INVESTIGATION WORK PLAN
WARD STREET SITE
SITE#: V00271-8
ROCHESTER, NEW YORK

JUNE 2001

Prepared for:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
6274 EAST AVON-LIMA ROAD
AVON, NEW YORK 14414

Prepared on Behalf of:

GERMANOW-SIMON CORPORATION
408 ST. PAUL STREET
ROCHESTER, NEW YORK 14601-0144

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Prepared By:

THE SEAR-BROWN GROUP, INC.
85 METRO PARK
ROCHESTER, NEW YORK 14623-2674

June 18, 2001

Ms. Mary Jane Peachey, P.E.
NYSDEC
Division of Hazardous Waste Remediation
6274 East Avon-Lima Road
Avon, New York 14414

RE: Investigation Work Plan **14052.01**
Ward Street Site
NYSDEC Site No.: V00271-8
Rochester, New York

Dear Mary Jane:

On behalf of Germanow-Simon Corporation, please find the enclosed revised Investigation Work Plan (Work Plan) for the Ward Street Site located in the City of Rochester, Monroe County, New York. The enclosed Work Plan updates the November 1999 Voluntary Investigation Work Plan to reflect the preliminary voluntary investigation activities that were performed following submission of the November 1999 Work Plan and reported to you in the October 25, 2000 Progress Report. The Work Plan has also been revised as requested in a January 16, 2001 letter from Mr. Todd Caffoe, P.E. of your office to Mr. Kevin Bosner, Germanow-Simon Corporation; the March 20, 2001 Sear-Brown response letter to the New York State Department of Environmental Conservation (Department); a May 23, 2001 letter from Mr. Caffoe to Mr. Bosner; and discussions that have been held with Mr. Caffoe.

To facilitate your expeditious review of the attached document, we have listed below the sections of the Work Plan which have been revised as proposed in our March 20, 2001 letter. We have similarly addressed the comments set forth in the Department's May 23, 2001 letter. Each Department comment is listed below followed by where that issue is addressed in the Work Plan and its attachments.

March 20, 2001 Letter from Sear-Brown to the Department

1. Please revise the work plan to indicate results of geophysical survey and indicate any revised sampling locations.

See Section 1.2 Previous Investigations, Progress Report, page 8, Section 5.0 Geophysical Survey, Section 7.0 Test Pit Program, Figure 7 and Tables 4 and 6 in the Work Plan; and Sections 2.2 and 5.1.1 and Table 1 in Appendix C (QAPP).

2. **The Department prefers grab samples as opposed to composite sampling. We understand it is for a cost saving measure, but please be aware that following conditions would apply for composite sampling:**

   Sample results would need to be compared to values that are proportionally lower than TAGM 4046. For example 2 samples per composite would require comparison to one-half the values in TAGM 4046.

   If sample results exceed the comparison criteria, then grab samples would be required at all locations for that composite sample.

   See Section 10.1 Soil Sampling and Table 6 in the Work Plan and Table 1 in Appendix C (QAPP).

3. **Its acceptable that groundwater analyses for SVOCs be contingent upon soil sample results; however, please refer to the conditions in item #2.**

   See Section 10.3 Groundwater Sampling paragraph 2 and Table 7 in the Work Plan and Table 1 in Appendix C (QAPP).

4. **Please elaborate upon the methodology to be used for installing the casing for the bedrock wells. Will schedule 80 PVC pipe be used? Please revise figure 9 to reflect the actual bedrock well design.**

   See Section 9.1 Overburden Drilling/Casing Installation and Figure 9 in the Work Plan.

5. **Its understood that monitoring well MW-107 will be a Geoprobe well due to space constraints. Please specify the construction details. If possible, an alternate location for this well should be considered to enable construction of a monitoring well similar to the other overburden wells on-site.**

   See Sections 8.1 Borehole Drilling and 8.2 Monitoring Well Completion in the Work Plan.

6. **An additional bedrock monitoring well should be constructed in the vicinity of proposed MW-22. If this is not possible a nearby alternate location should be chosen.**

   See Section 9.0 Bedrock Well Installation, Figure 7 and Tables 5-7 in the Work Plan and Table 1 in Appendix C (QAPP).

7. **Drawing 6 shows concentration contours for total chlorinated volatile organic compounds in soil. These contours appear to based upon only 2 data points (B-104 and B-101). Additional soil sampling is required in this area to confirm the extent of contamination in soils.**

   See Section 10.1 Soil Sampling and Table 6 in the Work Plan and Table 1 in Appendix C (QAPP).

8. **The work plan should address the two tanks inside Building C with regard to determining extent of contamination. A recent attempt to close the tanks revealed subsurface contamination. See DEC Spill #0070547.**

   See Section 1.2 Previous Investigations, Tank Closure Beneath Building C, page 9 in the Work Plan.

9. **In the Community Air Monitoring Plan Section 2.1 the last paragraph should state that air monitoring will be continuous and recorded every 30 minutes. Also, the NYSDOH threshold for particulates is 100 ug/m^3 (0.1 mg/m^3). Sections 2.1 and 2.3 should be modified accordingly.**

   See Appendix E, CAMP, Sections 2.1 and 2.3.

10. **A data usability study of all data must be included as part of the work plan.**

    See Section 10.0, Sampling and Analysis Plan in the Work Plan and Section 15.0 in Appendix C (QAPP).

11. **Is trichloroethylene (TCE) currently used at the site? Was TCE used by Germanow-Simon at this site in the past?**

    See Section 1.2, Previous Investigations, Supplemental Information, page 9 in the Work Plan.

12. **Approximately 15 soil vapor survey points along Ward Street and Emmit Street are needed to confirm that contamination is not migrating towards residential property. The exact number and location of these points can be determined in the field.**

    See Section 6.0 Soil Vapor Survey in the Work Plan and Section 5.1.4 and Table 1 in Appendix C (QAPP).

<u>May 23, 2001 letter from the Department to Germanow-Simon</u>

The three comments identified in the Departments May 23, 2001 letter are addressed as listed below.

1. **Since remediation work for closure of the Spill #0070547 was not conducted 'pursuant to the voluntary agreement, it will not be included in the final release for this site.**

   This comment is acknowledged as noted in Section 1.2 Previous Investigations, Tank Closure Beneath Building C, page 9 in the Work Plan.

2. **The response to comment #12 is acceptable provided the following condition: The extent of the soil vapor survey should be expanded if the results show contaminant migration off-site.**

   This request is acceptable as noted in Section 6.0 Soil Vapor Survey in the Work Plan.

3. **Section 3.0 – The basement survey at the high rise apartment building should include a description of the HVAC system. The purpose is to identify the potential for chimney effects with respect to potential VOC migration in soil vapor.**

   This request is acceptable as noted in Section 3.0 Basement Survey, paragraph 4 in the Work Plan.

We look forward to your expeditious review and approval of the revised Work Plan and are anxious to implement the investigation activities upon your notification to proceed. In the meantime, should you have any questions, please contact me.

Sincerely,

Michael P. Storonsky
Senior Associate

Enclosure

cc: James D. Charles, Esq., w/enclosure
Todd Caffoe, P.E., w/enclosure
Dawn Hettrick, w/enclosure
Rick Elliott, P.E., w/enclosure
Gary Litwin, w/enclosure
Kevin Bosner, w/enclosure
Thomas F. Walsh, Esq. w/enclosure

bcc: Burton D. Tanenbaum, Esq. w/enclosure

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1.0 Introduction

At the request of the Germanow-Simon Corporation (Germanow-Simon), The Sear-Brown Group, Inc. (Sear-Brown) has prepared this revised Investigation Work Plan (Work Plan) for the Ward Street Site (Site), City of Rochester, Monroe County, N.Y. (Figure 1). These activities are intended to determine the nature and extent of contamination at the Site, when supplemented by information obtained from the:

- Phase I Environmental Site Assessment prepared by Parrone & Associates and dated February 26, 1999 (Phase I);
- Limited Phase II Environmental Site Investigation of the Site previously completed by Sear-Brown during May, 1999 (Phase II);
- Subsurface Investigation Report, North Side of Building C, Ward Street Site previously completed by Sear-Brown and dated August 31, 1999 (North Side Report). The North Side Report is attached to this Work Plan as Appendix A; and
- the October 25, 2001 Voluntary Investigation Progress Report. The Progress report is attached to this Work Plan as Appendix B.

The Phase II investigation identified soil and groundwater impacts apparently related to historic retail petroleum, dry cleaning and dry cleaning supply operations at the Site that preceded its use by Germanow-Simon. Based upon the soil and groundwater data collected, the New York State Department of Environmental Conservation (Department) spill hotline was called to report evidence of these historic releases. The Department subsequently assigned Spill File Number 99-02234 to the Site. In conjunction with a Voluntary Cleanup Program Application (VCP Application), the two environmental investigation reports available at that time, the Phase I and Phase II, were submitted by Germanow-Simon to the Department in late May 1999.

As a result of the Department's acceptance of the VCP Application (October 27, 1999), negotiations regarding a Voluntary Cleanup Agreement (Agreement) commenced between special environmental counsel for Germanow-Simon and Department counsel. A verbal concurrence for the commencement of limited investigation activities was provided by the Department on December 9, 1999 and limited work was completed during the months of December 1999 and January 2000 (see Progress Report, Appendix B).

The Agreement requires that a Department-approved Investigation Work Plan be appended. It is proposed that this Work Plan be appended to the Agreement. The Work Plan identifies the tasks to be undertaken for the proposed site investigation activities pursuant to the proposed Agreement. These activities are intended to:

1. assess potential source areas;
2. evaluate the potential for off-site impacts to sensitive receptors (i.e., occupants of adjacent downgradient buildings with basements);

3. evaluate if local utilities are likely to constitute preferred pathways for impacted groundwater;
4. assess the migration of contaminants in the saturated unconsolidated overburden; and
5. evaluate the potential impacts to the shallow bedrock flow system in the vicinity of the Site.

Following a discussion of the site background, previous investigations and objectives of the work plan (Section 1), Sections 2 through 12 include the following:

Section 2:	Utility Right-of-Way Investigation
Section 3:	Basement Air Survey
Section 4:	Site Reconnaissance
Section 5:	Geophysical Survey
Section 6	Soil Vapor Survey
Section 7:	Test Pit Program
Section 8:	Off-Site Overburden Test Boring/Monitoring Well Installation
Section 9:	Bedrock Well Installations
Section 10:	Sampling and Analysis Plan
Section 11:	Documentation and Reporting
Section 12:	Project Organization and Schedule

1.1 Site Description

Germanow-Simon currently occupies the Site and employs approximately 140 individuals at a manufacturing facility that produces bimetal thermometers, plastic optics, and gauge and watch crystals. Germanow-Simon has been working for sometime with the City of Rochester and the U.S. Housing and Urban Development Department (HUD) and has secured funding to pursue expansion and modernization of its facility. These plans will ensure that all of the existing jobs will be retained in this urban Economic Development Zone and result in an additional 20 jobs over the next seven years.

The Site contains three major buildings that have been designated Buildings A, B and C (Figure 2). The expansion plans involve enlargement of the north side of Building C (completed), abandonment of Cork Street between Building A and Building C (completed), connection of the rear portion of Building A with Building C across the former Cork Street right-of-way, and demolition of the front half of Building A. In addition, the parking lot between Buildings A and C will be resurfaced. Review of historic information has identified a former dry cleaning establishment once operated by the Lilac Laundry Inc. and a former gasoline station which was also once occupied by S. Dinaburg, a distributor of dry cleaning and industrial solvents, relative to the Site (Figure 3).

1.2 Previous Investigations

As a routine step in the process of obtaining financing for the proposed expansion, Germanow-Simon commissioned the Phase I, the findings of which led to the Phase II performed by Sear-Brown. A third investigation was performed as a result of the removal of a former gasoline underground storage tank (UST) from the area to the north of Building C during the Summer of 1999. The results of that investigation are summarized in the North Side Report. Limited investigation-related activities that occurred pursuant to the November 29, 1999 Voluntary Investigation Work Plan were summarized in the October 25, 2000 Progress Report. The major findings and recommendations of these previous investigations are provided below.

Phase I Environmental Site Assessment (February 26, 1999)

D. J. Parrone and Associates, P.C. (Parrone) completed the Phase I of the subject property, which included the following findings and recommendations for further action.

A trench drain system was observed near hydraulic pumps in the basement of Building "A". This trench drain contained an oily sludge (which was sampled and analyzed for PCBs). Aroclor 1254 was detected at 2.5 - 2.6 ppm and Aroclor 1260 was detected at 0.81 - 0.83 ppm in the sludge. Parrone recommended an investigation of this trench drain system to determine where the drain discharges and whether petroleum or PCBs are present beneath the floors in this area. The recommended investigation included dye tests of the drains and sewer lines to determine if they are connected to the combination sewers. If the on-site sewers did not appear to be connected to combination sewers, a series of borings was recommended through the floor near the trench drain. Soil testing was recommended to determine whether any adverse impacts to soil exist.

Review of historic Sanborn maps revealed the location of the former Lilac Laundry dry cleaning operation to be in the area between, but not beneath, Buildings "A" & "B". Parrone recommended an investigation of the area involving soil borings and soil testing to determine if any compounds or analytes of concern were present. In addition to analysis for chlorinated solvents, testing for pesticides in the former fumigation areas east of the former fur storage vault was also recommended.

An oily substance was observed on the surface of standing water in a floor drain near the "CNC machinery" operation in Building "B". This drain reportedly backs up and floods the floor during significant rain events. Parrone recommended pumping the drain dry and then conducting a dye test to confirm that the floor drain is connected to the combination sewers as suspected, or if not, to determine whether it is connected to a drywell system along with the roof leaders.

Review of historic Sanborn maps revealed the former location of a gasoline station at the corner of Ward Street and St. Paul Street. A test pit or soil gas survey was recommended to determine if residual petroleum impacts remain that could be related to the former gas station which appeared to have been built in 1938.

One fill port and two vent lines to presumably abandoned USTs were observed near the northwest corner of Building "C". Closure of the existing underground storage tanks at the northwest exterior corner of Building "C" was recommended. Parrone recommended that the tanks be removed along with any related petroleum impacted soils in the area so that suitable fill can be placed and compacted to handle future foundation loads.

Two additional USTs were observed along the south wall of the northern portion of Building "C" (near the middle of the building) that were installed in 1940 for use by a taxi garage that was located on the property from at least 1949-1971. In-situ closure of the two other tanks identified as being beneath Building "C" was also recommended.

<u>Limited Phase II Environmental Site Investigation (May 25, 1999)</u>

Sear-Brown completed the Phase II investigation of the subject property. Soil borings were drilled at 19 locations (Figure 4) and 13 soil samples were collected for laboratory analyses. Twelve soil borings, B-1 through B-12, were drilled in the location of the former dry cleaning operations between Buildings A and B. A total of six borings, B-101 through B-104, B-14 and B-15 were drilled in the area of the former gasoline station location near the intersection of Ward and St. Paul Streets.

Six of the 19 borings were completed as groundwater monitoring wells: MW-3, MW-5, MW-9, MW-14, MW-15 and MW-101. Groundwater samples from these monitoring wells were also subjected to laboratory analysis.

Seven soil samples were collected from the former dry cleaning area for analysis. Six of these soil samples were submitted to a NYSDOH certified analytical laboratory, for analysis of Target Compound List (TCL) volatile organic compounds using EPA method 8240 or 8021A. Three samples were submitted for analysis of total concentrations of the 8 RCRA metals by various methods. One of the samples collected from the former dry cleaning/ fumigation area was also tested for pesticides using EPA method 8081.

Based upon PID readings, visual observations and/or odors, a total of six soil samples were selected for analysis from the former gasoline station area, including two samples from beneath the floor slab of the current 1-1/2 story building at the location of the former garage. These six soil samples were submitted for analysis of

STARS list volatile organic and semi-volatile organic base-neutral compounds (SVOCs) using EPA methods 8021 and 8270, respectively.

No SVOCs or pesticides were detected in soil samples. A summary of detected metals in the three samples analyzed is presented in Table 1. VOC data for soil samples are summarized in Table 2. Those data indicate that a petroleum hydrocarbon plume is centered on borings B-8 and B-9, which is possibly related to the former use of Stoddard-like solvents at the former Lilac Laundry dry cleaning operation (Figure 5).

In addition, two discrete, but closely spaced, petroleum hydrocarbon plumes appear to be situated at the southwest corner of the property. Both of these plumes are likely to be related to the former gasoline station. Subsequent groundwater analyses suggest that the plume nearest to St. Paul Street is related to gasoline, and the plume near the former gasoline station building is a mixture of lube oil and fuel oil (possibly waste oil).

Chlorinated VOCs were reported at estimated concentrations in the samples from borings B-101 and B-104 (Figure 6). This plume is apparently centered beneath the former gas station building. Chlorinated VOCs were not detected in soils at the former Lilac dry cleaners. However, high detection limits associated with the required sample dilution due to matrix interference from petroleum compounds may have precluded their detection.

A floating product layer (LNAPL) was present in monitoring well MW-101. This well is located inside the Ward Street entrance to the 1-1/2 story building addition to Building "B" at the location of the former gasoline station building (Figure 4). The thickness of the LNAPL was 0.2 feet as measured on April 14, 1999. Analytical results revealed that the LNAPL contained a mixture of 7.1% diesel fuel and 79.4 % lube oil.

Groundwater samples were collected and analyzed for VOCs, SVOCs, mercury and arsenic. No base-neutral SVOCs were detected in the samples. Mercury levels were below detection limits and arsenic concentrations were also low or non-detectable. VOCs commonly associated with petroleum products were, however, detected in four wells (Table 3).

The aqueous phase sample from MW-101 exhibited elevated total concentrations of chlorinated VOCs (107 ppm) including 78 ppm of tetrachloroethene (PCE), 25 ppm of trichloroethene (TCE) and 4 ppm of cis-1,2 dichloroethene (cis-1,2 DCE). The chlorinated VOC plume, which appears to extend in a southerly direction, may be related to the historic handling of chlorinated products by a former occupant, S. Dinaburg. Relatively low concentrations (ppb level) of chlorinated compounds were reported in monitoring wells MW-14 and MW-15 that are located west of well MW-101.

Monitoring well MW-9, which was installed in the former location of the Lilac Laundry, contained ppb level concentrations of several chlorinated VOCs. The relatively low concentrations of VOCs at MW-9 relative to the VOC levels at MW-101 suggests the possibility of a different origin.

Subsurface Investigation Report, North Side of Building C (August 31, 1999)

Sear-Brown conducted a subsurface investigation of soil and groundwater quality adjacent to the recently removed USTs that were located on the north side of Building C (see North Side Report, Appendix A). Piedmont Equipment (Piedmont) removed two gasoline USTs between June 16 – 18, 1999. Evidence of what may have been a discharge was noted and a spill report (#9970160) was called into the Department on June 16. Since it was not possible to excavate the affected soil given the proximity of the adjacent building, Piedmont and representatives of the Department, Monroe County Health Department and the City Fire Marshall concurred that a small diameter soil boring program would be conducted to assess the extent of petroleum contamination, if any.

Given the proposed construction of a building addition in this area, and the pending VCP Application with the Department, it was recommended that the soil boring program originally proposed by Piedmont be expanded to evaluate for both petroleum and chlorinated VOCs. In addition, based on the history of the building, it was recommended that sets of two soil samples each be composited for analysis of SVOCs, PCBs, and total concentrations of the eight RCRA metals.

It was further recommended that groundwater samples be collected for analysis through small diameter PVC wells installed within the soil borings. Following receipt of soil analytical data, it was proposed that the groundwater wells be sampled for the parameters of concern identified during the soil sampling program. The plans to expand the investigation program in hopes that it would satisfy certain aspects of, and the results could be incorporated into, the investigation to be performed pursuant to the VCP Agreement, were verbally reviewed with Messrs. Carl Hettenbaugh and Todd Caffoe of the Department and concurrence was obtained.

A limited subsurface investigation consisting of five small-diameter soil borings (GP-201 through GP-205) was conducted to evaluate the extent of potential contamination in the vicinity of the former USTs located on the northwest corner of Building C. Soil borings were drilled using direct push methods on July 1, 1999. The locations of the borings and monitoring wells are shown in Figure 4. The soil borings were advanced to a target depth of 16 feet below ground surface (bgs). Continuous soil samples were collected at each soil boring location beginning at a depth of approximately 4 feet bgs. The borings were extended vertically to the estimated limits of affected soil and below the groundwater table to facilitate delineation of potential impacts.

In general, soil conditions adjacent to the former USTs included an asphaltic surface underlain by approximately 3.0 feet of fill. The fill layer consisted primarily of gray silty sand and gravel, with some brick. The fill was underlain by a native sandy till.

Soil samples were screened with a calibrated HNu photoionization detector (PID) equipped with a 10.2 eV lamp for the presence of volatile organic vapors. No elevated headspace readings above background were noted. No indications of stains or odors were observed in the soil samples.

Based upon field observations, Sear-Brown selected one soil sample from the four borings closest to the tank excavation (GP-201 through GP-204) for analytical testing of VOCs using EPA method 8021a by a NYSDOH certified analytical laboratory. There was insufficient soil recovery from GP-205 to allow analysis of soil from this boring. Additional samples were collected from the same four borings for compositing by the laboratory into two samples and analytical testing for SVOCs using EPA method 8270, PCBs using EPA method 8080, and total concentrations of the eight RCRA metals using EPA methods 6010/7471. The metals data from the investigation are also presented in Table 1. The laboratory data revealed no consequential environmental impacts to soils.

Three of the six borings were completed as temporary small diameter groundwater monitoring wells using 1-inch diameter PVC well screen and riser. Each groundwater monitoring well was screened within the first water-bearing zone encountered. Based on the previous investigations of the Site, the groundwater monitoring wells were installed at depths of 13 to 16 feet bgs. Water levels ranged between 8.4 and 9.5-feet bgs and suggested a westerly groundwater flow direction in this area.

Given the soil findings and with the concurrence of Messrs. Carl Hettenbaugh and Todd Caffoe of the Department, the three wells that were installed were sampled for VOCs only using EPA Method 8021a. Three groundwater samples were collected from the small diameter PVC wells by peristaltic pump with new dedicated 1/4-inch high density polyethylene tubing.

The groundwater samples from the wells did not exhibit concentrations of VOCs above applicable standards or guidance values. A trace concentration (2.3 ug/l) of methyl tert-butyl ether (MTBE), a gasoline additive, was reported in one sample (GP-205). No other compounds or analytes of concern were present above their respective detection limits.

The results of the subsurface investigation suggest that the former USTs have not adversely affected the environmental quality of the soil and groundwater on the north side of Building C. Furthermore, there is no indication of other site contaminants of concerns related to this area.

Progress Report (October 25, 2000)

A Progress Report describing limited Voluntary Investigation work conducted to date was provided to the Department on October 25, 2000. The work was completed during the months of December 1999 and January 2000 (see Progress Report, Appendix B).

A property boundary and topographic survey of the subject property was completed by Sear-Brown on January 31, 2000. The topographic survey is referenced to the Rochester City Survey (RCS) datum.

Sear-Brown prepared a draft written notice to the owner of the high rise residential property south of the subject property identifying the purpose of, and reasons for, the proposed basement survey.

A geophysical survey was conducted by Geomatrix Consultants, Inc. on December 17, 1999 to assist in determining the location of potential underground storage tanks and other subsurface structures associated with the former filling station at the corner of St. Paul Street and Ward Street. The geophysical survey results identified two anomalous responses that will be used to refine the proposed subsurface investigation of the former gasoline station parcel. Anomaly A is a buried metal anomaly characterized by high electromagnetic response. Several linear anomalies appear to be associated with anomaly A suggesting the potential for buried pipes or utilities. Anomaly B is a buried metal anomaly located adjacent to a natural gas meter. It is possible that the gas meter and surrounding fencing are contributing to the geophysical response that was observed. Based on the information obtained from the geophysical survey, it has been proposed that a test pit program be performed to further investigate the two identified anomalies.

To investigate the potential discharge destination points of several floor drains, Sear Brown conducted dye tests on January 19, 2000. Prior to the dye tests, Sear-Brown researched the locations of the nearest municipal sewer system manholes. The dye tests involved introduction of a coloring agent to the floor drains and flushing the drains with potable water to observe the possible discharge locations (i.e. manhole, outfall) for the coloring agent.

It was determined that the floor drain in building "B" discharges to the municipal sewer system. Specifically, tracer dye was introduced to the floor drain and was observed flowing in the sanitary sewer under St. Paul Street.

The discharge location of the floor drain in building "A" could not be determined. Cold weather conditions during the investigation produced foggy conditions in several sewer manholes and obscured the observation of the tracer dye test at these locations. The dye test of the floor drain in Building "A" will, therefore, be repeated. In addition, floor drain sediment in Building "A" was sampled and reported to contain Arochlor 1254 at concentrations of 2.4 and 2.6 parts per million (ppm).

Tank Closure Beneath Building C

Sear-Brown observed the closed-in-place abandonment of two gasoline USTs within Building "C". Impacted soils were noted during side and bottom wall testing, the DEC was notified and a spill report (#0070547) was issued. Piedmont filled the two gasoline USTs with flowable fill on December 29, 2000. Upon review of information gathered by Sear-Brown and Piedmont and a site visit by the DEC, the DEC stated on January 11, 2001 that no further investigation or remedial action was necessary and that the spill would be removed from the Department's active files.

It is understood that since the work for closure of spill file #0070547 was not conducted pursuant to the Voluntary Agreement, it will not be included in the final release for this site.

Supplemental Information

TCE is not used at the site. According to Mr. John Dole, facility manager, the degreasing operation occurred on the fourth floor of Building B until 1985 when the degreaser was relocated to the first floor of Building B. At the time that the degreaser was relocated to the first floor, Mr. Dole reports that it used 1,1,1-TCA. Mr. Dole further states that there have been no spills or releases associated with degreasing operations at least since he was first employed at the facility in 1976. This statement is supported by the absence of 1,1,1-TCA in the previous soil and groundwater sampling results downgradient from Building B. According to Mr. Dole, discussions with others who pre-date his tenure at the facility indicate certainty that the degreaser used 1,1,1-TCA. Mr. Dole and the others who pre-date his tenure are also certain that, although they do not ever clearly recall TCE being used at the site, if TCE was ever used at the site, its use would only have occurred on the fourth floor of Building B.

1.3 Objective of this Work Plan

The objective of this Revised Work Plan is to determine the nature and extent of contamination at the Site building upon the results of the previous investigation activities described above and the investigation activities to be conducted at the Site described below. A summary of proposed tasks and an associated schedule for the additional investigation is presented in Table 4. These voluntary investigation activities are intended to:

1. assess potential source areas;
2. evaluate the potential for off-site impacts to receptors (i.e., occupants of downgradient buildings with basements);
3. evaluate if local utilities are likely to constitute preferred flow zones for impacted groundwater;
4. assess migration of contaminants in the saturated unconsolidated overburden; and
5. evaluate potential impacts to the shallow bedrock flow system beneath and downgradient from the site.

