanks were collected during this sampling event. The analytical laboratory that performed the groundwater analyses is H2M Labs, Inc. located in Melville, New York. Air sample analysis was performed by Air Toxics LTD located in Folsom, California.

The groundwater samples (plus trip blank) were analyzed in accordance with NYSDEC Analytical Services Protocol (ASP), 10/95 Edition, Method 95-1 for Target Compound List (TCL) volatile organic compounds (VOCs) plus freon-113 (i.e., 1,1,2-trichloro-1,2,2-trifluoroethane). The air samples were analyzed in accordance with United States Environmental Protection Agency (USEPA) Method TO-14A for TCL VOCs plus freon-113.

A limited data validation was performed following the general guidelines in USEPA Region II Contract Laboratory Program (CLP) Organics Data Review (CLP/SOW OLM03.1), SOP No. HW-6, Revision #11, June 1996 and Evaluation of Metals Data for the CLP, SOP Revision XI, January 1992. Qualifications applied to the data include "J/UJ" (estimated result/quantitation limit), "D" (result reported from a diluted analysis), "NJ" (presumptive evidence for identification – estimated result), and "U" (not detected at the reported quantitation limit). The data summary forms (Form Is) are presented in Attachment 1.

Documentation. Following USEPA Region II validation guidelines, the results for the compounds associated with the non-compliant standard were qualified as estimated ("J/UJ") in the associated aqueous samples. It should be noted that all NYSDEC ASP contractual criteria were met.

Method TO-14A percent differences (%D) for 2-hexanone (61.3%) and 4-methyl-2-pentanone (70.7%) exceeded the USEPA Region II QC limit of 25%D in the volatile organic continuing calibration associated with air sample SG-07. A copy of continuing calibration form (i.e., Form 7) is presented in Attachment 2 – Support Documentation. Following USEPA Region II validation guidelines, the results for these compounds were qualified as estimated ("UJ") for sample SG-07.

All other initial and continuing calibration data were compliant with contractual requirements and USEPA Region II validation criteria.

D. Surrogate/Internal Standard Recoveries

All surrogate recoveries were within the QC limits specified in NYSDEC ASP Method 95-1. However, Method TO-14A analysis of sample SG-07 exhibited an elevated recovery for 1,2-dichloroethane-d_4. Following USEPA Region II validation guidelines, the detected results were qualified as estimated ("J") for sample SG-07. A copy of surrogate recovery form (i.e., Form 2) is presented in Attachment 2 – Support Documentation.

All internal standard recoveries were within the QC limits specified in NYSDEC ASP Method 95-1 and USEPA Method TO-14A.

E. Matrix Spike/Matrix Spike Duplicate/Matrix Spike Blank Analyses

No MS/MSD/MSB were collected/analyzed during this sampling event.

F. Field Duplicates

No field duplicates were collected/analyzed during this sampling event.

G. Laboratory Control Samples

The laboratory control sample (LCS) results for Method TO-14A were within USEPA Region II and method QC limits. However, the Method 95-1 LCS exhibited a slightly low recovery for freon-113. Since USEPA Region II validation guidelines do not have criteria for LCSs no qualifications were made to the data.

VI. SAMPLE RESULTS

A. Raw Data vs. Reporting Forms

The final results as listed on the reporting forms were in agreement with the raw data, and no transcription/calculation errors were detected.

The chloroform result for sample GZ-06 was revised by deleting the laboratory applied "J" qualifier because the concentration is not below the quantitation limit.

The acetone results for groundwater samples GZ-06, MW-2, and MW-3 were qualified as "NJ", because the sample spectra did not conclusively illustrate it's presence. High levels of freon-113 in the samples made acetone identification difficult. After consultation with H2M, it was determined by the laboratory that acetone is present in these samples. The laboratory based the presence of acetone on the retention time and ion current profile (peak response), rather than the mass spectra.

B. Sample Dilutions

Groundwater samples GZ-01, MW-1, MW-2 and MW-3 required secondary dilution analyses due to elevated levels of one or more of the following target compounds: freon-113, 1,2-dichloroethene (total), and acetone. The results reported from diluted analyses (i.e., qualified "D" by the laboratory) were transcribed to the undiluted Form I and the secondary dilution Form I was crossed out.

Of particular note, methylene chloride was not detected in the undiluted analyses for samples GZ-06, MW-1, and MW-2, but was detected in the secondary dilutions. After consultation with the H2M, the laboratory determined that the presence methylene chloride in the secondary dilutions was attributed to laboratory contamination, and is not actually present in the samples. Therefore, the methylene chloride results from the secondary dilutions were not transcribe to the undiluted Form Is.

C. Quantitation Limits

All quantitation limits were reported in accordance with method requirements, and were adjusted accordingly for dilution factors. Several volatile results were qualified "J" by the laboratory indicating an estimated concentration below the quantitation limit.

D. Chromatography

No chromatography problems were encountered, except for the identification of acetone for samples GZ-06, MW-2, and MW-3, caused by high levels of freon-113, as previously noted.

VII. SUMMARY

All sample analyses were found to be compliant with the method criteria, except where previously noted. Those results qualified "J"/"UJ" (estimated) or "NJ" (presumptive evidence for identification) are considered conditionally usable. URS Corporation does not recommend recollection or reanalysis of any samples at this time.

ATTACHMENT 1
DATA SUMMARY FORMS
(FORM Is)

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GZ06

Lab Name: H2M LABS,INC Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: URS100

Matrix: (soil/water) WATER Lab Sample ID: 20000717-040

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: P15608.D

Level: (low/med) LOW Date Received: 07/15/00

% Moisture: not dec. _____ Date Analyzed: 07/18/00

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q	
74-87-3	Chloromethane	10	~~U~~	UJ
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	~~U~~	J
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	10	U	
67-64-1	Acetone	160		NJ
75-15-0	Carbon Disulfide	10	U	
75-35-4	1,1-Dichloroethene	10	U	
75-34-4	1,1-Dichloroethane	10	U	
540-59-0	1,2-Dichloroethene (total)	1	J	
67-66-3	Chloroform	10	~~U~~	
107-06-2	1,2-Dichloroethane	10	U	
78-93-3	2-Butanone	10	~~U~~	UJ
71-55-6	1,1,1-Trichloroethane	10	U	
56-23-5	Carbon Tetrachloride	10	U	
75-27-4	Bromodichloromethane	10	U	
78-87-5	1,2-Dichloropropane	10	U	
10061-01-5	cis-1,3-Dichloropropene	10	U	
79-01-6	Trichloroethene	10	U	
71-43-2	Benzene	10	U	
124-48-1	Dibromochloromethane	10	U	
10061-02-6	trans-1,3-Dichloropropene	10	~~U~~	UJ.
79-00-5	1,1,2-Trichloroethane	10	U	
75-25-2	Bromoform	10	U	
108-10-1	4-Methyl-2-Pentanone	10	U	
591-78-6	2-Hexanone	10	~~U~~	UJ
127-18-4	Tetrachloroethene	2	J	
79-34-5	1,1,2,2-Tetrachloroethane	10	U	
108-88-3	Toluene	10	U	
108-90-7	Chlorobenzene	10	U	
100-41-4	Ethylbenzene	10	U	
100-42-5	Styrene	10	U	
1330-20-7	Xylene (total)	10	U	
76-13-1	1,1,2-Trichlorotrifluoroethane	500 ~~1000~~	E D	J

V 0013

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GZ06

Lab Name: H2M LABS,INC Contract:

Lab Code: Case No.: SAS No.: SDG No.: URS100

Matrix: (soil/water) WATER Lab Sample ID: 20000717-040

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: P15608.D

Level: (low/med) LOW Date Received: 07/15/00

% Moisture: not dec. Date Analyzed: 07/18/00

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 1

	CAS NO.	COMPOUND	RT	EST. CONC.	Q
1.	000354-23-4	Ethane, 1,2-dichloro-1,1,2-trifluor	5.40	68	JN

V 0014

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

GZ06DL

Lab Name: H2M LABS,INC Contract:

Lab Code: Case No.: SAS No.: SDG No.: URS100

Matrix: (soil/water) WATER Lab Sample ID: 20000717-040

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: P15614.D

Level: (low/med) LOW Date Received: 07/15/00

% Moisture: not dec. Date Analyzed: 07/18/00

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 10.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	100	U
74-83-9	Bromomethane	100	U
75-01-4	Vinyl Chloride	100	U
75-00-3	Chloroethane	100	U
75-09-2	Methylene Chloride	20	JD
67-64-1	Acetone	140	D
75-15-0	Carbon Disulfide	100	U
75-35-4	1,1-Dichloroethene	100	U
75-34-4	1,1-Dichloroethane	100	U
540-59-0	1,2-Dichloroethene (total)	100	U
67-66-3	Chloroform	10	JD
107-06-2	1,2-Dichloroethane	100	U
78-93-3	2-Butanone	100	U
71-55-6	1,1,1-Trichloroethane	100	U
56-23-5	Carbon Tetrachloride	100	U
75-27-4	Bromodichloromethane	100	U
78-87-5	1,2-Dichloropropane	100	U
10061-01-5	cis-1,3-Dichloropropene	100	U
79-01-6	Trichloroethene	100	U
71-43-2	Benzene	100	U
124-48-1	Dibromochloromethane	100	U
10061-02-6	trans-1,3-Dichloropropene	100	U
79-00-5	1,1,2-Trichloroethane	100	U
75-25-2	Bromoform	100	U
108-10-1	4-Methyl-2-Pentanone	100	U
591-78-6	2-Hexanone	100	U
127-18-4	Tetrachloroethene	100	U
79-34-5	1,1,2,2-Tetrachloroethane	100	U
108-88-3	Toluene	100	U
108-90-7	Chlorobenzene	100	U
100-41-4	Ethylbenzene	100	U
100-42-5	Styrene	100	U
1330-20-7	Xylene (total)	100	U
76-13-1	1,1,2-Trichlorotrifluoroethane	900	D

8/15/00

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW1

Lab Name: H2M LABS,INC Contract:

Lab Code: Case No.: SAS No.: SDG No.: URS100

Matrix: (soil/water) WATER Lab Sample ID: 20000717-041

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: P15609.D

Level: (low/med) LOW Date Received: 07/15/00

% Moisture: not dec. Date Analyzed: 07/18/00

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
74-87-3	Chloromethane	10	~~U~~	UJ
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	16		J
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	10	U	
67-64-1	Acetone	10	~~U~~	UJ
75-15-0	Carbon Disulfide	10	U	
75-35-4	1,1-Dichloroethene	10	U	
75-34-4	1,1-Dichloroethane	2	J	
540-59-0	1,2-Dichloroethene (total)	100J ~~910~~	~~E~~ D	
67-66-3	Chloroform	10	U	
107-06-2	1,2-Dichloroethane	10	U	
78-93-3	2-Butanone	10	~~U~~	UJ
71-55-6	1,1,1-Trichloroethane	2	J	
56-23-5	Carbon Tetrachloride	10	U	
75-27-4	Bromodichloromethane	10	U	
78-87-5	1,2-Dichloropropane	10	U	
10061-01-5	cis-1,3-Dichloropropene	10	U	
79-01-6	Trichloroethene	95		
71-43-2	Benzene	7	J	
124-48-1	Dibromochloromethane	10	U	
10061-02-6	trans-1,3-Dichloropropene	10	~~U~~	UJ
79-00-5	1,1,2-Trichloroethane	10	U	
75-25-2	Bromoform	10	U	
108-10-1	4-Methyl-2-Pentanone	10	U	
591-78-6	2-Hexanone	10	~~U~~	UJ
127-18-4	Tetrachloroethene	180		
79-34-5	1,1,2,2-Tetrachloroethane	10	U	
108-88-3	Toluene	10	U	
108-90-7	Chlorobenzene	10	U	
100-41-4	Ethylbenzene	10	U	
100-42-5	Styrene	10	U	
1330-20-7	Xylene (total)	10	U	
76-13-1	1,1,2-Trichlorotrifluoroethane	10 ~~A~~	~~U~~ UJ	

8/18/00

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW1

Lab Name: H2M LABS,INC Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: URS100

Matrix: (soil/water) WATER Lab Sample ID: 20000717-041

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: P15609.D

Level: (low/med) LOW Date Received: 07/15/00

% Moisture: not dec. _____ Date Analyzed: 07/18/00

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW1DL

Lab Name: H2M LABS,INC Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: URS100

Matrix: (soil/water) WATER Lab Sample ID: 20000717-041

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: P15615.D

Level: (low/med) LOW Date Received: 07/15/00

% Moisture: not dec. _____ Date Analyzed: 07/18/00

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 10.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	100	U
74-83-9	Bromomethane	100	U
75-01-4	Vinyl Chloride	100	U
75-00-3	Chloroethane	100	U
75-09-2	Methylene Chloride	16	JD
67-64-1	Acetone	100	U
75-15-0	Carbon Disulfide	100	U
75-35-4	1,1-Dichloroethene	100	U
75-34-4	1,1-Dichloroethane	100	U
540-59-0	1,2-Dichloroethene (total)	1000	D
67-66-3	Chloroform	100	U
107-06-2	1,2-Dichloroethane	100	U
78-93-3	2-Butanone	100	U
71-55-6	1,1,1-Trichloroethane	100	U
56-23-5	Carbon Tetrachloride	100	U
75-27-4	Bromodichloromethane	100	U
78-87-5	1,2-Dichloropropane	100	U
10061-01-5	cis-1,3-Dichloropropene	100	U
79-01-6	Trichloroethene	93	JD
71-43-2	Benzene	100	U
124-48-1	Dibromochloromethane	100	U
10061-02-6	trans-1,3-Dichloropropene	100	U
79-00-5	1,1,2-Trichloroethane	100	U
75-25-2	Bromoform	100	U
108-10-1	4-Methyl-2-Pentanone	100	U
591-78-6	2-Hexanone	100	U
127-18-4	Tetrachloroethene	180	D
79-34-5	1,1,2,2-Tetrachloroethane	100	U
108-88-3	Toluene	100	U
108-90-7	Chlorobenzene	100	U
100-41-4	Ethylbenzene	100	U
100-42-5	Styrene	100	U
1330-20-7	Xylene (total)	100	U
76-13-1	1,1,2-Trichlorotrifluoroethane	100 ~~26~~	JD U

7/15/00

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW2

Lab Name: H2M LABS,INC Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: URS100

Matrix: (soil/water) WATER Lab Sample ID: 20000717-042

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: P15610.D

Level: (low/med) LOW Date Received: 07/15/00

% Moisture: not dec. _____ Date Analyzed: 07/18/00

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q	
74-87-3	Chloromethane	10	~~U~~	UJ
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	~~U~~	UJ
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	10	U	
67-64-1	Acetone	160 ~~250~~	~~E~~ D	NJ
75-15-0	Carbon Disulfide	10	U	
75-35-4	1,1-Dichloroethene	10	U	
75-34-4	1,1-Dichloroethane	10	U	
540-59-0	1,2-Dichloroethene (total)	10	U	
67-66-3	Chloroform	7	J	
107-06-2	1,2-Dichloroethane	10	U	
78-93-3	2-Butanone	10	~~U~~	UJ
71-55-6	1,1,1-Trichloroethane	10	U	
56-23-5	Carbon Tetrachloride	10	U	
75-27-4	Bromodichloromethane	10	U	
78-87-5	1,2-Dichloropropane	10	U	
10061-01-5	cis-1,3-Dichloropropene	10	U	
79-01-6	Trichloroethene	10	U	
71-43-2	Benzene	10	U	
124-48-1	Dibromochloromethane	10	U	
10061-02-6	trans-1,3-Dichloropropene	10	~~U~~	UJ
79-00-5	1,1,2-Trichloroethane	10	U	
75-25-2	Bromoform	10	U	
108-10-1	4-Methyl-2-Pentanone	10	U	
591-78-6	2-Hexanone	10	~~U~~	UJ
127-18-4	Tetrachloroethene	1	J	
79-34-5	1,1,2,2-Tetrachloroethane	10	U	
108-88-3	Toluene	10	U	
108-90-7	Chlorobenzene	10	U	
100-41-4	Ethylbenzene	10	U	
100-42-5	Styrene	10	U	
1330-20-7	Xylene (total)	10	U	
76-13-1	1,1,2-Trichlorotrifluoroethane	1700 ~~1500~~	~~E~~ D	J

8/21/00

V 0051

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW2

Lab Name: H2M LABS,INC Contract:

Lab Code: Case No.: SAS No.: SDG No.: URS100

Matrix: (soil/water) WATER Lab Sample ID: 20000717-042

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: P15610.D

Level: (low/med) LOW Date Received: 07/15/00

% Moisture: not dec. Date Analyzed: 07/18/00

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 1

CAS NO.	COMPOUND	RT	EST. CONC.	Q
1. 000354-23-4	Ethane, 1,2-dichloro-1,1,2-trifluor	5.41	40	JN

V 0052

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW2DL

Lab Name: H2M LABS,INC Contract:

Lab Code: Case No.: SAS No.: SDG No.: URS100

Matrix: (soil/water) WATER Lab Sample ID: 20000717-042

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: P15616.D

Level: (low/med) LOW Date Received: 07/15/00

% Moisture: not dec. Date Analyzed: 07/18/00

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 20.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	200	U
74-83-9	Bromomethane	200	U
75-01-4	Vinyl Chloride	200	U
75-00-3	Chloroethane	200	U
75-09-2	Methylene Chloride	30	JD
67-64-1	Acetone	160	JD
75-15-0	Carbon Disulfide	200	U
75-35-4	1,1-Dichloroethene	200	U
75-34-4	1,1-Dichloroethane	200	U
540-59-0	1,2-Dichloroethene (total)	200	U
67-66-3	Chloroform	200	U
107-06-2	1,2-Dichloroethane	200	U
78-93-3	2-Butanone	200	U
71-55-6	1,1,1-Trichloroethane	200	U
56-23-5	Carbon Tetrachloride	200	U
75-27-4	Bromodichloromethane	200	U
78-87-5	1,2-Dichloropropane	200	U
10061-01-5	cis-1,3-Dichloropropene	200	U
79-01-6	Trichloroethene	200	U
71-43-2	Benzene	200	U
124-48-1	Dibromochloromethane	200	U
10061-02-6	trans-1,3-Dichloropropene	200	U
79-00-5	1,1,2-Trichloroethane	200	U
75-25-2	Bromoform	200	U
108-10-1	4-Methyl-2-Pentanone	200	U
591-78-6	2-Hexanone	200	U
127-18-4	Tetrachloroethene	200	U
79-34-5	1,1,2,2-Tetrachloroethane	200	U
108-88-3	Toluene	200	U
108-90-7	Chlorobenzene	200	U
100-41-4	Ethylbenzene	200	U
100-42-5	Styrene	200	U
1330-20-7	Xylene (total)	200	U
76-13-1	1,1,2-Trichlorotrifluoroethane	1700	D