A series of appendices have been provided to assist in the investigation and evaluation of the Site and meet the requirements of a voluntary investigation work plan. As previously discussed, Appendix A presents the North Side Report. The October 25, 2000 Progress Report is presented in Appendix B. Appendix C presents the Quality Assurance Project Plan (QAPP). The QAPP outlines the procedures to be used to assure that analytical results obtained from the investigation meet data quality objectives.

The Health and Safety Plan (HASP) is presented in Appendix D. The HASP describes personal safety protection standards and procedures to be followed by Sear-Brown personnel during the planned Voluntary Investigation activities at, and adjacent to, the Ward Street Site.

The Community Air Monitoring Plan (CAMP) is provided in Appendix E. The CAMP addresses potential VOC and particulate air quality issues that may arise during intrusive drilling and sampling activities planned at, and adjacent to, the Ward Street Site.

Appendix F presents the installation and retrieval instructions for the soil gas collectors.

2.0 Utility Right-of-Way (ROW) Investigation

2.1 Compilation and Review of Available Documents

A utility right-of-way (ROW) investigation will be conducted to determine if the potential exists for buried utilities to provide preferential pathways for contaminant migration. This investigation will involve compilation and review of available design/construction documents (i.e., record maps and drawings) for the utilities in the surrounding ROWs. The investigation will focus on the relationship between utility inverts and the depth of the water table beneath the Site.

2.2 Boundary and Topographic Surveys

Property boundary and topographic surveys of the subject property were completed on January 31, 2001 (see Appendix B). The topographic survey was referenced to the Rochester City Survey (RCS) datum.

As the field investigation proceeds, soil borings and monitoring wells will be completed within or in close proximity to the utility ROWs and property boundaries. Consequently, the utility ROW and property boundary survey control will minimize the potential for inadvertent damage to utilities located within ROWs, allow for proper placement of sampling locations, and provide valuable information for the evaluation of remedial alternatives, if necessary. The topographic survey of the Site will also assist in the generation of geologic cross-sections and interpretation of groundwater flow conditions, and the evaluation of potential preferential pathways for contaminant migration.

2.3 Floor Drain Testing

As previously discussed in the Progress Report, it was determined that the floor drain in building "B" discharges to the municipal sewer system. However, the discharge location of the floor drain in building "A" could not be determined. Cold weather conditions during the investigation produced foggy conditions in several sewer manholes, which did not allow for observation of the tracer dye test at these locations.

To investigate the potential discharge destination point of the building "A" floor drain, a dye test of this drain will be performed. Prior to the dye test, Sear-Brown will review the locations of the nearest municipal sewer system manholes. The dye test will involve introduction of a coloring agent to the floor drain and flushing the drain with potable water to observe the possible discharge location (i.e. manhole, outfall) for the coloring agent.

If the discharge location in Building "A" cannot be located with dye testing, an M-Scope and drain snake will be used to attempt to trace the piping from the drains to discharge locations. The M-Scope consists of a radio-type transmitter/receiver that allows the operator to trace the electromagnetic field of metal piping, either inductively or conductively. In the unlikely event the drain appears to discharge to a drywell or other subsurface location, a plan for further investigation activities will be developed, submitted to the Department for review and approval, then implemented.

3.0 Basement Survey

The previously completed Phase II investigation suggested a potential for south-southwesterly off-site migration of contaminants that may pose an exposure concern to off-site receptors. Consequently, a basement survey of the residential high rise building south of the subject property will be conducted. The initial objective of the survey will be to determine if the high rise has a basement and/or sumps which may contain groundwater.

Sear-Brown prepared a draft written notice for the building owner identifying the purpose of, and reasons for, the proposed basement survey. This letter, which was forwarded to the Department for review and comment, was included in the Progress Report (see Appendix B). If the building has a basement and/or sumps and if the owner/building manager is willing to cooperate, the survey would be scheduled in conjunction with Department and DOH personnel.

Upon access to the basement, air quality would be screened with an HNu photoionization detector (PID) equipped with a 10.2 eV lamp. If sumps with water are present, sump water samples would be collected. The samples would be analyzed for Target Compound List (TCL) volatile organic compounds (VOCs) in accordance with ASP Method 95-1 (Table 6). The sample analysis and reporting will follow category B, NYSDEC Analytical Services Protocols (ASP) 1995 or its most current version. Assuming that adequate water volumes are available, MS/MSD matrix samples and trip blanks will also be collected and analyzed. The analyses will be performed by a laboratory certified by NYSDEC to provide ASP Category B deliverables. Validation will consist of a Data Usability Summary Report (DUSR), in accordance with DEC guidance revised September 1997.

Given the potential for commercially available products commonly stored in basements, such as paints and thinners, to contain volatile organic compounds, attention would be given to the presence of such products in the basement as potential sources of any VOC findings. In addition, the basement survey will include a description of the building's HVAC system(s) in order to identify the potential for chimney effects and potential VOC migration in soil vapor.

In the event that a sump containing water is not present, or if there are indications of chlorinated VOCs possibly being present in the sump sample, a time integrated air sampling program would be conducted during a second visit to the building. Sampling would be performed using DOH Method 311-6. If sump samples show specific VOCs that have been found at the Ward Street site, the analysis would be performed for those compounds. If a sump containing water is not present, the analysis would be performed for the following site-related VOCs: PCE, TCE, cis-1,2 DCE, vinyl chloride and 1,2 dibromo-3-chloropropane (Table 6).

Contingent on the size of the basement, and/or findings of the sump sampling program, up to three air samples would be collected using charcoal/Poropak tubes and pre-, and post-calibrated low flow personal sampling pumps. One blind field duplicate and a control/background sample outside the building will be conducted for quality assurance/quality control (QA/QC) purposes. A trip blank will also be included with the sample containers for QA/QC. The laboratory performing the analyses will be accredited by DOH and the American Industrial Hygiene Association. In addition, the analytical data are proposed to undergo a data usability evaluation by an independent data validator.

Following receipt of the laboratory data, a letter report would be prepared. The report will describe the results of the sampling program. Copies of the reports would be submitted to both the Department and DOH. Following review and approval by the agencies, the reports would be forwarded to the owners/occupants for their information.

4.0 Site Reconnaissance

Sear-Brown has performed site walkovers of the Ward Street Site in conjunction with previous site investigations. Sear-Brown will coordinate and complete a current site walkover with representatives of the Department and DOH prior to the commencement of subsurface investigations. Proposed drilling locations will be evaluated for rig access and also for the possible need for a traffic management plan.

4.1 Site Access

The Ward Street Site is a small urban parcel. It is truck accessible, although driveways and adjacent streets are narrow. These conditions may require minor adjustments to proposed boring and monitoring well locations. Similarly, the results of the geophysical survey and utility ROW investigation may require minor adjustment to drilling locations. Proposed drilling locations within Building B will require the use of Geoprobe equipment and a propane-powered auger rig.

4.2 Underground and Overhead Utility Clearances

Prior to initiating drilling activities, UFPO will be contacted at least three working days in advance to locate underground utilities in the vicinity of the proposed drilling activities. Borehole placement may be modified by the location of underground utilities or identified geophysical anomalies. In addition, overhead utilities may also limit the area in which the drilling rig can safely work.

4.3 Traffic Management

Presently two monitoring well clusters (MW-16 and MW-17, 17R) are proposed within the ROWs for St. Paul Street and Ward Street (see Sections 8.0 and 9.0, and Figure 7). Acceptable locations will be coordinated with the City of Rochester. The drilling contractor will be required to obtain all permits from the City of Rochester, Department of Environmental Services (DES) Permits Office. The City of Rochester will require a maintenance/traffic plan. Road signs recommended by the City for local traffic control will be the responsibility of the drilling contractor.

5.0 Geophysical Survey

A geophysical survey was conducted by Geomatrix Consultants, Inc. on December 17, 1999 to assist in determining the location of potential underground storage tanks and other subsurface structures associated with the former filling station at the corner of St. Paul Street and Ward Street (see Progress Report, Appendix B).

A reference grid was installed over of the area to be surveyed. The grid was installed to facilitate data acquisition along lines spaced 3 feet apart. The grid was tied to the existing site features and located in those portions of the southwest corner of the site that are not covered with buildings.

The GEONICS EM61 High Sensitivity Metal Detector and a solid state data logger were used to survey the shallow subsurface (0 to 11 feet) environment for the presence of metallic or metal containing objects. The EM61 is a portable time-domain electromagnetic (EM) unit. The device detects both ferrous and nonferrous metals. The unit was configured to digitally collect a data point at 0.62-foot intervals along lines spaced 3 feet apart. Data was stored on a digital data logger and archived to a laptop computer. Data was then processed using GEOSOFT software and plotted as profile lines, gridded, filtered and color-contoured.

The geophysical survey results identify two anomalous responses that will be used to refine the proposed subsurface investigation of the former gasoline station parcel. Anomaly A is a buried metal anomaly characterized by high electromagnetic response. Several linear anomalies appear to be associated with anomaly A suggesting the potential for buried pipes or utilities. Anomaly B is a buried metal anomaly located adjacent to a gas meter. It is possible that the gas meter and surrounding fencing are contributing to the geophysical response that was recorded. Based on the information obtained from the geophysical survey, it has been proposed that a test pit program be performed to further investigate the two identified anomalies.

6.0 Soil Vapor Survey

Germanow-Simon will install 15 soil vapor survey points along Ward Street to exclude further concern regarding potential migration of the previously documented chlorinated compounds to nearby residential properties (see Figure 7). The extent of the soil vapor survey will be expanded and new soil vapor survey points will be selected in the field with the Department's concurrence if the results show contaminant migration off-site. It does not appear that it should be necessary, however, to install any survey points along Emmett Street given the documented groundwater flow direction to the southwest away from this area. Any contamination that is detected originating from off-site sources will only be investigated to the extent necessary in order to establish that concentration gradients are originating from those off-site sources (i.e., concentrations increasing as they approach the off-site sources).

Germanow-Simon proposes to use Emflux soil vapor cartridges for the requested soil vapor survey. These cartridges will be installed in accordance with the manufacturer's recommendations as presented in Appendix F.

A ½-inch boring (3 feet deep) will be drilled with a hand held rotary drill-hammer at each sample location. The soil gas collectors will be inserted in a second shallow (4 inch deep) small diameter (3/4-inch) boring on top of the 1/2-inch boring near the surface. A total of 15 soil gas collectors are proposed to be installed. Some of the locations will be situated in the ROW which will require permission from the City of Rochester.

After three days, the collectors will be retrieved for analysis. The analytical program is proposed to include: tetrachloroethene, tricholoethene, cis 1,2 dichloroethene and vinyl chloride.

The results of the soil gas survey may be used to assist in locating the proposed groundwater monitoring wells.

7.0 Test Pit Program

As presented in the October 25, 2000 Progress Report, the geophysical survey identified two anomalous responses. To investigate these areas, a test pit program will be performed in the areas of these anomalies. These test pits will be constructed in such a way that they bisect the two anomalies. If a tank or other buried object of concern (e.g., drywell, drum) possibly containing petroleum product or waste is encountered, a qualified environmental remediation contractor will be mobilized to the site to properly address its contents. At a minimum, the object will be investigated to determine its contents, if any. If wastes or product are found, the object will be properly abandoned or disposed in accordance with local, state and federal regulations.

If indications of environmental impacts are suggested by field observations, one grab soil sample will be collected from each impacted test pit and submitted for TCL VOCs and SVOCs by ASP Methods 95-1 and 95-2, respectively. Depending on the types of potential impacts observed in the field, the Department may be contacted to discuss revisions or additions to this proposed analytical program.

8.0 Overburden Test Boring/Monitoring Well Installation

Eight on-site test overburden borings are proposed for additional investigation of soil quality in overburden (see Figure 7). On-site bedrock monitoring wells are discussed in detail in Section 9.0 below.

On-site overburden borings include the following:

- B-18 immediately south of Building "B" to further assess potential southerly impacts;
- B-19, B-20 and B-21 to evaluate conditions in the vicinity of the portion of Cork Street which is proposed for abandonment and reconstruction with a building addition and in the understood downgradient direction from the two tanks inside Building "C" that were abandoned December 2000; and
- B-105, B-106, B-107 and B-22 inside Building "B" to evaluate the extent and potential sources of the findings in MW-101.

With the exception of borings B-105 and B-106, each on-site overburden soil borings will be completed with overburden monitoring wells (MW-18, MW-19, MW-20, MW-21, MW-22, and MW-107) to assess on-site overburden groundwater quality.

Two off-site overburden borings (B-16 and B-17) will also be installed and converted to monitoring wells (MW-16 and MW-17) during this investigation to assess potential off-site downgradient impacts. The proposed off-site overburden soil boring/monitoring well locations are also shown on Figure 7.

A summary of the proposed well installations is presented in Table 5.

8.1 Borehole Drilling

Each soil boring located outside of the buildings will be advanced from the ground surface through unconsolidated overburden to auger refusal with 4¼ inch hollow stem augers. Top of rock has previously been encountered at a depth of approximately 20 feet below ground surface. Due to limitations regarding overhead clearance and access, borings B-105, B-106 and B-107 are proposed to be advanced inside Building B with a Geoprobe direct push unit. Based on past experience at the site, it is expected that the Geoprobe unit will only be able to advance these holes to approximately 12 feet. Sufficient clearance and access is believed to be available to advance Boring B-22 within Building B, adjacent to previously installed MW-101 (12.6 ft. deep), using a propane-powered auger rig with 4¼ inch hollow stem augers in an effort to reach top of bedrock. This boring is proposed to assist in further assessing the vertical extent of impacts at this location.

Given access limitations and in order to attempt to install MW-107 inside Building B, a 6 inch diameter concrete coring machine is proposed to be used to penetrate the floor prior to setting up the Geoprobe rig. The depth of the Geoprobe boring (B-107) will be contingent on accessibility and sub-surface conditions. It is intended that B-107 will be driven to the top of rock or until Geoprobe refusal is encountered. The presence of fill material, bedrock, running sands, or overhead clearance considerations may preclude reaching the target depth.

Drill cuttings, decontamination water and development water will be containerized in 55-gallon drums, and securely stored on-site for future disposal by Germanow-Simon Corporation.

Representative portions of the soil cores will be containerized and allowed to equilibrate to room temperature. The accumulated vapors within the containers will then be subjected to headspace analysis for VOCs using a calibrated HNu PID equipped with a 10.2 eV lamp.

8.2 Monitoring Well Completion

The two off-site soil borings and six of the on-site overburden soil borings will be completed as overburden monitoring wells. All overburden wells, except MW-107 and MW-22 will be constructed of two inch diameter polyvinyl chloride (PVC). Well screens will be 15 ft. long and will consist of 10-slot PVC. Fine sand will be placed into the annulus to a depth of 1 foot above the top of screen. Bentonite will be backfilled into the borehole to provide an expandable seal that will be a minimum of 2 feet thick. Remaining annulus will be backfilled with an expandable cement/ bentonite mixture. A flush mounted protective casing will be installed at local grade. A lockable, PVC cap will be installed on the well riser.

Because elevated concentrations of chlorinated VOCs have been documented in existing well MW-101, overburden groundwater monitoring wells will be completed to effectively and safely monitor for potential dense non-aqueous phase liquid (DNAPL) pooling of the chlorinated VOCs at the bedrock/overburden interface. To accomplish successful monitoring of this preferred flow path without risking enhanced vertical migration of contaminants, Sear-Brown will direct the drilling contractor to penetrate the top of rock with an HQ core barrel or roller bit and to install solid PVC sumps that extend one foot into rock for each overburden well. The sumps will allow for the monitoring of DNAPL accumulation in these wells without inadvertently impacting water quality further in the bedrock zone. A typical overburden well diagram illustrating well construction and annular materials is provided on Figure 8.

Geoprobe boring B-107 will be completed with a 1" diameter PVC monitoring well if a sufficient depth is reached such that groundwater is likely to be present. Depending upon the total depth of the boring, this well will be constructed with a 10-ft screen. Within the available annular space, we will attempt to install a sandpack around the well screens to a height one foot above the screen. A bentonite seal will be placed above the sandpack and the well heads will be completed with a flush-mounted protective casing.

If B-107 cannot be completed to a sufficient depth to reach the groundwater, then an alternate position for MW-107 will be selected in the field with the concurrence of the Department. Germanow-Simon Corporation would propose to relocate it in one of the following two locations (see Figure 7). One option would be to position it approximately 40 ft. to the north of the presently proposed location for MW-107 on the north side of Building B within the gravel parking area. A second option would be to locate it approximately 20 ft. to the south within the one story block building addition in which MW-22 is currently proposed. Well construction details for those two locations, if one or the other is needed, would be similar to the previously described details for overburden wells outside the building or proposed well MW-22, respectively.

Each newly installed monitoring well and each existing monitoring well will be surveyed by Sear-Brown's licensed land surveyors for horizontal and vertical control. Horizontal and vertical datum will be compatible with City of Rochester utility maps for comparative purposes.

Each newly installed well will be properly developed to reduce turbidity to the maximum extent practicable.

8.3 Water Level Measurements

A complete round of water levels in new wells and existing wells will be measured at the time of groundwater sampling and hydraulic conductivity testing. Water level measurements will be used to develop a water table contour map. Water levels will be measured from surveyed PVC well risers using an audible water level indicator.

8.4 Hydraulic Conductivity Testing

All new and existing monitoring wells will be slug tested to determine the hydraulic conductivity of local overburden deposits. Field methods will involve both falling and rising head slug tests. Resultant data will be evaluated using the Hvorslev method.

8.5 LNAPL/DNAPL Checks

Each newly installed well and each existing well will be checked for the potential presence of discrete LNAPL or DNAPL. LNAPL and DNAPL checks will occur during groundwater sampling and will be conducted immediately prior to well purging using a SOLINST Model 121 Interface probe or its equivalent. In the event that a LNAPL or DNAPL layer is present in a monitoring well, the product layer will be sampled discretely from the groundwater.

9.0 Bedrock Well Installation

Four bedrock boring/well installations will be used to evaluate the potential for vertical and lateral migration of contaminants through the upper bedrock fracture zone. The locations of the proposed bedrock well installations (MW-9R, MW-15R, MW-16R and MW-17R) are shown on Figure 7. MW-9R and MW-15R will be constructed on-site and MW-16R and MW-17R will be constructed off-site and downgradient of MW-9R. Bedrock monitoring well MW-15R is proposed to evaluate conditions in close proximity to MW-22 as requested by the Department.

9.1 Overburden Drilling/Casing Installation

Each soil boring that is intended to be completed as a bedrock well will be advanced on-site from the ground surface to top of rock (i.e. auger refusal) using 6¼ inch hollow stem augers and continuous split spoon sampling. Grout will be added to the augers; a permanent 4" black iron casing with a cement plug will be installed through the augers; the augers will be pulled; and the casing will be seated with the drill rig. The cemented casing will be allowed to set overnight before proceeding with drilling into bedrock. Figure 9 reflects this proposed bedrock well design.

9.2 Bedrock Coring

Using a wash-tee and re-circulation tub to contain drilling fluids, the casing plug will be reamed, and bedrock will be cored with a HQ core barrel. A continuous rock core will be collected for stratigraphic and fracture logging and for the purpose of intercepting the upper water-bearing fracture interval. The bedrock will be cored a minimum of 10 feet below the top of rock, if groundwater is present, or to a depth that is 5 feet deeper than the depth below which bedrock groundwater is first encountered, but no greater than 30 feet below top of rock. Cuttings will be flushed from the boring using clean potable water. All drilling fluids will be containerized upon completion.

9.3 Monitoring Well Completion

The bedrock borehole will be completed as a discrete bedrock groundwater monitoring well constructed of two-inch diameter PVC. The screen will consist of 10-slot PVC and will extend from the base of the borehole to approximately 5 feet below the top of rock, or a maximum 10 ft. screened interval. A typical bedrock well diagram is shown on Figure 9.

A silica sand pack will be used to fill in the annular space between the well and the borehole. Sand will be extended 1 foot above the well screen. A bentonite seal will be placed above the sandpack and will extend across the overburden/

bedrock interface (minimum 5 ft. thickness). The bentonite seal will be hydrated prior to grouting the remaining annulus to the ground surface.

A flush mounted protective casing will be installed at local grade. A lockable, PVC cap will be installed on the well riser. The bedrock well will be surveyed concurrent with, and using the same methods as, the overburden wells.

9.4 Water Level Measurements

Water level measurements will be taken concurrent with, and in the same manner as, measurements taken from the overburden wells.

9.5 Hydraulic Conductivity Testing

The bedrock wells will be subjected to hydraulic conductivity testing using slug tests. Either the Hvorslev or Bouwer and Rice methods will be used for calculations depending upon the interpreted hydrologic condition (i.e. confined vs. unconfined flow).

9.6 LNAPL/DNAPL Checks

Each newly installed and existing well will be checked for the potential presence of discrete LNAPL and DNAPL. The LNAPL and DNAPL checks will occur during groundwater sampling and will be conducted immediately prior to well purging using a SOLINST Model 121 Interface probe or its equivalent. In the event that a LNAPL or DNAPL layer is present in a monitoring well, the product layer will be sampled discretely from the groundwater.

10.0 Sampling and Analysis Plan

This section of the work plan presents the soil, floor drain and groundwater sampling and analysis plan to be followed during the proposed additional site activities. Summaries of the proposed analytical sampling programs are presented in Tables 6 and 7.

Sampling and analytical activities will be conducted in accordance with standard environmental sampling and analytical guidelines and protocols contained in the Quality Assurance Project Plan (QAPP) as presented in Appendix C. The contaminant analysis and reporting will follow category B, NYSDEC ASP 1995 or its most current version. Accordingly, MS/MSD matrix samples, trip blanks and equipment blanks will be collected and analyzed. The laboratory analysis will be performed by an ASP certified laboratory. All analytical data will undergo a data usability evaluation in accordance with the Department's Data Usability Summary Report (DUSR) guidance document revised September 1997. The data usability evaluation will be performed by Ms. Judy Harry of Data Validation Services, North Creek, New York. Ms. Harry has been providing independent data validation services for 12 years.

10.1 Soil Sampling

Soil Borings

One grab soil sample will be collected from each of the 12 new soil borings for laboratory analysis using the Analytical Standard Protocols (ASP) 1995 or its most current version (Table 6). Selection of sample intervals will be based upon PID readings and visual or olfactory evidence of affected soil. Each grab sample will be analyzed for Target Compound List (TCL) VOCs by ASP Method 95-1. These data will allow for further evaluation of chlorinated VOC contamination in soils. In addition, grab samples will be individually submitted for analysis of TCL SVOCs by ASP Method 95-2 if indications of petroleum-related impacts are suggested by field observations.

Additional soil from select borings (B-9R, B-18, B-19 and B-22) will be forwarded to the laboratory for analysis of TCL SVOCs by ASP Method 95-2 (where samples were not previously submitted), TCL Pesticides/PCBs by ASP Method 95-3, and Target Analyte List (TAL) metals using EPA Method CLP-M.

For the remaining borings, if field observations do not suggest impacts, then one grab soil sample will be submitted from the following soil boring groups: B-20 and B-21 (Building C and Cork Street); B-105, B-106, and B-107 (Building B); and B-16 and B-17 (southwestern property line). In addition to the aforementioned analysis for VOCs, these three grab soil samples will be analyzed for TCL SVOCs by ASP Method 95-2, TCL Pesticides/PCBs by ASP Method 95-3, and TAL metals using EPA Method CLP-M. In the event indications of potential impacts are noted in a particular boring in the field, then samples from each such location will be added to the analytical program as appropriate following consultation with the Department.

<u>Test Pits</u>

If indications of environmental impacts are suggested by field observations within a given test pit, one grab soil sample will be collected from that test pit and submitted for TCL VOCs and SVOCs by ASP Methods 95-1 and 95-2, respectively. Depending on the types of potential impacts observed in the field, the Department may be contacted to discuss revisions or additions to this proposed analytical program.

10.2 Floor Drain Related Sampling

A trench drain system was observed near hydraulic pumps in the basement of Building "A". This trench drain contained oily sludge. Parrone sampled the sludge and had it analyzed for PCBs. Arochlor 1254 was present at 2.5 - 2.6 ppm and Arochlor 1260 was present at 0.81 - 0.83 ppm in the sludge.

An oily substance was observed on the surface of standing water in a floor drain near the CNC machinery operation in Building "B". This drain reportedly backs up and floods the floor during significant rain events. Parrone recommended pumping the drain dry and then conducting a dye test to confirm that the floor drain is connected to the combination sewers as suspected or to determine that it is connected to a drywell system along with the roof leaders.

The floor drains in Building C were filled in with concrete during a renovation in 1975. No functional floor drains are reported to exist at the present time.

As previously discussed in the Progress Report, it was determined that the floor drain in building "B" discharges to the municipal sewer system. In addition, the floor drain sediment in Building "A" was sampled and reported to contain Arochlor 1254 at concentrations of 2.4 and 2.6 parts per million (ppm). However, the discharge location of the floor drain in building "A" could not be determined. Cold weather conditions during the investigation produced foggy conditions in several sewer manholes, which did not allow for observation of the tracer dye test at these locations.

To investigate the potential discharge destination point of the building "A" floor drain, a dye test of this drain will be conducted. Prior to the dye test, Sear-Brown will review the locations of the nearest municipal sewer system manholes. The dye test will involve introduction of a coloring agent to the floor drain and flushing the drain with potable water to observe the possible discharge location (i.e. manhole, outfall) for the coloring agent.

To complete the floor drain investigation, the above referenced floor drain in building "B" will be sampled for VOCs by ASP Method 95-1 and TCL Pesticides/PCBs by ASP Method 95-3 (Table 6). In addition, representative samples of the fluid in the hydraulic pumps within the basement of Building A will be collected for analysis of TCL Pesticides/PCBs by ASP Method 95-3.

10.3 Groundwater Sampling

Each of the twelve new wells and the six existing wells installed during the Phase II investigation will be sampled for VOCs by ASP Method 95-1 (Table 7). To the extent that the contaminant levels and ASP protocols allow, the laboratory will be requested to provide a detection limit of 2 ug/l for vinyl chloride for the VOC analysis by ASP Method 95-1. However, if matrix interference occurs which requires sample dilution, this low detection limit for vinyl chloride may not be attainable.

The need for SVOC groundwater sampling will be predicated on soil sample results. Sear-Brown, in consultation with the Department, will determine which wells will be discretely sampled and analyzed for SVOCs upon review of the soil analytical results.

In addition to the above-reference analytes, three wells, MW-9, MW-9R, and MW-22 will be sampled for a set of general water quality indicator parameters. These analytes include Total Organic Carbon (TOC), Total Dissolved Solids (TDS), Total Suspended Solids (TSS), alkalinity, hardness, chloride, sulfate, calcium, sodium, potassium, magnesium, iron and manganese. These analytes will be useful in the evaluation of potential remedial technologies for the Site, if necessary.

At the time of sampling, field measurements will be collected to verify that representative formation water is being sampled. The field tests will include turbidity, temperature, pH, specific conductance, and dissolved oxygen.

11.0 Documentation and Reporting

Detailed documentation of site activities will be maintained during the field work. Reporting will include discussions of findings in monthly progress reports and submission of a final written report to the DEC.

11.1 Field Documentation

Documentation of the field activities and environmental sampling will include the following:

Field Notebook - Field personnel will maintain a bound field notebook which will document dates, times and duration of pertinent field occurrences. Notebook entries will be made on consecutive pages.

Project Photographs - Photographs will be taken of field activities.

Calibration Records - Calibration records for field instrumentation will be maintained in the field notebook.

Geologic Logs - Observations pertaining to site geology and hydrogeology made during subsurface drilling will be recorded in the field notebook. Construction logs of monitoring well installations will also be recorded.

Safety Forms - Sign-in forms, air monitoring results, and other safety related documentation will be maintained.

Chain-of-Custody Forms - Sample handling will be recorded on chain-of-custody forms with associated labels and custody seals.

11.2 Reporting

Sear-Brown will generate monthly progress reports on behalf of Germanow-Simon that will include field findings and final laboratory data as they are received.

Upon receipt and review of the full set of analytical data generated by the additional investigation, a report will be prepared which summarizes the methods, field findings, lab results, interpretations, conclusions and recommendations.

12.0 Project Organization and Schedule

A multi-disciplined team is required to perform the activities described in this document in accordance with the proposed schedule. The project team will include experienced Sear-Brown staff and qualified subcontractors that are appropriate trained for their assigned duties and acceptable to the Department.

12.1 Project Personnel

The Sear-Brown personnel selected to perform the activities included in this document are presented below along with a brief description of their duties:

Michael Storonsky - Project Manager

- Provides overall project management;
- Provides managerial guidance to technical group;
- Serves as liaison between technical group and client;
- Serves as liaison with DEC; and
- Prepares and reviews reports.

William Goodman, Ph.D. - Senior Hydrogeologist

- Investigation task leader;
- Reviews and interprets hydrogeological data and contaminant plume geometry;
- Provides the geological and hydrogeological description of the site;
- Provides technical representation at meetings; and
- Prepares reports.

Kevin Ignaszak, P.E.- Senior Environmental Engineer

- Project QA director;
- Assists in review and interpretation of contaminant data; and
- Prepares report.

Peter Smith - Hydrogeologist, Site Coordinator

- Provides immediate supervision of on-site activities, including site preparation, borehole and monitoring well installations, sample collection, aquifer testing and health and safety;
- Ensures that samples are properly collected, stored and subjected to the appropriate chain-of-custody protocols;
- Maintains field equipment; and
- Prepares reports.

David Gnage, Environmental Geologist

- Project Health and Safety Director;
- Coordinates project Health and Safety; and
- Coordinates the Community Air Monitoring Plan.

Bob Vento, L.S. - Senior Land Surveyor

- Coordinates field survey activities.

12.2 Subcontractors

Qualified, experienced and licensed or certified subcontractors will be retained to perform soil boring/monitoring well installations and sample analyses. All subcontractors will be subject to disapproval by the Department.

12.3 Project Schedule

It is anticipated that the site investigation activities proposed in this work plan will be conducted upon approval by DEC. The Department will be advised of the actual dates and times of field activities in advance of the work. Table 4 contains a summary of the activities to be conducted and the approximate timetable to complete those tasks.

9.0 EMERGENCY PROCEDURES

The Site Safety Officer will coordinate emergency procedures and will be responsible for initiating emergency response activities. Emergency communications at the site will be conducted verbally and by means of an air horn. All personnel will be informed of the location of the cellular telephone and horn. Three blasts on the air horn will be used to signal distress.

9.1 List of Emergency Contacts

Ambulance: 911
Hospital: Highland Hospital, (716) 341-6880
Fire Department: 911
Police: 911
Poison Control Center: (716) 275- 3232
Utility Emergency: 911 or 546-1100

9.2 Directions to Hospital

A map presenting directions to the hospital is included in the back of the document (Figure 3). The route shall be reviewed at the initial site safety meeting on site.

9.3 Accident Investigation and Reporting

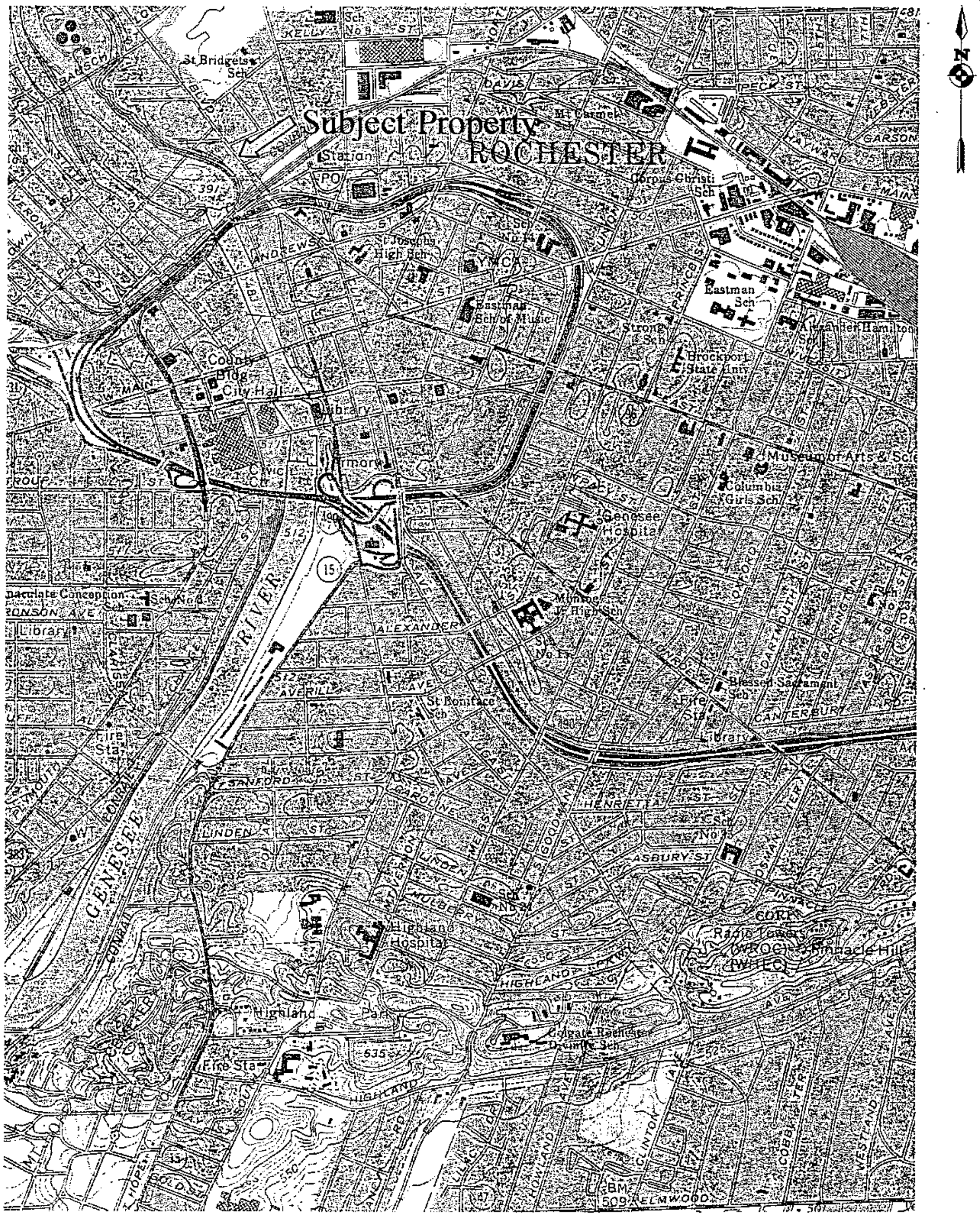
A. All accidents requiring first aid, which occur incidental to activities onsite, will be investigated. The investigation format will be as follows:

- interviews with witnesses,
- pictures, if applicable, and
- necessary actions to alleviate the problem.

B. In the event that an accident or some other incident such as an explosion or exposure to toxic chemicals occurs during the course of the project, the Project Health and Safety Officer will be telephoned as soon as possible and receive a written notification within 24 hours. The report will include the following items:

- Name of injured;
- Name and title of person(s) reporting;
- Date and time of accident/incident;
- Location of accident/incident, building number, facility name;
- Brief summary of accident/incident giving pertinent details including type of operation ongoing at the time of the accident/incident;
- Cause of accident/incident;

Figures



PROJECT ENGINEER/ARCHITECT

PROJECT MANAGER
M. Storonsky

DRAWN BY
C. Shea

SCALE
N.T.S.

FIRST ISSUE DATE

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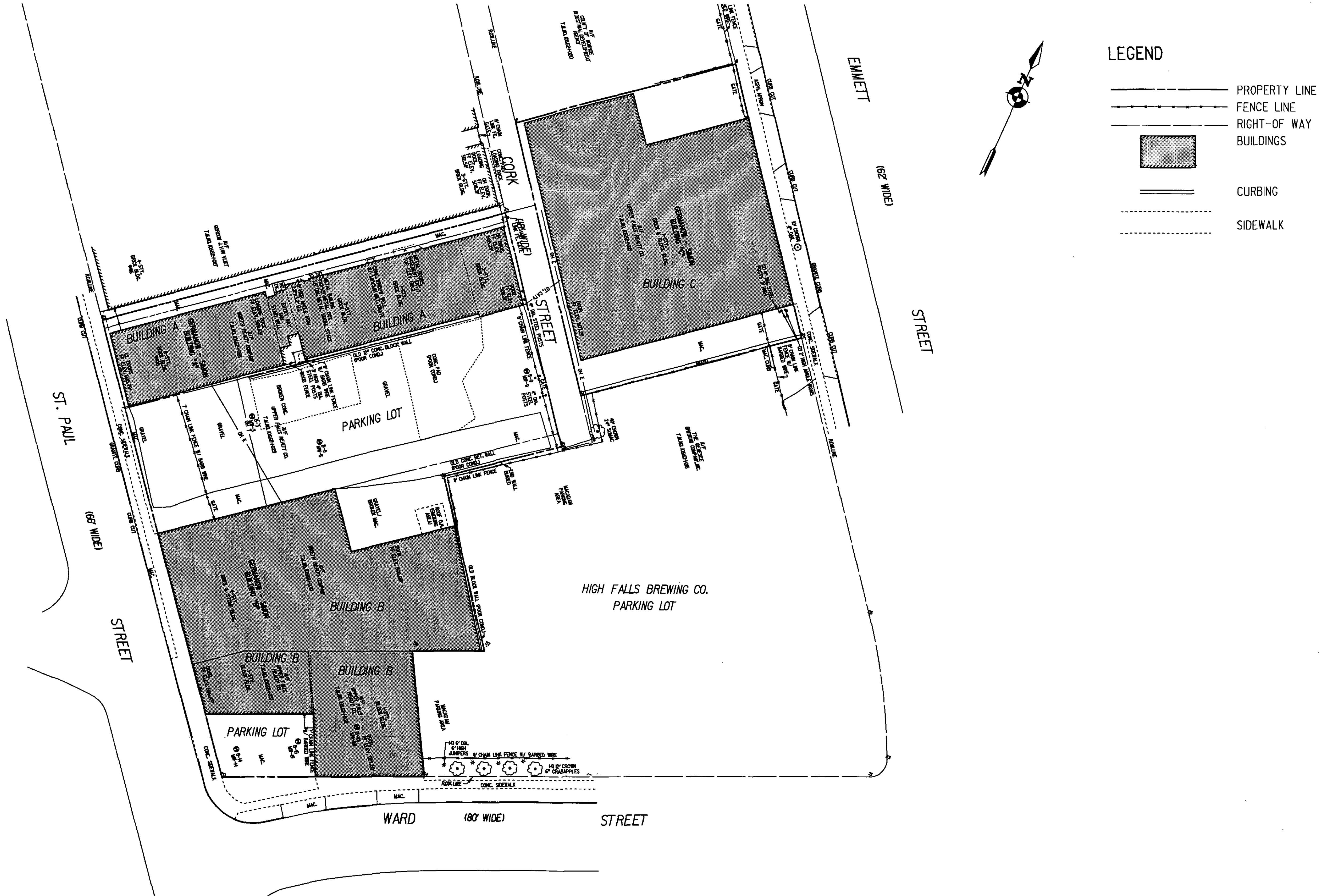
PROJECT
Ward Street Site
Rochester, NY

TITLE OF DRAWING
SITE LOCATION

PROJECT NO.
14052.01

DRAWING NO.
Fig. 1



SITE PLAN

PROJECT ENGINEER/ARCHITECT: P. SMITH
PROJECT MANAGER: M. STORONSKY
DRAWN BY: A. LESS
SCALE: 1" = 60'
FIRST ISSUE DATE: 4/2001

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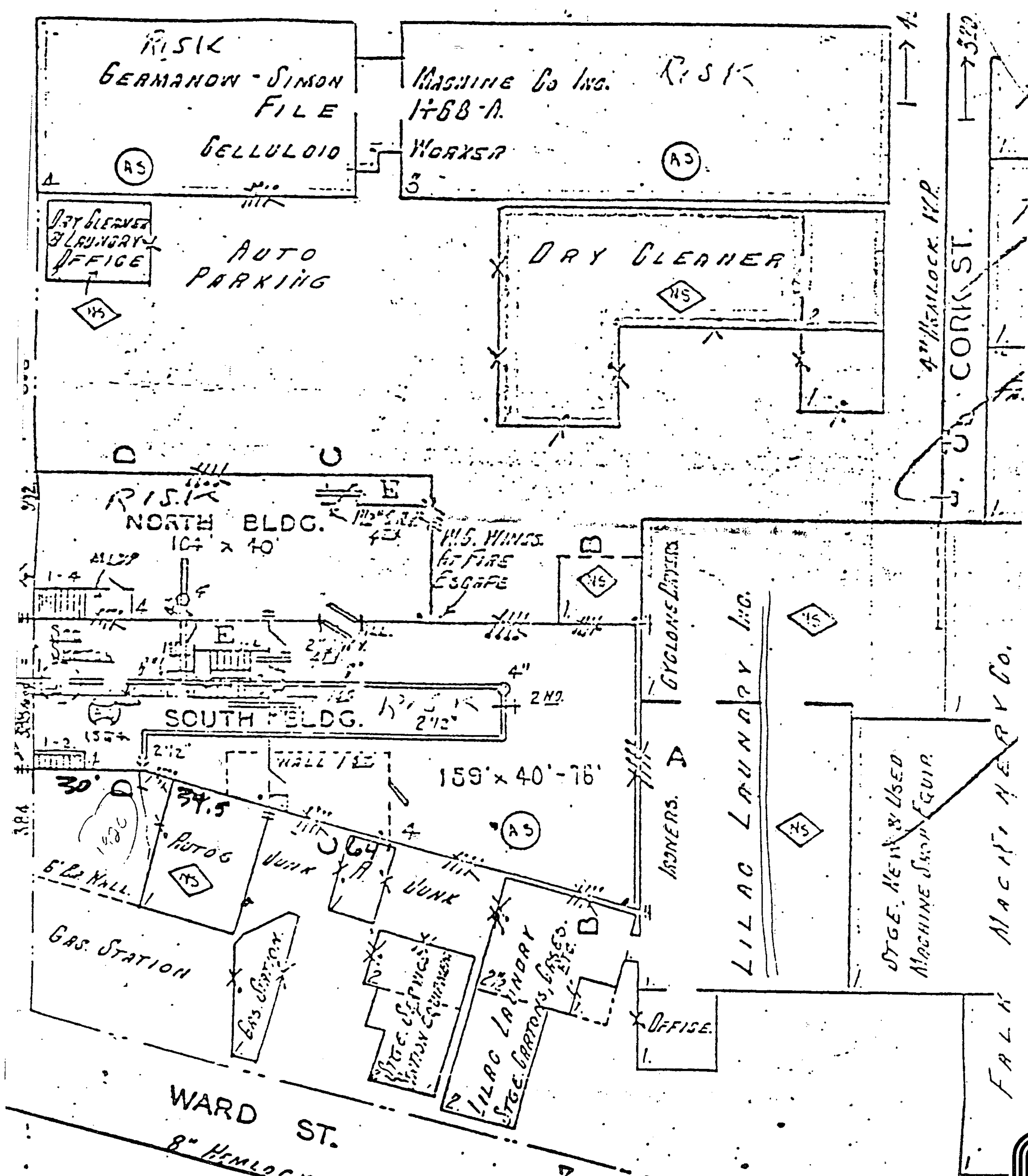
PROJECT: INVESTIGATION WORK PLAN
WARD STREET SITE
ROCHESTER, NEW YORK

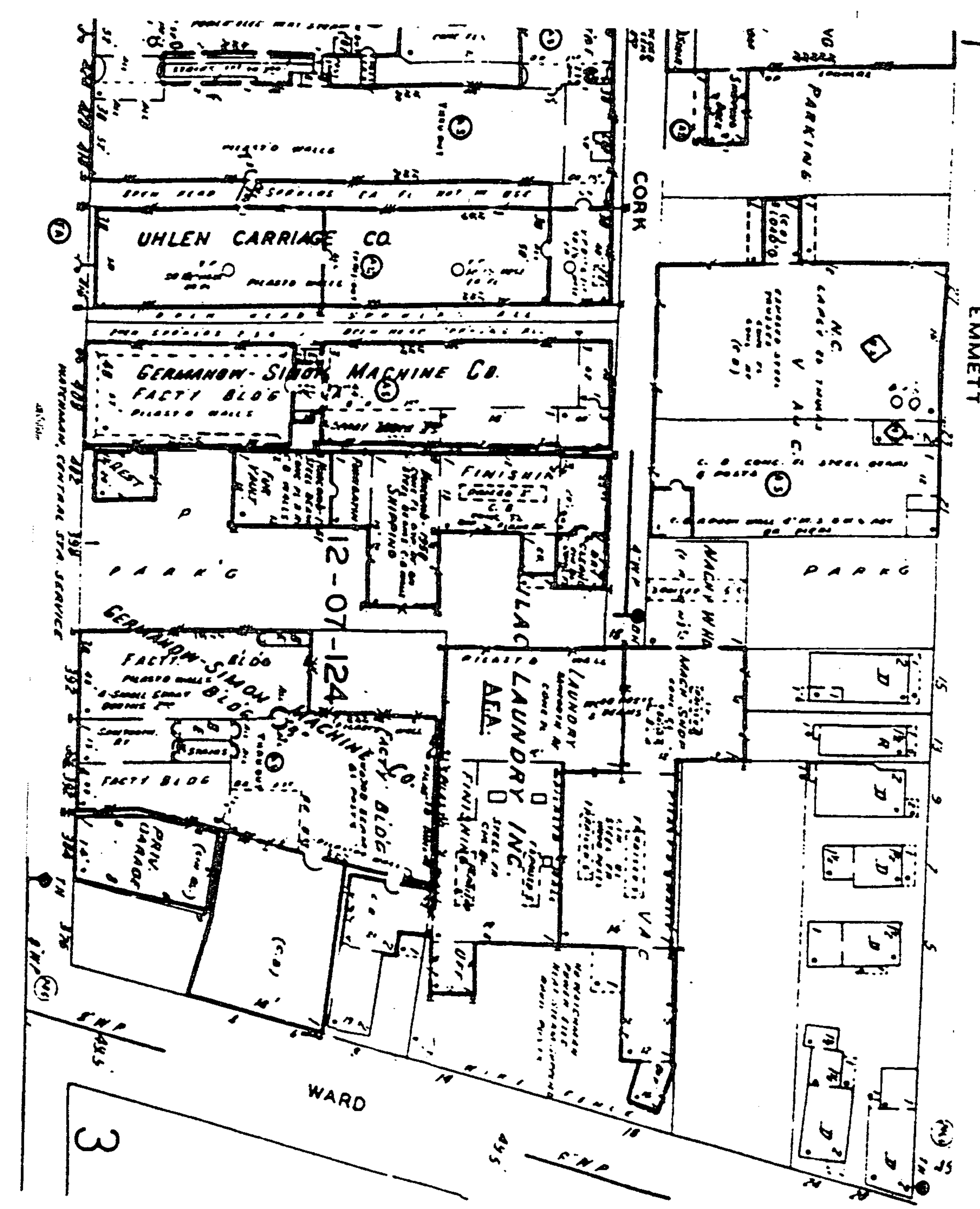
TITLE OF DRAWING: SITE PLAN

PROJECT NO. 14052.01

DRAWING NO. FIG. 2

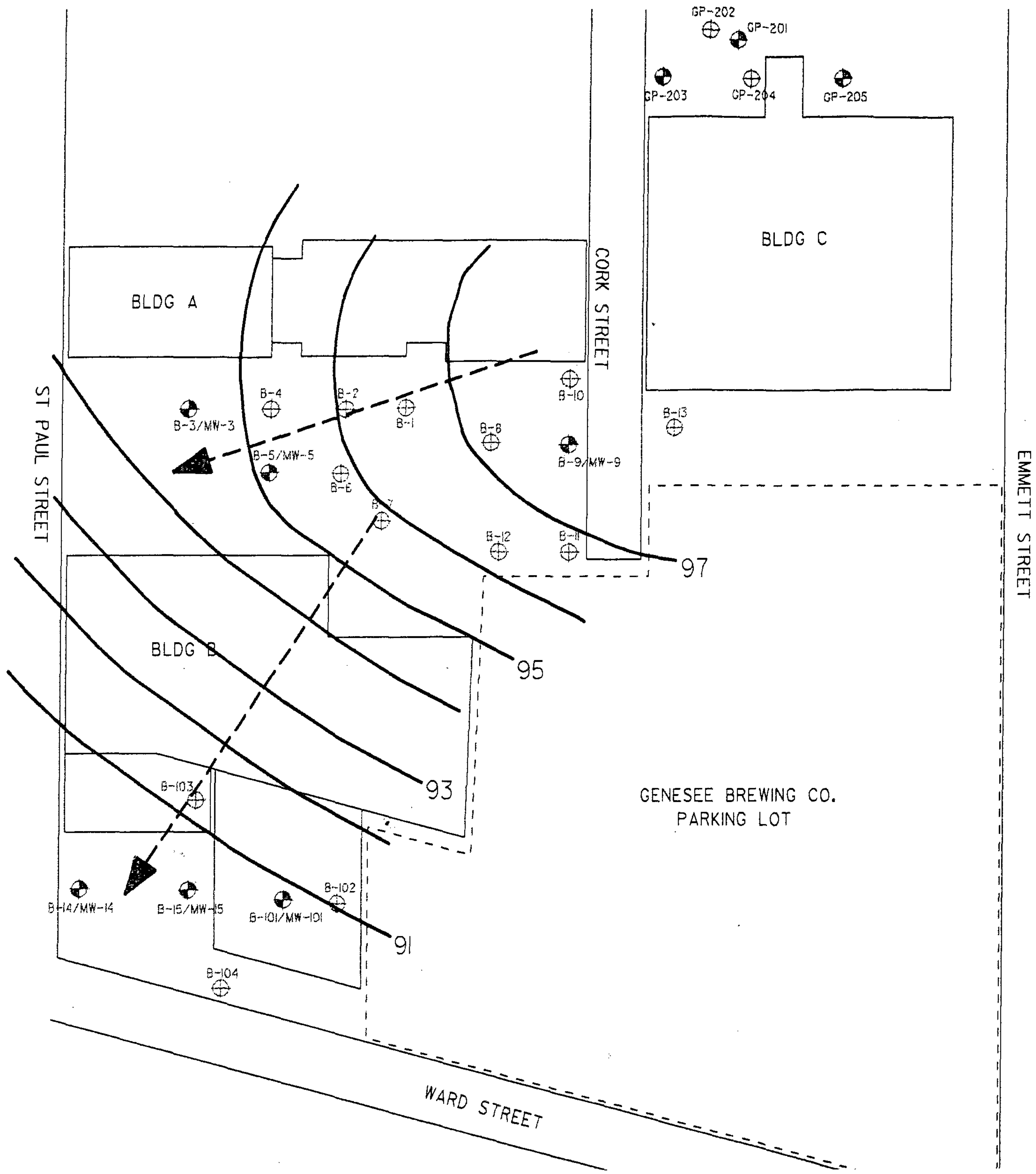


1949



1971

COPYRIGHT © 2001 SEAR-BROWN	PROJECT ENGINEER/ARCHITECT P. SMITH; PROJECT MANAGER M. STORONSKY; DRAWN BY A. LESS; SCALE AS SHOWN; FIRST ISSUE DATE 4/2001	SEAR·BROWN 85 Metro Park Rochester, N.Y. 14623-2674 (716) 475-1440 www.searbrown.com	PROJECT INVESTIGATION WORK PLAN WARD STREET SITE ROCHESTER, NEW YORK; TITLE OF DRAWING HISTORIC SANBORN MAPS	PROJECT NO. 14052.01; DRAWING NO. FIG. 3



B-13 = EXISTING SOIL BORING WELL LOCATION

B-101/MW-101 = EXISTING WELL LOCATION

NOTE: NOT TO SCALE
ALL LOCATIONS APPROXIMATE

PROJECT ENGINEER/ARCHITECT: P. SMITH
PROJECT MANAGER: M. STORONSKY
DRAWN BY: A. LESS
SCALE: AS SHOWN
FIRST ISSUE DATE: 4/2001