8/21/00

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW3

Lab Name: H2M LABS,INC Contract:

Lab Code: Case No.: SAS No.: SDG No.: URS100

Matrix: (soil/water) WATER Lab Sample ID: 20000717-043

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: P15611.D

Level: (low/med) LOW Date Received: 07/15/00

% Moisture: not dec. Date Analyzed: 07/18/00

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/L Q

CAS NO.	COMPOUND		Q	
74-87-3	Chloromethane	10	~~U~~	UJ
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	6	~~J~~	J
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	10	U	
67-64-1	Acetone	1500 ~~1100~~	~~E D~~	NJ
75-15-0	Carbon Disulfide	10	U	
75-35-4	1,1-Dichloroethene	10	U	
75-34-4	1,1-Dichloroethane	10	U	
540-59-0	1,2-Dichloroethene (total)	3	J	
67-66-3	Chloroform	3	J	
107-06-2	1,2-Dichloroethane	10	U	
78-93-3	2-Butanone	10	~~U~~	UJ
71-55-6	1,1,1-Trichloroethane	10	U	
56-23-5	Carbon Tetrachloride	10	U	
75-27-4	Bromodichloromethane	10	U	
78-87-5	1,2-Dichloropropane	10	U	
10061-01-5	cis-1,3-Dichloropropene	10	U	
79-01-6	Trichloroethene	10	U	
71-43-2	Benzene	10	U	
124-48-1	Dibromochloromethane	10	U	
10061-02-6	trans-1,3-Dichloropropene	10	~~U~~	UJ
79-00-5	1,1,2-Trichloroethane	10	U	
75-25-2	Bromoform	10	U	
108-10-1	4-Methyl-2-Pentanone	10	U	
591-78-6	2-Hexanone	10	~~U~~	UJ
127-18-4	Tetrachloroethene	10	U	
79-34-5	1,1,2,2-Tetrachloroethane	10	U	
108-88-3	Toluene	10	U	
108-90-7	Chlorobenzene	10	U	
100-41-4	Ethylbenzene	10	U	
100-42-5	Styrene	10	U	
1330-20-7	Xylene (total)	10	U	
76-13-1	1,1,2-Trichlorotrifluoroethane	[illegible] ~~4700~~	~~E~~	J

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW3

Lab Name: H2M LABS,INC Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: URS100

Matrix: (soil/water) WATER Lab Sample ID: 20000717-043

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: P15611.D

Level: (low/med) LOW Date Received: 07/15/00

% Moisture: not dec. _____ Date Analyzed: 07/18/00

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 1

CAS NO.	COMPOUND	RT	EST. CONC.	Q
1. 000354-23-4	Ethane, 1,2-dichloro-1,1,2-trifluor	5.41	130	JN

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW3DL

Lab Name: H2M LABS,INC Contract:

Lab Code: Case No.: SAS No.: SDG No.: URS100

Matrix: (soil/water) WATER Lab Sample ID: 20000717-043

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: P15617.D

Level: (low/med) LOW Date Received: 07/15/00

% Moisture: not dec. Date Analyzed: 07/18/00

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 100.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	1000	U
74-83-9	Bromomethane	1000	U
75-01-4	Vinyl Chloride	1000	U
75-00-3	Chloroethane	1000	U
75-09-2	Methylene Chloride	1000	U
67-64-1	Acetone	1500	D
75-15-0	Carbon Disulfide	1000	U
75-35-4	1,1-Dichloroethene	1000	U
75-34-4	1,1-Dichloroethane	1000	U
540-59-0	1,2-Dichloroethene (total)	1000	U
67-66-3	Chloroform	1000	U
107-06-2	1,2-Dichloroethane	1000	U
78-93-3	2-Butanone	1000	U
71-55-6	1,1,1-Trichloroethane	1000	U
56-23-5	Carbon Tetrachloride	1000	U
75-27-4	Bromodichloromethane	1000	U
78-87-5	1,2-Dichloropropane	1000	U
10061-01-5	cis-1,3-Dichloropropene	1000	U
79-01-6	Trichloroethene	1000	U
71-43-2	Benzene	1000	U
124-48-1	Dibromochloromethane	1000	U
10061-02-6	trans-1,3-Dichloropropene	1000	U
79-00-5	1,1,2-Trichloroethane	1000	U
75-25-2	Bromoform	1000	U
108-10-1	4-Methyl-2-Pentanone	1000	U
591-78-6	2-Hexanone	1000	U
127-18-4	Tetrachloroethene	1000	U
79-34-5	1,1,2,2-Tetrachloroethane	1000	U
108-88-3	Toluene	1000	U
108-90-7	Chlorobenzene	1000	U
100-41-4	Ethylbenzene	1000	U
100-42-5	Styrene	1000	U
1330-20-7	Xylene (total)	1000	U
76-13-1	1,1,2-Trichlorotrifluoroethane	11000	D

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW4

Lab Name: H2M LABS,INC Contract:

Lab Code: Case No.: SAS No.: SDG No.: URS100

Matrix: (soil/water) WATER Lab Sample ID: 20000717-044

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: P15618.D

Level: (low/med) LOW Date Received: 07/15/00

% Moisture: not dec. Date Analyzed: 07/18/00

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q	
74-87-3	Chloromethane	10	~~U~~	UJ
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	~~U~~	UJ
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	10	U	
67-64-1	Acetone	10	~~U~~	UJ
75-15-0	Carbon Disulfide	10	U	
75-35-4	1,1-Dichloroethene	10	U	
75-34-4	1,1-Dichloroethane	10	U	
540-59-0	1,2-Dichloroethene (total)	10	U	
67-66-3	Chloroform	10	U	
107-06-2	1,2-Dichloroethane	10	U	
78-93-3	2-Butanone	10	~~U~~	UJ
71-55-6	1,1,1-Trichloroethane	10	U	
56-23-5	Carbon Tetrachloride	10	U	
75-27-4	Bromodichloromethane	10	U	
78-87-5	1,2-Dichloropropane	10	U	
10061-01-5	cis-1,3-Dichloropropene	10	U	
79-01-6	Trichloroethene	10	U	
71-43-2	Benzene	10	U	
124-48-1	Dibromochloromethane	10	U	
10061-02-6	trans-1,3-Dichloropropene	10	~~U~~	UJ
79-00-5	1,1,2-Trichloroethane	10	U	
75-25-2	Bromoform	10	U	
108-10-1	4-Methyl-2-Pentanone	10	U	
591-78-6	2-Hexanone	10	U	UJ
127-18-4	Tetrachloroethene	10	U	
79-34-5	1,1,2,2-Tetrachloroethane	10	U	
108-88-3	Toluene	10	U	
108-90-7	Chlorobenzene	10	U	
100-41-4	Ethylbenzene	10	U	
100-42-5	Styrene	10	U	
1330-20-7	Xylene (total)	10	U	
76-13-1	1,1,2-Trichlorotrifluoroethane	10 ~~2~~	~~U~~	UJ

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW4

Lab Name: H2M LABS,INC Contract:

Lab Code: Case No.: SAS No.: SDG No.: URS100

Matrix: (soil/water) WATER Lab Sample ID: 20000717-044

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: P15618.D

Level: (low/med) LOW Date Received: 07/15/00

% Moisture: not dec. Date Analyzed: 07/18/00

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 2

CAS NO.	COMPOUND	RT	EST. CONC.	Q
1.	unknown	4.80	7	J
2. 001634-04-4	Propane, 2-methoxy-2-methyl-	6.78	7	JN

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW5

Lab Name: H2M LABS,INC Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: URS100

Matrix: (soil/water) WATER Lab Sample ID: 20000717-045

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: P15613.D

Level: (low/med) LOW Date Received: 07/15/00

% Moisture: not dec. _____ Date Analyzed: 07/18/00

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
74-87-3	Chloromethane	10	~~U~~	UJ
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	~~U~~	UJ
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	10	U	
67-64-1	Acetone	10	~~U~~	UJ
75-15-0	Carbon Disulfide	10	U	
75-35-4	1,1-Dichloroethene	10	U	
75-34-4	1,1-Dichloroethane	10	U	
540-59-0	1,2-Dichloroethene (total)	10	U	
67-66-3	Chloroform	10	U	
107-06-2	1,2-Dichloroethane	10	U	
78-93-3	2-Butanone	10	~~U~~	UJ
71-55-6	1,1,1-Trichloroethane	10	U	
56-23-5	Carbon Tetrachloride	10	U	
75-27-4	Bromodichloromethane	10	U	
78-87-5	1,2-Dichloropropane	10	U	
10061-01-5	cis-1,3-Dichloropropene	10	U	
79-01-6	Trichloroethene	10	U	
71-43-2	Benzene	10	U	
124-48-1	Dibromochloromethane	10	U	
10061-02-6	trans-1,3-Dichloropropene	10	~~U~~	UJ
79-00-5	1,1,2-Trichloroethane	10	U	
75-25-2	Bromoform	10	U	
108-10-1	4-Methyl-2-Pentanone	10	U	
591-78-6	2-Hexanone	10	~~U~~	UJ
127-18-4	Tetrachloroethene	2	J	
79-34-5	1,1,2,2-Tetrachloroethane	10	U	
108-88-3	Toluene	10	U	
108-90-7	Chlorobenzene	10	U	
100-41-4	Ethylbenzene	10	U	
100-42-5	Styrene	10	U	
1330-20-7	Xylene (total)	10	U	
76-13-1	1,1,2-Trichlorotrifluoroethane	7	~~U~~	J

8/21/00

V 0094

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW5

Lab Name: H2M LABS,INC Contract:

Lab Code: Case No.: SAS No.: SDG No.: URS100

Matrix: (soil/water) WATER Lab Sample ID: 20000717-045

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: P15613.D

Level: (low/med) LOW Date Received: 07/15/00

% Moisture: not dec. Date Analyzed: 07/18/00

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 2

CAS NO.	COMPOUND	RT	EST. CONC.	Q
1. 001634-04-4	Propane, 2-methoxy-2-methyl-	6.77	120	JN
2. 000994-05-8	Butane, 2-methoxy-2-methyl-	9.07	8	JN

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TB

Lab Name: H2M LABS,INC Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: URS100

Matrix: (soil/water) WATER Lab Sample ID: 20000717-046

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: P15619.D

Level: (low/med) LOW Date Received: 07/15/00

% Moisture: not dec. _____ Date Analyzed: 07/18/00

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L		Q
74-87-3	Chloromethane	10	~~U~~	UJ
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	~~U~~	UJ
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	10	U	
67-64-1	Acetone	10	~~U~~	UJ
75-15-0	Carbon Disulfide	10	U	
75-35-4	1,1-Dichloroethene	10	U	
75-34-4	1,1-Dichloroethane	10	U	
540-59-0	1,2-Dichloroethene (total)	10	U	
67-66-3	Chloroform	10	U	
107-06-2	1,2-Dichloroethane	10	U	
78-93-3	2-Butanone	10	~~U~~	UJ
71-55-6	1,1,1-Trichloroethane	10	U	
56-23-5	Carbon Tetrachloride	10	U	
75-27-4	Bromodichloromethane	10	U	
78-87-5	1,2-Dichloropropane	10	U	
10061-01-5	cis-1,3-Dichloropropene	10	U	
79-01-6	Trichloroethene	10	U	
71-43-2	Benzene	10	U	
124-48-1	Dibromochloromethane	10	U	
10061-02-6	trans-1,3-Dichloropropene	10	~~U~~	UJ
79-00-5	1,1,2-Trichloroethane	10	U	
75-25-2	Bromoform	10	U	
108-10-1	4-Methyl-2-Pentanone	10	U	
591-78-6	2-Hexanone	10	~~U~~	UJ
127-18-4	Tetrachloroethene	10	U	
79-34-5	1,1,2,2-Tetrachloroethane	10	U	
108-88-3	Toluene	10	U	
108-90-7	Chlorobenzene	10	U	
100-41-4	Ethylbenzene	10	U	
100-42-5	Styrene	10	U	
1330-20-7	Xylene (total)	10	U	
76-13-1	1,1,2-Trichlorotrifluoroethane	1	~~J~~	J

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

TB

Lab Name: H2M LABS,INC Contract:

Lab Code: Case No.: SAS No.: SDG No.: URS100

Matrix: (soil/water) WATER Lab Sample ID: 20000717-046

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: P15619.D

Level: (low/med) LOW Date Received: 07/15/00

% Moisture: not dec. Date Analyzed: 07/18/00

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

V 0104

AIR TOXICS LTD.

SAMPLE NAME : SG-06

ID#: 0007218-01A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	c072416	**Date of Collection:**	7/11/00
Dil. Factor:	1.55	**Date of Analysis:**	7/24/00

Compound	Det. Limit (ppbv)	Det. Limit (uG/m3)	Amount (ppbv)	Amount (uG/m3)
Chloromethane	0.78	1.6	Not Detected	Not Detected
Vinyl Chloride	0.78	2.0	Not Detected	Not Detected
Bromomethane	0.78	3.0	Not Detected	Not Detected
Chloroethane	0.78	2.1	Not Detected	Not Detected
1,1-Dichloroethene	0.78	3.1	Not Detected	Not Detected
Freon 113	0.78	6.0	Not Detected	Not Detected
Methylene Chloride	0.78	2.7	1.0	3.6
1,1-Dichloroethane	0.78	3.2	0.97	4.0
cis-1,2-Dichloroethene	0.78	3.1	Not Detected	Not Detected
Chloroform	0.78	3.8	1.2	6.1
1,1,1-Trichloroethane	0.78	4.3	11	62
Carbon Tetrachloride	0.78	5.0	Not Detected	Not Detected
Benzene	0.78	2.5	8.4	27
1,2-Dichloroethane	0.78	3.2	Not Detected	Not Detected
Trichloroethene	0.78	4.2	0.92	5.0
1,2-Dichloropropane	0.78	3.6	Not Detected	Not Detected
cis-1,3-Dichloropropene	0.78	3.6	Not Detected	Not Detected
Toluene	0.78	3.0	9.4	36
trans-1,3-Dichloropropene	0.78	3.6	Not Detected	Not Detected
1,1,2-Trichloroethane	0.78	4.3	Not Detected	Not Detected
Tetrachloroethene	0.78	5.3	2.2	15
Chlorobenzene	0.78	3.6	Not Detected	Not Detected
Ethyl Benzene	0.78	3.4	12	52
m,p-Xylene	0.78	3.4	60	260
o-Xylene	0.78	3.4	32	140
Styrene	0.78	3.4	Not Detected	Not Detected
1,1,2,2-Tetrachloroethane	0.78	5.4	Not Detected	Not Detected
Acetone	3.1	7.5	52	130
2-Butanone (Methyl Ethyl Ketone)	3.1	9.3	11	33
Vinyl Acetate	3.1	11	Not Detected	Not Detected
Bromodichloromethane	3.1	21	Not Detected	Not Detected
Dibromochloromethane	3.1	27	Not Detected	Not Detected
Bromoform	3.1	32	Not Detected	Not Detected
4-Methyl-2-pentanone	3.1	13	Not Detected	Not Detected
2-Hexanone	3.1	13	Not Detected	Not Detected
Carbon Disulfide	3.1	9.8	Not Detected	Not Detected
trans-1,2-Dichloroethene	3.1	12	Not Detected	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	% Recovery	Method Limits

AIR TOXICS LTD.