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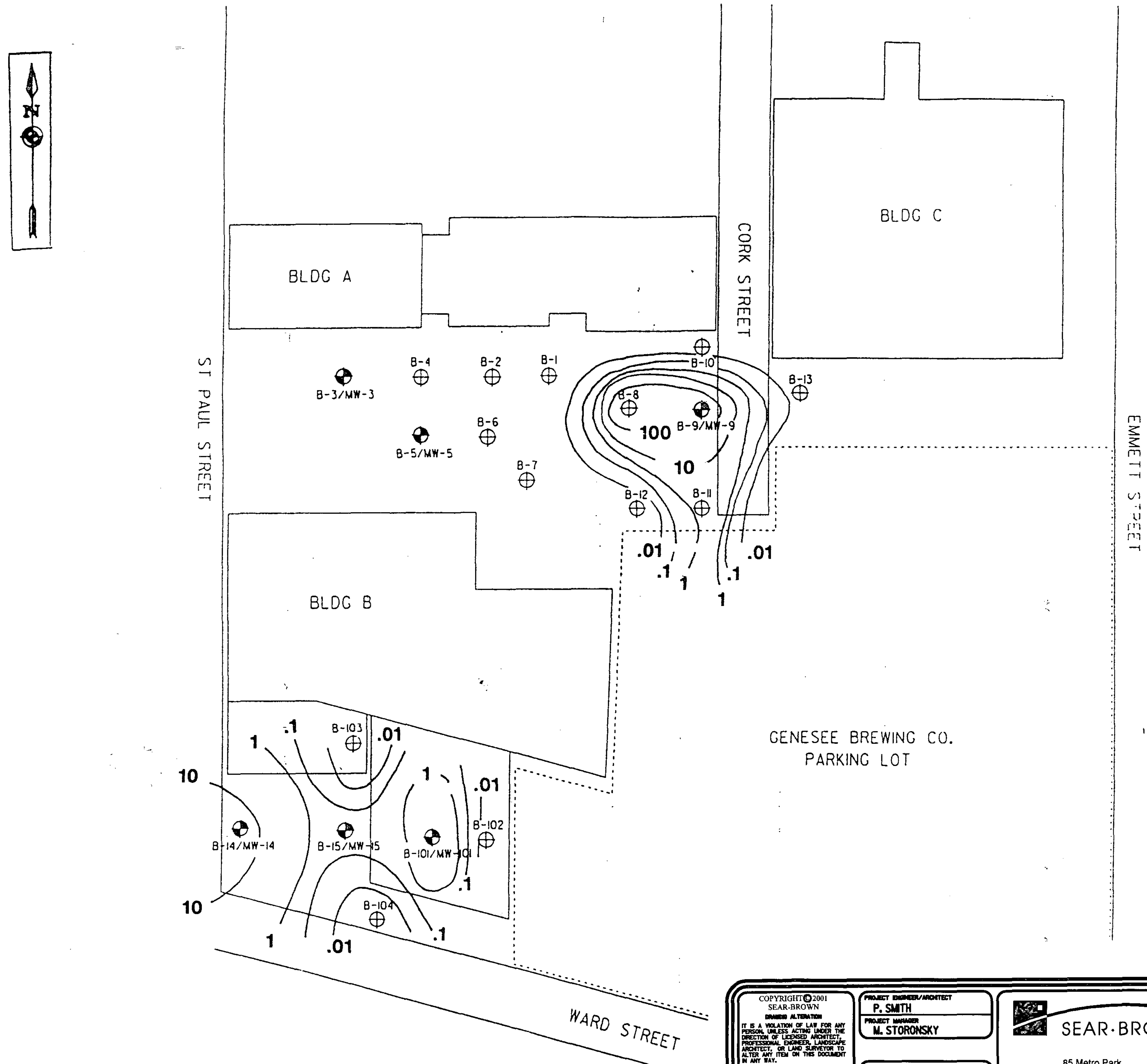
PROJECT: INVESTIGATION WORK PLAN
WARD STREET SITE
ROCHESTER, NEW YORK

TITLE OF DRAWING: EXISTING SOIL BORING AND MONITORING WELL LOCATIONS

PROJECT NO. 14052.01

DRAWING NO. FIG. 4



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PROJECT: INVESTIGATION WORK PLAN
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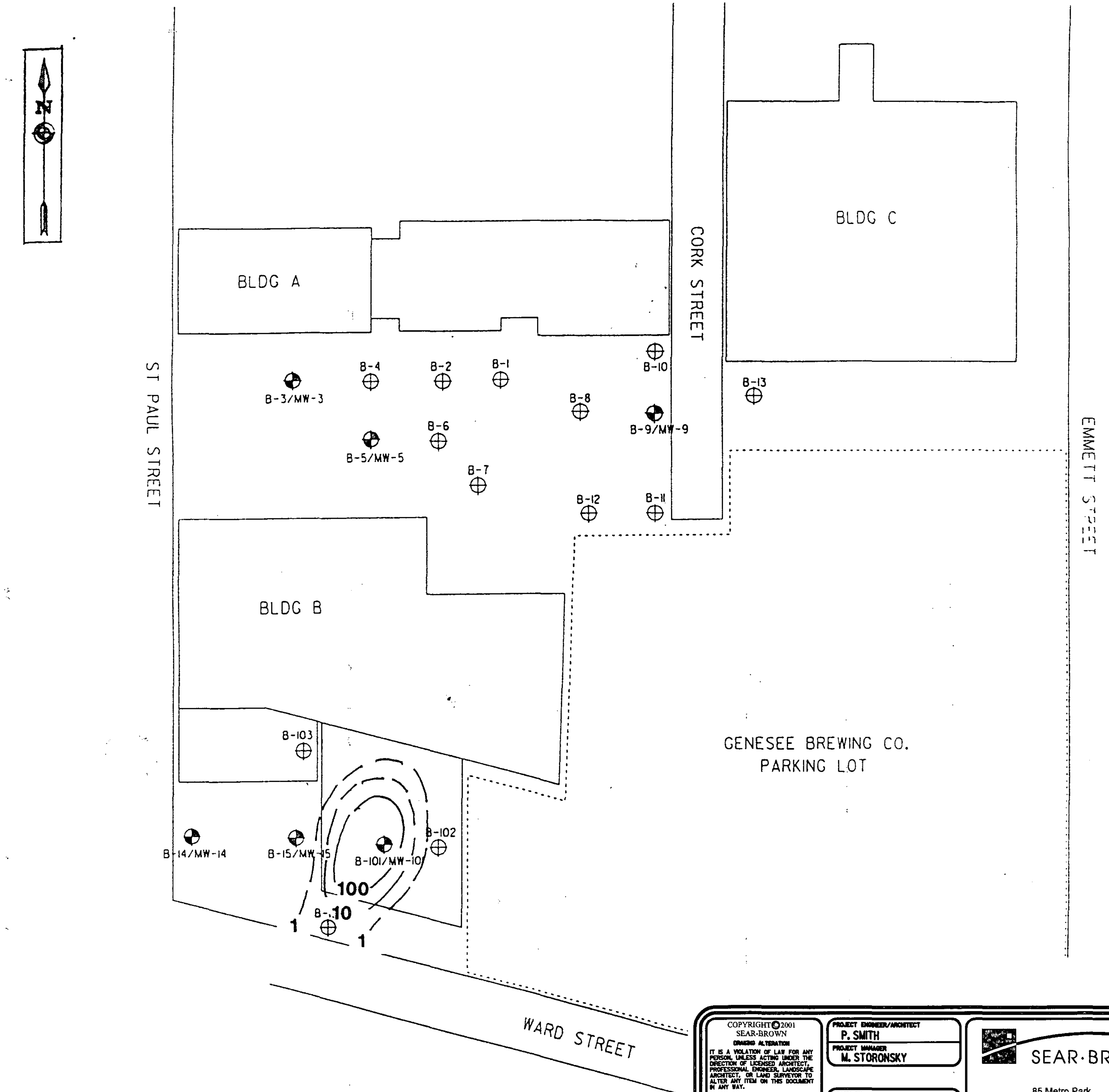
TITLE OF DRAWING: TOTAL PETROLEUM HYDROCARBON CONCENTRATIONS IN SOIL (mg/kg)

PROJECT NO. 14052.01

DRAWING NO. FIG. 5



PROJECT ENGINEER/ARCHITECT
P. SMITH

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SCALE
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PROJECT
INVESTIGATION WORK PLAN
WARD STREET SITE
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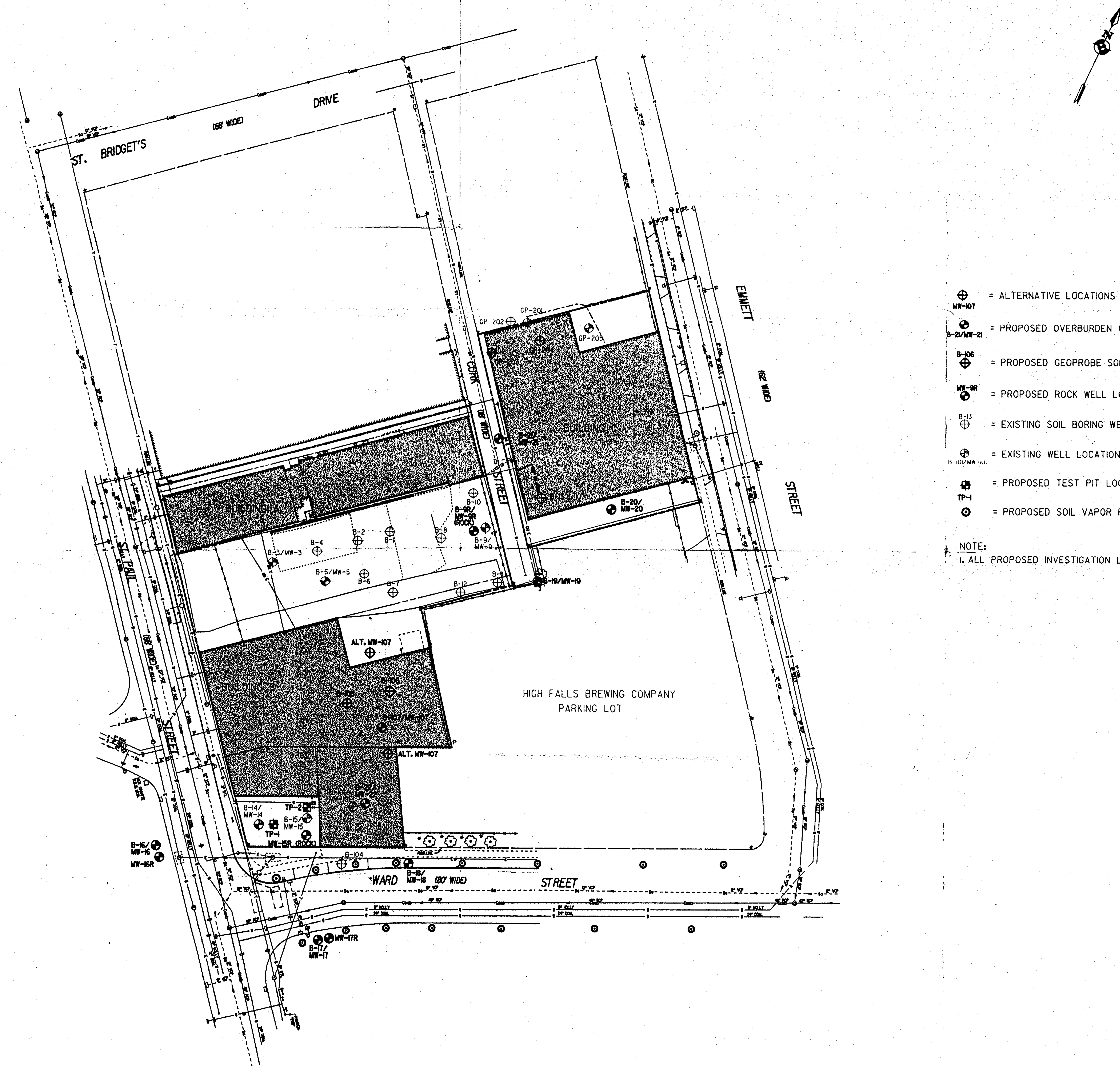
TITLE OF DRAWING
TOTAL CHLORINATED VOLATILE ORGANIC COMPOUND CONCENTRATIONS IN SOIL (mg/kg)

PROJECT NO.
14052.01

DRAWING NO.
FIG. 6



= ALTERNATIVE LOCATIONS FOR MW-107 (MW-107)

= PROPOSED OVERBURDEN WELL LOCATION (B-21/MW-21)

= PROPOSED GEOPROBE SOIL BORING LOCATION (B-106)

= PROPOSED ROCK WELL LOCATION (MW-9R)

= EXISTING SOIL BORING WELL LOCATION (B-13)

= EXISTING WELL LOCATION

= PROPOSED TEST PIT LOCATION (TP-1)

= PROPOSED SOIL VAPOR POINT

NOTE:
1. ALL PROPOSED INVESTIGATION LOCATIONS ARE APPROXIMATE.

6			
5			
4			
3			
2			
1			
0			
	REVISIONS	DATE	BY

PROJECT ENGINEER/ARCHITECT
P. SMITH
PROJECT MANAGER
M. STORONSKY
DRAWN BY
A. LESS
SCALE
1" = 40'
FIRST ISSUE DATE
4/2001

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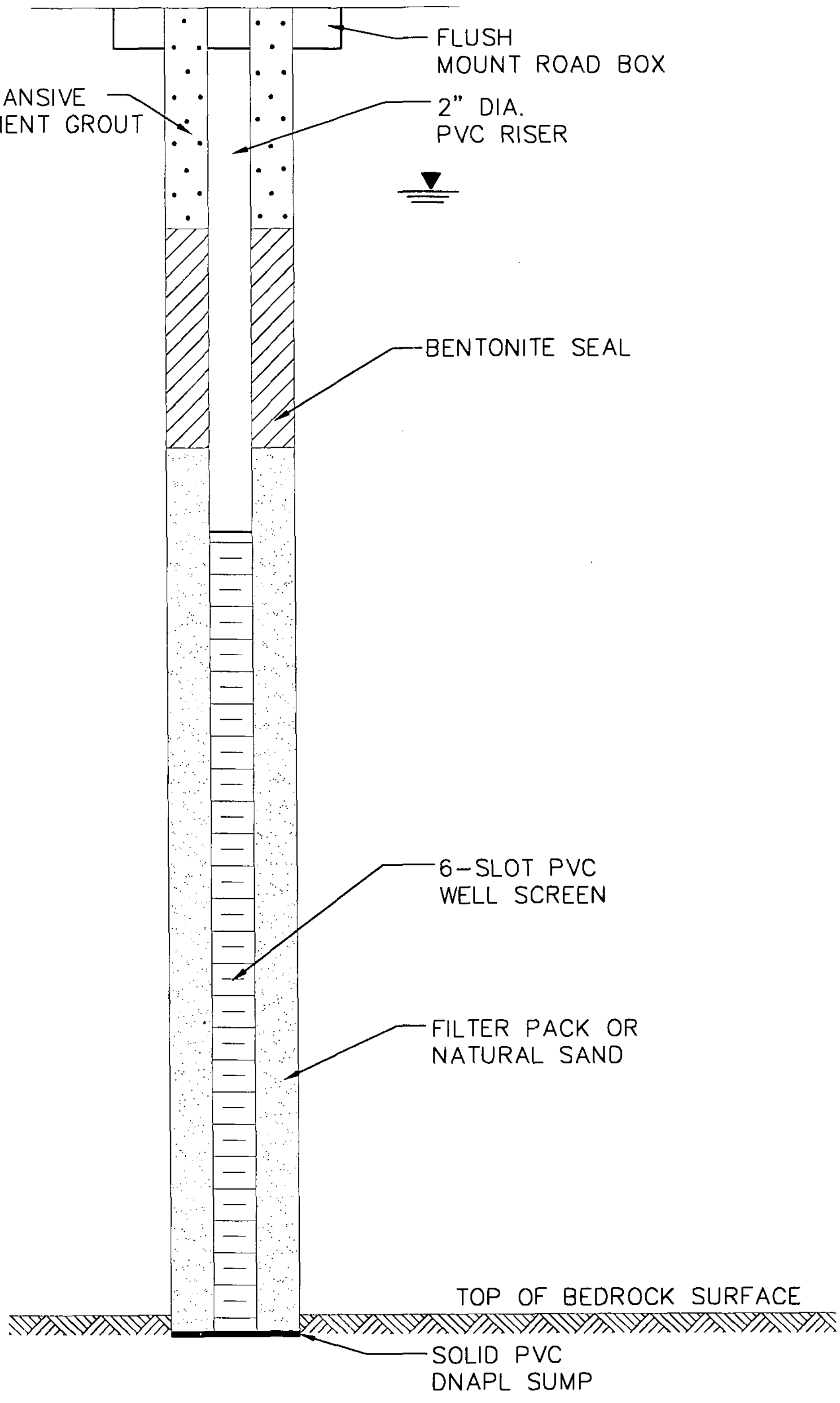
PROJECT
INVESTIGATION WORK PLAN
WARD STREET SITE
ROCHESTER, NEW YORK

TITLE OF DRAWING
INVESTIGATION LOCATION PLAN

PROJECT NO.
14052.01
DRAWING NO.
FIG. 7



PROJECT ENGINEER/ARCHITECT: P. SMITH

PROJECT MANAGER:

DRAWN BY: A. LESS

SCALE: NO SCALE

FIRST ISSUE DATE: 4/01

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PROJECT:
INVESTIGATION
WORK PLAN
WARD STREET SITE
ROCHESTER, NY

TITLE OF DRAWING:
TYPICAL OVERBURDEN
MONITORING WELL DIAGRAM

PROJECT NO. 14052.01

DRAWING NO. FIG. 8

Tables

TABLE 1
SUMMARY OF DETECTED METALS IN SOIL (mg\kg)
Ward Street Site
Rochester, NY

ANALYTES	SOIL SAMPLES				
	B-1 8' - 10'	**B-2** 2' - 4'	**B-3** 2' - 3.1'	**GP-201 & 204**	**GP-202 & 203**
Arsenic	1.57	5.56	17.56	2.33	1.96
Barium	61.6	94.5	84.1	26.6	24.1
Cadmium	2.81	2.33	7.52	3.28	2.42
Chromium	12.7	9.75	11.9	9.97	7.13
Lead	20.9	341	96.0	<10.3	<11.5
Mercury	<0.0915	1.62	<0.0793	0.584	<0.105
Selenium	<5.41	<5.29	<4.48	<0.513	<0.576
Silver	<1.08	<1.06	<8.96	<1.03	<1.15

Notes:
mg/kg = all values expressed in milligrams per kilogram (equivalent to parts per million).

TABLE 2
SUMMARY OF DETECTED VOLATILE ORGANIC COMPOUNDS IN SOIL (mg/kg)

Ward Street Site
Rochester, NY

COMPOUNDS	SOIL SAMPLES								
	B-101 8-10'	**B-104** 10-12.4'	**B-8** 6-8'	**B-9** 6-8'	**B-11** 6-8'	**B-14** 8-10'	**B-14** 18-18.9'	**B-15** 8-10'	**GP-201**
Ethylbenzene	0.1213					0.6068			0.0119
m,p-Xylene	0.0803					0.3877			
o - Xylene	0.0640				0.0151				
Isopropylbenzene	0.1260				0.0165	0.3610			
n-Propylbenzene	0.1520		15.047	9.2929	0.0633	1.7507			
1,3,5-Trimethylbenzene	0.2157		14.688	8.5163	0.0262	2.9304			
tert-Butylbenzene	0.0956		11.304	7.6374	0.1221	1.1866			
1,2,4-Trimethylbenzene	0.6526		85.819	60.687	1.0393	9.0018	0.0433		
sec-Butylbenzene	0.1153		14.997	8.3922	0.0639	0.2923		0.1871	
p-Isopropyltoluene	0.2332					0.5197			
n-Butylbenzene	0.0937		22.876	14.455	0.0500				
4-Isopropyltoluene			15.730	6.4797	0.0766				
Naphthalene				6.2554		0.1817	0.0341		
Tetrachloroethene	310 **	4.76 **				N/A	N/A	N/A	
Trichloroethene	28.23 **	N/A				N/A	N/A	N/A	

1. ** = estimated values
2. mg/kg = all values expressed in milligrams per kilogram (equivalent to parts per million).
3. N/A = Not analyzed.
4. Blank space = not reported above detection levels.

TABLE 3
SUMMARY OF DETECTED COMPOUNDS IN GROUNDWATER (mg/l)
Ward Street Site
Rochester, NY

COMPOUNDS	GROUNDWATER SAMPLES						
	MW-3	MW-5	MW-9	MW-14	MW-15	MW-101	GP-205
EPA 8021a							
Petroleum Hydrocarbons							
Benzene				0.0055			
n Butylbenzene				0.005			
sec Butylbenzene			0.0544			0.194	
tert Butylbenzene			0.0048			0.124	
Ethylbenzene			0.0598	0.0161		0.175	
Isopropylbenzene			0.0576	0.0054		0.209	
4 Isopropyltoluene			0.1399			0.385	
Naphthalene			0.114	0.0558	0.0062	1.588	
n Propylbenzene			0.143	0.0113		0.273	
Styrene			0.0045				
Toluene			0.0075				
1,2,3 Trichlorobenzene						1.166	
1,2,4 Trimethylbenzene			0.2544	0.0461	0.0064	0.221	
1,3,5 Trimethylbenzene			0.3024	0.0126		0.736	
m,p-Xylene			0.1196	0.0069			
o-Xylene			0.0577	0.0051		0.197	
MTBE							0.0023
Chlorinated Compounds							
Chloroethane			0.0266		0.0153		
cis 1,2 Dichloroethene			0.1245	0.0054	0.0556	4.077	
trans 1,2 Dichlorothene			0.0097				
1,2 Dichloropropane			0.0027				
Tetrachloroethene			0.0024			78.20	
Trichloroethene			0.0037			25.27	
Vinyl Chloride			0.0266		0.0153		
1,2 Dibromo-3-Chloropropane			0.1962		0.0862	0.814	
TPH by 310.13							
Diesel fuel	N/A	N/A	N/A	N/A	N/A	7.1 %	
Lube oil	N/A	N/A	N/A	N/A	N/A	79.4 %	
PCBs	N/A	N/A	N/A	N/A	N/A	<0.9	

Notes:
1. mg/l = milligrams/liter which is equivalent to parts per million (ppm).
2. TPH and PCBs performed on LNAPL, MW-101 only.
3. N/A = Not analyzed.

TABLE 4
PROPOSED TASK SUMMARY

Task	Description	Schedule
1. Revised Work Plan	• Submit revised Work Plan for Department review	- June 2001
2. Utility Right-of-Way (ROW) Investigations	• Compile documents, conduct boundary and topo surveys, • perform dye test, and sample floor drains	- Completed January, 2000 - July 2001 (contingent on Department approval)
3. Basement Survey	• Evaluate volatile organic vapor levels in sump water, if any	- July 2001 (contingent on Department approval)
4. Geophysical Survey	• Former gas station location on southwestern corner of Site	- Completed December 1999
5. Site Reconnaissance	• Evaluate site access for drilling	- July 2001 (contingent on Department approval)
6. Test Pit Program	• Evaluate geophysical anomalies with two test pits.	- Within two weeks after site reconnaissance and revised Work Plan approval
7. Soil Gas Survey	• Install and retrieve 15 soil vapor points along Ward Street	- Within two weeks after site reconnaissance and revised Work Plan approval
8. Borehole Installations	• 14 soil borings (10 overburden; 4 bedrock)	- Within two weeks after soil gas survey results are received
9. Soil Sampling	• One sample per test pit and boring.	- During test pit and borehole completion
10. Well Installations	• 12 wells (8 overburden; 4 bedrock)	- Immediately following borehole completion
11. LNAPL/DNAPL Checks	• LNAPL/DNAPL checks for all wells with audible interphase probe	- Prior to groundwater sampling
12. Groundwater Sampling and Water Level Measurements	• One round of sampling from all wells.	- Within two weeks of well installations
13. Hydraulic Conductivity Testing	• Slug test each new and existing well	- Within four weeks of well installations
14. Well Survey	• Survey each new well for horizontal/vertical control.	- Within four weeks of well installations
15. Final Report	• Prepare and submit Investigation Report.	- Within six months after approval of revised Work Plan

TABLE 5
PROPOSED BORING/WELL INSTALLATION SUMMARY
Investigation Work Plan
Ward Street Site
Rochester, NY

PROPOSED BORING/ WELL DESIGNATION	SCREENED INTERVAL	WELL DIAMETER (in.)	BENTONITE SEAL (ft. bgs)	SANDPACK INTERVAL (ft. bgs)	SCREENED INTERVAL (ft. bgs)	TOTAL DEPTH (ft. bgs)
B-9R / MW-9R	BEDROCK	2.0	20 - 23	23 - 30	25 - 30	30
B-15R / MW-15R	BEDROCK	2.0	20 - 23	23 - 30	25 - 30	30
B-16 / MW-16	OVERBURDEN	2.0	2 - 4	4 - 20	5 - 20	20
MW-16R	BEDROCK	2.0	20 - 23	23 - 30	25 - 30	30
B-17 / MW-17	OVERBURDEN	2.0	2 - 4	4 - 20	5 - 20	20
MW-17R	BEDROCK	2.0	20 - 23	23 - 30	25 - 30	30
B-18 / MW-18	OVERBURDEN	2.0	2 - 4	4 - 20	5 - 20	20
B-19 / MW-19	OVERBURDEN	2.0	2 - 4	4 - 20	5 - 20	20
B-20 / MW-20	OVERBURDEN	2.0	2 - 4	4 - 20	5 - 20	20
B-21 / MW-21	OVERBURDEN	2.0	2 - 4	4 - 20	5 - 20	20
B-22 / MW-22 (3)	OVERBURDEN	4.0 (4)	2 - 4	4 - 20	5 - 20	20
B-105 (3)	OVERBURDEN	na	-	-	-	12
B-106 (3)	OVERBURDEN	na	-	-	-	12
B-107 / MW-107 (3)	OVERBURDEN	1.0	4 - 6	6 - 12	7 - 12	12

Notes:
1. ft. bgs = feet below ground surface.
2. Overburden thickness/depth to rock is estimated to be approximately 20 ft. bgs.
3. The drilling equipment needed to advance borings inside Building B may not reach target depths. Borings/well depths may need to be modified based upon field conditions.
4. A four inch diameter well installation is contingent upon the ability to perform an open hole installation. If the borehole collapses, a two inch diameter well will be installed through the augers.
5. na = not applicable; borings to be backfilled at completion.

TABLE 6
PROPOSED BASEMENT, FLOOR DRAIN, SOIL VAPOR, AND SOIL ANALYTICAL SAMPLING PROGRAM

Investigation Work Plan
Ward Street Site
Rochester, NY

SAMPLE ID	LOCATION	METHOD	PARAMETERS
Basement Water Samples [(1)]			
BAW-1	basement of high rise apartment bldg.	grab	95-1 VOCs
Basement Air Samples [(2)]			
BAA-1	basement of high rise apartment bldg.	sampling pump	DOH Method 311-6 [(3)]
BAA-2	basement of high rise apartment bldg.	sampling pump	DOH Method 311-6 [(3)]
BAA-3	basement of high rise apartment bldg.	sampling pump	DOH Method 311-6 [(3)]
Floor Drain Sludge Samples			
Floor Drain Building A [(4)]	basement of building A	Grab	95-1 VOCs, 95-3 Pest/PCBs
Hydraulic Pumps Building A-1	basement of building A	Grab	95-3 Pest/PCBs
Hydraulic Pumps Building A-2	basement of building A	Grab	95-3 Pest/PCBs
Floor Drain Building B	basement of building B	Grab	95-1 VOCs, 95-3 Pest/PCBs
Soil Vapor Samples			
SV-1	west side of Ward Street	Emflux™ Sampler	VOCs by 8260[(5)]
SV-2	east side of Ward Street	Emflux™ Sampler	VOCs by 8260[(5)]
SV-3	west side of Ward Street	Emflux™ Sampler	VOCs by 8260[(5)]
SV-4	east side of Ward Street	Emflux™ Sampler	VOCs by 8260[(5)]
SV-5	west side of Ward Street	Emflux™ Sampler	VOCs by 8260[(5)]
SV-6	east side of Ward Street	Emflux™ Sampler	VOCs by 8260[(5)]
SV-7	west side of Ward Street	Emflux™ Sampler	VOCs by 8260[(5)]

TABLE 6
PROPOSED BASEMENT, FLOOR DRAIN, SOIL VAPOR, AND SOIL ANALYTICAL SAMPLING PROGRAM

Investigation Work Plan
Ward Street Site
Rochester, NY

SAMPLE ID	LOCATION	METHOD	PARAMETERS
SV-8	east side of Ward Street	Emflux™ Sampler	VOCs by 8260(5)
SV-9	west side of Ward Street	Emflux™ Sampler	VOCs by 8260(5)
SV-10	east side of Ward Street	Emflux™ Sampler	VOCs by 8260(5)
SV-11	west side of Ward Street	Emflux™ Sampler	VOCs by 8260(5)
SV-12	east side of Ward Street	Emflux™ Sampler	VOCs by 8260(5)
SV-13	west side of Ward Street	Emflux™ Sampler	VOCs by 8260(5)
SV-14	east side of Ward Street	Emflux™ Sampler	VOCs by 8260(5)
SV-15	west side of Ward Street	Emflux™ Sampler	VOCs by 8260(5)
Test Pit Soil Samples (6)			
TP-1	geophysical anaomaly #1	Grab	95-1 VOCs, 95-2 SVOCs
TP-2	geophysical anaomaly #2	Grab	95-1 VOCs, 95-2 SVOCs
Soil Boring Soil Samples			
B-9R	next to MW-9	split spoon	95-1 VOCs, 95-2 SVOCs 95-3 Pest/PCBs , TAL Metals
B-15R (7)	next to MW-15	split spoon	95-1 VOCs
B-16 (7)	west side of St. Paul street	split spoon	95-1 VOCs
B-17 (7)	south side of Ward Street	split spoon	95-1 VOCs
B-18	north of Ward Street	split spoon	95-1 VOCs, 95-2 SVOCs 95-3 Pest/PCBs , TAL Metals
B-19	south end of Cork Street	split spoon	95-1 VOCs, 95-2 SVOCs 95-3 Pest/PCBs , TAL Metals

TABLE 6
PROPOSED BASEMENT, FLOOR DRAIN, SOIL VAPOR, AND SOIL ANALYTICAL SAMPLING PROGRAM

Investigation Work Plan
Ward Street Site
Rochester, NY

SAMPLE ID	LOCATION	METHOD	PARAMETERS
B-20 (7)	alley between Cork and Emmett Street	split spoon	95-1 VOCs
B-21 (7)	betweeen buildings A and C	split spoon	95-1 VOCs
B-22	next to MW-101	Geoprobe	95-1 VOCs, 95-2 SVOCs 95-3 Pest/PCBs , TAL Metals
B-105 (7)	basement of building B	Geoprobe	95-1 VOCs
B-106 (7)	basement of building B	Geoprobe	95-1 VOCs
B-107 (7)	basement of building B	Geoprobe	95-1 VOCs
B-20 / B-21 (8)	adjacent to Building C	split spoons	95-2 SVOCs, 95-3 Pest/PCBs , TAL Metals
B-105 / B-106 / B-107 (8)	basement of building B	Geoprobe	95-2 SVOCs, 95-3 Pest/PCBs , TAL Metals
B-16 / B-17 (8)	off - site	split spoons	95-2 SVOCs, 95-3 Pest/PCBs , TAL Metals

Notes:

1. Sample collection contingent on the presence of sumps containing water.
2. Sample collection contingent upon VOC levels detected in sump water samples or elevated HNu PID measurements.
3. Parameter list contingent upon VOCs detected in sump water samples.
4. Sample collected on January 19, 2000.
5. Soil gas VOCs by EPA Method 8260 to include tetrachloroethene, trichloroethene, cis-1,2-dichloroethene, and vinyl chloride.
6. Samples will be submitted if indications of environmental imapcts are suggested by field observations.
7. Grab samples will be collected and submitted for analysis of SVOCs by ASP Method 95-2 if indications of petroleum related impacts are suggested by field observations.
8. If field observations do not suggest an environmental impact, one grab sample will be collected from one boring in each group.

TABLE 7
PROPOSED GROUNDWATER ANALYTICAL SAMPLING PROGRAM

Investigation Work Plan
Ward Street Site
Rochester, NY

SAMPLE ID	MATRIX	METHOD	ANALYSES
MW-3	groundwater	peristaltic pump	95-1 VOCs, 95-2 SVOCs [(1)]
MW-5	groundwater	peristaltic pump	95-1 VOCs, 95-2 SVOCs [(1)]
MW-9	groundwater	peristaltic pump	95-1 VOCs, 95-2 SVOCs [(1)] 95-3 Pest/PCBs , TAL Metals Inorganic Analyses[(2)]
MW-9R	groundwater	peristaltic pump	95-1 VOCs, 95-2 SVOCs Inorganic Analyses[(2)]
MW-14	groundwater	peristaltic pump	95-1 VOCs, 95-2 SVOCs [(1)]
MW-15	groundwater	peristaltic pump	95-1 VOCs, 95-2 SVOCs [(1)]
MW-15R	groundwater	peristaltic pump	95-1 VOCs, 95-2 SVOCs [(1)]
MW-16	groundwater	peristaltic pump	95-1 VOCs, 95-2 SVOCs [(1)]
MW-16R	groundwater	peristaltic pump	95-1 VOCs, 95-2 SVOCs [(1)]
MW-17	groundwater	peristaltic pump	95-1 VOCs, 95-2 SVOCs [(1)]
MW-17R	groundwater	peristaltic pump	95-1 VOCs, 95-2 SVOCs [(1)]
MW-18	groundwater	peristaltic pump	95-1 VOCs, 95-2 SVOCs [(1)]
MW-19	groundwater	peristaltic pump	95-1 VOCs, 95-2 SVOCs [(1)]
MW-20	groundwater	peristaltic pump	95-1 VOCs, 95-2 SVOCs [(1)] 95-3 Pest/PCBs , TAL Metals
MW-21	groundwater	peristaltic pump	95-1 VOCs, 95-2 SVOCs [(1)]
MW-22	groundwater	peristaltic pump	95-1 VOCs, 95-2 SVOCs [(1)] 95-3 Pest/PCBs , TAL Metals, Inorganic Analyses[(2)]
MW-101	groundwater	peristaltic pump	95-1 VOCs, 95-2 SVOCs [(1)]
MW-107	groundwater	peristaltic pump	95-1 VOCs, 95-2 SVOCs [(1)]

Notes:
1. Analysis for SVOCs will be contingent upon analytical soil results.
2. Inorganic analyses will include TOC, TDS, TSS, alkalinity, hardness, chloride, sulfate, calcium, sodium, potassium, magnesium, iron and manganese.

Appendix A

THE **SEAR-BROWN** GROUP
FULL-SERVICE DESIGN PROFESSIONALS

85 METRO PARK
ROCHESTER, NEW YORK 14623-2674

716-475-1440 FAX: 716-272-1814

August 31, 1999

Mr. Carl Hettenbaugh
Mr. Todd Caffoe
New York State Department of Environmental Conservation
6274 East Avon-Lima Road
Avon, NY 14414

RE: DEC Spill File No. 9970160 **14052.01**
Subsurface Investigation Report
North Side of Building C
Ward Street Site
Rochester, NY

Dear Carl and Todd:

Please find enclosed the Sear-Brown Group (Sear-Brown) Subsurface Investigation Report regarding the soil and groundwater found adjacent to the recently removed underground petroleum bulk storage tanks formerly located on the north side of Building C at the Ward Street Site, City of Rochester, NY.

Background

Piedmont Equipment (Piedmont) removed two former gasoline underground storage tanks (USTs) at the northwest exterior corner of Building C between June 16 – 18, 1999. Evidence of what may have been a discharge was noted and a spill report (#9970160) was called into the New York State Department of Environmental Conservation (Department) on June 16. Since it was not possible to excavate the affected soil given the proximity of the adjacent building, Piedmont and representatives of the Department, Monroe County Health Department and the City Fire Marshall concurred that a small diameter soil coring program would be conducted to assess the extent of petroleum contamination, if any.

Given the proposed construction of a building addition in this area, and the pending Voluntary Cleanup Application with the Department, it was recommended that the soil boring program originally proposed by Piedmont be expanded to evaluate for both petroleum and chlorinated volatile organic compounds. In addition, based on the history of the building, it was recommended that sets of two soil samples each be composited for analysis of semi-volatile organic compounds, PCBs, and total concentrations of the eight RCRA metals.

It was also recommended that groundwater samples be collected for analysis, involving the installation of small diameter PVC wells within the soil borings. Following receipt of soil analytical data, it was proposed that the groundwater wells be sampled for the parameters of concern identified during the soil sampling program. Sear-Brown's proposed program was verbally discussed and implemented with the concurrence of Messrs. Carl Hettenbaugh and Todd Caffoe at the Department. The findings of the Sear-Brown subsurface investigation are presented below.

Drilling and Sampling Program

A limited subsurface investigation consisting of five small-diameter soil borings (GP-201 thru GP-205) was conducted to evaluate the extent of potential contamination in the vicinity of the former tanks located on the northwest corner of Building C (Figure 1). Prior to drilling, an Underground Facilities Protective Organization (UFPO) stakeout was requested by the drilling contractor, Piedmont, to locate public underground utilities. Piedmont was contracted by Germanow-Simon to conduct the drilling and well installation program. A representative of Sear-Brown was on site to oversee the drilling program.

Soil borings were drilled using direct push methods on July 1, 1999. Prior to drilling, downhole soil probe tools were decontaminated using an Alconox and water rinse. This cleaning procedure was also used on probing and sampling tools between each boring. These decontamination activities were performed in a designated on-site area. Throughout and after the cleaning processes, direct contact between the equipment and the ground surface was not permitted.

The soil borings were advanced to a target depth of $16^{\pm}$ feet below ground surface (bgs). Continuous soil samples were collected at each soil boring location beginning at a depth of approximately 4 ft bgs. The borings were extended vertically to the estimated limits of affected soil and below the groundwater table to facilitate delineation of potential impacts.

In general, soil conditions adjacent to the former USTs included an asphaltic surface underlain by approximately 3.0 feet of fill. The fill layer consisted primarily of gray silty sand and gravel, with some brick. The fill was underlain by a native sandy till.

Soil samples were screened with a calibrated HNu photoionization detector (PID) equipped with a 10.2 eV lamp for the presence of volatile organic vapors. Specifically, portions of the soil samples were collected and placed in individual sealed containers. No elevated headspace readings above background were noted. No indications of stains or odors were observed in the soil samples.

Based upon field observations, Sear-Brown selected one soil sample from the four borings closest to the tank excavation (GP-201 thru GP-204) for analytical testing of volatile organic compounds using EPA method 8021A by a NYSDOH certified analytical laboratory. There was insufficient soil recovery from GP-205 to allow analysis of soil from this boring. Additional samples were collected from the same four borings for compositing by the laboratory into two samples and analytical testing for semi-volatile organic compounds using EPA method 8270, PCBs using EPA method 8080, and total concentrations of the eight RCRA metals using EPA methods 6010/7471.

Well Installation and Groundwater Sampling Program

Three of the six borings were completed as temporary small diameter groundwater monitoring wells using 1-inch diameter PVC well screen and riser. Each groundwater monitoring well was screened within the first water-bearing zone encountered. Based on the previous investigations of the site, the groundwater monitoring wells were installed at depths of 13 to 16 ft bgs. As shown on Table 1, water levels ranged between 8.4 and 9.5 ft bgs and suggested a westerly groundwater flow direction in this area.

Given the soil findings and with the concurrence of Messrs. Carl Hettenbaugh and Todd Caffoe of the Department, the three wells that were installed were sampled for volatile organic compounds only using EPA Method 8021A (see Figure 1). Three groundwater samples were collected from the small diameter PVC wells by peristaltic pump with new 1/4-inch high density polyethylene tubing.

Analytical Soil Results

As previously noted, four discrete samples (GP-201 through GP-204) were submitted for analysis of volatile organic compounds using EPA method 8021A. In addition, four samples were submitted to the lab and it was requested that that they be combined to form two composite samples (GP-201/GP-204 and GP-202/GP-203) for analysis of TCL semi-volatile organics using EPA method 8270, PCBs using EPA method 8080, and total concentrations of the eight RCRA metals using various EPA methods. Given its distance from the tank pit, poor recovery, and the absence of observed impacts in the field, no samples were submitted from GP-205.

As noted in Tables 2 and 3, there were no indications of significant impacts in the samples analyzed. The laboratory analytical report is presented in Appendix A.

Analytical Groundwater Results

As shown by the laboratory analytical data (Appendix B), the groundwater samples from the wells do not exhibit concentrations of volatile organic compounds above applicable standards or guidance values. The trace concentration (2.3 ug/l) of methyl tert-butyl ether (MTBE), a gasoline additive, reported in one sample (GP-205) is not suggestive of a groundwater contamination concern. No other analytes were present above their respective detection limits.

Conclusions and Recommendations

Review of the soil and groundwater data suggests that the former USTs have not adversely affected the environmental quality of the soil and groundwater on the north side of Building C. Furthermore, there is no indication of other site contamination concerns related to this area. It is proposed to backfill the excavation with flowable fill and/or clean backfill in order to allow the proposed building addition construction to proceed.

Given the findings of this investigation, we would kindly request that the Department close spill file #9970160. Should you have any questions or require further information please call.

Very truly yours,

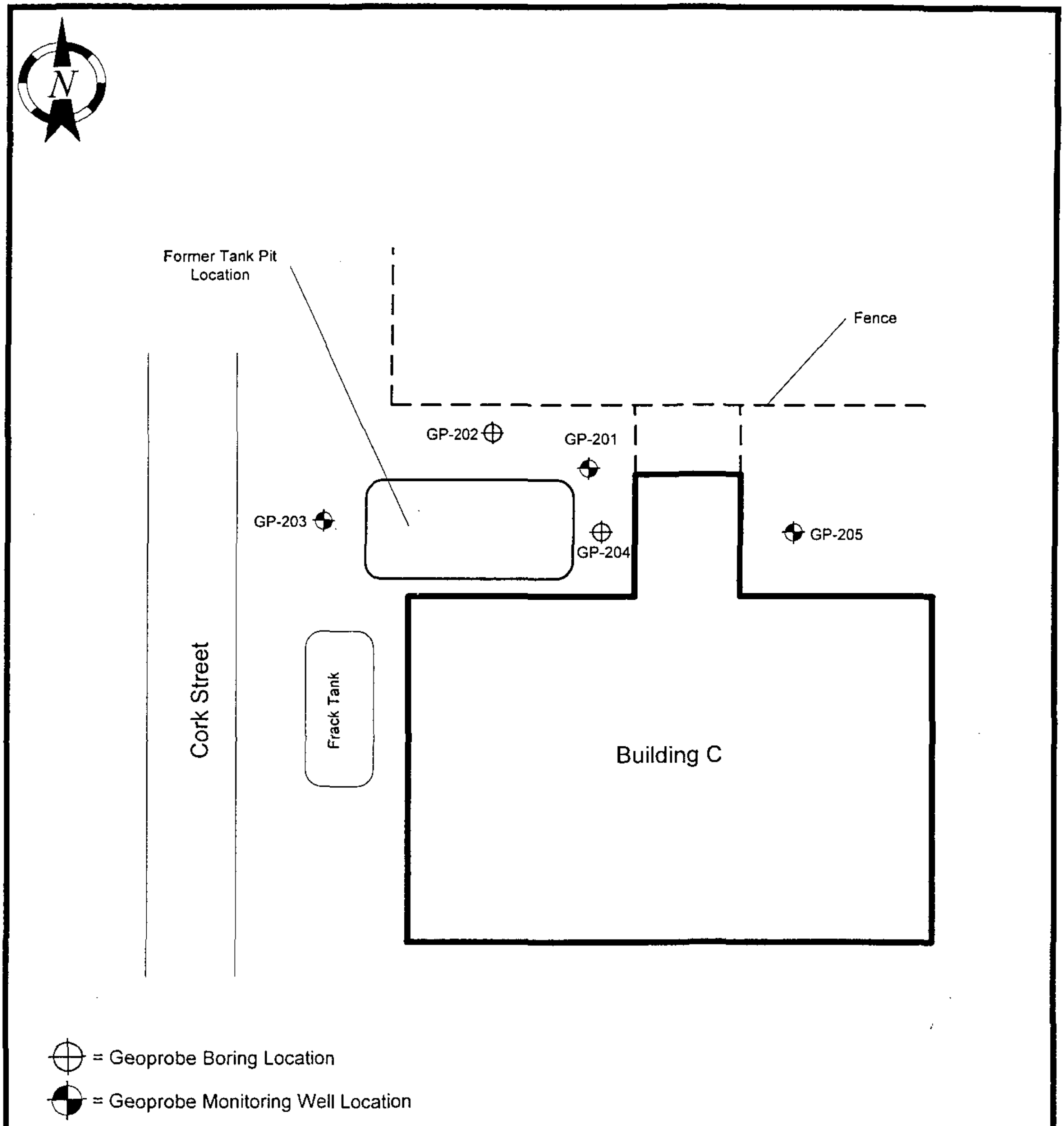
Michael P. Storonsky
Associate

Attachments: Figure 1
Tables 1-3
Appendix A: Soil Analytical Reports
Appendix B: Groundwater Analytical Reports

cc: K. Bosner w/ attachments
B. Tanenbaum, Esq. w/ attachments
T. Walsh, Esq. w/ attachments

MPS:PHS:glv:L:1405201\R0003.doc

FIGURES



THE
SEAR-BROWN
GROUP
85 Metro Park
Rochester, NY 14623
(716) 475-1440

Figure 1

Building C Tank Investigation
Ward Street Project
City of Rochester, Monroe County, New York

Geoprobe Location Plan
Scale: NTS

TABLES

TABLE 1
WELL DEVELOPMENT SUMMARY
Building C Tank Investigation
Ward Street Site
Rochester, NY

Well	Date	Time	Water Level (ft BGS)	Well Volume	pH (su)	Conductivity (umhos/cm)	Temperature (°C)
GP-205	8/2/1999		8.4				
		11:01		1	8.42	2000	22.1
				Dry After One Well Volume			
GP-203	8/2/1999		9.5				
		11:30		1	8.10	500	19.8
		11:40		2	8.08	600	22.6
		11:45		3	8.10	500	23.1
GP-201	8/2/1999		9.2				
		11:55		1	8.16	800	20.7
		12:00		2	7.94	720	20.7
		12:07		3	8.15	800	19.5

Notes:
1. su = standard units.
2. umhos/cm = micromhos per centimeter.
3. (°C) = degrees Celcius
4. NTU = Nephelometric Turbidity Units.
5. ft BGS = feet below ground surface.
6. NA = not applicable

TABLE 2
SUMMARY OF DETECTED METALS IN SOIL (mg/kg)
Building C Investigation
Ward Street Site
Rochester, NY

RCRA Metals	DEC Recommended Soil Cleanup Objective(1)	Eastern USA Background Range(1)	Soil Screening Guidance(2)		Samples	
			Ingestion	Inhalation	GP-201& 204	GP-202 & 203
Arsenic	7.5 or SB	3 - 12	0	750	2.33	1.96
Barium	300 or SB	15 - 600	5,500	690,000	26.6	24.1
Cadmium	1 / 10 *	0.1 - 1	78	1800	3.28	2.42
Chromium	10 / 50 *	1.5 - 40	390	270	9.97	7.13
Lead	SB	200 - 500 (urban)	400	400	<10.3	<11.5
Mercury	0.1	0.001 - 0.2	23	10	0.584	<0.105
Selenium	2 or SB	0.1 - 3.9	390	NA	<0.513	<0.576
Silver	SB	NA	390	NA	<1.03	<1.15

Notes:
1. NYSDEC. January 24, 1994. Determination of Soil Cleanup Objectives and Cleanup Levels, Division of Hazardous Waste Remediation, Technical and Administrative Guidance Memorandum HWR 94-4046 (Revised).
2. USEPA. July 1996. Soil Screening Guidance: Fact Sheet. Office of Solid Waste and Emergency Response. Publication 9355.4-14FSA, EPA/540/F-95/041, PB96-963501.
3. mg/kg = all values expressed in milligrams per kilogram (equivalent to parts per million).
4. SB = site background.
5. NA = not available.
6. * = existing and proposed guidance values.

TABLE 3
SUMMARY OF DETECTED ORGANIC COMPOUNDS IN SOIL (ug/kg)

Building C Investigation
Ward Street Site
Rochester, NY

Compounds	DEC Recommended Soil Cleanup Objective[(1)(2)]	Soil Samples	
		GP-201	GP-201 & 204
EPA 8021			
Ethyl benzene	5500[(1)] / 100[(2)]	11.9	N/A
EPA 8270			
Bis (2-ethylhexyl) phthalate	50000[(1)]	N/A	337

1. NYSDEC. January 24, 1994. Determination of Soil Cleanup Objectives and Cleanup Levels, Division of Hazardous Waste Remediation, Technical and Administrative Guidance Memorandum HWR 94-4046 (Revised).
2. NYSDEC. December 1992. Petroleum Contaminated Soil Guidance Policy: STARS Memo #1. Div. Of Construction Management, Bureau of Spill Prevention and Response.
3. ug/kg = all values expressed in micrograms per kilogram (equivalent to parts per billion).
4. N/A = Not Analyzed

APPENDIX A

PARADIGM
ENVIRONMENTAL
SERVICES, INC.
179 Lake Avenue Rochester, New York 14608 716-647-2530 FAX 716-647-3311

Volatile Laboratory Analysis Report For Soil/Sludge

Client:	The Sear-Brown Group	**Lab Project No.:**	99-1243
		Lab Sample No.:	4706
Client Job Site:	Germanow-Simon		
		Sample Type:	Soil
Client Job No.:	14052.01	**Date Sampled:**	07/01/99
Field Location:	GP-201	**Date Received:**	07/02/99
Field ID No.:	N/A	**Date Analyzed:**	07/13/99

VOLATILE HALOCARBONS	RESULTS (ug/Kg)	VOLATILE AROMATICS	RESULTS (ug/Kg)
Bromochloromethane	ND< 8.7	Benzene	ND< 8.7
Bromomethane	ND< 8.7	Bromobenzene	ND< 8.7
Carbon Tetrachloride	ND< 8.7	n-Butylbenzene	ND< 8.7
Chloroethane	ND< 8.7	sec-Butylbenzene	ND< 8.7
Chloromethane	ND< 8.7	tert-Butylbenzene	ND< 8.7
1,2-Dibromomethane	ND< 8.7	Chlorobenzene	ND< 8.7
Dibromomethane	ND< 8.7	2-Chlorotoluene	ND< 8.7
1,2-Dibromo-3-Chloropropane	ND< 8.7	4-Chlorotoluene	ND< 8.7
1,1-Dichloroethane	ND< 8.7	1,2-Dichlorobenzene	ND< 8.7
1,2- Dichloroethane	ND< 8.7	1,3-Dichlorobenzene	ND< 8.7
1,1-Dichloroethene	ND< 8.7	1,4-Dichlorobenzene	ND< 8.7
cis- 1,2-Dichloroethene	ND< 8.7	Ethyl Benzene	11.9
trans-1,2-Dichloroethene	ND< 8.7	Hexachlorobutadiene	ND< 8.7
1,2 - Dichloropropane	ND< 8.7	Isopropylbenzene	ND< 8.7
1,3-Dichloropropane	ND< 8.7	4-Isopropyltoluene	ND< 8.7
2,2-Dichloropropane	ND< 8.7	Naphthalene	ND< 8.7
1,1- Dichloropropene	ND< 8.7	n-Propylbenzene	ND< 8.7
cis-1,3-Dichloropropene	ND< 8.7	styrene	ND< 8.7
trans-1,3-Dichloropropene	ND< 8.7	Toluene	ND< 8.7
Methylene Chloride	ND< 21.7	1,2,3-Trichlorobenzene	ND< 8.7
1,1,1,2-Tetrachloroethane	ND< 8.7	1,2,4-Trichlorobenzene	ND< 8.7
1,1,2,2-Tetrachloroethane	ND< 8.7	1,2,4-Trimethylbenzene	ND< 8.7
Tetrachloroethene	ND< 8.7	1,3,5-Trimethylbenzene	ND< 8.7
1,1,1-Trichloroethane	ND< 8.7	m,p-xylene	ND< 8.7
1,1,2-Trichloroethane	ND< 8.7	o-Xylene	ND< 8.7
Trichloroethene	ND< 8.7		
Trichlorofluoromethane	ND< 8.7		
1,2,3-Trichloropropane	ND< 8.7		
Vinyl Chloride	ND< 8.7		
Bromodichloromethane	ND< 8.7		
Bromoform	ND< 8.7		
Chloroform	ND< 8.7		
Dibromochloromethane	ND< 8.7		

Analytical Method: EPA 8021

NYS ELAP No.: 10958

Approved By: ________________
Laboratory Director

Notes: ND denotes Not Detected

PARADIGM
ENVIRONMENTAL SERVICES, INC.