SAMPLE NAME : Ambient 7/11/00

ID#: 0007218-03A

EPA METHOD TO-14 GC/MS Full Scan

File Name:	c072417		**Date of Collection: 7/11/00**
Dil. Factor:	1.61		**Date of Analysis: 7/24/00**

Compound	Det. Limit (ppbv)	Det. Limit (uG/m3)	Amount (ppbv)	Amount (uG/m3)
Chloromethane	0.80	1.7	5.0	10
Vinyl Chloride	0.80	2.1	Not Detected	Not Detected
Bromomethane	0.80	3.2	Not Detected	Not Detected
Chloroethane	0.80	2.2	Not Detected	Not Detected
1,1-Dichloroethene	0.80	3.2	Not Detected	Not Detected
Freon 113	0.80	6.3	Not Detected	Not Detected
Methylene Chloride	0.80	2.8	Not Detected	Not Detected
1,1-Dichloroethane	0.80	3.3	Not Detected	Not Detected
cis-1,2-Dichloroethene	0.80	3.2	Not Detected	Not Detected
Chloroform	0.80	4.0	Not Detected	Not Detected
1,1,1-Trichloroethane	0.80	4.5	Not Detected	Not Detected
Carbon Tetrachloride	0.80	5.1	Not Detected	Not Detected
Benzene	0.80	2.6	Not Detected	Not Detected
1,2-Dichloroethane	0.80	3.3	Not Detected	Not Detected
Trichloroethene	0.80	4.4	Not Detected	Not Detected
1,2-Dichloropropane	0.80	3.8	Not Detected	Not Detected
cis-1,3-Dichloropropene	0.80	3.7	Not Detected	Not Detected
Toluene	0.80	3.1	0.88	3.4
trans-1,3-Dichloropropene	0.80	3.7	Not Detected	Not Detected
1,1,2-Trichloroethane	0.80	4.5	Not Detected	Not Detected
Tetrachloroethene	0.80	5.6	Not Detected	Not Detected
Chlorobenzene	0.80	3.8	Not Detected	Not Detected
Ethyl Benzene	0.80	3.6	Not Detected	Not Detected
m,p-Xylene	0.80	3.6	Not Detected	Not Detected
o-Xylene	0.80	3.6	Not Detected	Not Detected
Styrene	0.80	3.5	Not Detected	Not Detected
1,1,2,2-Tetrachloroethane	0.80	5.6	Not Detected	Not Detected
Acetone	3.2	7.8	7.3	18
2-Butanone (Methyl Ethyl Ketone)	3.2	9.6	Not Detected	Not Detected
Vinyl Acetate	3.2	12	Not Detected	Not Detected
Bromodichloromethane	3.2	22	Not Detected	Not Detected
Dibromochloromethane	3.2	28	Not Detected	Not Detected
Bromoform	3.2	34	Not Detected	Not Detected
4-Methyl-2-pentanone	3.2	13	Not Detected	Not Detected
2-Hexanone	3.2	13	Not Detected	Not Detected
Carbon Disulfide	3.2	10	Not Detected	Not Detected
trans-1,2-Dichloroethene	3.2	13	Not Detected	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	% Recovery	Method Limits

ATTACHMENT 2
SUPPORT DOCUMENTATION

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: H2M LABS,INC Contract:

Lab Code: Case No.: SAS No.: SDG No.: URS100

Instrument ID: H5970-3 Calibration Date: 07/18/00 Time: 13:26

Lab File ID: P15605.D Init. Calib. Date(s): 04/21/00 04/21/00

Heated Purge: (Y/N) N Init. Calib. Times: 13:17 16:54

GC Column: RTX502.2 ID: 0.53 (mm)

COMPOUND	RRF	RRF50	MIN RRF	% D	MAX % D
Chloromethane	0.381	0.197		48.2	
Bromomethane	0.741	0.650	0.100	12.3	25.0
Vinyl Chloride	0.467	0.322	0.100	30.9	25.0
Chloroethane	0.336	0.297		11.8	
Methylene Chloride	0.980	0.889		9.3	
Acetone	0.201	0.129		35.9	
Carbon Disulfide	1.973	1.740		11.8	
1,1-Dichloroethene	0.776	0.793	0.100	-2.2	25.0
1,1-Dichloroethane	1.646	1.633	0.200	0.8	25.0
1,1,2-Trichlorotrifluoroethane	1.407	1.870		-33.0	
1,2-Dichloroethene (total)	1.042	1.067		-2.4	
2-Butanone	0.264	0.160		39.3	
Chloroform	2.343	2.461	0.200	-5.1	25.0
1,2-Dichloroethane	1.476	1.405	0.100	4.8	25.0
1,1,1-Trichloroethane	0.453	0.492	0.100	-8.5	25.0
Carbon Tetrachloride	0.351	0.432	0.100	-22.8	25.0
Bromodichloromethane	0.748	0.702	0.200	6.1	25.0
1,2-Dichloropropane	0.281	0.250		11.1	
cis-1,3-Dichloropropene	0.510	0.426	0.200	16.5	25.0
Trichloroethene	0.360	0.395	0.300	-9.8	25.0
Benzene	0.610	0.567	0.500	7.1	25.0
Dibromochloromethane	0.756	0.760	0.100	-0.5	25.0
trans-1,3-Dichloropropene	0.459	0.312	0.100	32.1	25.0
1,1,2-Trichloroethane	0.376	0.331	0.100	12.1	25.0
Bromoform	0.552	0.590	0.100	-6.9	25.0
4-Methyl-2-Pentanone	0.353	0.294		16.7	
2-Hexanone	0.212	0.118		44.6	
Tetrachloroethene	0.289	0.346	0.200	-19.4	25.0
1,1,2,2-Tetrachloroethane	0.670	0.526	0.500	21.5	25.0
Toluene	0.815	0.767	0.400	5.9	25.0
Chlorobenzene	0.775	0.771	0.500	0.6	25.0
Ethylbenzene	0.240	0.231	0.100	3.8	25.0
Styrene	0.670	0.625	0.300	6.7	25.0
Xylene (total)	0.355	0.331	0.300	6.9	25.0
1,2-Dichloroethane-d4	1.228	1.231		-0.2	
Toluene-d8	0.909	1.034		-13.8	
Bromofluorobenzene	0.836	0.926	0.200	-10.8	25.0

All other compounds must meet a minimum RRF of 0.010.

LEVEL-IV VALIDATABLE

EPA METHOD TO-14 GC/MS Full Scan

SURROGATE RECOVERY FORM

Lab Name: AIR TOXICS LIMITED. SDG No. _____

	CLIENT SAMPLE NO.	SURROGATE % RECOVERY								
		1,2-Dichloroethane-d4	#	Toluene-d8	#	4-Bromofluorobenzene	#		#	TOTAL OUT
01	SG-06	105		102		95				0
02	SG-07	140	*	99		110				1
03	Ambient 7/11/00	107		102		90				0
04	Lab Blank	104		108		94				0
05	Lab Blank	114		100		106				0
06										
07										
08										
09										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										

Surrogate Recovery Limits

1,2-Dichloroethane-d4 (70 - 130)
Toluene-d8 (70 - 130)
4-Bromofluorobenzene (70 - 130)

Column used to flag values outside QC limits with an asterisk

Air Toxics Ltd.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: msdl.i Injection Date: 24-JUL-2000 08:47
Lab File ID: 1072402.d Init. Cal. Date(s): 19-JUN-2000 13-JUL-2000
Analysis Type: AIR Init. Cal. Times: 20:10 16:01
Lab Sample ID: Method Spike Quant Type: ISTD
Method: /var/chem/msdl.i/1-24jul.b/to140713.m

4 TO14 OUT
3 ATFA1. OUT 24JUL00

COMPOUND	RRF / AMOUNT	RF50	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
$ 58 1,2-Dichloroethane-d4	2.43964	2.64988	0.010	-8.61759	30.00000	Averaged
$ 79 Toluene-d8	0.79070	0.81055	0.010	-2.50978	30.00000	Averaged
$ 102 Bromofluorobenzene	0.69623	0.68988	0.010	0.91191	30.00000	Averaged
4 Propylene	2.24014	2.35029	0.010	-4.91710	40.00000	Averaged
5 Dichlorodifluoromethane/Fr1	5.55961	5.76677	0.010	-3.72621	30.00000	Averaged
7 Freon 114	2.28163	2.19254	0.010	3.90472	30.00000	Averaged
8 Chloromethane	3.10860	3.13123	0.010	-0.72785	30.00000	Averaged
9 Vinyl Chloride	2.09680	2.31633	0.010	-10.46979	30.00000	Averaged
10 1,3-Butadiene	1.53491	1.59784	0.010	-4.10011	40.00000	Averaged
11 Bromomethane	1.55222	1.56147	0.010	-0.59595	30.00000	Averaged
12 Chloroethane	1.18472	1.09980	0.010	7.16803	30.00000	Averaged
13 Trichlorofluoromethane/Fr11	5.31441	5.42356	0.010	-2.05373	30.00000	Averaged
18 Ethanol	1.30022	0.99661	0.010	23.35083	40.00000	Averaged
20 Freon 113	2.75952	2.68672	0.010	2.63803	30.00000	Averaged
22 1,1-Dichloroethene	4.30909	4.41110	0.010	-2.36727	30.00000	Averaged
24 Acetone	7.07417	6.15564	0.010	12.98423	40.00000	Averaged
27 Carbon Disulfide	5.10903	4.85700	0.010	4.93300	40.00000	Averaged
25 2-Propanol	6.74114	4.41229	0.010	34.54677	40.00000	Averaged
31 Methylene Chloride	3.39445	3.50021	0.010	-3.11577	30.00000	Averaged
34 MTBE	6.19037	5.62364	0.010	9.15494	40.00000	Averaged
35 trans-1,2-Dichloroethene	1.81071	1.72210	0.010	4.89327	40.00000	Averaged
37 Hexane	2.63871	2.62795	0.010	0.40800	40.00000	Averaged
42 1,1-Dichloroethane	4.56947	4.71346	0.010	-3.15131	30.00000	Averaged
40 Vinyl Acetate	7.00395	6.86497	0.010	1.98436	40.00000	Averaged
47 cis-1,2-Dichloroethene	3.71176	3.95569	0.010	-6.57180	30.00000	Averaged
46 2-Butanone	7.02345	5.81669	0.010	17.18190	40.00000	Averaged
51 Tetrahydrofuran	3.95721	3.21343	0.010	18.79567	40.00000	Averaged
53 Chloroform	4.23939	4.59273	0.010	-8.33470	30.00000	Averaged
55 Cyclohexane	1.96311	2.00504	0.010	-2.13576	40.00000	Averaged
54 1,1,1-Trichloroethane	3.55379	3.77740	0.010	-6.29219	30.00000	Averaged
56 Carbon Tetrachloride	3.04725	3.22510	0.010	-5.83642	30.00000	Averaged
59 Benzene	1.50076	1.47297	0.010	1.85179	30.00000	Averaged
60 1,2-Dichloroethane	1.07984	1.19017	0.010	-10.21724	30.00000	Averaged
61 Heptane	0.79504	0.84140	0.010	-5.83124	40.00000	Averaged
66 Trichloroethene	0.56053	0.59466	0.010	-6.08982	30.00000	Averaged

Air Toxics Ltd.

CONTINUING CALIBRATION COMPOUNDS

nstrument ID: msdl.i Injection Date: 24-JUL-2000 08:47
ab File ID: l072402.d Init. Cal. Date(s): 19-JUN-2000 13-JUL-2000
nalysis Type: AIR Init. Cal. Times: 20:10 16:01
ab Sample ID: Method Spike Quant Type: ISTD
ethod: /var/chem/msdl.i/l-24jul.b/to140713.m

	COMPOUND	RRF / AMOUNT	RF50	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
68	1,2-Dichloropropane	0.58271	0.61484	0.010	-5.51434	30.00000	Averaged	
71	1,4-Dioxane	0.58875	0.24062	0.010	59.13068	40.00000	Averaged	<-
75	Bromodichloromethane	0.98237	1.05167	0.010	-7.05397	40.00000	Averaged	
77	cis-1,3-Dichloropropene	0.78961	0.84228	0.010	-6.67077	30.00000	Averaged	
78	4-Methyl-2-pentanone	1.74980	0.67688	0.010	61.31684	40.00000	Averaged	<-
81	Toluene	1.10859	1.14743	0.010	-3.50325	30.00000	Averaged	
82	trans-1,3-Dichloropropene	1.06779	1.04075	0.010	2.53169	30.00000	Averaged	
83	1,1,2-Trichloroethane	0.77335	0.76397	0.010	1.21268	30.00000	Averaged	
84	Tetrachloroethene	0.62095	0.60180	0.010	3.08483	30.00000	Averaged	
85	2-Hexanone	2.65577	0.77720	0.010	70.73532	40.00000	Averaged	<-
87	Dibromochloromethane	1.07278	1.05172	0.010	1.96320	40.00000	Averaged	
88	1,2-Dibromoethane	0.90789	0.90752	0.010	0.04054	30.00000	Averaged	
90	Chlorobenzene	1.10979	1.11551	0.010	-0.51563	30.00000	Averaged	
92	Ethyl Benzene	0.54733	0.53595	0.010	2.07848	30.00000	Averaged	
95	m,p-Xylene	0.57943	0.58260	0.010	-0.54575	30.00000	Averaged	
96	o-Xylene	0.55669	0.56574	0.010	-1.62565	30.00000	Averaged	
97	Styrene	0.79070	0.75097	0.010	5.02531	30.00000	Averaged	
99	Bromoform	0.81576	0.77810	0.010	4.61585	40.00000	Averaged	
103	1,1,2,2-Tetrachloroethane	1.62802	1.52175	0.010	6.52714	30.00000	Averaged	
108	4-Ethyltoluene	1.47337	1.28780	0.010	12.59483	40.00000	Averaged	
107	1,3,5-Trimethylbenzene	1.26073	1.27739	0.010	-1.32096	30.00000	Averaged	
113	1,2,4-Trimethylbenzene	1.19297	1.08907	0.010	8.70958	30.00000	Averaged	
116	1,3-Dichlorobenzene	0.82838	0.81455	0.010	1.66904	30.00000	Averaged	
117	1,4-Dichlorobenzene	0.77801	0.76123	0.010	2.15633	30.00000	Averaged	
118	Benzyl Chloride	1.35639	0.85851	0.010	36.70651	30.00000	Averaged	<-
120	1,2-Dichlorobenzene	0.83653	0.76986	0.010	7.96892	30.00000	Averaged	
122	1,2,4-Trichlorobenzene	0.73205	0.61895	0.010	15.44938	30.00000	Averaged	
124	Hexachlorobutadiene	0.40513	0.29766	0.010	26.52811	30.00000	Averaged	

Air Toxics Ltd.

CONTINUING CALIBRATION COMPOUNDS

strument ID: msdl.i Injection Date: 24-JUL-2000 08:47
b File ID: l072402a.d Init. Cal. Date(s): 19-JUN-2000 13-JUL-2000
nalysis Type: AIR Init. Cal. Times: 20:10 16:01
b Sample ID: Method Spike Quant Type: ISTD
thod: /var/chem/msdl.i/l-24jul.b/to140713.m

	COMPOUND	RRF / AMOUNT	RF50	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
$ 58	1,2-Dichloroethane-d4	2.43964	2.64988	0.010	-8.61759	30.00000	Averaged
$ 79	Toluene-d8	0.79070	0.81055	0.010	-2.50978	30.00000	Averaged
$ 102	Bromofluorobenzene	0.69623	0.68988	0.010	0.91191	30.00000	Averaged
9	Vinyl Chloride	2.09680	2.31633	0.010	-10.46979	30.00000	Averaged
47	cis-1,2-Dichloroethene	3.71176	3.95569	0.010	-6.57180	30.00000	Averaged
54	1,1,1-Trichloroethane	3.55379	3.77740	0.010	-6.29219	30.00000	Averaged
56	Carbon Tetrachloride	3.04725	3.22510	0.010	-5.83642	30.00000	Averaged
59	Benzene	1.50076	1.47297	0.010	1.85179	30.00000	Averaged
60	1,2-Dichloroethane	1.07984	1.19017	0.010	-10.21724	30.00000	Averaged
66	Trichloroethene	0.56053	0.59466	0.010	-6.08982	30.00000	Averaged
81	Toluene	1.10859	1.14743	0.010	-3.50325	30.00000	Averaged
88	1,2-Dibromoethane	0.90789	0.90752	0.010	0.04054	30.00000	Averaged
84	Tetrachloroethene	0.62095	0.60180	0.010	3.08483	30.00000	Averaged
95	m,p-Xylene	0.57943	0.58260	0.010	-0.54575	30.00000	Averaged
96	o-Xylene	0.55669	0.56574	0.010	-1.62565	30.00000	Averaged
97	Styrene	0.79070	0.75097	0.010	5.02531	30.00000	Averaged

APPENDIX D

BORING LOGS AND WELL CONSTRUCTION DIAGRAMS

FIELD BOREHOLE LOG

BOREHOLE NUMBER: MW-01

PROJECT NUMBER: 050035673.00
PROJECT NAME: FORMER EMCA SITE 360025
LOACATION: MAMARONECK, NY
DRILLING CO: ADT
DRILLING METHOD: GEOPROBE: 2" MACRO-CORE
FIELD PARTY: LLOYD/VICTOR
GEOLOGIST: J. VOUGHT
DATE BEGUN: 10/5/99 DATE COMPLETED: 10/5/99

FIELD BOOK NO: ---
TOTAL DEPTH: 16.0'
GROUND SURFACE ELEVATION: ---

STATIC WATER LEVEL (BLS)

Depth (ft)	6'	

NOTE: Well secured with flushmount casing and locking cap.

DEPTH	SAMPLING METHOD	SAMPLE NUMBER	MOISTURE	FID	USCS	% RECOVERY	DESCRIPTION	LITHOLOGY	Well Construct. Details	WELL INSTALLATION
0.0	4' MAC COR	G-1 0-4'	DRY	7.0 ppm	SM	85	SAND AND SILT: Fine sand, some silt, trace gravel.		Cement/Bentonite	
-1.0									Bentonite	
-2.0									No. 2 Silica sandpack (1' to 16' bgs).	
-3.0										
-4.0	4' MAC COR	G-2 4'-8'	MST	8.0 ppm		100	SILT: Silt, some fine sand.		PVC Screen 1" d. 0.010" slot	
-5.0					ML					
-6.0			WET							
-7.0					CL		CLAY: Clay, some silt.			
-8.0	4' MAC COR	G-3 8'-12'		10.0 ppm		100	SAND: Fine to coarse sand, trace silt.			
-9.0					SM					
-10.0					SW					
-11.0					SM					
-12.0	4' MAC COR	G-4 12'-16.0'		16.0 ppm	SW	75	SAND: Fine to coarse sand.			
-13.0										
-14.0										
-15.0										
-16.0										

FIELD BOREHOLE LOG

BOREHOLE NUMBER
MW-02

PROJECT NUMBER: **050035673.00**
PROJECT NAME: **FORMER EMCA SITE 360025**
LOACATION: **MAMARONECK, NY**
DRILLING CO: **ADT**
DRILLING METHOD: **GEOPROBE: 2" MACRO-CORE**
FIELD PARTY: **LLOYD/VICTOR**
GEOLOGIST: **J. VOUGHT**
DATE BEGUN: **10/5/99** DATE COMPLETED: **10/5/99**

FIELD BOOK NO: ---
TOTAL DEPTH: **16.0'**
GROUND SURFACE ELEVATION: ---

STATIC WATER LEVEL (BLS)

Depth (ft)	6'	

NOTE: Well secured with flushmount casing and locking cap.