179 Lake Avenue Rochester, New York 14608 716-647-2530 FAX 716-647-3311

Volatile Laboratory Analysis Report For Soil/Sludge

Client:	The Sear-Brown Group	**Lab Project No.:**	99-1243
		Lab Sample No.:	4707
Client Job Site:	Germanow-Simon		
		Sample Type:	Soil
Client Job No.:	14052.01	**Date Sampled:**	07/01/99
Field Location:	GP-202	**Date Received:**	07/02/99
Field ID No.:	N/A	**Date Analyzed:**	07/13/99

VOLATILE HALOCARBONS	RESULTS (ug/Kg)	VOLATILE AROMATICS	RESULTS (ug/Kg)
Bromochloromethane	ND< 10.3	Benzene	ND< 10.3
Bromomethane	ND< 10.3	Bromobenzene	ND< 10.3
Carbon Tetrachloride	ND< 10.3	n-Butylbenzene	ND< 10.3
Chloroethane	ND< 10.3	sec-Butylbenzene	ND< 10.3
Chloromethane	ND< 10.3	tert-Butylbenzene	ND< 10.3
1,2-Dibromomethane	ND< 10.3	Chlorobenzene	ND< 10.3
Dibromomethane	ND< 10.3	2-Chlorotoluene	ND< 10.3
1,2-Dibromo-3-Chloropropane	ND< 10.3	4-Chlorotoluene	ND< 10.3
1,1-Dichloroethane	ND< 10.3	1,2-Dichlorobenzene	ND< 10.3
1,2- Dichloroethane	ND< 10.3	1,3-Dichlorobenzene	ND< 10.3
1,1-Dichloroethene	ND< 10.3	1,4-Dichlorobenzene	ND< 10.3
cis- 1,2-Dichloroethene	ND< 10.3	Ethyl Benzene	ND< 10.3
trans-1,2-Dichloroethene	ND< 10.3	Hexachlorobutadiene	ND< 10.3
1,2 - Dichloropropane	ND< 10.3	Isopropylbenzene	ND< 10.3
1,3-Dichloropropane	ND< 10.3	4-Isopropyltoluene	ND< 10.3
2,2-Dichloropropane	ND< 10.3	Naphthalene	ND< 10.3
1,1- Dichloropropene	ND< 10.3	n-Propylbenzene	ND< 10.3
cis-1,3-Dichloropropene	ND< 10.3	styrene	ND< 10.3
trans-1,3-Dichloropropene	ND< 10.3	Toluene	ND< 10.3
Methylene Chloride	ND< 25.7	1,2,3-Trichlorobenzene	ND< 10.3
1,1,1,2-Tetrachloroethane	ND< 10.3	1,2,4-Trichlorobenzene	ND< 10.3
1,1,2,2-Tetrachloroethane	ND< 10.3	1,2,4-Trimethylbenzene	ND< 10.3
Tetrachloroethene	ND< 10.3	1,3,5-Trimethylbenzene	ND< 10.3
1,1,1-Trichloroethane	ND< 10.3	m,p-xylene	ND< 10.3
1,1,2-Trichloroethane	ND< 10.3	o-Xylene	ND< 10.3
Trichloroethene	ND< 10.3		
Trichlorofluoromethane	ND< 10.3		
1,2,3-Trichloropropane	ND< 10.3		
Vinyl Chloride	ND< 10.3		
Bromodichloromethane	ND< 10.3		
Bromoform	ND< 10.3		
Chloroform	ND< 10.3		
Dibromochloromethane	ND< 10.3		

Analytical Method: EPA 8021

NYS ELAP No.: 10958

Approved By: ______________________
Laboratory Director

Notes: ND denotes Not Detected

PARADIGM
ENVIRONMENTAL
SERVICES, INC.

179 Lake Avenue Rochester, New York 14608 716-647-2530 FAX 716-647-3311

Volatile Laboratory Analysis Report For Soil/Sludge

Client:	The Sear-Brown Group	**Lab Project No.:**	99-1243
		Lab Sample No.:	4708
Client Job Site:	Germanow-Simon		
		Sample Type:	Soil
Client Job No.:	14052.01	**Date Sampled:**	07/01/99
Field Location:	GP-203	**Date Received:**	07/02/99
Field ID No.:	N/A	**Date Analyzed:**	07/13/99

VOLATILE HALOCARBONS	RESULTS (ug/Kg)	VOLATILE AROMATICS	RESULTS (ug/Kg)
Bromochloromethane	ND< 11.2	Benzene	ND< 11.2
Bromomethane	ND< 11.2	Bromobenzene	ND< 11.2
Carbon Tetrachloride	ND< 11.2	n-Butylbenzene	ND< 11.2
Chloroethane	ND< 11.2	sec-Butylbenzene	ND< 11.2
Chloromethane	ND< 11.2	tert-Butylbenzene	ND< 11.2
1,2-Dibromomethane	ND< 11.2	Chlorobenzene	ND< 11.2
Dibromomethane	ND< 11.2	2-Chlorotoluene	ND< 11.2
1,2-Dibromo-3-Chloropropane	ND< 11.2	4-Chlorotoluene	ND< 11.2
1,1-Dichloroethane	ND< 11.2	1,2-Dichlorobenzene	ND< 11.2
1,2- Dichloroethane	ND< 11.2	1,3-Dichlorobenzene	ND< 11.2
1,1-Dichloroethene	ND< 11.2	1,4-Dichlorobenzene	ND< 11.2
cis- 1,2-Dichloroethene	ND< 11.2	Ethyl Benzene	ND< 11.2
trans-1,2-Dichloroethene	ND< 11.2	Hexachlorobutadiene	ND< 11.2
1,2 - Dichloropropane	ND< 11.2	Isopropylbenzene	ND< 11.2
1,3-Dichloropropane	ND< 11.2	4-Isopropyltoluene	ND< 11.2
2,2-Dichloropropane	ND< 11.2	Naphthalene	ND< 11.2
1,1- Dichloropropene	ND< 11.2	n-Propylbenzene	ND< 11.2
cis-1,3-Dichloropropene	ND< 11.2	styrene	ND< 11.2
trans-1,3-Dichloropropene	ND< 11.2	Toluene	ND< 11.2
Methylene Chloride	ND< 27.9	1,2,3-Trichlorobenzene	ND< 11.2
1,1,1,2-Tetrachloroethane	ND< 11.2	1,2,4-Trichlorobenzene	ND< 11.2
1,1,2,2-Tetrachloroethane	ND< 11.2	1,2,4-Trimethylbenzene	ND< 11.2
Tetrachloroethene	ND< 11.2	1,3,5-Trimethylbenzene	ND< 11.2
1,1,1-Trichloroethane	ND< 11.2	m,p-xylene	ND< 11.2
1,1,2-Trichloroethane	ND< 11.2	o-Xylene	ND< 11.2
Trichloroethene	ND< 11.2		
Trichlorofluoromethane	ND< 11.2		
1,2,3-Trichloropropane	ND< 11.2		
Vinyl Chloride	ND< 11.2		
Bromodichloromethane	ND< 11.2		
Bromoform	ND< 11.2		
Chloroform	ND< 11.2		
Dibromochloromethane	ND< 11.2		

Analytical Method: EPA 8021 NYS ELAP No.: 10958

Approved By: ______________________
Laboratory Director

Notes: ND denotes Not Detected

PARADIGM
ENVIRONMENTAL
SERVICES, INC.

179 Lake Avenue Rochester, New York 14608 716-647-2530 FAX 716-647-3311

Volatile Laboratory Analysis Report For Soil/Sludge

Client:	The Sear-Brown Group	**Lab Project No.:**	99-1243
		Lab Sample No.:	4709
Client Job Site:	Germanow-Simon		
		Sample Type:	Soil
Client Job No.:	14052.01	**Date Sampled:**	07/01/99
Field Location:	GP-204	**Date Received:**	07/02/99
Field ID No.:	N/A	**Date Analyzed:**	07/13/99

VOLATILE HALOCARBONS	RESULTS (ug/Kg)	VOLATILE AROMATICS	RESULTS (ug/Kg)
Bromochloromethane	ND< 8.5	Benzene	ND< 8.5
Bromomethane	ND< 8.5	Bromobenzene	ND< 8.5
Carbon Tetrachloride	ND< 8.5	n-Butylbenzene	ND< 8.5
Chloroethane	ND< 8.5	sec-Butylbenzene	ND< 8.5
Chloromethane	ND< 8.5	tert-Butylbenzene	ND< 8.5
1,2-Dibromomethane	ND< 8.5	Chlorobenzene	ND< 8.5
Dibromomethane	ND< 8.5	2-Chlorotoluene	ND< 8.5
1,2-Dibromo-3-Chloropropane	ND< 8.5	4-Chlorotoluene	ND< 8.5
1,1-Dichloroethane	ND< 8.5	1,2-Dichlorobenzene	ND< 8.5
1,2- Dichloroethane	ND< 8.5	1,3-Dichlorobenzene	ND< 8.5
1,1-Dichloroethene	ND< 8.5	1,4-Dichlorobenzene	ND< 8.5
cis- 1,2-Dichloroethene	ND< 8.5	Ethyl Benzene	ND< 8.5
trans-1,2-Dichloroethene	ND< 8.5	Hexachlorobutadiene	ND< 8.5
1,2 - Dichloropropane	ND< 8.5	Isopropylbenzene	ND< 8.5
1,3-Dichloropropane	ND< 8.5	4-Isopropyltoluene	ND< 8.5
2,2-Dichloropropane	ND< 8.5	Naphthalene	ND< 8.5
1,1- Dichloropropene	ND< 8.5	n-Propylbenzene	ND< 8.5
cis-1,3-Dichloropropene	ND< 8.5	styrene	ND< 8.5
trans-1,3-Dichloropropene	ND< 8.5	Toluene	ND< 8.5
Methylene Chloride	ND< 21.3	1,2,3-Trichlorobenzene	ND< 8.5
1,1,1,2-Tetrachloroethane	ND< 8.5	1,2,4-Trichlorobenzene	ND< 8.5
1,1,2,2-Tetrachloroethane	ND< 8.5	1,2,4-Trimethylbenzene	ND< 8.5
Tetrachloroethene	ND< 8.5	1,3,5-Trimethylbenzene	ND< 8.5
1,1,1-Trichloroethane	ND< 8.5	m,p-xylene	ND< 8.5
1,1,2-Trichloroethane	ND< 8.5	o-Xylene	ND< 8.5
Trichloroethene	ND< 8.5		
Trichlorofluoromethane	ND< 8.5		
1,2,3-Trichloropropane	ND< 8.5		
Vinyl Chloride	ND< 8.5		
Bromodichloromethane	ND< 8.5		
Bromoform	ND< 8.5		
Chloroform	ND< 8.5		
Dibromochloromethane	ND< 8.5		

Analytical Method: EPA 8021

NYS ELAP No.: 10958

Approved By: [signature]
Laboratory Director

Notes: ND denotes Not Detected

PARADIGM

ENVIRONMENTAL SERVICES, INC.

179 Lake Avenue, Rochester, New York 14608 (716) 647-2530 FAX (716) 647-3311

SEMI-VOLATILES LABORATORY REPORT FOR SOIL/SOLIDS

Client:	**Sear-Brown Group**	**Lab Project No.:**	99-1243
Client Job Site:	Germanow - Simon	**Lab Sample No.:**	4704
		Sample Type:	Soil
Client Job No.:	14052.01	**Sample Date:**	07/01/99
Field Location:	GP-201, GP-204	**Date Received:**	07/02/99
Field ID No.:	N/A	**Date Analyzed:**	07/08/99

COMPOUND	RESULT (ug/Kg)	COMPOUND	RESULT (ug/Kg)
Benzyl alcohol	ND< 790	2,4-Dinitrophenol	ND< 316
Bis (2-chloroethyl) ether	ND< 316	2,4-Dinitrotoluene	ND< 316
Bis (2-chloroisopropyl) ether	ND< 316	2,6-Dinitrotoluene	ND< 316
2-Chlorophenol	ND< 316	Fluorene	ND< 316
1,3-Dichlorobenzene	ND< 316	Hexachlorocyclopentadiene	ND< 316
1,4-Dichlorobenzene	ND< 316	2-Nitroaniline	ND< 790
1,2-Dichlorobenzene	ND< 316	3-Nitroaniline	ND< 790
Hexachloroethane	ND< 316	4-Nitroaniline	ND< 790
2-Methylphenol	ND< 316	4-Nitrophenol	ND< 790
4-Methylphenol	ND< 316	2,4,6-Trichlorophenol	ND< 316
N-Nitrosodimethylamine	ND< 316	2,4,5-Trichlorophenol	ND< 790
N-Nitroso-di-n-propylamine	ND< 316	4-Bromophenyl phenyl ether	ND< 316
Phenol	ND< 316	Di-n-butyl phthalate	ND< 316
Benzoic acid	ND< 790	4,6-Dinitro-2-methylphenol	ND< 790
Bis (2-chloroethoxy) methane	ND< 316	Fluoranthene	ND< 316
4-Chloroaniline	ND< 316	Hexachlorobenzene	ND< 316
4-Chloro-3-methylphenol	ND< 316	N-Nitrosodiphenylamine	ND< 316
2,4-Dichlorophenol	ND< 316	Pentachlorophenol	ND< 790
2,6-Dichlorophenol	ND< 316	Anthracene	ND< 316
2,4-Dimethylphenol	ND< 316	Phenanthrene	ND< 316
Hexachlorobutadiene	ND< 316	Benzidine	ND< 790
Isophorone	ND< 316	Benzo (a) anthracene	ND< 316
2-Methylnapthalene	ND< 316	Bis (2-ethylhexyl) phthalate	337
Naphthalene	ND< 316	Butylbenzylphthalate	ND< 316
Nitrobenzene	ND< 316	Chrysene	ND< 316
2-Nitrophenol	ND< 316	3,3'-Dichlorobenzidine	ND< 316
1,2,4-Trichlorobenzene	ND< 316	Pyrene	ND< 316
2-Chloronaphthalene	ND< 316	Benzo (b) fluoranthene	ND< 316
Acenaphthene	ND< 316	Benzo (k) fluoranthene	ND< 316
Acenapthylene	ND< 316	Benzo (g,h,i) perylene	ND< 316
4-Chlorophenyl phenyl ether	ND< 316	Benzo (a) pyrene	ND< 316
Dibenzofuran	ND< 316	Dibenz (a,h) anthracene	ND< 316
Diethyl phthalate	ND< 316	Di-n-octylphthalate	ND< 316
Dimethyl phthalate	ND< 790	Indeno (1,2,3-cd) pyrene	ND< 316

Analytical Method: EPA 8270

ELAP ID No: 10958

Comments: ND denotes Not Detected

Approved By: ____________

Laboratory Director

991243S1.XLS

PARADIGM

ENVIRONMENTAL SERVICES, INC.

179 Lake Avenue, Rochester, New York 14608 (716) 647-2530 FAX (716) 647-3311

SEMI-VOLATILES LABORATORY REPORT FOR SOIL/SOLIDS

Client:	**Sear-Brown Group**	**Lab Project No.:**	99-1243
Client Job Site:	Germanow - Simon	**Lab Sample No.:**	4705
		Sample Type:	Soil
Client Job No.:	14052.01	**Sample Date:**	07/01/99
Field Location:	GP-202, GP-203	**Date Received:**	07/02/99
Field ID No.:	N/A	**Date Analyzed:**	07/08/99

COMPOUND	RESULT (ug/Kg)	COMPOUND	RESULT (ug/Kg)
Benzyl alcohol	ND< 844	2,4-Dinitrophenol	ND< 338
Bis (2-chloroethyl) ether	ND< 338	2,4-Dinitrotoluene	ND< 338
Bis (2-chloroisopropyl) ether	ND< 338	2,6-Dinitrotoluene	ND< 338
2-Chlorophenol	ND< 338	Fluorene	ND< 338
1,3-Dichlorobenzene	ND< 338	Hexachlorocyclopentadiene	ND< 338
1,4-Dichlorobenzene	ND< 338	2-Nitroaniline	ND< 844
1,2-Dichlorobenzene	ND< 338	3-Nitroaniline	ND< 844
Hexachloroethane	ND< 338	4-Nitroaniline	ND< 844
2-Methylphenol	ND< 338	4-Nitrophenol	ND< 844
4-Methylphenol	ND< 338	2,4,6-Trichlorophenol	ND< 338
N-Nitrosodimethylamine	ND< 338	2,4,5-Trichlorophenol	ND< 844
N-Nitroso-di-n-propylamine	ND< 338	4-Bromophenyl phenyl ether	ND< 338
Phenol	ND< 338	Di-n-butyl phthalate	ND< 338
Benzoic acid	ND< 844	4,6-Dinitro-2-methylphenol	ND< 844
Bis (2-chloroethoxy) methane	ND< 338	Fluoranthene	ND< 338
4-Chloroaniline	ND< 338	Hexachlorobenzene	ND< 338
4-Chloro-3-methylphenol	ND< 338	N-Nitrosodiphenylamine	ND< 338
2,4-Dichlorophenol	ND< 338	Pentachlorophenol	ND< 844
2,6-Dichlorophenol	ND< 338	Anthracene	ND< 338
2,4-Dimethylphenol	ND< 338	Phenanthrene	ND< 338
Hexachlorobutadiene	ND< 338	Benzidine	ND< 844
Isophorone	ND< 338	Benzo (a) anthracene	ND< 338
2-Methylnapthalene	ND< 338	Bis (2-ethylhexyl) phthalate	ND< 338
Naphthalene	ND< 338	Butylbenzylphthalate	ND< 338
Nitrobenzene	ND< 338	Chrysene	ND< 338
2-Nitrophenol	ND< 338	3,3'-Dichlorobenzidine	ND< 338
1,2,4-Trichlorobenzene	ND< 338	Pyrene	ND< 338
2-Chloronaphthalene	ND< 338	Benzo (b) fluoranthene	ND< 338
Acenaphthene	ND< 338	Benzo (k) fluoranthene	ND< 338
Acenapthylene	ND< 338	Benzo (g,h,i) perylene	ND< 338
4-Chlorophenyl phenyl ether	ND< 338	Benzo (a) pyrene	ND< 338
Dibenzofuran	ND< 338	Dibenz (a,h) anthracene	ND< 338
Diethyl phthalate	ND< 338	Di-n-octylphthalate	ND< 338
Dimethyl phthalate	ND< 844	Indeno (1,2,3-cd) pyrene	ND< 338

Analytical Method: EPA 8270 **ELAP ID No: 10958**

Comments: ND denotes Not Detected

Approved By: ____________________
Laboratory Director

PARADIGM
Environmental
Services, Inc.
179 Lake Avenue Rochester, New York 14608 716-647-2530 FAX 716- 647-3311

Polychlorinated Biphenyls Laboratory Analysis Report For Soil/Sludge

Client:	Sear-Brown Group	**Lab Project No.:**	99-1243
		Lab Sample No.:	4704
Client Job Site:	Germanow - Simon	**Sample Type:**	Soil
Client Job No.:	14052.01	**Date Sampled:**	07/01/99
Field Location:	GP-201, GP-204	**Date Received:**	07/02/99
Field ID No:	N/A	**Date Analyzed:**	07/09/99

Polychlorinated Biphenyl	Result (mg/Kg)	Reporting Limit (mg/Kg)
PCB 1016	ND	0.43
PCB 1221	ND	0.43
PCB 1232	ND	0.43
PCB 1242	ND	0.43
PCB 1248	ND	0.43
PCB 1254	ND	0.43
PCB 1260	ND	0.43

Analytical Method: EPA 8080 ELAP ID No.: 10958

Comments: ND denotes Not Detected.

Approved By: ______________
Laboratory Director

File ID: 991243P1.XLS

PARADIGM
Environmental
Services, Inc.
179 Lake Avenue Rochester, New York 14608 716-647-2530 FAX 716- 647-3311

Polychlorinated Biphenyls Laboratory Analysis Report For Soil/Sludge

Client:	**Sear-Brown Group**	**Lab Project No.:**	99-1243
		Lab Sample No.:	4705
Client Job Site:	Germanow - Simon	**Sample Type:**	Soil
Client Job No.:	14052.01		
		Date Sampled:	07/01/99
Field Location:	GP-202, GP-203	**Date Received:**	07/02/99
Field ID No:	N/A	**Date Analyzed:**	07/09/99

Polychlorinated Biphenyl	Result (mg/Kg)	Reporting Limit (mg/Kg)
PCB 1016	ND	0.53
PCB 1221	ND	0.53
PCB 1232	ND	0.53
PCB 1242	ND	0.53
PCB 1248	ND	0.53
PCB 1254	ND	0.53
PCB 1260	ND	0.53

Analytical Method: EPA 8080 ELAP ID No.: 10958

Comments: ND denotes Not Detected.

Approved By: ______________________
Laboratory Director

File ID: 991243P2.XLS

PARADIGM
Environmental Services, Inc.
179 Lake Avenue Rochester, New York 14608 716-647-2530 FAX 716- 647-3311

Client: Sear Brown

Client Job Site: Germanow-Simon

Client Job No.: 14052-01

Field Location: GP-201 + 204
Field ID No.: N/A

Lab Project No.: 99-1243
Lab Sample No.: 4704

Sample Type: Soil

Date Sampled: 07/01/1999
Date Received: 07/02/1999

Parameter	Date Analyzed	Analytical Method	Result (mg/kg)
Arsenic	07/06/1999	SW846 7060	2.33
Barium	07/07/1999	SW846 6010	26.6
Cadmium	07/07/1999	SW846 6010	3.28
Chromium	07/07/1999	SW846 6010	9.97
Lead	07/07/1999	SW846 6010	<10.3
Mercury	07/07/1999	SW846 7471	0.584
Selenium	07/07/1999	SW846 7740	<0.513
Silver	07/07/1999	SW846 6010	<1.03

ELAP ID No.:10958

Comments:

Approved By: ______________________
Laboratory Director

File ID: 991243p1

PARADIGM
Environmental Services, Inc. 179 Lake Avenue Rochester, New York 14608 716-647-2530 FAX 716- 647-3311

Client: Sear Brown

Client Job Site: Germanow-Simon

Client Job No.: 14052-01

Field Location: GP-202 + 203
Field ID No.: N/A

Lab Project No.: 99-1243
Lab Sample No.: 4705

Sample Type: Soil

Date Sampled: 07/01/1999
Date Received: 07/02/1999

Parameter	Date Analyzed	Analytical Method	Result (mg/kg)
Arsenic	07/06/1999	SW846 7060	1.96
Barium	07/07/1999	SW846 6010	24.1
Cadmium	07/07/1999	SW846 6010	2.42
Chromium	07/07/1999	SW846 6010	7.13
Lead	07/07/1999	SW846 6010	<11.5
Mercury	07/07/1999	SW846 7471	<0.105
Selenium	07/07/1999	SW846 7740	<0.576
Silver	07/07/1999	SW846 6010	<1.15

ELAP ID No.:10958

Comments:

Approved By: ______________
Laboratory Director

File ID: 991243p2

PARADIGM ENVIRONMENTAL SERVICES, INC.
179 Lake Avenue
Rochester, NY 14608
(716) 647-2530 • (800) 724-1997
FAX (716) 647-3311

CHAIN OF CUSTODY

REPORT TO:		INVOICE TO:		LAB PROJECT #
COMPANY: Sear-Brown Group		COMPANY		99-1243
ADDRESS: 85 Metro Park		ADDRESS		
CITY: Rochester	STATE: NY ZIP: 14623	CITY	STATE ZIP	P.O. # 14052.01
ATT.: Mike Storonsky	PHONE#: 475-1440	ATT.	PHONE#	
	FAX#: 424-5951	FAX#		☐ ADDENDUM

PROJECT NAME/SITE NAME: Germanow-Simon

COMMENTS: Quotation # MS 062599 A

PROJECT #: 14052.01

TURN AROUND TIME (WORKING DAYS): ☐ ONE ☐ THREE ☒ FIVE(STD) ☐ OTHER

REPRESENTATIVE:

	DATE	TIME	COMPOSITE	GRAB	SAMPLE LOCATION/FIELD ID	MATRIX	NUMBER CONTAINERS	RCRA Metals	PCBs	TCL Acid Ext.	Herbicides	8021A VOC	REMARKS	PARADIGM LAB SAMPLE NUMBER	ANALYTICAL COSTS
1	7-1-99	10:15	X		GP-201	S	1	X	X	X			Composite these 2 samples	4704	
2	7-1-99	14:50			GP-204	S	1								
3															
4	7-1-99	11:25	X		GP-202	S	1	X	X	X			Composite these 2 samples	4705	
5	7-1-99	13:45			GP-203	S	1								
6															
7															
8	7-1-99	10:15		X	GP-201	S	1					X		4706	
9	7-1-99	11:25		X	GP-202	S	1					X		4707	
10	7-1-99	13:45		X	GP-203	S	1					X		4708	
11	7-1-99	14:50		X	GP-204	S	1					X		4709	
12															

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	DATE/TIME	SAMPLE CONDITION	CHECK #	TOTAL COST
[signature]	7-2-99 9:45	[signature]	7-2-99 9:45			
RELINQUISHED BY: [signature]	7-2-99 12:37	RECEIVED BY: [signature]	7/2/99 12:37	CARRIER COMPANY	AIR BILL NO.	P.I.F
RELINQUISHED BY:	DATE/TIME	RECEIVED @ LAB BY: [signature]	DATE/TIME 7/2/99 @ 13:30	CARRIER PHONE #	DATE RESULTS REPORTED BY:	DATE/TIME

WHITE COPY-SAMPLE YELLOW COPY-FILE PINK COPY-RELINQUISHER

APPENDIX B

PARADIGM
ENVIRONMENTAL
SERVICES, INC.

179 Lake Avenue Rochester, New York 14608 716-647-2530 FAX 716-647-3311

Volatile Laboratory Analysis Report

Client:	The Sear-Brown Group	**Lab Project No.:**	99-1453
		Lab Sample No.:	5263
Client Job Site:	Building C		
		Sample Type:	Water
Client Job No.:	14052	**Date Sampled:**	08/02/99
Field Location:	GP-201	**Date Received:**	08/02/99
Field ID No.:	N/A	**Date Analyzed:**	08/03/99

VOLATILE HALOCARBONS	RESULTS (ug/L)	VOLATILE AROMATICS	RESULTS (ug/L)
Bromochloromethane	ND< 2.0	Benzene	ND< 2.0
Bromomethane	ND< 2.0	Bromobenzene	ND< 2.0
Carbon Tetrachloride	ND< 2.0	n-Butylbenzene	ND< 2.0
Chloroethane	ND< 2.0	sec-Butylbenzene	ND< 2.0
Chloromethane	ND< 2.0	tert-Butylbenzene	ND< 2.0
1,2-Dibromomethane	ND< 2.0	Chlorobenzene	ND< 2.0
Dibromomethane	ND< 2.0	2-Chlorotoluene	ND< 2.0
1,2-Dibromo-3-Chloropropane	ND< 2.0	4-Chlorotoluene	ND< 2.0
1,1-Dichloroethane	ND< 2.0	1,2-Dichlorobenzene	ND< 2.0
1,2- Dichloroethane	ND< 2.0	1,3-Dichlorobenzene	ND< 2.0
1,1-Dichloroethene	ND< 2.0	1,4-Dichlorobenzene	ND< 2.0
cis- 1,2-Dichloroethene	ND< 2.0	Ethyl Benzene	ND< 2.0
trans-1,2-Dichloroethene	ND< 2.0	Hexachlorobutadiene	ND< 2.0
1,2 - Dichloropropane	ND< 2.0	Isopropylbenzene	ND< 2.0
1,3-Dichloropropane	ND< 2.0	4-Isopropyltoluene	ND< 2.0
2,2-Dichloropropane	ND< 2.0	Naphthalene	ND< 5.0
1,1- Dichloropropene	ND< 2.0	n-Propylbenzene	ND< 2.0
cis-1,3-Dichloropropene	ND< 2.0	styrene	ND< 2.0
trans-1,3-Dichloropropene	ND< 2.0	Toluene	ND< 2.0
Methylene Chloride	ND< 5.0	1,2,3-Trichlorobenzene	ND< 2.0
1,1,1,2-Tetrachloroethane	ND< 2.0	1,2,4-Trichlorobenzene	ND< 2.0
1,1,2,2-Tetrachloroethane	ND< 2.0	1,2,4-Trimethylbenzene	ND< 2.0
Tetrachloroethene	ND< 2.0	1,3,5-Trimethylbenzene	ND< 2.0
1,1,1-Trichloroethane	ND< 2.0	m,p-xylene	ND< 2.0
1,1,2-Trichloroethane	ND< 2.0	o-Xylene	ND< 2.0
Trichloroethene	ND< 2.0		
Trichlorofluoromethane	ND< 2.0	Methyl tert-butyl Ether	ND< 2.0
1,2,3-Trichloropropane	ND< 2.0		
Vinyl Chloride	ND< 2.0		
Bromodichloromethane	ND< 2.0		
Bromoform	ND< 2.0		
Chloroform	ND< 2.0		
Dibromochloromethane	ND< 2.0		

EPA Method 8021A

NYS ELAP No.: 10958

Approved By: ______________________
Laboratory Director

Notes: ND denotes Not Detected

PARADIGM
ENVIRONMENTAL
SERVICES, INC.

179 Lake Avenue Rochester, New York 14608 716-647-2530 FAX 716-647-3311

Volatile Laboratory Analysis Report

Client:	The Sear-Brown Group	**Lab Project No.:**	99-1453
		Lab Sample No.:	5262
Client Job Site:	Building C		
		Sample Type:	Water
Client Job No.:	14052	**Date Sampled:**	08/02/99
Field Location:	GP-203	**Date Received:**	08/02/99
Field ID No.:	N/A	**Date Analyzed:**	08/03/99

VOLATILE HALOCARBONS	RESULTS (ug/L)	VOLATILE AROMATICS	RESULTS (ug/L)
Bromochloromethane	ND< 2.0	Benzene	ND< 2.0
Bromomethane	ND< 2.0	Bromobenzene	ND< 2.0
Carbon Tetrachloride	ND< 2.0	n-Butylbenzene	ND< 2.0
Chloroethane	ND< 2.0	sec-Butylbenzene	ND< 2.0
Chloromethane	ND< 2.0	tert-Butylbenzene	ND< 2.0
1,2-Dibromomethane	ND< 2.0	Chlorobenzene	ND< 2.0
Dibromomethane	ND< 2.0	2-Chlorotoluene	ND< 2.0
1,2-Dibromo-3-Chloropropane	ND< 2.0	4-Chlorotoluene	ND< 2.0
1,1-Dichloroethane	ND< 2.0	1,2-Dichlorobenzene	ND< 2.0
1,2- Dichloroethane	ND< 2.0	1,3-Dichlorobenzene	ND< 2.0
1,1-Dichloroethene	ND< 2.0	1,4-Dichlorobenzene	ND< 2.0
cis- 1,2-Dichloroethene	ND< 2.0	Ethyl Benzene	ND< 2.0
trans-1,2-Dichloroethene	ND< 2.0	Hexachlorobutadiene	ND< 2.0
1,2 - Dichloropropane	ND< 2.0	Isopropylbenzene	ND< 2.0
1,3-Dichloropropane	ND< 2.0	4-Isopropyltoluene	ND< 2.0
2,2-Dichloropropane	ND< 2.0	Naphthalene	ND< 5.0
1,1- Dichloropropene	ND< 2.0	n-Propylbenzene	ND< 2.0
cis-1,3-Dichloropropene	ND< 2.0	styrene	ND< 2.0
trans-1,3-Dichloropropene	ND< 2.0	Toluene	ND< 2.0
Methylene Chloride	ND< 5.0	1,2,3-Trichlorobenzene	ND< 2.0
1,1,1,2-Tetrachloroethane	ND< 2.0	1,2,4-Trichlorobenzene	ND< 2.0
1,1,2,2-Tetrachloroethane	ND< 2.0	1,2,4-Trimethylbenzene	ND< 2.0
Tetrachloroethene	ND< 2.0	1,3,5-Trimethylbenzene	ND< 2.0
1,1,1-Trichloroethane	ND< 2.0	m,p-xylene	ND< 2.0
1,1,2-Trichloroethane	ND< 2.0	o-Xylene	ND< 2.0
Trichloroethene	ND< 2.0		
Trichlorofluoromethane	ND< 2.0	Methyl tert-butyl Ether	ND< 2.0
1,2,3-Trichloropropane	ND< 2.0		
Vinyl Chloride	ND< 2.0		
Bromodichloromethane	ND< 2.0		
Bromoform	ND< 2.0		
Chloroform	ND< 2.0		
Dibromochloromethane	ND< 2.0		

EPA Method 8021A

NYS ELAP No.: 10958

Approved By: ____________________
Laboratory Director

Notes: ND denotes Not Detected

PARADIGM ENVIRONMENTAL SERVICES, INC.

179 Lake Avenue Rochester, New York 14608 716-647-2530 FAX 716-647-3311

Volatile Laboratory Analysis Report

Client:	The Sear-Brown Group	**Lab Project No.:**	99-1453
		Lab Sample No.:	5261
Client Job Site:	Building C		
		Sample Type:	Water
Client Job No.:	14052	**Date Sampled:**	08/02/99
Field Location:	GP-205	**Date Received:**	08/02/99
Field ID No.:	N/A	**Date Analyzed:**	08/03/99

VOLATILE HALOCARBONS	RESULTS (ug/L)	VOLATILE AROMATICS	RESULTS (ug/L)
Bromochloromethane	ND< 2.0	Benzene	ND< 2.0
Bromomethane	ND< 2.0	Bromobenzene	ND< 2.0
Carbon Tetrachloride	ND< 2.0	n-Butylbenzene	ND< 2.0
Chloroethane	ND< 2.0	sec-Butylbenzene	ND< 2.0
Chloromethane	ND< 2.0	tert-Butylbenzene	ND< 2.0
1,2-Dibromomethane	ND< 2.0	Chlorobenzene	ND< 2.0
Dibromomethane	ND< 2.0	2-Chlorotoluene	ND< 2.0
1,2-Dibromo-3-Chloropropane	ND< 2.0	4-Chlorotoluene	ND< 2.0
1,1-Dichloroethane	ND< 2.0	1,2-Dichlorobenzene	ND< 2.0
1,2- Dichloroethane	ND< 2.0	1,3-Dichlorobenzene	ND< 2.0
1,1-Dichloroethene	ND< 2.0	1,4-Dichlorobenzene	ND< 2.0
cis- 1,2-Dichloroethene	ND< 2.0	Ethyl Benzene	ND< 2.0
trans-1,2-Dichloroethene	ND< 2.0	Hexachlorobutadiene	ND< 2.0
1,2 - Dichloropropane	ND< 2.0	Isopropylbenzene	ND< 2.0
1,3-Dichloropropane	ND< 2.0	4-Isopropyltoluene	ND< 2.0
2,2-Dichloropropane	ND< 2.0	Naphthalene	ND< 5.0
1,1- Dichloropropene	ND< 2.0	n-Propylbenzene	ND< 2.0
cis-1,3-Dichloropropene	ND< 2.0	styrene	ND< 2.0
trans-1,3-Dichloropropene	ND< 2.0	Toluene	ND< 2.0
Methylene Chloride	ND< 5.0	1,2,3-Trichlorobenzene	ND< 2.0
1,1,1,2-Tetrachloroethane	ND< 2.0	1,2,4-Trichlorobenzene	ND< 2.0
1,1,2,2-Tetrachloroethane	ND< 2.0	1,2,4-Trimethylbenzene	ND< 2.0
Tetrachloroethene	ND< 2.0	1,3,5-Trimethylbenzene	ND< 2.0
1,1,1-Trichloroethane	ND< 2.0	m,p-xylene	ND< 2.0
1,1,2-Trichloroethane	ND< 2.0	o-Xylene	ND< 2.0
Trichloroethene	ND< 2.0		
Trichlorofluoromethane	ND< 2.0	Methyl tert-butyl Ether	2.3
1,2,3-Trichloropropane	ND< 2.0		
Vinyl Chloride	ND< 2.0		
Bromodichloromethane	ND< 2.0		
Bromoform	ND< 2.0		
Chloroform	ND< 2.0		
Dibromochloromethane	ND< 2.0		

EPA Method 8021A

NYS ELAP No.: 10958

Approved By: ____________________
Laboratory Director

Notes: ND denotes Not Detected

PARADIGM ENVIRONMENTAL SERVICES, INC.
179 Lake Avenue
Rochester, NY 14608
(716) 647-2530 • (800) 724-1997
FAX (716) 647-3311

CHAIN OF CUSTODY

REPORT TO:		INVOICE TO:		LAB PROJECT #
COMPANY The Sear-Brown Group		COMPANY ~same		99-1453
ADDRESS 85 Metro Park		ADDRESS		
CITY Rochester	STATE NY ZIP 14623	CITY	STATE ZIP	P.O. #
ATT. P. Smith	PHONE# 475-1440	ATT.	PHONE#	
	FAX# 424-5951	FAX#		☐ ADDENDUM

PROJECT NAME/SITE NAME: Building C

PROJECT #: 14052.01

COMMENTS:

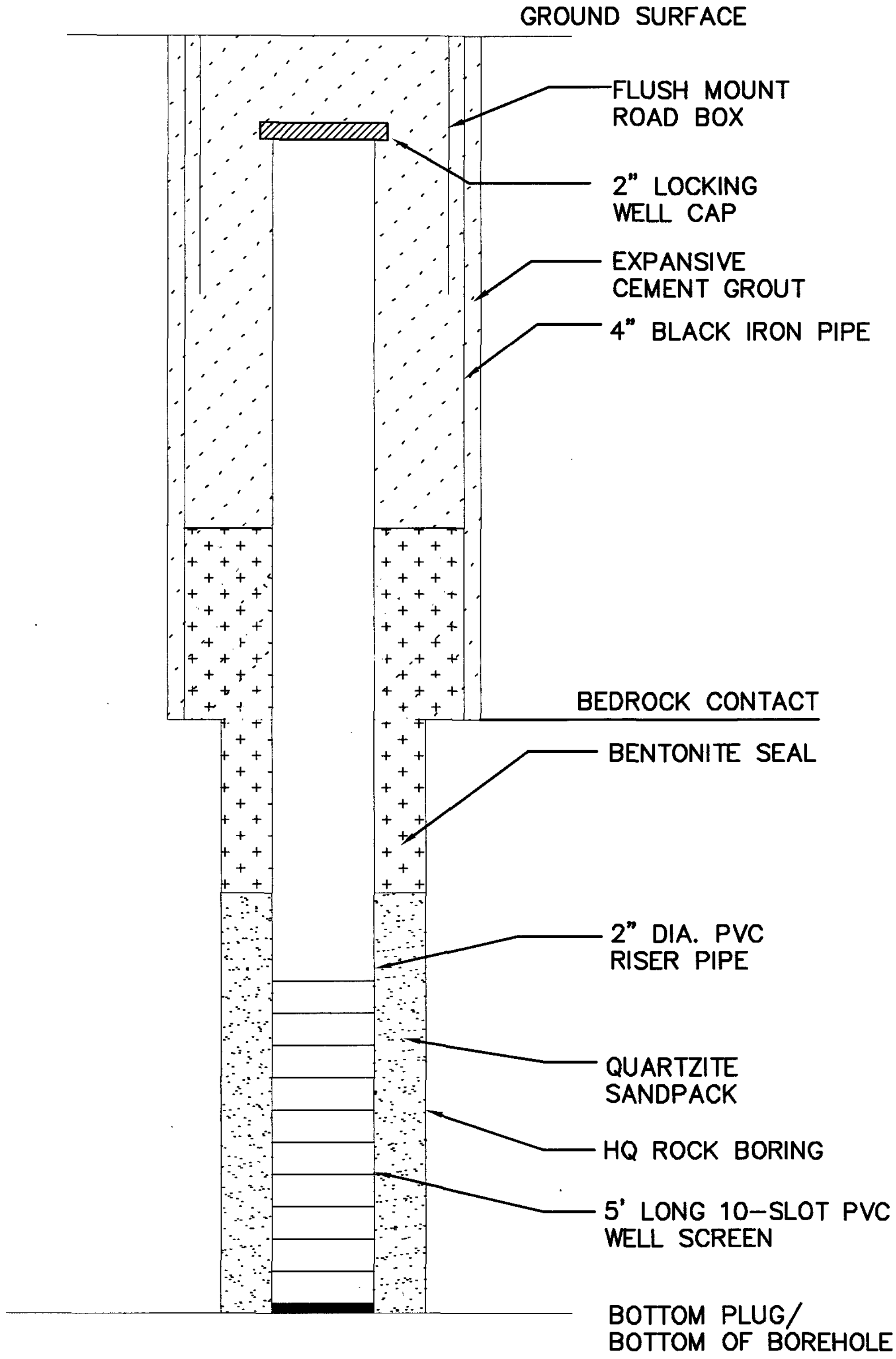
TURN AROUND TIME (WORKING DAYS) ☐ ONE ☐ THREE ☑ FIVE(STD) ☐ OTHER

REPRESENTATIVE:

	DATE	TIME	COMPOSITE	GRAB	SAMPLE LOCATION/FIELD ID	MATRIX	NUMBER CONTAINERS	REQUESTED ANALYSIS: 8021A	REMARKS	PARADIGM LAB SAMPLE NUMBER	ANALYTICAL COSTS
1	8/2/99	11:15		✓	GP-205	W	2	✓		5261	
2	↓	11:45		✓	GP-203	W	2	✓		5262	
3	↓	12:15		✓	GP-201	W	2	✓		5263	
4											
5											
6											
7											
8											
9											
10											
11											
12											

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	DATE/TIME	SAMPLE CONDITION	CHECK #	TOTAL COST
Pat Smith	8/2/99 12:45	[signature]	8/2/99 1045			
RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	DATE/TIME	CARRIER COMPANY	AIR BILL NO.	P.I.F
RELINQUISHED BY:	DATE/TIME	RECEIVED @ LAB BY: [signature]	DATE/TIME 8/2/99 1300	CARRIER PHONE #	DATE RESULTS REPORTED BY:	DATE/TIME

WHITE COPY-SAMPLE YELLOW COPY-FILE PINK COPY-RELINQUISHER



PROJECT ENGINEER/ARCHITECT: P. SMITH
PROJECT MANAGER: M. STORONSKY
DRAWN BY: A. LESS
SCALE: NO SCALE
FIRST ISSUE DATE: 4/01

SEAR·BROWN
85 Metro Park
Rochester, N.Y. 14623-2674
(716) 475-1440
www.searbrown.com

PROJECT: INVESTIGATION WORK PLAN
WARD STREET
ROCHESTER , NY

TITLE OF DRAWING: TYPICAL BEDROCK MONITORING WELL DIAGRAM

PROJECT NO. 14052.01
DRAWING NO. FIG. 9

Appendix B

SEAR·BROWN

ARCHITECTURE
ENGINEERING
PLANNING
CONSTRUCTION

85 Metro Park
Rochester, NY 14623-2674
716.475.1440 phone
716.272.1814 fax
www.searbrown.com

October 25, 2000

Ms. Mary Jane Peachey, P.E.
NYSDEC
Division of Hazardous Waste Remediation
6274 East Avon-Lima Road
Avon, New York 14414

RE: Progress Report **14052.01**
Ward Street Site
Rochester, New York
NYSDEC Site No.: V00271-8

Dear Mary Jane:

Pursuant to a contractual agreement between The Sear-Brown Group (Sear-Brown) and Germanow-Simon Corporation (Germanow-Simon), provided herein is a Progress Report concerning investigation-related activities that occurred at the above referenced subject property pursuant to the November 29, 1999 Voluntary Investigation Work Plan (Work Plan) that was submitted to the New York Department of Environmental Conservation (Department).

A verbal concurrence to the commencement of the limited work described herein was provided by the Department on December 9, 1999. The work described herein was completed during the months of December 1999 and January 2000. Given the absence of follow-up correspondence providing formal written approval of the Work Plan or its accompanying Voluntary Agreement, the remainder of the investigation activities described in the Work Plan have not yet been implemented. It is the desire of Germanow-Simon to complete the Voluntary Investigation activities with the formal approval of the Department. To that end, Germanow-Simon kindly requests that the Department review and provide written comments on, or issue written approval of, the Work Plan, such that the balance of the Voluntary Investigation can be completed.

Voluntary Investigation Activities Completed

Boundary and Topographic Survey

A property boundary and topographic survey of the subject property was completed. The topographic survey is referenced to the Rochester City Survey (RCS) datum. The Boundary and Topographic Survey Map is included in Appendix A.

Basement Survey

The previously completed Phase II Environmental Investigation (Sear-Brown, May, 1999) suggested the potential for the south-southwesterly migration of contaminants in concentrations that may pose an exposure concern to off-site receptors. Consequently, a basement survey of the residential high rise building south of the subject property was proposed. The initial objective of the survey was to determine if the high rise has a basement and/or sumps that may contain groundwater.

Sear-Brown prepared a draft written notice that was intended to be forwarded to the owner identifying the purpose of, and reasons for, the proposed survey. This letter, which was forwarded to the Department for review and comment, is included as Appendix B. Germanow-Simon has not yet received the Department's response on the proposed survey letter.

Geophysical Survey

A geophysical survey was conducted by Geomatrix Consultants, Inc. on December 17, 1999 to assist in determining the location of potential underground storage tanks and other subsurface structures associated with the former filling station at the corner of St. Paul Street and Ward Street.

A reference grid was installed over of the area to be surveyed. The grid was installed to facilitate data acquisition along lines spaced 3 feet apart. The grid was tied to the existing site features and located in those portions of the southwest corner of the site that are not covered with buildings.

The GEONICS EM61 High Sensitivity Metal Detector and a solid state data logger were used to survey the shallow subsurface (0 to 11 feet) environment for the presence of metallic or metal containing objects. The EM61 is a portable time-domain electromagnetic (EM) unit. The device detects both ferrous and nonferrous metals. The unit was configured to digitally collect a data point at 0.62-foot intervals along lines spaced 3 feet apart. Data was stored on a digital data logger and archived to a laptop computer.

Data was then processed using GEOSOFT software and plotted as profile lines, gridded, filtered and color-contoured. The results of the survey were annotated and are included as Appendix C and D. Appendix C provides a color-contoured map of the EM61 data showing any anomalies suggestive of buried USTs or metallic pipes. Appendix D overlays the EM-61 color-contours on the topographic and boundary survey map.

The geophysical survey results identify two anomalous responses that will be used to refine the proposed subsurface investigation of the former gasoline station parcel. Anomaly A, identified in Appendix C, is a buried metal anomaly characterized by high electromagnetic response. Several linear anomalies appear to be associated with anomaly A suggesting the potential for buried pipes or utilities. Anomaly B is a buried metal anomaly located adjacent to a gas meter. It is possible that the gas meter and surrounding fencing are contributing to the geophysical response that was recorded. Based on the information obtained from the geophysical survey, it is proposed that a test-trenching program be performed to further investigate the two identified anomalies.

Floor Drain Testing

D. J. Parrone and Associates, P.C. (Parrone) completed a Phase I Environmental Site Assessment (February 26, 1999), which included the following findings and recommendations for further action:

> A trench drain system was observed near hydraulic pumps in the basement of Building "A". This trench drain contained an oily sludge (which was sampled and analyzed for PCBs). Aroclor 1254 was detected at 2.5 - 2.6 ppm and Aroclor 1260 was detected at 0.81 - 0.83 ppm in the sludge. A 55-gallon drum containing 3-5 gallons of perchloroethylene was also observed in the basement of Building "A". Based on these findings, Parrone recommended an investigation of the trench drain system to determine where the drain discharges.

An oily substance was observed on the surface of standing water in a floor drain near the "CNC machinery" operation in Building "B". This drain reportedly backs up and floods the floor during significant rain events. Parrone recommended pumping the drain dry and then conducting a dye test to confirm that the floor drain is connected to the combination sewers as suspected.

To investigate the potential discharge destination points of the floor drains, Sear Brown conducted dye tests of the drains on January 19, 2000. Prior to the dye tests, Sear-Brown researched the locations of the nearest municipal sewer system manholes. The dye tests involved introduction of a coloring agent to the floor drains and flushing the drains with potable water to observe the possible discharge locations (i.e. manhole, outfall) for the coloring agent.

It was determined that the floor drain in building "B" discharges to the municipal sewer system. Specifically, tracer dye was introduced to the floor drain and then was observed flowing in the sanitary sewer under St. Paul Street which is labeled "20 in. VCP" (vitrified concrete pipe) on the drawing in Appendix A.

The discharge location of the floor drain in building "A" could not be determined. Cold weather conditions during the investigation produced foggy conditions in several sewer manholes, which did not allow for observation of the tracer dye test at these locations. The dye test of the floor drain in Building "A" will, therefore, need to be repeated during a warmer time of the year.

Sampling and Analysis

The above referenced floor drain in Building "A" was sampled for VOCs by ASP Method 95-1 and TCL Pesticides/PCBs by ASP Method 95-3. The lab analysis was performed by Severn Trent Laboratories, Amherst, NY.

A summary of the detected analytes is included in Table 1. Aroclor 1254 was detected at concentrations of 2.4 and 2.6 parts per million (ppm) in the Building "A" floor drain sediment. Trace concentrations of several volatile organic compounds were present, however none were present at concentrations which would suggest an on-site source of these compounds, including the reported perchloroethylene drum. A copy of relevant excerpts of the 578-page lab report is presented in Appendix E. A complete copy of those data can be provided upon request.

Exceptions to Work Plan

Except for the delay in implementing the Voluntary Investigation activities, there were no exceptions to the Work Plan for the time period covered by this progress report.

SEAR·BROWN

Summary

As previously noted, it is the desire of Germanow-Simon to enter into a Voluntary Agreement with the Department and to complete the Voluntary Investigation activities with the formal approval of the Department. To that end we would kindly request that the Department review and provide written comments on, or issue written approval of, the Work Plan, such that the balance of the Voluntary Investigation can be completed to the satisfaction of both parties once a Voluntary Agreement can be entered into. On the near term, we would request Department approval to proceed with the completion of floor drain dye testing program in Building A before the cold weather sets in.

Should you have any questions or require further information regarding this progress report, please do not hesitate to call me.

Sincerely,

Michael P. Storonsky
Senior Associate

Enclosures:	Table 1	-	Summary of Detected Analytes
	Appendix A	-	Boundary and Topographic Survey Map
	Appendix B	-	Draft Survey Notification Letter
	Appendix C	-	Geophysical Survey Results
	Appendix D	-	Geophysical Survey and Survey Map Overlay
	Appendix E	-	Excerpts from Severn Trent Laboratories February 14, 2000 Analytical Report

cc: James D. Charles, Esq., w/enclosure
Todd Caffoe, P.E., w/enclosure
Rick Elliott, P.E., w/enclosure
G. Anders Carlson, Ph.D., w/enclosure
Kevin Bosner, w/enclosure
Thomas F. Walsh, Esq. w/enclosure

MPS:PHS:glv:L:1405201:docs:R0010.doc

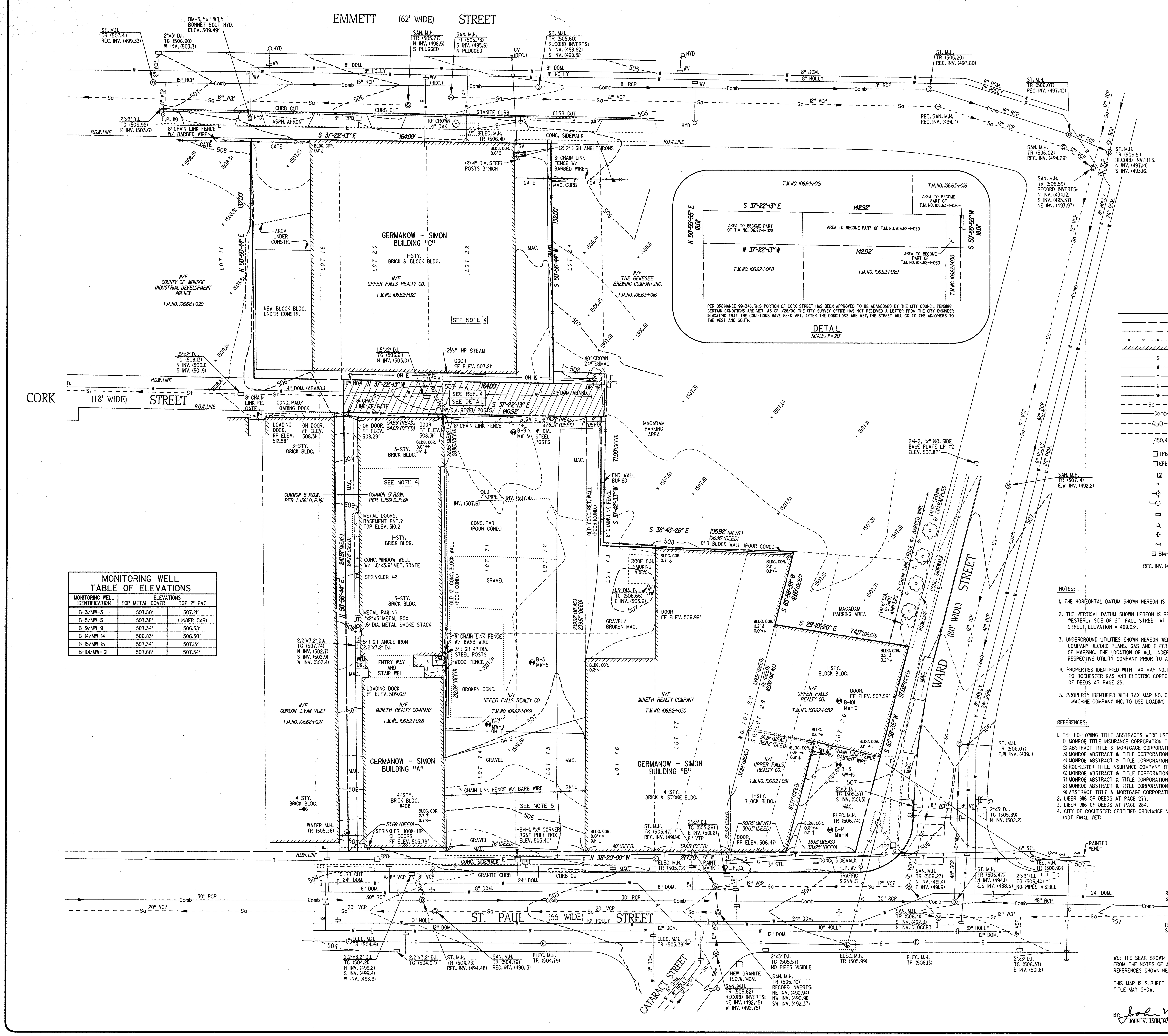
TABLES

TABLE 1
SUMMARY OF DETECTED ANALYTES
Ward Street Site
Rochester, NY

Compounds	Sample ID, Matrix and Location	
	WSFDBA *Sediment* Bldg A Floor Drain	**WSFDBADUP** *Sediment* Bldg A Floor Drain Duplicate
ASP 95 Volatiles (mg/kg):		
methylene chloride	.008 J	.049 B
acetone		0.028
tetrachloroethene	.002 J	.002 J
toluene	.001 J	.001 J
total xylenes	.002 J	.002 J
ASP 95 Volatiles (mg/kg): Tentatively Identified Compounds		
unknown silane	.007 J	
unknown silane	.006 J	
unknown	.011 J	
1,1,2-trichloro-1,2 ethane		.062 J
unknown		.016 J
unknown branched alkane	.005 J	
unknown alkane		.017 J
Pesticides/Aroclors (mg/kg):		
Aroclor 1254	2.4$^{(1)}$	2.5$^{(1)}$

Notes:
1. Previously detected concentrations of 2.5 to 2.6 ppm for PCB 1254, and concentrations of 0.81 to 0.83 ppm for PCB 1260 by D.J. Parrone & Associates, P.C. February 26, 1999.
2. B = detected in associated trip blank.
3. J = Estimated value
4. mg/kg = all values expressed in milligrams per kilogram (equivalent to parts per million).
5. Blank space = concentration below instrument detection limits.