DEPTH	SAMPLING METHOD	SAMPLE NUMBER	MOISTURE	FID	USCS	% RECOVERY	DESCRIPTION	LITHOLOGY	Well Construct. Details	WELL INSTALLATION
0.0	4' MAC COR	G-1 0-4'	DRY	10.0 ppm	FILL	58	ASPHALT: First 3" asphalt. FILL: Brown fill material consisting of fine to medium sand, some silt, trace gravel.		Cement/Bentonite	
-1.0									Bentonite Seal	
-2.0									No. 2 Silica Sandpack (1' to 16' bgs).	
-3.0			MST						PVC Screen (3'-16') 1" diameter 0.010" slot	
-4.0	4' MAC COR	G-2 4'-8'		20.0 ppm		100				
-5.0					CL		CLAY: Gray clay, some silt.			
-6.0			WET							
-7.0					SP					
-8.0	4' MAC COR	G-3 8'-12'		50.0 ppm		100	SAND: Gray fine to coarse sand, trace silt.			
-9.0										
-10.0										
-11.0										
-12.0	4' MAC COR	G-4 12'-16'		100.0 ppm	SM	100	SAND: Brown fine to coarse sand, trace silt.			
-13.0							SAND: Gray fine to medium sand, trace to some silt, laminations.			
-14.0										
-15.0										
-16.0										

FIELD BOREHOLE LOG

BOREHOLE NUMBER
MW-03

PROJECT NUMBER: **050035673.00**
PROJECT NAME: **FORMER EMCA SITE 360025**
LOACATION: **MAMARONECK, NY**
DRILLING CO: **ADT**
DRILLING METHOD: **GEOPROBE: 2" MACRO-CORE**
FIELD PARTY: **LLOYD/VICTOR**
GEOLOGIST: **J. VOUGHT**
DATE BEGUN: **10/5/99** DATE COMPLETED: **10/5/99**

FIELD BOOK NO: ---
TOTAL DEPTH: **16.0'**
GROUND SURFACE ELEVATION: ---

STATIC WATER LEVEL (BLS)

Depth (ft)	6'	

NOTE: Well secured with flushmount casing and locking cap.

DEPTH	SAMPLING METHOD	SAMPLE NUMBER	MOISTURE	FID	USCS	% RECOVERY	DESCRIPTION	LITHOLOGY	Well Construct. Details	WELL INSTALLATION
0.0	4' MAC COR	G-1 0-4'	DRY	7.0 ppm	FILL	83	ASPHALT: First 2" asphalt. FILL: Brown fine to coarse sand, some fine gravel, asphalt and glass, trace cobbles.		Cement/Bentonite grout; Bentonite Seal; No. 2 Silica Sandpack (1.5' to 14.5' bgs) 1" PVC Screen 0.010" slot (4.5' to 14.5').	
-4.0	4' MAC COR	G-2 4'-8'	MST	4.0 ppm	ML	100	SAND AND SILT: Brown silt, trace fine sand.			
-6.0			WET		CL		CLAY: Brown clay, some silt.			
-8.0	4' MAC COR	G-3 8'-12'		7.0 ppm	ML SW	88	CLAY AND SILT: Brown silt, some clay. SAND: Brown fine to coarse sand, trace silt.			
-12.0	4' MAC COR	G-4 12'-16'		5.0 ppm		100				
-16.0										

FIELD BOREHOLE LOG

BOREHOLE NUMBER
MW-04

PROJECT NUMBER: **050035673.00**
PROJECT NAME: **FORMER EMCA SITE 360025**
LOACATION: **MAMARONECK, NY**
DRILLING CO: **ADT**
DRILLING METHOD: **GEOPROBE: 2" MACRO-CORE**
FIELD PARTY: **LLOYD/VICTOR**
GEOLOGIST: **J. VOUGHT**
DATE BEGUN: **10/5/99** DATE COMPLETED: **10/5/99**

FIELD BOOK NO: ---
TOTAL DEPTH: **31.0**
GROUND SURFACE ELEVATION: ---

STATIC WATER LEVEL (BLS)

Depth (ft)		

NOTE: Well secured with flushmount casing and locking cap.

DEPTH	SAMPLING METHOD	SAMPLE NUMBER	MOISTURE	FID	USCS	% RECOVERY	DESCRIPTION
0.0	4' MAC COR	G-1 0-4'	DRY	12.0 ppm	FILL	71	ASPHALT: First 3" asphalt.
-1.0							FILL: Brown fill material consisting of fine to medium sand, some silt, trace gravel.
-2.0							
-3.0			MST		ML		SILT: Brown silt, some fine sand.
-4.0	4' MAC COR	G-2 4'-8'		8.0 ppm		100	
-5.0					CL		CLAY AND SILT: Gray silt and clay.
-6.0			WET		SM		SAND: Fine to coarse sand, trace fine to medium gravel.
-7.0							
-8.0	4' MAC COR	G-3 8'-12'		3.0 ppm		100	
-9.0							
-10.0					SW		
-11.0							
-12.0	4' MAC COR	G-4 12'-16'		3.0 ppm		100	
-13.0							
-14.0							
-15.0							
-16.0							

LITHOLOGY

Well Construct. Details

Cement/Bentonite
Bentonite Seal
No. 2 Silica Sandpack (2' to 14.5' bgs).
PVC Screen (4.5'-14.5') 1" diameter 0.010" slot.

WELL INSTALLATION

FIELD BOREHOLE LOG

BOREHOLE NUMBER
MW-05

PROJECT NUMBER: 050035673.00
PROJECT NAME: FORMER EMCA SITE 360025
LOACATION: MAMARONECK, NY
DRILLING CO: ADT
DRILLING METHOD: GEOPROBE: 2" MACRO-CORE
FIELD PARTY: T. HEBERT
GEOLOGIST: J. VOUGHT
DATE BEGUN: 7/11/00 DATE COMPLETED: 7/11/00

FIELD BOOK NO: ---
TOTAL DEPTH: 16
GROUND SURFACE ELEVATION: ---

STATIC WATER LEVEL (BLS)

Depth (ft)		

NOTE: Well secured with flushmount casing and locking cap.

DEPTH	SAMPLING METHOD	SAMPLE NUMBER	MOISTURE	FID	USCS	% RECOVERY	DESCRIPTION	LITHOLOGY	Well Construct. Details	WELL INSTALLATION
0.0	Post Hole Digger	NA	DRY	0.0 ppm	FILL	NA	SAND: Fine to medium sand, some silt, some fine to course gravel, trace cobbles		GROUTED ANNULUS: Cement/Bentonite BENTONITE: Bentonite Seal	
-4.0	4' MAC COR	C-1	MST		SM	90	SAND AND SILT: Fine sand and silt, trace clay		SAND: No. 2 Silica Sandpack (3' to 16' bgs). PVC Screen (4'-16') 1" diameter 0.010" slot.	
-7.0			WET		ML		SILT: Silt, some clay			
-8.0	4' MAC COR	C-2			SM	100	SAND AND SILT: Fine to medium sand and silt			
-10.0							SAND: Fine to course sand, trace silt			
-12.0	4' MAC COR	C-3				100				
-16.0										

FIELD BOREHOLE LOG

BOREHOLE NUMBER
SG-06

PROJECT NUMBER: **050035673.00**
PROJECT NAME: **FORMER EMCA SITE 360025**
LOACATION: **MAMARONECK, NY**
DRILLING CO: **ADT**
DRILLING METHOD: **GEOPROBE: 2" MACRO-CORE**
FIELD PARTY: **T. HEBERT**
GEOLOGIST: **J. VOUGHT**
DATE BEGUN: **7/11/00** DATE COMPLETED: **7/11/00**

FIELD BOOK NO: ---
TOTAL DEPTH: **4.5**
GROUND SURFACE ELEVATION: ---

STATIC WATER LEVEL (BLS)

Depth (ft)		

DEPTH	SAMPLING METHOD	SAMPLE NUMBER	MOISTURE	FID	USCS	% RECOVERY	DESCRIPTION	LITHOLOGY	Well Construct. Details	WELL INSTALLATION
0.0	Macro Core	C-1	DRY	0.0 ppm	FILL	75	SAND: Fine to medium sand, some silt, trace fine gravel			
-1.0										
-2.0							SAND AND SILT: Fine sand and silt, some fine to course gravel			
-3.0										
-4.0										
-5.0							*SG-06 taken from 4.0-4.5 feet below grade and submitted for VOC and Freon 113 analysis (TO-14a)			
-6.0										

FIELD BOREHOLE LOG

BOREHOLE NUMBER
SG-07

PROJECT NUMBER: **050035673.00**
PROJECT NAME: **FORMER EMCA SITE 360025**
LOACATION: **MAMARONECK, NY**
DRILLING CO: **ADT**
DRILLING METHOD: **GEOPROBE: 2" MACRO-CORE**
FIELD PARTY: **T. HEBERT**
GEOLOGIST: **J. VOUGHT**
DATE BEGUN: **7/11/00** DATE COMPLETED: **7/11/00**

FIELD BOOK NO: ---
TOTAL DEPTH: **4.5**
GROUND SURFACE ELEVATION: ---

STATIC WATER LEVEL (BLS)

Depth (ft)		

DEPTH	SAMPLING METHOD	SAMPLE NUMBER	MOISTURE	FID	USCS	% RECOVERY	DESCRIPTION	LITHOLOGY	Well Construct. Details	WELL INSTALLATION
0.0 -1.0 -2.0 -3.0 -4.0 -5.0 -6.0	None			0.0 ppm	FILL		No samples collected Refer to SG-06 for geologic description and soil classification. * SG-07 taken from 4.0-4.5 feet below grade and submitted for VOC and Freon 113 analysis (TO-14a)			

APPENDIX E

WELL DEVELOPMENT AND PURGE LOGS

WELL PURGING LOG

URS Greine

PROJECT TITLE: Former EMCA Site 3600025 WELL NO.: MW-02

PROJECT NO.: 05000356772.00

STAFF: A. Pacitelli / T Vought

DATE(S): 10/7/99

			WELL ID.	VOL. (GAL./FT.)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	11.51	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	5.57	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	5.94	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	.04	4"	0.65
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	.238gal	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ____)	=	.238gal	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	1.5 Liters	8"	2.60

OR

$V = 0.0408 \times (\text{CASING DIAMETER})^2$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)											
	1/4 L	1/2 L	3/4 L	1 L	1 1/4 L							
pH	6.3	6.3	6.3	6.3								
SPEC. COND. (µmhos)	1840	1840	1840	1840								
TURBIDITY	Partly cloudy	Partly cloudy	Partly cloudy	Partly cloudy								
TEMPERATURE (°C)	17.5	19.2	19.3	19.1								

COMMENTS: FID initial = 100ppm

FID Final = 20ppm in riser, >1ppm in manway

Time of sampling = 5:37-5:39

Sampling Flow Rate = 100 ml/min

Depth to H2O at sampling = 5.61

WELL PURGING LOG

URS Greiner

PROJECT TITLE: Former SWACA Site #60025 WELL NO.: MW-01
PROJECT NO.: 05000?5672.00
STAFF: A. Rastelli T. Vought
DATE(S): 10/7/99

			WELL ID.	VOL. (GAL./FT.)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	7.61	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	5.35	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	2.26	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	.04	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	.09	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ______)	=	.09	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	.5 Liter	8"	2.60

OR
$V = 0.0408 \times (\text{CASING DIAMETER})^2$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	1 oz	2 oz	3 oz	4 oz	5 oz	6 oz					
pH	6.4	6.3	6.3	6.3	6.3	6.3	6.3				
SPEC. COND. (µmnos)	930	960	990	1000	1010	1000	1000				
TURBIDITY	Cloudy	partly cloudy	partly cloudy	partly cloudy	partly cloudy	partly cloudy	partly cloudy				
TEMPERATURE (°C)	14.7	15.4	16.5	16.1	15.8	15.7	16.0				

COMMENTS: FID = initial = 6 PPM -> 3 min later 2.5 ppm
Depth to H_2O at sampling = 5.43
pumprate ≈ 100 ml/min
12:05-1:50pm sampling time

WELL PURGING LOG

URS Greine

PROJECT TITLE: Former Emca Site 360025 WELL NO.: MW-4

PROJECT NO.: 950003567 3.00

STAFF: A. Rastelli / T. Vaught

DATE(S): 10/7/99

			WELL ID.	VOL. (GAL/FT.)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	10.76	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	5.24	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	5.52	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	.04	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	0.22 gals	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ____)	=		6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	.40 gal	8"	2.60

OR
V = 0.0408 x (CASING DIAMETER)²

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)											
	1/4 L	1/2 L	3/4 L	1 L	1 1/4 L							
pH	6.4	6.4	6.4	6.4	6.4							
SPEC. COND. (µmnos)	550	510	540	540	540							
TURBIDITY	cloudy	cloudy	cloudy	cloudy	cloudy							
TEMPERATURE (°C)	18.7	20.1	20.6	20.6	20.6							

COMMENTS: FID initial = 7100 ppm FID Final = 200-300 ppm above riser
20-30 ppm in manway, 5 ppm above
FID final = 200-300 ppm
Sampling flow rate = 100 ml/min
Sampling time = 4:38 - 5:05
Depth to H2O at sampling = 5.38'

URSF-115/1 OF 1/WPUGCM

WELL PURGING LOG

URS Greine

PROJECT TITLE: Former EMCA Site 3600025 WELL NO.: MW-03

PROJECT NO.: 05000356773.00

STAFF: A. Martelli / J. Vaught

DATE(S): 10/7/09

			WELL ID.	VOL. (GAL/FT.)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	14.12	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	6.01	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	8.11	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL)	=	.04	4"	0.65
5. VOLUME OF WATER IN CASING (GAL)(#3 x #4)	=	.325 gal	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL)(#5 x ____)	=	.325	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	.65 gal	8"	2.60

OR
V = 0.0408 x (CASING DIAMETER)²

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)											
	1/4L	1/2 L	3/4L	1L	1 1/4L							
pH	6.3	6.2	6.3	6.3	6.3							
SPEC. COND. (µmhos)	530	540	540	550	550							
TURBIDITY	cloudy	cloudy	partly cloudy	partly cloudy	partly cloudy							
TEMPERATURE (°C)	18.8	19.3	19.2	19.3	19.3							

COMMENTS:

9.99 − 4.26 = 5.73 ft } PZ-01 depth to H_2O

PZ-01 water level 9.99 4.26 Ft above ground

FID initial = >1000ppm FID final = 100ppm in riser

Depth to H_2O at sampling = 5.81

Sampling pump rate = ≈200ml/min 1" above riser in floshmount = 1 ppm

Sampling time = 3:47

Landey → proceed

WELL PURGING LOG

URS Greine

PROJECT TITLE: Former FMC Site 2100025 WELL NO.: G206

PROJECT NO.: 05000085673.00

STAFF: A. Bontelli / T. Vought

DATE(S): 10/7/00

			WELL ID.	VOL. (GAL./FT.)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	14.90	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	7.38	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	7.52	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	.17	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	1.28	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 1-3)	=		6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=		8"	2.60

7.52 × .17 = 1.28 gal

OR
$V = 0.0408 \times (\text{CASING DIAMETER})^2$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	.2	.4	.6	.8	1						
pH	6.2	6.2	6.2	6.2	6.2	6.2					
within 60 for stabilization SPEC. COND. (μmhos)	1160	1190	1200	1160	1200	1190					
TURBIDITY	clear	clear	clear	clear	clear	clear					
TEMPERATURE (°C)	15.4	16.5	17.1	17.1	17.1	17.2					

COMMENTS: FID #206 FID calibration, pH calibrated
initial: 4ppm; pump rate = 100ml/min
water level 7.74 at time of sampling

URSF-115/1 OF 1/WPL/GCM

WELL PURGING LOG

URS Greine

PROJECT TITLE: Former EMCA Site 3600025 WELL NO.: GZ-03

PROJECT NO.: 05000035 1673.00

STAFF: A Raitelli / J. Vaught

DATE(S): 10/7/99

			WELL ID.	VOL. (GAL/FT.)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	12.10	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	7.89	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	4.21	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	.17	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	0.72	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ____)	=	.72	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=		8"	2.60

OR

$V = 0.0408 \times (\text{CASING DIAMETER})^2$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	¼ L	¾ L	1 L	1¼ L	1¾ L	2 L	2½ L	3 L	3½ L		
pH	6.8	6.8	6.7	6.7	6.7	6.7	6.6	6.6	6.6		
SPEC. COND. (µmhos)	200	200	200	200	200	200	200	200	200		
TURBIDITY	partly cloudy	clear	clear	clear	clear	clear	clear	clear	clear		
TEMPERATURE (° C)	16.5	18.9	18.7	18.9	19.2	18.3	19.1	19.1	19.1		

COMMENTS: PZ-02 = 6.91 depth to H_2O to top of casing riser. is .6ft above grade

FID initial = 4 ppm

FID Final = 4 ppm

Time of Sampling =

Depth to H_2O at sampling = 7.93

Sampling Flow rate = 100ml/min

WELL DEVELOPMENT/PURGE LOG

URS Greiner

PROJECT TITLE: Former EMCA Site 360025 WELL NO.: MW-2

PROJECT NO.: 05000356 73.00

STAFF: Art Rastelli / Jeff Vought

DATE(S): 10/5-199

			WELL ID.	(GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	11.91	1"	0.0
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	5.17	2"	0.2
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	6.74	3"	0.4
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	.04	4"	0.7
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	.27	5"	1.0
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=	2.7	6"	1.5
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	15	8"	2.6

OR

$V=0.0408 \times (\text{CASING DIAMETER})^2$

	ACCUMULATED VOLUME PURGED (GALLONS)										
PARAMETERS	1	4	10	15							
pH	6.4	6.4	6.6	6.5							
SPEC. COND. (umhos)	2 lons	1573	1123	900							
APPEARANCE	muddy	Muddy	muddy	muddy							
TEMPERATURE (°C)	18.4	18.2	18.1	17.8							
DISSOLVED OXYGEN (mg/L)											

COMMENTS:

FIGURE 3

WELL DEVELOPMENT LOG

URS Greiner

PROJECT TITLE: former EMCA site 360025 WELL NO.: MW-3

PROJECT NO.: 05600 35673.00

STAFF: Art Nastelli / Jeff Vaught

DATE(S): 10/5/99

			WELL ID.	VOL. (GAL./FT.)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	14.19	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	5.59	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	8.60	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	.04	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	.3	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x _____)	=		6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	10	8"	2.60

OR
$V = 0.0408 \times (\text{CASING DIAMETER})^2$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	.5G	1G	2G	3G	6G	10G					
pH	6.4	6.4	6.3	6.3	6.3	6.3					
SPEC. COND. (µmhos)	570	520	520	540	560	560					
TURBIDITY	Muddy	"	partly cloudy	Partly cloudy	Partly cloudy	Partly cloudy					
TEMPERATURE (° C)	17.9	17.8	17.6	17.4	17.4	17.3					

COMMENTS:

WELL DEVELOPMENT LOG

URS Greiner

PROJECT TITLE: former EMCA site 360025 WELL NO.: MW-1

PROJECT NO.: 050003567300

STAFF: Art Nastelli / Jeff Voight

DATE(S): 10/5/99

			WELL ID.	VOL. (GAL./FT.)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	7.95	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	5.20	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	2.75	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	.04	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	.11	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x _____)	=	.33	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	3	8"	2.60

OR
$V = 0.0408 \times (\text{CASING DIAMETER})^2$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	.1 (final)	.2	.6	1	3						
pH	6.4	6.4	6.4	6.4	6.4						
SPEC. COND. (µmhos)	990	947	935	940	920						
TURBIDITY	cloudy	partly cloudy	partly cloudy	partly cloudy	partly cloudy						
TEMPERATURE (° C)	17.8	17.2	16.8	16.6	16.4						

COMMENTS:

WELL DEVELOPMENT LOG

URS Greiner

PROJECT TITLE: Former EMCA site 360025 WELL NO.: MW-4

PROJECT NO.: 050003567 3.00

STAFF: Art Rastelli / Jeff Vought

DATE(S): 10/5/99

			WELL ID.	VOL. (GAL./FT.)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	10.68	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	5.21	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	5.47	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	.04	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	.22	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x _____)	=		6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	5G	8"	2.60

OR

$V = 0.0408 \times (\text{CASING DIAMETER})^2$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	1G	2G	3G	4G	5G						
pH	6.5	6.5	6.4	6.4	6.4						
SPEC. COND. (µmhos)	480	490	510	500	490						
TURBIDITY	Muddy	Muddy	Muddy	Cloudy	Cloudy						
TEMPERATURE (°C)	18.8	18.6	18.3	18.1	18.1						

COMMENTS:

WELL DEVELOPMENT/PURGE LOG

URS Greiner

PROJECT TITLE: Former EMCA Site 36025 WELL NO.: PZ-01

PROJECT NO.: 050003567300

STAFF: Art Rastelli / Jeff Vought

DATE(S): 10/5/99

			WELL ID.	. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	14.30	1"	0.0
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	9.75	2"	0.2
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	4.55	3"	0.4
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	.04	4"	0.7
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	.18	5"	1.0
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=	—	6"	1.5
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	3L	8"	2.6

OR

$V = 0.0408 \times (\text{CASING DIAMETER})^2$

	ACCUMULATED VOLUME PURGED (GALLONS)										
PARAMETERS	1L	3L									
pH	9.1	8.8									
SPEC. COND. (umhos)	873	880									
APPEARANCE	Muddy	Muddy									
TEMPERATURE (°C)	17.0	16.8									
DISSOLVED OXYGEN (mg/L)											

COMMENTS:

FIGURE 3

WELL DEVELOPMENT LOG

URS Greiner

PROJECT TITLE: Former EMCA Site 360025 WELL NO.: P2-02

PROJECT NO.: 050003567 3.00

STAFF: Art Nastelli

DATE(S): 10/5/99

			WELL ID.	VOL. (GAL./FT.)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	14.06	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	6.89	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	7.17	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	.04	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	.29	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x _____)	=		6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	.75G	8"	2.60

OR
$V = 0.0408 \times (\text{CASING DIAMETER})^2$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	.25	.5	.75G								
pH	8.5	8.5	8.4								
SPEC. COND. (µmhos)	870	810	810								
TURBIDITY	cloudy	cloudy	cloudy								
TEMPERATURE (°C)	17.0	16.8	16.6								

COMMENTS:

WELL DEVELOPMENT LOG

URS Greiner

PROJECT TITLE: former EMCA site 360025 WELL NO.: 6203

PROJECT NO.: 050003567300

STAFF: Art Nastelli / Jeff Vought

DATE(S): 10/5/99

			WELL ID.	VOL. (GAL./FT.)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	12.70	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	7.72	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	4.98	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	.17	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	.85	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x _____)	=		6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	12	8"	2.60

OR

$V = 0.0408 \times (\text{CASING DIAMETER})^2$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	3	6	9	12							
pH	6.7	6.6	6.6	6.5	[redacted]						
SPEC. COND. (umhos)	280	280	260	240							
TURBIDITY	clear	clear	clear	clear							
TEMPERATURE (°C)	18.6	18.2	18.1	17.6							

COMMENTS:

WELL PURGING LOG

URS-Greiner Woodward Clyde

PROJECT TITLE: Former EMCA Site 3600025 WELL NO.: MW-1

PROJECT NO.: 25000857673.00

STAFF: Jeffrey Vaught

DATE(S): 7/12/00

			WELL ID.	. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	7.81 (2 1/2)	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	5.69	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	2.12	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	.04	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	.08	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=	.25	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	.55	8"	2.60

OR

V=0.0408 x (CASING DIAMETER)²

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	.05 gal	.10 gal	.15 gal	.20 gal	.25 gal	.40 gal	.45 gal	.5 gal	.55 gal		
pH	7.3	7.2	7.3	7.3	7.3	7.3	7.3	7.3	7.3		
SPEC. COND. (umhos)	1450	1550	1750	1790	1800	1810	1820	1820	1820		
APPEARANCE	partly cloudy	cloudy	cloudy	cloudy	partly cloudy	partly cloudy	partly cloudy	clear	clear		
TEMPERATURE (°C)	26°	24°	22°	22°	22°	22°	22°	22°	22°		
TEMPERATURE (°C)											

COMMENTS:

FID Initial = 5 ppm

FID Final = 0 ppm

pumping rate = 100 ml/min

sampling time = 5:40 pm

Depth to H_2O at sampling = 5.69 + .21 = 5.90 water level during sampling cannot go below 5.90 for <10% drawdown

WELL PURGING LOG

URS-Greiner Woodward Clyde

PROJECT TITLE: Former EMCA Site 360025 WELL NO.: MW-2

PROJECT NO.: 05000556 73.00

STAFF: ~~Jeffrey~~ Vaught

DATE(S): 7/13/00

			WELL ID.	(GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	11.75	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	6.02	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	5.73	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	.04	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	.23	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=	.68	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	1.80 gal	8"	2.60

OR

V=0.0408 x (CASING DIAMETER)²

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	.10 gal	.25 gal	.5 gal	.75 gal	1 gal	1.10 gal	1.25 gal	1.5 gal	1.6 gal	1.7 gal	1.8 gal
pH	7.3	6.9	6.8	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9
SPEC. COND. (umhos)	1270	1130	1120	1080	1020	1030	1000	990	950	940	940
APPEARANCE	clear	clear	clear	clear	clear	clear	clear	clear	clear	clear	clear
TEMPERATURE (°C)	26°	24°	20°	20°	20°	20°	20°	20°	20°	20°	20°
TEMPERATURE (°C)											

COMMENTS:

FID_{Intial} = 150 ppm

FID_{Final} = 2 ppm

pump rate = 100 ml/min

sampling time = 11:15 am

Depth to H_2O at sampling: 6.02 + .57 = 6.59 water level during sampling cannot go below 6.59 for < 10% drawdown

WELL PURGING LOG

URS-Greiner Woodward Clyde

PROJECT TITLE: Farmer Emco Site 360025 WELL NO.: MW-4

PROJECT NO.: 05000356 73.00

STAFF: Jeffrey Vaught

DATE(S): 7/13/00

			WELL ID.	(GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	10.74	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	5.86	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	4.88	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	.04	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	.20	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=	.60	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	1.3 gal	8"	2.60

OR

V=0.0408 x (CASING DIAMETER)²

	ACCUMULATED VOLUME PURGED (GALLONS)										
PARAMETERS	.10gal	.25gal	.50gal	.75gal	1gal	1.10gal	1.25gal	1.3gal			
pH	6.9	7.0	7.0	7.0	7.0	7.0	7.0	7.0			
SPEC. COND. (umhos)	980	1050	1070	1080	1110	1120	1120	1110			
APPEARANCE	partly cloudy	clear	clear	clear	clear	clear	clear	clear			
TEMPERATURE (°C)	30°	26°	26°	24°	24°	24°	24°	24°			
TEMPERATURE (°C)											

COMMENTS:

$FID_{Initial}$ = >1000ppm (FID maximum)

FID_{Final} = 2ppm

pump rate = 100ml/min

Sampling time = 12:15

Depth to H2O at sampling: 5.86 + .48 = 6.34

water level during sampling cannot go below 6.34 for <10% drawdown

WELL DEVELOPMENT LOG

URS Greiner

PROJECT TITLE: Former EMCA Site 360025 WELL NO.: MW-5

PROJECT NO.: 05000356 73.00

STAFF: Jeffrey Vaught

DATE(S): 7/11/00

			WELL ID.	VOL. (GAL/FT.)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	16.00ft	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	5.44	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	10.56	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	.04	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	.42	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=	1.27	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	1¼	8"	2.60

OR

$V = 0.0408 \times (\text{CASING DIAMETER})^2$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	¼ gal	½ gal	¾ gal	1 gal	1¼ gal						
pH	6.7	7.1	7.0	7.1	7.1						
SPEC. COND. (µmhos)	510	470	490	490	490						
TURBIDITY	very cloudy	very cloudy	cloudy	cloudy	partly cloudy						
TEMPERATURE (° C)	16°	16°	16°	16°	16°						

COMMENTS: $FID_{Initial} = 2.5$ ppm

$FID_{Final} = 0$ ppm

pumprate ≈ 100ml/min

Depth to H_2O at sampling =

Sample Time=

WELL PURGING LOG

URS-Greiner Woodward Clyde

PROJECT TITLE: Former EmcA Site 3600025 WELL NO.: MW-5

PROJECT NO.: 05000356173.00

STAFF: Jeffrey Vaught

DATE(S): 7/13/00

			WELL ID.	(GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	15.58	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	5.47	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	10.11	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	.04	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	.40	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=	1.21	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	1.10	8"	2.60

OR

V=0.0408 x (CASING DIAMETER)²

	ACCUMULATED VOLUME PURGED (GALLONS)										
PARAMETERS	.10 gal	.25 gal	.50 gal	.75 gal	1.0 gal	1.10 gal					
pH	7.1	7.1	7.1	7.1	7.1	7.1					
SPEC. COND. (umhos)	470	440	440	460	460	460					
APPEARANCE	clear	clear	clear	clear	clear	clear					
TEMPERATURE (°C)	26°	24°	20°	20°	20°	20°					
TEMPERATURE (°C)											

COMMENTS:

FID Initial = 1.5 ppm

FID Final = 0 ppm

pump rate = 100 ml / min

sampling time = 1:10 pm

Depth to H_2O at sampling = 5.47 + 1.01 = 6.48 water level during sampling cannot go below 6.48 for < 10% drawdown

WELL PURGING LOG

URS-Greiner Woodward Clyde

PROJECT TITLE: Farmer EMCA Site 360025 WELL NO.: GZ-6

PROJECT NO.: 05000356 73.00

STAFF: Jeffrey Vaught

DATE(S): 7/13/00

			WELL ID.	. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	15.09	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	7.94	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	7.15	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	.17	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	1.22	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=	3.66	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	2.5 gal	8"	2.60

OR

V=0.0408 x (CASING DIAMETER)²

	ACCUMULATED VOLUME PURGED (GALLONS)										
PARAMETERS	.5 gal	1.0 gal	1.5 gal	2.0 gal	2.5 gal						
pH	7.1	7.1	7.1	7.1	7.1	recovery → refill					
SPEC. COND. (umhos)	910	970	970	970	970						
APPEARANCE	clear	clear	clear	clear	clear						
TEMPERATURE (°C)	24°	24°	24°	24°	24°	sample					
TEMPERATURE (°C)						slow					

COMMENTS:

$FID_{Initial}$ = 30 ppm

FID_{Final} = 0 ppm

pumping rate = 100 ml/min

sampling time = 4:15 pm

Depth to H_2O at sampling = 7.94 + .71 = 8.65

water level during sampling cannot go below 8.65' for < 10% drawdown

APPENDIX F

1963 SANBORN MAP

APPENDIX G

NYSDEC SPILL RECORDS

NYSDEC SPILL REPORT FORM

DEC REGION# 3 (New Paltz) SPILL NUMBER 8905945
SPILL NAME: HAPPINES LAUNDRY DEC LEAD: TODD GHIOSAY
CALLER'S NAME: JOHN LEDDY NOTIFIER'S NAME:
CALLER'S AGENCY: PROTEST NOTIFIER'S AGENCY:
CALLER'S PHONE: (516) 321-4670 EXT. NOTIFIER'S PHONE: EXT.

SPILL DATE: 09/16/1989 TIME: 15:30
CALL RECEIVED DATE: 09/16/1989 TIME: 20:08 RECEIVED BY CID #:

Material Spilled	Mat. Class	Am't Spilled	Units	Am't Recovered
1) GASOLINE	(Pet) Haz-Other-Unk.	0	(Gal) Lbs	0
2)	Pet-Haz-Other-Unk.		Gal - Lbs	
3)	Pet-Haz-Other-Unk.		Gal - Lbs	
4)	Pet-Haz-Other-Unk.		Gal - Lbs	

SPILL LOCATION

PLACE: HAPPINES LAUNDRY
STREET: 613 WAVERLY ST.
T/C/V: MAMARONECK CO: WESTCHESTER
CONTACT:
PHONE: EXT.

POTENTIAL SPILLER

NAME: HAPPINESS LAUNDRY
STREET: 613 WAVERLY ST.
CITY: MAMARONECK
STATE: NY ZIP:
CONTACT:
PHONE: EXT.

SPILL CAUSE

Human Error	(Tank Test Failure*)	Tank Failure
Traffic Accident	Housekeeping	Tank Overfill
Equipment Failure	Deliberate	Other
Vandalism	Abandoned Drums	Unknown

SPILL SOURCE

Gas Station	Private Dwelling	(Non-Maj Facility)
Passenger Vehicle	Vessel	Comm/Indust
Comm. Vehicle	Railroad Car	Non-Comm/Instit
Tank Truck	Major Facility	Unknown

RESOURCE AFFECTED

On Land	(Groundwater)	Air
In Sewer	Surface Water**	

**WATERBODY:

SPILL REPORTED BY

Responsible Party	(Tank Tester)	Local Agency
Affected Persons	DEC	Federal Gov't
Police Department	Citizen	Other
Fire Department	Health Dept.	

CALLER REMARKS: -.196 GPH, WILL EXCAVATE, ISOLATE & RETEST

*PBS Number	Tank Number	Tank Size	Test Method	Leak Rate
3-450650		0		0.00

PRIMARY CONTACT CALLED DATE: TIME: hrs. REACHED DATE: TIME: hrs.
SECONDARY CONT. CALLED DATE: TIME: hrs. FAXED BY CID#:

PIN #	T & A	Cost Center	ISR to Central Office
Cleanup Ceased 07/30/1992	Meets St'ds YES	Last Inspection	Penalty NO
RP-CUI	ENF-INIT	INVES-COM	CAP
UST Trust Eligible YES	Site: A B (C) D E	Resp. Party 1 2 (3) 4 5 6	Reg Close Date 07/30/1992

Created on 09/21/1989 Last Updated on 10/08/1993 Is Updated? NO EDO DATA INPUT [ ]
Date Printed: 11/09/1999

PrintFor3/30/1999

NYSDEC SPILL REPORT FORM

DEC REGION# 3 (New Paltz) SPILL NUMBER 8905946

SPILL NAME: HAPPINES LAUNDRY DEC LEAD: TODD GHIOSAY

CALLER'S NAME: JOHN LEDDY NOTIFIER'S NAME:

CALLER'S AGENCY: PROTEST NOTIFIER'S AGENCY:

CALLER'S PHONE: EXT. NOTIFIER'S PHONE: EXT.

SPILL DATE: 09/16/1989 TIME: 15:30

CALL RECEIVED DATE: 09/16/1989 TIME: 15:48 RECEIVED BY CID #:

	Material Spilled	Mat. Class	Am't Spilled	Units	Am't Recovered
1)	#2 FUEL OIL	(Pet) Haz-Other-Unk.	0	(Gal) Lbs	0
2)		Pet-Haz-Other-Unk.		Gal - Lbs	
3)		Pet-Haz-Other-Unk.		Gal - Lbs	
4)		Pet-Haz-Other-Unk.		Gal - Lbs	

SPILL LOCATION

PLACE: HAPPINES LAUNDRY

STREET: 613 WAVERLY ST.

T/C/V: MAMARONECK CO: WESTCHESTER

CONTACT:

PHONE: EXT.

POTENTIAL SPILLER

NAME:

STREET:

CITY:

STATE: ZIP:

CONTACT:

PHONE: EXT.

SPILL CAUSE

Human Error	(Tank Test Failure*)	Tank Failure
Traffic Accident	Housekeeping	Tank Overfill
Equipment Failure	Deliberate	Other
Vandalism	Abandoned Drums	Unknown

SPILL SOURCE

Gas Station	Private Dwelling	Non-Maj Facility
Passenger Vehicle	Vessel	(Comm/Indust)
Comm. Vehicle	Railroad Car	Non-Comm/Instit
Tank Truck	Major Facility	Unknown

RESOURCE AFFECTED

On Land	(Groundwater)	Air
In Sewer	Surface Water**	

**WATERBODY:

SPILL REPORTED BY

Responsible Party	(Tank Tester)	Local Agency
Affected Persons	DEC	Federal Gov't
Police Department	Citizen	Other
Fire Department	Health Dept.	

CALLER REMARKS: GROSS LEAK, WILL EXCAVATE, ISOLATE & RETEST.

* PBS Number	Tank Number	Tank Size	Test Method	Leak Rate
		0		0.00

PRIMARY CONTACT CALLED DATE: TIME: hrs. REACHED DATE: TIME: hrs.

SECONDARY CONT. CALLED DATE: TIME: hrs. FAXED BY CID#:

PIN #	T & A	Cost Center	ISR to Central Office
Cleanup Ceased 07/30/1992	Meets St'ds YES	Last Inspection	Penalty NO
RP-CUI	ENF-INIT	INVES-COM	CAP
UST Trust Eligible NO	Site: A B (C) D E	Resp. Party 1 2 3 (4) 5 6	Reg Close Date 07/30/1992

Created on 09/21/1989 Last Updated on 07/30/1992 Is Updated? NO EDO DATA INPUT [ ]

Date Printed: 11/09/1999

Print For 9/10/1999

NYSDEC SPILL REPORT FORM

DEC REGION# 3 (New Paltz) SPILL NUMBER 9000978

SPILL NAME: METAGLO CO. DEC LEAD: GHIOSAY

CALLER'S NAME: JOSEPH CHECCO NOTIFIER'S NAME:

CALLER'S AGENCY: COLIN CO. NOTIFIER'S AGENCY:

CALLER'S PHONE: (914) 698-7727 EXT. NOTIFIER'S PHONE: EXT.

SPILL DATE: 01/15/1990 TIME: 12:00

CALL RECEIVED DATE: 04/26/1990 TIME: 13:04 RECEIVED BY CID #:

Material Spilled	Mat. Class	Am't Spilled	Units	Am't Recovered
1) UNKNOWN PETROLEUM	(Pet)-Haz-Other-Unk.	0	Gal (Lbs)	0
2) HYDROCHLORIC ACID	Pet-(Haz)-Other-Unk.	0	Gal (Lbs)	0
3)	Pet-Haz-Other-Unk.		Gal - Lbs	
4)	Pet-Haz-Other-Unk.		Gal - Lbs	

SPILL LOCATION

PLACE: METAGLO CO.

STREET: 625 WAVERLY AVE.

T/C/V: MAMARONECK CO: WESTCHESTER

CONTACT:

PHONE: EXT.

POTENTIAL SPILLER

NAME: SAME

STREET:

CITY:

STATE: ZIP:

CONTACT:

PHONE: EXT.

SPILL CAUSE

Human Error	Tank Test Failure*	Tank Failure
Traffic Accident	(Housekeeping)	Tank Overfill
Equipment Failure	Deliberate	Other
Vandalism	Abandoned Drums	Unknown

SPILL SOURCE

Gas Station	Private Dwelling	Non-Maj Facility
Passenger Vehicle	Vessel	(Comm/Indust)
Comm. Vehicle	Railroad Car	Non-Comm/Instit
Tank Truck	Major Facility	Unknown

RESOURCE AFFECTED

On Land	Groundwater	(Air)
In Sewer	Surface Water**	

**WATERBODY:

SPILL REPORTED BY

Responsible Party	Tank Tester	Local Agency
(Affected Persons)	DEC	Federal Gov't
Police Department	Citizen	Other
Fire Department	Health Dept.	

CALLER REMARKS: SPILLER RELEASES LARGE DENSE VAPOR CLOUDS OF HYDROCLORIC ACID AS A DAILY ROUTINE EMPLOYEES AT CULIN CO. ARE CONCERNED FOR THEIR HEALTH

*PBS Number	Tank Number	Tank Size	Test Method	Leak Rate

PRIMARY CONTACT CALLED DATE: TIME: hrs. REACHED DATE: TIME: hrs.

SECONDARY CONT. CALLED DATE: TIME: hrs. FAXED BY CID#:

PIN #	T & A	Cost Center	ISR to Central Office
Cleanup Ceased 05/15/1990	Meets St'ds YES	Last Inspection	Penalty NO
RP-CUI	ENF-INIT	INVES-COM	CAP
UST Trust Eligible NO	Site: A B C D E	Resp. Party 1 2 3 4 5 6	Reg Close Date 05/15/1990

Created on 05/07/1990 Last Updated on 12/28/1998 Is Updated? NO | EDO | DATA INPUT [ ]

Date Printed: 11/09/1999

PrintFor 3/30/1999

Spill Number: 9000978 **Spill Name:** METAGLO CO. **Printed on:** 11/09/1999

DEC REMARKS

/ / : SPILL HAS BEEN REFERED.

NYSDEC SPILL REPORT FORM

DEC REGION#: 3 (New Paltz)
SPILL NUMBER: 9111321
SPILL NAME: STORM DRAIN
DEC LEAD: GHIOSAY
CALLER'S NAME: L. RICCI
NOTIFIER'S NAME:
CALLER'S AGENCY: DEC
NOTIFIER'S AGENCY:
CALLER'S PHONE: (914) 255-3210 EXT.
NOTIFIER'S PHONE: EXT.

SPILL DATE: 02/03/1992 TIME: 10:30
CALL RECEIVED DATE: 02/03/1992 TIME: 10:40 RECEIVED BY CID #:

	Material Spilled	Mat. Class	Am't Spilled	Units	Am't Recovered
1)	UNKNOWN PETROLEUM	(Pet) Haz-Other-Unk.	5	(Gal) - Lbs	0
2)		Pet-Haz-Other-Unk.		Gal - Lbs	
3)		Pet-Haz-Other-Unk.		Gal - Lbs	
4)		Pet-Haz-Other-Unk.		Gal - Lbs	

SPILL LOCATION

PLACE: STORM DRAIN
STREET: 625 WAVERLY AVE.
T/C/V: MAMARONECK CO: WESTCHESTER
CONTACT:
PHONE: EXT.

POTENTIAL SPILLER

NAME:
STREET:
CITY:
STATE: ZIP:
CONTACT:
PHONE: EXT.

SPILL CAUSE

Human Error, Traffic Accident, Equipment Failure, Vandalism, Tank Test Failure*, Housekeeping, (Deliberate), Abandoned Drums, Tank Failure, Tank Overfill, Other, Unknown

SPILL SOURCE

Gas Station, Passenger Vehicle, Comm. Vehicle, Tank Truck, Private Dwelling, Vessel, Railroad Car, Major Facility, Non-Maj Facility, Comm/Indust, Non-Comm/Instit, (Unknown)

RESOURCE AFFECTED

On Land, (In Sewer), Groundwater, Surface Water**, Air

**WATERBODY:

SPILL REPORTED BY

Responsible Party, Affected Persons, Police Department, Fire Department, Tank Tester, (DEC), Citizen, Health Dept., Local Agency, Federal Gov't, Other

CALLER REMARKS: VILLAGE POLICE (698-2400) NOTICED PAINT BEING POURED INTO STORM DRAIN PERSON BEING HELD

*PBS Number	Tank Number	Tank Size	Test Method	Leak Rate

PRIMARY CONTACT CALLED DATE: TIME: hrs. REACHED DATE: TIME: hrs.
SECONDARY CONT. CALLED DATE: TIME: hrs. FAXED BY CID#:

PIN #	T & A	Cost Center	ISR to Central Office
Cleanup Ceased 02/04/1992	Meets St'ds YES	Last Inspection 02/04/1992	Penalty NO
RP-CUI	ENF-INIT	INVES-COM	CAP
UST Trust Eligible NO	Site: A B C D E	Resp. Party 1 2 3 4 5 6	Reg Close Date 03/10/1992

Created on 02/03/1992 Last Updated on 03/10/1992 Is Updated? NO | EDO | DATA INPUT [ ]

Date Printed: 11/09/1999

NYSDEC SPILL REPORT FORM

DEC REGION# 3 (New Paltz) SPILL NUMBER 8705596
SPILL NAME: AMERCHOL DEC LEAD: OKESSON
CALLER'S NAME: NOTIFIER'S NAME:
CALLER'S AGENCY: NOTIFIER'S AGENCY:
CALLER'S PHONE: EXT. NOTIFIER'S PHONE: EXT.

SPILL DATE: 10/02/1987 TIME: 15:54
CALL RECEIVED DATE: 10/02/1987 TIME: 15:51 RECEIVED BY CID #:

	Material Spilled	Mat. Class	Am't Spilled	Units	Am't Recovered
1)	#4 FUEL OIL	(Pet)-Haz-Other-Unk.	0	Gal (Lbs)	0
2)		Pet-Haz-Other-Unk.		Gal - Lbs	
3)		Pet-Haz-Other-Unk.		Gal - Lbs	
4)		Pet-Haz-Other-Unk.		Gal - Lbs	

SPILL LOCATION

PLACE: AMERCHOL
STREET: 628 WAVERLY AVE.
T/C/V: MAMARONECK CO: WESTCHESTER
CONTACT:
PHONE: EXT.

POTENTIAL SPILLER

NAME: SAME
STREET:
CITY:
STATE: ZIP:
CONTACT:
PHONE: (914) 698-8550 EXT.

SPILL CAUSE

Human Error	(Tank Test Failure)	Tank Failure
Traffic Accident	Housekeeping	Tank Overfill
Equipment Failure	Deliberate	Other
Vandalism	Abandoned Drums	Unknown

SPILL SOURCE

Gas Station	Private Dwelling	Non-Maj Facility
Passenger Vehicle	Vessel	(Comm/Indust)
Comm. Vehicle	Railroad Car	Non-Comm/Instit
Tank Truck	Major Facility	Unknown

RESOURCE AFFECTED

On Land	(Groundwater)	Air
In Sewer	Surface Water**	

**WATERBODY:

SPILL REPORTED BY

Responsible Party	(Tank Tester)	Local Agency
Affected Persons	DEC	Federal Gov't
Police Department	Citizen	Other
Fire Department	Health Dept.	

CALLER REMARKS: 7.5K SYSTEM- -.449 GPH PBS# 175498. TO RETEST.

*PBS Number	Tank Number	Tank Size	Test Method	Leak Rate
		0		0.00

PRIMARY CONTACT CALLED DATE: TIME: hrs. REACHED DATE: TIME: hrs.
SECONDARY CONT. CALLED DATE: TIME: hrs FAXED BY CID#:

PIN #	T & A	Cost Center	ISR to Central Office
Cleanup Ceased 10/16/1987	Meets St'ds YES	Last Inspection 11/17/1987	Penalty NO
RP-CUI	ENF-INIT	INVES-COM	CAP
UST Trust Eligible NO	Site: A B (C) D E	Resp. Party 1 2 3 (4) 5 6	Reg Close Date 11/17/1987

Created on 11/13/1987 Last Updated on 06/12/1998 Is Updated? NO | EDO | DATA INPUT [ ]
Date Printed: 11/09/1999

Print For 2/20/1998

Spill Number: 8705596 **Spill Name:** AMERCHOL **Printed on:** 11/09/1999

DEC REMARKS

10-16-87 TANK REMOVED FROM GROUND.INDICATED BY MIKE LANNI. NFA.

NYSDEC SPILL REPORT FORM

DEC REGION# 3 (New Paltz) SPILL NUMBER 8903850
SPILL NAME: AMERCHOL DEC LEAD: TODD GHOISAY
CALLER'S NAME: RAY RUSH NOTIFIER'S NAME:
CALLER'S AGENCY: W.C.F.D. NOTIFIER'S AGENCY:
CALLER'S PHONE: (814) 592-4227 EXT. NOTIFIER'S PHONE: EXT.

SPILL DATE: 07/18/1989 TIME: 07:30
CALL RECEIVED DATE: 07/18/1989 TIME: 08:28 RECEIVED BY CID #:

	Material Spilled	Mat. Class	Am't Spilled	Units	Am't Recovered
1)	UNKNOWN PETROLEUM	(Pet) Haz-Other-Unk.	160	Gal (Lbs)	0
2)		Pet-Haz-Other-Unk.		Gal - Lbs	
3)		Pet-Haz-Other-Unk.		Gal - Lbs	
4)		Pet-Haz-Other-Unk.		Gal - Lbs	

SPILL LOCATION

PLACE: AMERCHOL
STREET: 628 WAVERLY AVE.
T/C/V: MAMARONECK CO: WESTCHESTER
CONTACT:
PHONE: EXT.

POTENTIAL SPILLER

NAME: AMERCHOL
STREET: 628 WAVERLY AVE.
CITY: MAMARONECK
STATE: NY ZIP:
CONTACT:
PHONE: EXT.

SPILL CAUSE

Human Error	Tank Test Failure*	Tank Failure
Traffic Accident	Housekeeping	Tank Overfill
(Equipment Failure)	Deliberate	Other
Vandalism	Abandoned Drums	Unknown

SPILL SOURCE

Gas Station	Private Dwelling	Non-Maj Facility
Passenger Vehicle	Vessel	(Comm/Indust)
Comm. Vehicle	Railroad Car	Non-Comm/Instit
Tank Truck	Major Facility	Unknown

RESOURCE AFFECTED

On Land	Groundwater	(Air)
In Sewer	Surface Water**	

**WATERBODY:

SPILL REPORTED BY

Responsible Party	Tank Tester	Local Agency
Affected Persons	DEC	Federal Gov't
Police Department	Citizen	Other
(Fire Department)	Health Dept.	

CALLER REMARKS: VALVE MALFUNCTION. SPILL CONTAINED ON FLOOR INSIDE BLDG. LESS THAN 60 LBS.
NFA

*PBS Number	Tank Number	Tank Size	Test Method	Leak Rate

PRIMARY CONTACT CALLED DATE: TIME: hrs. REACHED DATE: TIME: hrs.
SECONDARY CONT. CALLED DATE: TIME: hrs. FAXED BY CID#:

PIN #	T & A	Cost Center	ISR to Central Office
Cleanup Ceased 07/18/1989	Meets St'ds YES	Last Inspection 07/18/1989	Penalty NO
RP-CUI	ENF-INIT	INVES-COM	CAP
UST Trust Eligible NO	Site: A B C D E	Resp. Party 1 2 3 4 5 6	Reg Close Date 07/18/1989

Created on 07/18/1989 Last Updated on 07/26/1989 Is Updated? NO EDO DATA INPUT [ ]
Date Printed: 11/09/1999

PrintFor 3/30/1999

Spill Number: 8903850 **Spill Name:** AMERCHOL **Printed on:** 11/09/1999

DEC REMARKS

11/29/95: This is additional information about material spilled from the translation of the old spill file: AMONIA.

NYSDEC SPILL REPORT FORM

DEC REGION# 3 (New Paltz) SPILL NUMBER 9606020

SPILL NAME: DEC LEAD: GHIOSAY

CALLER'S NAME: JIM GLUCK NOTIFIER'S NAME: JIM GLUCK

CALLER'S AGENCY: PRECISION ENVIORNMENTAL NOTIFIER'S AGENCY: PRECISION ENVIORNMENTAL

CALLER'S PHONE: (908) 925-2233 EXT. NOTIFIER'S PHONE: (908) 925-2233 EXT.

SPILL DATE: 08/08/1996 TIME: 15:00

CALL RECEIVED DATE: 08/09/1996 TIME: 10:39 RECEIVED BY CID #: 322

Material Spilled	Mat. Class	Am't Spilled	Units	Am't Recovered
1) #2 FUEL OIL	(Pet)-Haz-Other-Unk.	Unknown	(Gal) Lbs	0
2)	Pet-Haz-Other-Unk.		Gal - Lbs	
3)	Pet-Haz-Other-Unk.		Gal - Lbs	
4)	Pet-Haz-Other-Unk.		Gal - Lbs	

SPILL LOCATION

PLACE:

STREET: 628 WAVERLY AVE

T/C/V: MAMARONECK CO: WESTCHESTER

CONTACT: RON LEICHLITER

PHONE: (908) 248-6047 EXT.

POTENTIAL SPILLER

NAME: AMERCHOL CORP

STREET: 628 WAVERLY AVE

CITY: MAMARONECK

STATE: ZIP:

CONTACT: RON LEICHLITER

PHONE: (908) 248-6047 EXT.

SPILL CAUSE

Human Error	Tank Test Failure*	Tank Failure
Traffic Accident	Housekeeping	(Tank Overfill)
Equipment Failure	Deliberate	Other
Vandalism	Abandoned Drums	Unknown

SPILL SOURCE

Gas Station	Private Dwelling	Non-Maj Facility
Passenger Vehicle	Vessel	(Comm/Indust)
Comm. Vehicle	Railroad Car	Non-Comm/Instit
Tank Truck	Major Facility	Unknown

RESOURCE AFFECTED

(On Land)	Groundwater	Air
In Sewer	Surface Water**	

** WATERBODY:

SPILL REPORTED BY

Responsible Party	Tank Tester	Local Agency
Affected Persons	DEC	Federal Gov't
Police Department	Citizen	(Other)
Fire Department	Health Dept.	

CALLER REMARKS: lab results show contaiminated soil at the remote fill

*PBS Number	Tank Number	Tank Size	Test Method	Leak Rate

PRIMARY CONTACT CALLED DATE: TIME: hrs. REACHED DATE: TIME: hrs.

SECONDARY CONT. CALLED DATE: TIME: hrs. FAXED BY CID#:

PIN #	T & A	Cost Center	ISR to Central Office
Cleanup Ceased	Meets St'ds NO	Last Inspection	Penalty NO
RP-CUI	ENF-INIT	INVES-COM	CAP
UST Trust Eligible NO	Site: A B C (D) E	Resp. Party 1 2 3 (4) 5 6	Reg Close Date

Created on 08/09/1996 Last Updated on 09/13/1996 Is Updated? NO EDO DATA INPUT [ ]

Date Printed: 11/09/1999

PrintFor 3/30/1999

APPENDIX H

COMPARISON OF NYSDEC SPLIT SAMPLES

APPENDIX H
SPLIT SAMPLE COMPARISON
FORMER EMCA SITE

Location I.D.			MW-01	MW-01	MW-03	MW-03
Sample I.D.			B183-01	MW-01	B183-03	MW-03
Matrix			Water	Water	Water	Water
Date Sampled			10/07/99	10/07/99	10/07/99	10/07/99
Parameter	Units	Criteria*				
Volatiles						
Benzene	UG/L	1	14	20		
1,1-Dichloroethane	UG/L	5		2		
1,1-Dichloroethene	UG/L	5		1		
cis-1,2-Dichloroethene	UG/L	5	720	NA		NA
trans-1,2-Dichloroethene	UG/L	5	7	NA		NA
1,2-Dichloroethene (total)	UG/L	5	NA	1600	NA	4
Methylene Chloride	UG/L	5	3.1			
Tetrachloroethene	UG/L	5	120	240		
Trichloroethene	UG/L	5	79	130		
1,1,2-Trichlorotrifluoroethane	UG/L	5	NA		2000	17000
Vinyl Chloride	UG/L	2	29	49		6
Metals						
Barium	UG/L	1000	699	501	NA	NA
Copper	UG/L	200	15.8	20.7	NA	NA
Lead	UG/L	25	3.4	8.3	NA	NA
Zinc	UG/L	2000	56.1	62.3	NA	NA
Filtered Metals						
Barium	UG/L	1000	NA	207	NA	NA
Copper	UG/L	200	NA	2.1	NA	NA
Zinc	UG/L	2000	NA	74.0	NA	NA

NOTES:

Only detected results reported.

( ) - Concentration exceeds Criteria.

* - New York State Department of Environmental Conservation. 1998. Division of Water Technical and Operational Guidance Series (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June, Class GA.

APPENDIX H
SPLIT SAMPLE COMPARISON
FORMER EMCA SITE

Location I.D.			MW-04	MW-04
Sample I.D.			B183-04	MW-04
Matrix			Water	Water
Date Sampled			10/07/99	10/07/99
Parameter	**Units**	**Criteria***		
Volatiles				
1,1,2-Trichlorotrifluoroethane	UG/L	5	NA	11
Metals				
Barium	UG/L	1000	95.2	91.3
Lead	UG/L	25		1.7
Zinc	UG/L	2000	8.4	6.7
Filtered Metals				
Barium	UG/L	1000	NA	97.6
Zinc	UG/L	2000	NA	14.8

NOTES:

Only detected results reported.

( ) - Concentration exceeds Criteria.

* - New York State Department of Environmental Conservation. 1998. Division of Water Technical and Operational Guidance Series (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June, Class GA.

APPENDIX I

NYSDOH AIR SAMPLE RESULTS

FREON 113 CONCENTRATIONS IN AIR - JULY 11, 2000

Former EMCA Site

Mamaroneck, New York

Results are reported in micrograms per cubic meter ($\mu g/m^3$)

SAMPLE LOCATION	FREON 113 CONCENTRATION
530 Fayette Avenue	
Basement	1.0 [PL] = 0.13 PPBV
First Floor	1.0 [PL]
Outdoor	1.0 [PL]
614 Center Avenue	
Basement	1.0 [PL]
First Floor	1.0 [PL]
Outdoor	1.0 [PL]
Cablevision	
Basement	NA
First Floor	17. = 2.19 PPBV
Outdoor	NS

COMPARISON VALUES	25% - 75% RANGE
US EPA Database[1]	
Indoor	0.0 - 0.0
Outdoor	0.5 - 2.5
NYSDOH Database[2]	
Indoor	<1.0 - <1.0
Outdoor	<1.0 - <1.0

Notes: 1 - The United States Environmental Protection Agency's Volatile Organic Compounds Database (EPA Database) was published in March 1988. This database is a compilation of indoor and outdoor data from studies across the United States.

2 - The New York State Department of Health Database (NYSDOH Database) is a summary of indoor and outdoor air sample results from control homes. The samples were collected and analyzed by the NYSDOH from 1989 through 1996.

< = "less than." The number following a "less than" sign (<) is the lowest level the laboratory test can reliably measure (the detection limit). A "<" before any number means the chemical was NOT detected in that sample.

[PL] = Present, but less than the concentration indicated

NA = Not applicable (i.e., no basement)

NS = Not sampled

APPENDIX F

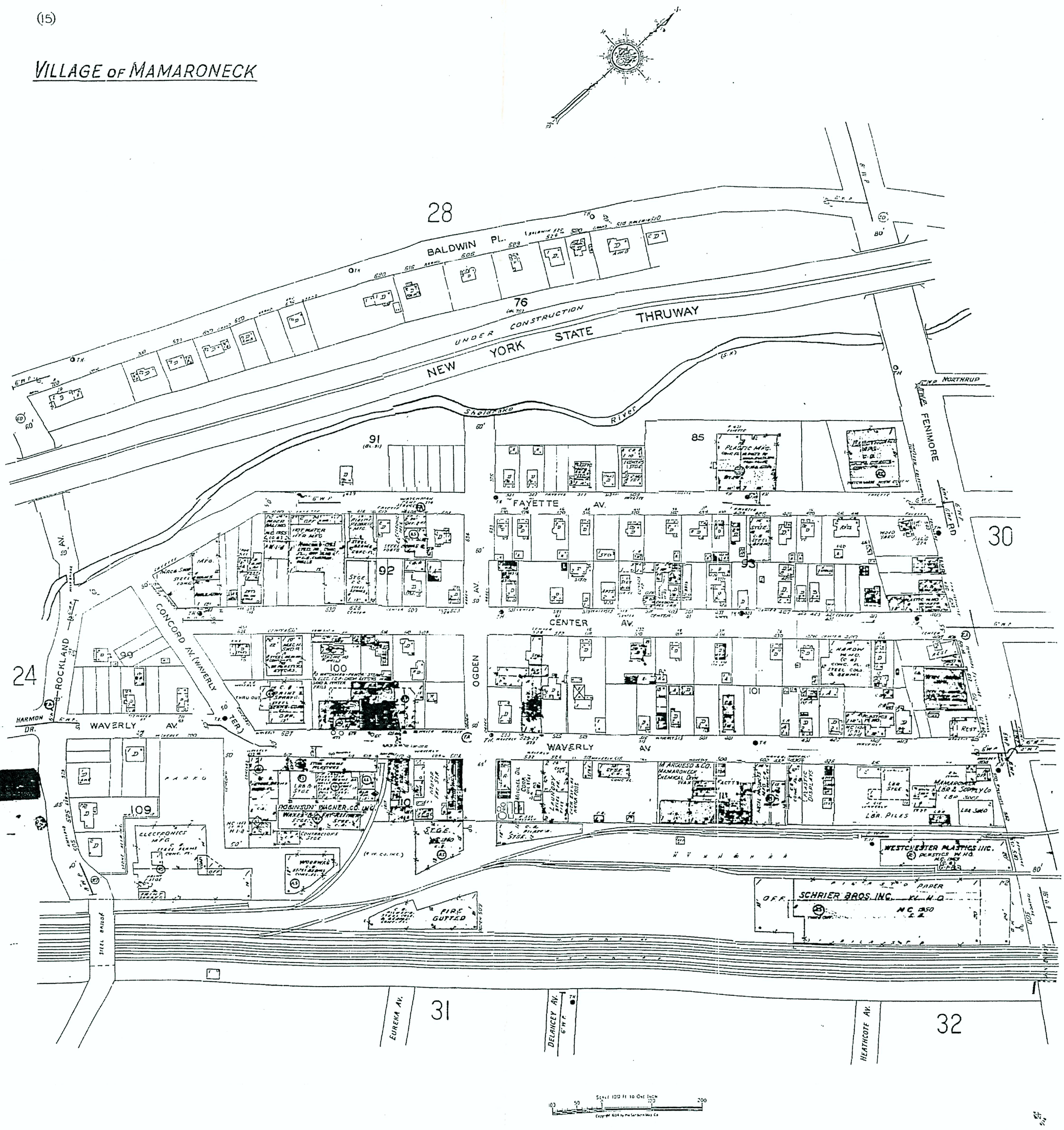
1963 SANBORN MAP

MAMARONECK, N.Y.

29

(15)

VILLAGE OF MAMARONECK



Scale 100 Ft. to One Inch

Copyright 1934 by The Sanborn Map Co.

The Sanborn Library, LLC

This Sanborn Map™ is a certified copy produced by Environmental Data Resources, Inc. under arrangement with The Sanborn Library, LLC. Information on this Sanborn™ Map is derived from Sanborn field surveys conducted in

Copyright © The Sanborn Library, LLC
Year 1963
EDR Research Associate

Reproduction in whole or in part of any map of The Sanborn Library, LLC may be prohibited without prior written permission from The Sanborn Library, LLC

CJB

APPENDIX G

NYSDEC SPILL RECORDS

NYSDEC SPILL REPORT FORM

DEC REGION# 3 (New Paltz) SPILL NUMBER 8905945
SPILL NAME: HAPPINES LAUNDRY DEC LEAD: TODD GHIOSAY
CALLER'S NAME: JOHN LEDDY NOTIFIER'S NAME:
CALLER'S AGENCY: PROTEST NOTIFIER'S AGENCY:
CALLER'S PHONE: (516) 321-4670 EXT. NOTIFIER'S PHONE: EXT.

SPILL DATE: 09/16/1989 TIME: 15:30
CALL RECEIVED DATE: 09/16/1989 TIME: 20:08 RECEIVED BY CID #:

Material Spilled	Mat. Class	Am't Spilled	Units	Am't Recovered
1) GASOLINE	(Pet) Haz-Other-Unk.	0	(Gal) Lbs	0
2)	Pet-Haz-Other-Unk.		Gal - Lbs	
3)	Pet-Haz-Other-Unk.		Gal - Lbs	
4)	Pet-Haz-Other-Unk.		Gal - Lbs	

SPILL LOCATION

PLACE: HAPPINES LAUNDRY
STREET: 613 WAVERLY ST.
T/C/V: MAMARONECK CO: WESTCHESTER
CONTACT:
PHONE: EXT.

POTENTIAL SPILLER

NAME: HAPPINESS LAUNDRY
STREET: 613 WAVERLY ST.
CITY: MAMARONECK
STATE: NY ZIP:
CONTACT:
PHONE: EXT.

SPILL CAUSE

Human Error	(Tank Test Failure*)	Tank Failure
Traffic Accident	Housekeeping	Tank Overfill
Equipment Failure	Deliberate	Other
Vandalism	Abandoned Drums	Unknown

SPILL SOURCE

Gas Station	Private Dwelling	(Non-Maj Facility)
Passenger Vehicle	Vessel	Comm/Indust
Comm. Vehicle	Railroad Car	Non-Comm/Instit
Tank Truck	Major Facility	Unknown

RESOURCE AFFECTED

On Land	(Groundwater)	Air
In Sewer	Surface Water**	

**WATERBODY:

SPILL REPORTED BY

Responsible Party	(Tank Tester)	Local Agency
Affected Persons	DEC	Federal Gov't
Police Department	Citizen	Other
Fire Department	Health Dept.	

CALLER REMARKS: -.196 GPH, WILL EXCAVATE, ISOLATE & RETEST

*PBS Number	Tank Number	Tank Size	Test Method	Leak Rate
3-450650		0		0.00

PRIMARY CONTACT CALLED DATE: TIME: hrs. REACHED DATE: TIME: hrs.
SECONDARY CONT. CALLED DATE: TIME: hrs. FAXED BY CID#:

PIN #	T & A	Cost Center	ISR to Central Office
Cleanup Ceased 07/30/1992	Meets St'ds YES	Last Inspection	Penalty NO
RP-CUI	ENF-INIT	INVES-COM	CAP
UST Trust Eligible YES	Site: A B (C) D E	Resp. Party 1 2 (3) 4 5 6	Reg Close Date 07/30/1992

Created on 09/21/1989 Last Updated on 10/08/1993 Is Updated? NO EDO DATA INPUT [ ]
Date Printed: 11/09/1999

PrintFor3/30/1999

NYSDEC SPILL REPORT FORM

DEC REGION# 3 (New Paltz) SPILL NUMBER 8905946

SPILL NAME: HAPPINES LAUNDRY DEC LEAD: TODD GHIOSAY

CALLER'S NAME: JOHN LEDDY NOTIFIER'S NAME:

CALLER'S AGENCY: PROTEST NOTIFIER'S AGENCY:

CALLER'S PHONE: EXT. NOTIFIER'S PHONE: EXT.

SPILL DATE: 09/16/1989 TIME: 15:30

CALL RECEIVED DATE: 09/16/1989 TIME: 15:48 RECEIVED BY CID #:

	Material Spilled	Mat. Class	Am't Spilled	Units	Am't Recovered
1)	#2 FUEL OIL	(Pet) Haz-Other-Unk.	0	(Gal) Lbs	0
2)		Pet-Haz-Other-Unk.		Gal - Lbs	
3)		Pet-Haz-Other-Unk.		Gal - Lbs	
4)		Pet-Haz-Other-Unk.		Gal - Lbs	

SPILL LOCATION

PLACE: HAPPINES LAUNDRY

STREET: 613 WAVERLY ST.

T/C/V: MAMARONECK CO: WESTCHESTER

CONTACT:

PHONE: EXT.

POTENTIAL SPILLER

NAME:

STREET:

CITY:

STATE: ZIP:

CONTACT:

PHONE: EXT.

SPILL CAUSE

Human Error	(Tank Test Failure*)	Tank Failure
Traffic Accident	Housekeeping	Tank Overfill
Equipment Failure	Deliberate	Other
Vandalism	Abandoned Drums	Unknown

SPILL SOURCE

Gas Station	Private Dwelling	Non-Maj Facility
Passenger Vehicle	Vessel	(Comm/Indust)
Comm. Vehicle	Railroad Car	Non-Comm/Instit
Tank Truck	Major Facility	Unknown

RESOURCE AFFECTED

On Land	(Groundwater)	Air
In Sewer	Surface Water**	

**WATERBODY:

SPILL REPORTED BY

Responsible Party	(Tank Tester)	Local Agency
Affected Persons	DEC	Federal Gov't
Police Department	Citizen	Other
Fire Department	Health Dept.	

CALLER REMARKS: GROSS LEAK, WILL EXCAVATE, ISOLATE & RETEST.

* PBS Number	Tank Number	Tank Size	Test Method	Leak Rate
		0		0.00

PRIMARY CONTACT CALLED DATE: TIME: hrs. REACHED DATE: TIME: hrs.

SECONDARY CONT. CALLED DATE: TIME: hrs. FAXED BY CID#:

PIN #	T & A	Cost Center	ISR to Central Office
Cleanup Ceased 07/30/1992	Meets St'ds YES	Last Inspection	Penalty NO
RP-CUI	ENF-INIT	INVES-COM	CAP
UST Trust Eligible NO	Site: A B (C) D E	Resp. Party 1 2 3 (4) 5 6	Reg Close Date 07/30/1992

Created on 09/21/1989 Last Updated on 07/30/1992 Is Updated? NO EDO DATA INPUT [ ]

Date Printed: 11/09/1999

Print For 9/10/1999

NYSDEC SPILL REPORT FORM

DEC REGION# 3 (New Paltz) SPILL NUMBER 9000978

SPILL NAME: METAGLO CO. DEC LEAD: GHIOSAY

CALLER'S NAME: JOSEPH CHECCO NOTIFIER'S NAME:

CALLER'S AGENCY: COLIN CO. NOTIFIER'S AGENCY:

CALLER'S PHONE: (914) 698-7727 EXT. NOTIFIER'S PHONE: EXT.

SPILL DATE: 01/15/1990 TIME: 12:00

CALL RECEIVED DATE: 04/26/1990 TIME: 13:04 RECEIVED BY CID #:

Material Spilled	Mat. Class	Am't Spilled	Units	Am't Recovered
1) UNKNOWN PETROLEUM	(Pet)-Haz-Other-Unk.	0	Gal (Lbs)	0
2) HYDROCHLORIC ACID	Pet-(Haz)-Other-Unk.	0	Gal (Lbs)	0
3)	Pet-Haz-Other-Unk.		Gal - Lbs	
4)	Pet-Haz-Other-Unk.		Gal - Lbs	

SPILL LOCATION

PLACE: METAGLO CO.

STREET: 625 WAVERLY AVE.

T/C/V: MAMARONECK CO: WESTCHESTER

CONTACT:

PHONE: EXT.

POTENTIAL SPILLER

NAME: SAME

STREET:

CITY:

STATE: ZIP:

CONTACT:

PHONE: EXT.

SPILL CAUSE

Human Error	Tank Test Failure*	Tank Failure
Traffic Accident	(Housekeeping)	Tank Overfill
Equipment Failure	Deliberate	Other
Vandalism	Abandoned Drums	Unknown

SPILL SOURCE

Gas Station	Private Dwelling	Non-Maj Facility
Passenger Vehicle	Vessel	(Comm/Indust)
Comm. Vehicle	Railroad Car	Non-Comm/Instit
Tank Truck	Major Facility	Unknown

RESOURCE AFFECTED

On Land	Groundwater	(Air)
In Sewer	Surface Water**	

**WATERBODY:

SPILL REPORTED BY

Responsible Party	Tank Tester	Local Agency
(Affected Persons)	DEC	Federal Gov't
Police Department	Citizen	Other
Fire Department	Health Dept.	

CALLER REMARKS: SPILLER RELEASES LARGE DENSE VAPOR CLOUDS OF HYDROCLORIC ACID AS A DAILY ROUTINE EMPLOYEES AT CULIN CO. ARE CONCERNED FOR THEIR HEALTH

*PBS Number	Tank Number	Tank Size	Test Method	Leak Rate

PRIMARY CONTACT CALLED DATE: TIME: hrs. REACHED DATE: TIME: hrs.

SECONDARY CONT. CALLED DATE: TIME: hrs. FAXED BY CID#:

PIN #	T & A	Cost Center	ISR to Central Office
Cleanup Ceased 05/15/1990	Meets St'ds YES	Last Inspection	Penalty NO
RP-CUI	ENF-INIT	INVES-COM	CAP
UST Trust Eligible NO	Site: A B C D E	Resp. Party 1 2 3 4 5 6	Reg Close Date 05/15/1990

Created on 05/07/1990 Last Updated on 12/28/1998 Is Updated? NO | EDO | DATA INPUT [ ]

Date Printed: 11/09/1999

PrintFor 3/30/1999

Spill Number: 9000978 **Spill Name:** METAGLO CO. **Printed on:** 11/09/1999

DEC REMARKS

/ / : SPILL HAS BEEN REFERED.

NYSDEC SPILL REPORT FORM

DEC REGION#: 3 (New Paltz) SPILL NUMBER: 9111321
SPILL NAME: STORM DRAIN DEC LEAD: GHIOSAY
CALLER'S NAME: L. RICCI NOTIFIER'S NAME:
CALLER'S AGENCY: DEC NOTIFIER'S AGENCY:
CALLER'S PHONE: (914) 255-3210 EXT. NOTIFIER'S PHONE: EXT.

SPILL DATE: 02/03/1992 TIME: 10:30
CALL RECEIVED DATE: 02/03/1992 TIME: 10:40 RECEIVED BY CID #:

	Material Spilled	Mat. Class	Am't Spilled	Units	Am't Recovered
1)	UNKNOWN PETROLEUM	(Pet)-Haz-Other-Unk.	5	(Gal) - Lbs	0
2)		Pet-Haz-Other-Unk.		Gal - Lbs	
3)		Pet-Haz-Other-Unk.		Gal - Lbs	
4)		Pet-Haz-Other-Unk.		Gal - Lbs	

SPILL LOCATION

PLACE: STORM DRAIN
STREET: 625 WAVERLY AVE.
T/C/V: MAMARONECK CO: WESTCHESTER
CONTACT:
PHONE: EXT.

POTENTIAL SPILLER

NAME:
STREET:
CITY:
STATE: ZIP:
CONTACT:
PHONE: EXT.

SPILL CAUSE

Human Error, Traffic Accident, Equipment Failure, Vandalism, Tank Test Failure*, Housekeeping, (Deliberate), Abandoned Drums, Tank Failure, Tank Overfill, Other, Unknown

SPILL SOURCE

Gas Station, Passenger Vehicle, Comm. Vehicle, Tank Truck, Private Dwelling, Vessel, Railroad Car, Major Facility, Non-Maj Facility, Comm/Indust, Non-Comm/Instit, (Unknown)

RESOURCE AFFECTED

On Land, (In Sewer), Groundwater, Surface Water**, Air

**WATERBODY:

SPILL REPORTED BY

Responsible Party, Affected Persons, Police Department, Fire Department, Tank Tester, (DEC), Citizen, Health Dept., Local Agency, Federal Gov't, Other

CALLER REMARKS: VILLAGE POLICE (698-2400) NOTICED PAINT BEING POURED INTO STORM DRAIN PERSON BEING HELD

*PBS Number	Tank Number	Tank Size	Test Method	Leak Rate

PRIMARY CONTACT CALLED DATE: TIME: hrs. REACHED DATE: TIME: hrs.
SECONDARY CONT. CALLED DATE: TIME: hrs. FAXED BY CID#:

PIN #	T & A	Cost Center	ISR to Central Office
Cleanup Ceased 02/04/1992	Meets St'ds YES	Last Inspection 02/04/1992	Penalty NO
RP-CUI	ENF-INIT	INVES-COM	CAP
UST Trust Eligible NO	Site: A B C D E	Resp. Party 1 2 3 4 5 6	Reg Close Date 03/10/1992

Created on 02/03/1992 Last Updated on 03/10/1992 Is Updated? NO | EDO | DATA INPUT [ ]

Date Printed: 11/09/1999

NYSDEC SPILL REPORT FORM

DEC REGION# 3 (New Paltz) SPILL NUMBER 8705596
SPILL NAME: AMERCHOL DEC LEAD: OKESSON
CALLER'S NAME: NOTIFIER'S NAME:
CALLER'S AGENCY: NOTIFIER'S AGENCY:
CALLER'S PHONE: EXT. NOTIFIER'S PHONE: EXT.

SPILL DATE: 10/02/1987 TIME: 15:54
CALL RECEIVED DATE: 10/02/1987 TIME: 15:51 RECEIVED BY CID #:

	Material Spilled	Mat. Class	Am't Spilled	Units	Am't Recovered
1)	#4 FUEL OIL	(Pet)-Haz-Other-Unk.	0	Gal (Lbs)	0
2)		Pet-Haz-Other-Unk.		Gal - Lbs	
3)		Pet-Haz-Other-Unk.		Gal - Lbs	
4)		Pet-Haz-Other-Unk.		Gal - Lbs	

SPILL LOCATION

PLACE: AMERCHOL
STREET: 628 WAVERLY AVE.
T/C/V: MAMARONECK CO: WESTCHESTER
CONTACT:
PHONE: EXT.

POTENTIAL SPILLER

NAME: SAME
STREET:
CITY:
STATE: ZIP:
CONTACT:
PHONE: (914) 698-8550 EXT.

SPILL CAUSE

Human Error	(Tank Test Failure)	Tank Failure
Traffic Accident	Housekeeping	Tank Overfill
Equipment Failure	Deliberate	Other
Vandalism	Abandoned Drums	Unknown

SPILL SOURCE

Gas Station	Private Dwelling	Non-Maj Facility
Passenger Vehicle	Vessel	(Comm/Indust)
Comm. Vehicle	Railroad Car	Non-Comm/Instit
Tank Truck	Major Facility	Unknown

RESOURCE AFFECTED

On Land	(Groundwater)	Air
In Sewer	Surface Water**	

**WATERBODY:

SPILL REPORTED BY

Responsible Party	(Tank Tester)	Local Agency
Affected Persons	DEC	Federal Gov't
Police Department	Citizen	Other
Fire Department	Health Dept.	

CALLER REMARKS: 7.5K SYSTEM- -.449 GPH PBS# 175498. TO RETEST.

*PBS Number	Tank Number	Tank Size	Test Method	Leak Rate
		0		0.00

PRIMARY CONTACT CALLED DATE: TIME: hrs. REACHED DATE: TIME: hrs.
SECONDARY CONT. CALLED DATE: TIME: hrs FAXED BY CID#:

PIN #	T & A	Cost Center	ISR to Central Office
Cleanup Ceased 10/16/1987	Meets St'ds YES	Last Inspection 11/17/1987	Penalty NO
RP-CUI	ENF-INIT	INVES-COM	CAP
UST Trust Eligible NO	Site: A B (C) D E	Resp. Party 1 2 3 (4) 5 6	Reg Close Date 11/17/1987

Created on 11/13/1987 Last Updated on 06/12/1998 Is Updated? NO | EDO | DATA INPUT [ ]
Date Printed: 11/09/1999

Print For 2/20/1998

Spill Number: 8705596 **Spill Name:** AMERCHOL **Printed on:** 11/09/1999

DEC REMARKS

10-16-87 TANK REMOVED FROM GROUND.INDICATED BY MIKE LANNI. NFA.

NYSDEC SPILL REPORT FORM

DEC REGION# 3 (New Paltz) SPILL NUMBER 8903850
SPILL NAME: AMERCHOL DEC LEAD: TODD GHOISAY
CALLER'S NAME: RAY RUSH NOTIFIER'S NAME:
CALLER'S AGENCY: W.C.F.D. NOTIFIER'S AGENCY:
CALLER'S PHONE: (814) 592-4227 EXT. NOTIFIER'S PHONE: EXT.

SPILL DATE: 07/18/1989 TIME: 07:30
CALL RECEIVED DATE: 07/18/1989 TIME: 08:28 RECEIVED BY CID #:

	Material Spilled	Mat. Class	Am't Spilled	Units	Am't Recovered
1)	UNKNOWN PETROLEUM	(Pet) Haz-Other-Unk.	160	Gal (Lbs)	0
2)		Pet-Haz-Other-Unk.		Gal - Lbs	
3)		Pet-Haz-Other-Unk.		Gal - Lbs	
4)		Pet-Haz-Other-Unk.		Gal - Lbs	

SPILL LOCATION

PLACE: AMERCHOL
STREET: 628 WAVERLY AVE.
T/C/V: MAMARONECK CO: WESTCHESTER
CONTACT:
PHONE: EXT.

POTENTIAL SPILLER

NAME: AMERCHOL
STREET: 628 WAVERLY AVE.
CITY: MAMARONECK
STATE: NY ZIP:
CONTACT:
PHONE: EXT.

SPILL CAUSE

Human Error	Tank Test Failure*	Tank Failure
Traffic Accident	Housekeeping	Tank Overfill
(Equipment Failure)	Deliberate	Other
Vandalism	Abandoned Drums	Unknown

SPILL SOURCE

Gas Station	Private Dwelling	Non-Maj Facility
Passenger Vehicle	Vessel	(Comm/Indust)
Comm. Vehicle	Railroad Car	Non-Comm/Instit
Tank Truck	Major Facility	Unknown

RESOURCE AFFECTED

On Land	Groundwater	(Air)
In Sewer	Surface Water**	

**WATERBODY:

SPILL REPORTED BY

Responsible Party	Tank Tester	Local Agency
Affected Persons	DEC	Federal Gov't
Police Department	Citizen	Other
(Fire Department)	Health Dept.	

CALLER REMARKS: VALVE MALFUNCTION. SPILL CONTAINED ON FLOOR INSIDE BLDG. LESS THAN 60 LBS.
NFA

*PBS Number	Tank Number	Tank Size	Test Method	Leak Rate

PRIMARY CONTACT CALLED DATE: TIME: hrs. REACHED DATE: TIME: hrs.
SECONDARY CONT. CALLED DATE: TIME: hrs. FAXED BY CID#:

PIN #	T & A	Cost Center	ISR to Central Office
Cleanup Ceased 07/18/1989	Meets St'ds YES	Last Inspection 07/18/1989	Penalty NO
RP-CUI	ENF-INIT	INVES-COM	CAP
UST Trust Eligible NO	Site: A B C D E	Resp. Party 1 2 3 4 5 6	Reg Close Date 07/18/1989

Created on 07/18/1989 Last Updated on 07/26/1989 Is Updated? NO EDO DATA INPUT [ ]
Date Printed: 11/09/1999

PrintFor 3/30/1999

Spill Number: 8903850 **Spill Name:** AMERCHOL **Printed on:** 11/09/1999

DEC REMARKS

11/29/95: This is additional information about material spilled from the translation of the old spill file: AMONIA.

NYSDEC SPILL REPORT FORM

DEC REGION# 3 (New Paltz) SPILL NUMBER 9606020

SPILL NAME: DEC LEAD: GHIOSAY

CALLER'S NAME: JIM GLUCK NOTIFIER'S NAME: JIM GLUCK

CALLER'S AGENCY: PRECISION ENVIORNMENTAL NOTIFIER'S AGENCY: PRECISION ENVIORNMENTAL

CALLER'S PHONE: (908) 925-2233 EXT. NOTIFIER'S PHONE: (908) 925-2233 EXT.

SPILL DATE: 08/08/1996 TIME: 15:00

CALL RECEIVED DATE: 08/09/1996 TIME: 10:39 RECEIVED BY CID #: 322

Material Spilled	Mat. Class	Am't Spilled	Units	Am't Recovered
1) #2 FUEL OIL	(Pet)-Haz-Other-Unk.	Unknown	(Gal) Lbs	0
2)	Pet-Haz-Other-Unk.		Gal - Lbs	
3)	Pet-Haz-Other-Unk.		Gal - Lbs	
4)	Pet-Haz-Other-Unk.		Gal - Lbs	

SPILL LOCATION

PLACE:

STREET: 628 WAVERLY AVE

T/C/V: MAMARONECK CO: WESTCHESTER

CONTACT: RON LEICHLITER

PHONE: (908) 248-6047 EXT.

POTENTIAL SPILLER

NAME: AMERCHOL CORP

STREET: 628 WAVERLY AVE

CITY: MAMARONECK

STATE: ZIP:

CONTACT: RON LEICHLITER

PHONE: (908) 248-6047 EXT.

SPILL CAUSE

Human Error	Tank Test Failure*	Tank Failure
Traffic Accident	Housekeeping	(Tank Overfill)
Equipment Failure	Deliberate	Other
Vandalism	Abandoned Drums	Unknown

SPILL SOURCE

Gas Station	Private Dwelling	Non-Maj Facility
Passenger Vehicle	Vessel	(Comm/Indust)
Comm. Vehicle	Railroad Car	Non-Comm/Instit
Tank Truck	Major Facility	Unknown

RESOURCE AFFECTED

(On Land)	Groundwater	Air
In Sewer	Surface Water**	

** WATERBODY:

SPILL REPORTED BY

Responsible Party	Tank Tester	Local Agency
Affected Persons	DEC	Federal Gov't
Police Department	Citizen	(Other)
Fire Department	Health Dept.	

CALLER REMARKS: lab results show contaiminated soil at the remote fill

*PBS Number	Tank Number	Tank Size	Test Method	Leak Rate

PRIMARY CONTACT CALLED DATE: TIME: hrs. REACHED DATE: TIME: hrs.

SECONDARY CONT. CALLED DATE: TIME: hrs. FAXED BY CID#:

PIN #	T & A	Cost Center	ISR to Central Office
Cleanup Ceased	Meets St'ds NO	Last Inspection	Penalty NO
RP-CUI	ENF-INIT	INVES-COM	CAP
UST Trust Eligible NO	Site: A B C (D) E	Resp. Party 1 2 3 (4) 5 6	Reg Close Date

Created on 08/09/1996 Last Updated on 09/13/1996 Is Updated? NO EDO DATA INPUT [ ]

Date Printed: 11/09/1999

PrintFor 3/30/1999

APPENDIX H

COMPARISON OF NYSDEC SPLIT SAMPLES

APPENDIX H
SPLIT SAMPLE COMPARISON
FORMER EMCA SITE

Location I.D.			MW-01	MW-01	MW-03	MW-03
Sample I.D.			B183-01	MW-01	B183-03	MW-03
Matrix			Water	Water	Water	Water
Date Sampled			10/07/99	10/07/99	10/07/99	10/07/99
Parameter	Units	Criteria*				
Volatiles						
Benzene	UG/L	1	14	20		
1,1-Dichloroethane	UG/L	5		2		
1,1-Dichloroethene	UG/L	5		1		
cis-1,2-Dichloroethene	UG/L	5	720	NA		NA
trans-1,2-Dichloroethene	UG/L	5	7	NA		NA
1,2-Dichloroethene (total)	UG/L	5	NA	1600	NA	4
Methylene Chloride	UG/L	5	3.1			
Tetrachloroethene	UG/L	5	120	240		
Trichloroethene	UG/L	5	79	130		
1,1,2-Trichlorotrifluoroethane	UG/L	5	NA		2000	17000
Vinyl Chloride	UG/L	2	29	49		6
Metals						
Barium	UG/L	1000	699	501	NA	NA
Copper	UG/L	200	15.8	20.7	NA	NA
Lead	UG/L	25	3.4	8.3	NA	NA
Zinc	UG/L	2000	56.1	62.3	NA	NA
Filtered Metals						
Barium	UG/L	1000	NA	207	NA	NA
Copper	UG/L	200	NA	2.1	NA	NA
Zinc	UG/L	2000	NA	74.0	NA	NA

NOTES:

Only detected results reported.

( ) - Concentration exceeds Criteria.

* - New York State Department of Environmental Conservation. 1998. Division of Water Technical and Operational Guidance Series (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June, Class GA.

APPENDIX H
SPLIT SAMPLE COMPARISON
FORMER EMCA SITE

Location I.D.			MW-04	MW-04
Sample I.D.			B183-04	MW-04
Matrix			Water	Water
Date Sampled			10/07/99	10/07/99
Parameter	**Units**	**Criteria***		
Volatiles				
1,1,2-Trichlorotrifluoroethane	UG/L	5	NA	11
Metals				
Barium	UG/L	1000	95.2	91.3
Lead	UG/L	25		1.7
Zinc	UG/L	2000	8.4	6.7
Filtered Metals				
Barium	UG/L	1000	NA	97.6
Zinc	UG/L	2000	NA	14.8

NOTES:

Only detected results reported.

( ) - Concentration exceeds Criteria.

* - New York State Department of Environmental Conservation. 1998. Division of Water Technical and Operational Guidance Series (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June, Class GA.

APPENDIX I

NYSDOH AIR SAMPLE RESULTS

FREON 113 CONCENTRATIONS IN AIR - JULY 11, 2000

Former EMCA Site

Mamaroneck, New York

Results are reported in micrograms per cubic meter ($\mu g/m^3$)

SAMPLE LOCATION	FREON 113 CONCENTRATION
530 Fayette Avenue	
Basement	1.0 [PL] = 0.13 PPBV
First Floor	1.0 [PL]
Outdoor	1.0 [PL]
614 Center Avenue	
Basement	1.0 [PL]
First Floor	1.0 [PL]
Outdoor	1.0 [PL]
Cablevision	
Basement	NA
First Floor	17. = 2.19 PPBV
Outdoor	NS

COMPARISON VALUES	25% - 75% RANGE
US EPA Database[1]	
Indoor	0.0 - 0.0
Outdoor	0.5 - 2.5
NYSDOH Database[2]	
Indoor	<1.0 - <1.0
Outdoor	<1.0 - <1.0

Notes: 1 - The United States Environmental Protection Agency's Volatile Organic Compounds Database (EPA Database) was published in March 1988. This database is a compilation of indoor and outdoor data from studies across the United States.

2 - The New York State Department of Health Database (NYSDOH Database) is a summary of indoor and outdoor air sample results from control homes. The samples were collected and analyzed by the NYSDOH from 1989 through 1996.

< = "less than." The number following a "less than" sign (<) is the lowest level the laboratory test can reliably measure (the detection limit). A "<" before any number means the chemical was NOT detected in that sample.

[PL] = Present, but less than the concentration indicated

NA = Not applicable (i.e., no basement)

NS = Not sampled