APPENDIX A



MONITORING WELL IDENTIFICATION	ELEVATIONS TOP METAL COVER	TOP 2" PVC
B-3/MW-3	507.50'	507.21'
B-5/MW-5	507.38'	(UNDER CAR)
B-9/MW-9	507.34'	506.58'
B-14/MW-14	506.83'	506.30'
B-15/MW-15	507.34'	507.15'
B-101/MW-101	507.66'	507.54'

MONITORING WELL TABLE OF ELEVATIONS

LEGEND

- PROPERTY LINE
- EASEMENT LINE
- FENCE
- BUILDING LINE
- GAS MAIN
- WATER MAIN
- UNDERGROUND TELEPHONE
- UNDERGROUND ELECTRIC
- OVERHEAD WIRE
- SANITARY SEWER
- COMBINED STORM SEWER
- 450 MAJOR CONTOUR
- MINOR CONTOUR
- 450.4 SPOT ELEVATION
- TPB TRAFFIC SIGNAL PULLBOX
- EPB ELECTRIC PULLBOX
- GAS METER
- 4" STEEL POST
- UTILITY POLE w/ LIGHT
- L.P.
- CATCH BASIN
- HYDRANT
- WATER VALVE
- GAS VALVE
- BM-# BENCHMARK
- REC. INV. (492.2) RECORD CENTERLINE INVERT

NOTES:

1. THE HORIZONTAL DATUM SHOWN HEREON IS TIED TO THE CITY OF ROCHESTER SURVEY DATUM.
2. THE VERTICAL DATUM SHOWN HEREON IS REFERENCED TO RTS MONUMENT LOCATED ON THE WESTERLY SIDE OF ST. PAUL STREET AT THE EXTENSION OF THE SOUTHERLY R.O.W. OF GORHAM STREET, ELEVATION = 499.93'.
3. UNDERGROUND UTILITIES SHOWN HEREON WERE PLOTTED FROM FIELD LOCATIONS AND/OR UTILITY COMPANY RECORD PLANS. GAS AND ELECTRIC UTILITY PLANS WERE NOT AVAILABLE AT THE TIME OF MAPPING. THE LOCATION OF ALL UNDERGROUND UTILITIES SHOULD BE STAKED BY THE RESPECTIVE UTILITY COMPANY PRIOR TO ANY CONSTRUCTION.
4. PROPERTIES IDENTIFIED WITH TAX MAP NO. 106.62-1-021 AND NO. 106.62-1-028 ARE SUBJECT TO AN EASEMENT TO ROCHESTER GAS AND ELECTRIC CORPORATION TO ERECT AND MAINTAIN A 2" STEAM LINE PER LIBER 1439 OF DEEDS AT PAGE 25.
5. PROPERTY IDENTIFIED WITH TAX MAP NO. 106.62-1-029 SUBJECT TO ACCESS RIGHTS OF GERMANOW-SIMON MACHINE COMPANY INC. TO USE LOADING DOCK (NO LIBER AVAILABLE.)

REFERENCES:

1. THE FOLLOWING TITLE ABSTRACTS WERE USED TO HELP ESTABLISH THE BOUNDARY:
   1) MONROE TITLE INSURANCE CORPORATION TITLE ABSTRACT NO. 71750A, DATED MARCH 9, 1998.
   2) ABSTRACT TITLE & MORTGAGE CORPORATION TITLE ABSTRACT NO. 5409A, LAST DATED OCTOBER 1, 1936.
   3) MONROE ABSTRACT & TITLE CORPORATION TITLE ABSTRACT NO. 48836, DATED AUGUST 23, 1966.
   4) MONROE ABSTRACT & TITLE CORPORATION TITLE ABSTRACT NO. 68654, LAST DATED MAY 22, 1967.
   5) ROCHESTER TITLE INSURANCE COMPANY TITLE ABSTRACT NO. 473, LAST DATED DECEMBER 18, 1930.
   6) MONROE ABSTRACT & TITLE CORPORATION TITLE ABSTRACT NO. 77615-1, DATED OCTOBER 28, 1965.
   7) MONROE ABSTRACT & TITLE CORPORATION TITLE ABSTRACT NO. 63007, LAST DATED DECEMBER 22, 1967.
   8) MONROE ABSTRACT & TITLE CORPORATION TITLE ABSTRACT NO. 62107, LAST DATED NOVEMBER 9, 1971.
   9) ABSTRACT TITLE & MORTGAGE CORPORATION TITLE ABSTRACT NO. 5560A, LAST DATED NOVEMBER 20, 1945.
2. LIBER 9116 OF DEEDS AT PAGE 277.
3. LIBER 9116 OF DEEDS AT PAGE 284.
4. CITY OF ROCHESTER CERTIFIED ORDINANCE NO. 99-348, ABANDONMENT OF A PORTION OF CORK STREET. (NOT FINAL YET)

WE: THE SEAR-BROWN GROUP, INC. CERTIFY THAT THIS MAP WAS PREPARED JANUARY 31, 2000 FROM THE NOTES OF AN INSTRUMENT SURVEY COMPLETED BY US ON JANUARY 5, 2000 AND THE REFERENCES SHOWN HEREON.

THIS MAP IS SUBJECT TO ANY EASEMENTS OR ENCUMBRANCES THAT AN UPDATED ABSTRACT OF TITLE MAY SHOW.

BY: John V. Jaun
JOHN V. JAUN, N.Y.S.P.L.S. NO. 49549
DATE: May 29, 2001

6			
5			
4			
3			
2			
1	REVISED TAX ACCOUNT NUMBER	5/29/01	SVS
0	FIRST SUBMITTED	01/18/00	TLS
	REVISIONS	DATE	BY

PROJECT ENGINEER/ARCHITECT
PROJECT MANAGER
DRAWN BY T. STILLMAN
SCALE 1" = 20'
FIRST ISSUE DATE 1-18-00

SEAR·BROWN
85 Metro Park
Rochester, N.Y. 14623-2674
(716) 475-1440
www.searbrown.com

PROJECT GERMANOW-SIMON
TITLE OF DRAWING BOUNDARY AND TOPOGRAPHIC SURVEY MAP
PROJECT NO. 14052.01
DRAWING NO. SU 3

APPENDIX B

DRAFT COPY

January 6, 2000

Mrs. Judi Jones
Building Manager
St. Simon's Terrace
3 Town Line Circle
Rochester, New York 14623

Re: Ward Street Site
408 St. Paul Street
Rochester, New York

Dear Mrs. Jones:

The Sear-Brown Group will soon be performing environmental site work on the property occupied by Germanow-Simon Corporation because preliminary tests have revealed the presence of historic dry cleaning and petroleum compounds in the soil and ground water beneath the property. We are at the beginning stages of that work. The site investigation will ultimately be performed under the auspices of a voluntary cleanup agreement between Germanow-Simon Corporation and the New York State Department of Environmental Conservation (NYSDEC), with the usual advisory assistance of the New York State Department of Health (NYSDOH) and the Monroe County Department of Health (MCDOH).

It appears that portions of the property (known as the "Ward Street Site") were formerly used as a dry cleaners, as a gasoline station, and for wholesale storage and sale of dry cleaning and industrial solvents prior to Germanow-Simon Corporation's occupancy. Germanow-Simon Corporation has never operated the Site as a laundry or dry cleaners operation or storage area, or as a gasoline station. Nevertheless, the results of a preliminary environmental investigation of the Site revealed the presence of some dry cleaning and petroleum compounds in the soil and ground water.

With your permission, we would like to conduct a survey of the basement at 360 St. Paul Street to determine if the dry cleaning and/or petroleum compounds from the Site may have reached your property.

This survey is being conducted as a precautionary measure. At this time, we do not have any information to indicate your basement is being impacted by the dry cleaning and/or petroleum compounds present at the Site.

This survey would be conducted by Sear-Brown personnel. Representatives from NYSDEC, NYSDOH and/or MCDOH will probably also wish to be present. The survey is conducted in two phases. The first phase will consist of preliminary air screening and surveying of your building for the presence of basement sumps. If sumps with water are present, Sear-Brown will collect water samples. The first phase should take approximately 45 minutes. Based on the results of the initial survey, a second phase may be required. The second phase would consist of air sampling in the basement. If required, the second phase should take approximately 3 hours. The results of any test(s) will be provided to you with an explanation of the results.

Once we have your permission, you will be contacted to schedule the basement survey. Please call me at (716) 232-1441 ext. 263,or any of the following people if you have any questions:

Mr. Michael P. Storonsky
The Sear-Brown Group
85 Metro Park
Rochester, New York 14623
Phone: (716) 475-1440 ext. 760

Ms. Dawn Hettrick
New York State Department of Health
547 River Street, Room 300
Troy, New York 12180-2216
Phone: (518) 402-7850

Mr. Todd Caffoe, P.E.
New York State Department of
Environmental Conservation, Region 8
6274 East Avon-Lima Road
Avon, New York 14414
Phone: (716) 226-5350

Mr. Rick Elliot, P.E.
Monroe County Department of Health
111 Westfall Road
Room 908
Rochester, New York 14692
Phone: (716) 274-6115

We would also appreciate it if you would please complete the enclosed questionnaire and mail it to Mr. Storonsky by the enclosed, stamped and addressed envelope provided. Thank you for your cooperation.

Sincerely,

Kevin Bosner
Controller
Germanow-Simon Corporation

Enclosure

cc: Todd Caffoe, P.E., w/ enclosure
James Charles, Esq., w/ enclosure
Rick Elliot, P.E., w/ enclosure
Thomas F. Walsh, Esq., w/ enclosure
G. Anders Carlson, Ph.D., w/ enclosure
Dawn Hettrick, w/enclosure
Michael Storonsky, w/ enclosure

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I hereby grant permission to conduct a basement survey as outlined in the letter from Mr. Kevin Bosner.

Signature____

Please print the following information:

Name ____

Address ____

____

Telephone ____________________

Please indicate the best time(s) you can be reached to arrange for the survey:__________

____

Comments ____
Questions

____

____

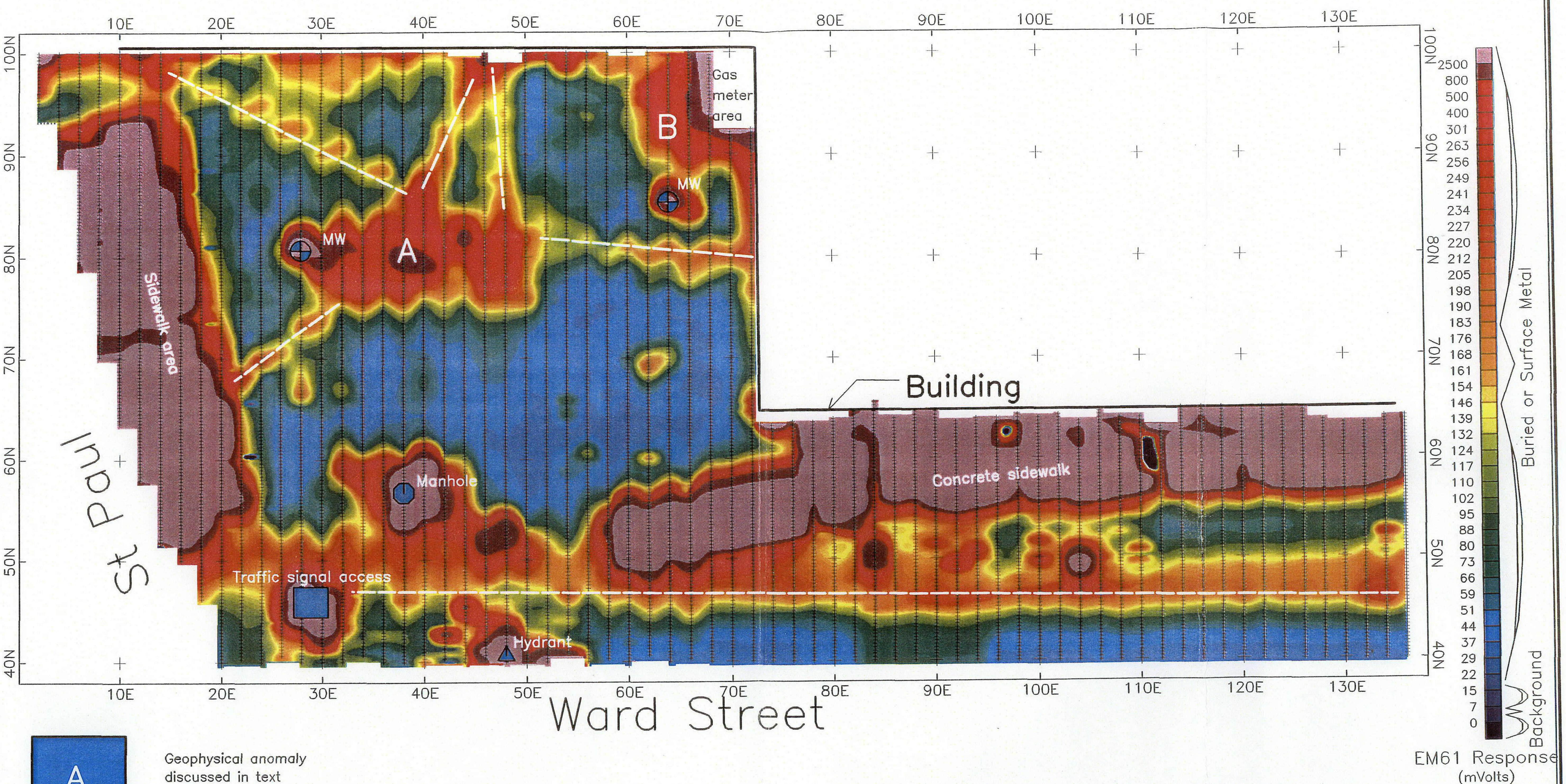
____

____

____

All persons entering your property to conduct the survey will be required to present proper identification. Thank you for your cooperation.

APPENDIX C



A — Geophysical anomaly discussed in text

Interpreted linear anomaly

Geophysical measurement location. 2 ft line spacing, 0.3 ft measurement spacing.

Scale 1:120

5 0 5 10 15 20 25 (feet)

Grid North

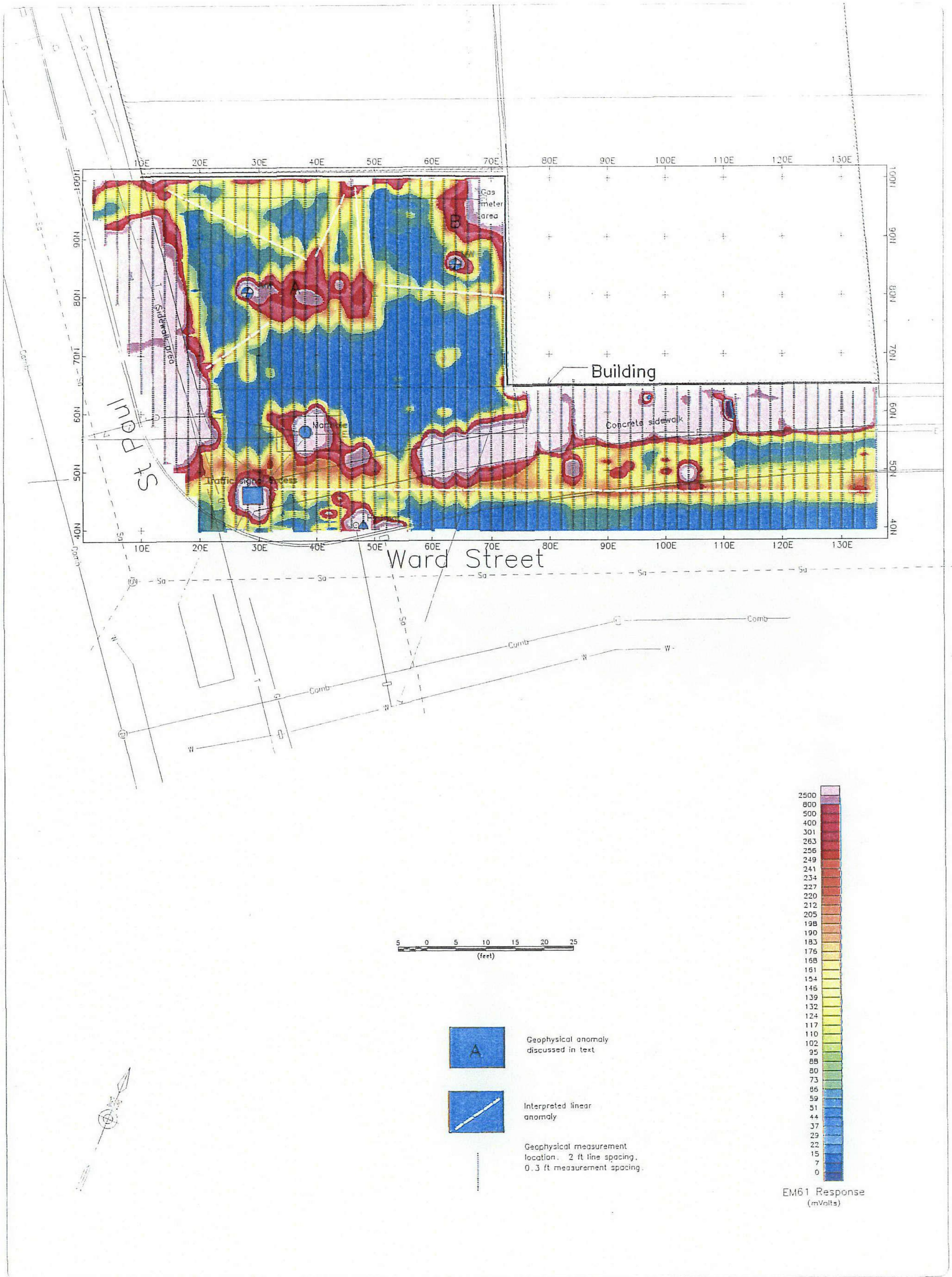
Figure 1

Geophysical Survey Results
Color Contours of EM61 Data
(mVolts)

Ward and St. Paul Street Site
Rochester, NY
Sear Brown

Geomatrix

APPENDIX D



DRAWING NO. 1030 / PROJECT NO. 14752.01	PROJECT: Ward Street Site, Rochester, New York TITLE OF DRAWING: Geophysical Survey	THE SEAR-BROWN GROUP FULL-SERVICE DESIGN PROFESSIONALS 85 METRO PARK ROCHESTER, N.Y. 14623-2674 (716) 475-1440 www.searbrown.com	PROJECT ENGINEER/ARCHITECT PROJECT MANAGER: Mike Storonsky DRAWN BY: John Luttinger SCALE: As Shown ISSUE DATE: 3/00	COPYRIGHT © 2000 THE SEAR-BROWN GROUP	REVISIONS 0–6 / DATE / BY

APPENDIX E

Committed To *Your* Success

FEB 15 2000

Severn Trent Laboratories
10 Hazelwood Drive
Suite 106
Amherst, New York 14228

Tel: (716) 691-2600
Fax: (716) 691-7991
www.stl-inc.com

February 14, 2000

Mr. Mike Storonsky
The Sear-Brown Group
85 Metro Park
Rochester, NY 14623

RE: Analytical Results

Dear Mr. Storonsky:

Please find enclosed analytical results concerning the samples submitted by your firm. The pertinent information regarding these analyses is listed below:

Quote #: NY99-367	Matrix: Soil-Water/other
Project: Sear-Brown/ Rochester Voluntary Action	Samples Received: 01/21/00
SDG #: 012100	Sample Date: 01/19/00

If you have any questions concerning these data, please contact Mr. Jim Stadelmaier, Program Manager at (716) 691-2600 and refer to the I.D. number listed below. It has been our pleasure to provide the Sear-Brown Group with environmental testing services. We look forward to serving you in the future.

Sincerely,

SEVERN TRENT LABORATORIES, INC.

James E. Stadelmaier
Program Manager

Susan L. Tinsmith
Laboratory Manager

JES/SLT/rtv

I.D. #A00-0455
#NY0A8515

This report contains 578 pages which are individually numbered.

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SDG NARRATIVE

Laboratory Name: Severn Trent Laboratories, Inc.

Laboratory Code: STL Buffalo

Contract Number: NY99-367

SDG Number: 012100

Sample Identifications:
WSFDBA
WSFDBA-DUP
WSFDBA-MS
WSFDBA-MSD
WS-HPBA
WS-HPBA-DUP
WS-HPBA-MS
WS-HPBA-MSD
WS-FDBB
WS-FDBB-DUP
WS-FDBB-MS
WS-FDBB-MSD
WS-FDBAB-TB

METHODOLOGY

The specific methodology employed in obtaining the enclosed analytical results is indicated on the specific data tables. The method number presented refers to the following U.S. Environmental Protection Agency reference:

- Analysis were performed in accordance with 1995 New York State Analytical protocol.

COMMENTS

Comments pertain to data on one or all pages of this report.

The enclosed data has been reported utilizing data qualifiers (Q) as defined on the Organic and Inorganic Data Comment Pages.

The sample coolers were received at temperatures of 4° and 5°C.

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VOLATILE DATA

All water samples were preserved to a pH less than 2.

WSFDBA-MS shows the spike recovery of 1,1-Dichloroethene, Trichloroethene, Benzene, Toluene, and Chlorobenzene as below quality control limits. WSFDBA-MSD shows the spike recovery of Trichloroethene, Benzene, Toluene, and Chlorobenzene as below quality control limits. Also, the %RPD of Toluene and Chlorobenzene is above quality control limits.

PESTICIDES/AROCLORS DATA

Limited volume was received for all water samples. Therefore, these samples were not analyzed for Pesticides/PCBs.

Samples WSFDBA, WSFDBA-DUP, WSFDBA-MS, and WSFDBA-MSD all taken to a final volume of 25ml and diluted 10 times. All samples were positive for Aroclor 1254.

The %RPD was outside quality control limits between samples WSFDBA-MS and WSFDBA-MSD.

The Ending Continuing Calibration Verification bracketing samples shows a %RPD above quality control limits for Methoxychlor. However, this compound was not detected in the associated samples.

WET CHEMISTRY DATA

No deviations from protocol were observed during the analytical procedures.

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"I certify that this data package is in compliance with the terms and conditions of the contract both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or her designee, as verified by the following signature."

Susan L. Tinsmith

Susan L. Tinsmith
Laboratory Manager

Date 2/14/2000

ORGANIC DATA COMMENT PAGE

Laboratory Name: SEVERN TRENT LABORATORIES INC.

USEPA Defined Organic Data Qualifiers:

U - Indicates compound was analyzed for but not detected.

J - Indicates an estimate value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero.

C - This flag applies to pesticide results where the identification has been confirmed by GC/MS.

B - This flag is used when the analyte is found in the associated blank as well as in the sample.

E - This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis.

D - This flag identifies all compounds identified in an analysis at a secondary dilution factor.

T - This flag is used when the analyte is found in the associated TCLP extraction blank as well as in the sample.

N - Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results.

P - This flag is used for a pesticide/Aroclor target analyte when there is greater than 25% difference for detected concentrations between the two GC columns. The lower of the two values is reported on Form I and flagged with a "P".

A - This flag indicates that a TIC is a suspected aldol-condensation product.

INORGANIC DATA COMMENT PAGE

Laboratory Name: SEVERN TRENT LABORATORIES, INC.

USEPA Defined Inorganic Data Qualifiers:

B	-	Indicates a value greater than or equal to the instrument detection limit, but less than the contract required detection limit.
U	-	Indicates compound was analyzed for but not detected. Report with the detection limit value (e.g., 100).
N	-	Indicates spike sample recovery is not within the control limits.
K	-	Indicates the post digestion spike recovery is not within the control limits.
*	-	Indicates duplicate analysis is not within the control limits.
S	-	Indicates value determined by the Method of Standard Addition.
+	-	Indicates the correlation coefficient for the Method of Standard Addition is less than 0.995.
M	-	Indicates duplicate injection results exceeded control limits.
W	-	Post digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.
E	-	Indicates a value estimated or not reported due to the presence of interference.

THE SEAR-BROWN GROUP
ASP 95 - VOLATILES
ANALYSIS DATA SHEET

Client No.

WSFDBA

Lab Name: STL Buffalo Contract: ____________

Lab Code: RECNY Case No.: _____ SAS No.: ______ SDG No.: 012100

Matrix: (soil/water) SOIL Lab Sample ID: A0045501

Sample wt/vol: 5.08 (g/mL) G Lab File ID: H8620.RR

Level: (low/med) LOW Date Samp/Recv: 01/19/2000 01/21/2000

% Moisture: not dec. 3.9 Heated Purge: Y Date Analyzed: 01/28/2000

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.00

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

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

CAS NO.	COMPOUND	UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene chloride	8	BJ
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
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
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	2	J
108-88-3	Toluene	1	J
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Total Xylenes	2	J

THE SEAR-BROWN GROUP
ASP 95 - VOLATILES
TENTATIVELY IDENTIFIED COMPOUNDS

Client No.

WSFDBA

Lab Name: STL Buffalo Contract: ______

ab Code: RECNY Case No.: ____ SAS No.: ____ SDG No.: 012100

atrix: (soil/water) SOIL Lab Sample ID: A0045501

Sample wt/vol: 5.08 (g/mL) G Lab File ID: H8620.RR

evel: (low/med) LOW Date Samp/Recv: 01/19/2000 01/21/2000

% Moisture: not dec. 3.9 Date Analyzed: 01/28/2000

C Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.00

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

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

Number TICs found: 3

CAS NO.	Compound Name	RT	Est. Conc.	Q
1.	UNKNOWN SILANE	17.23	7	BJ
2.	UNKNOWN SILANE	21.20	6	BJ
3.	UNKNOWN	23.37	11	J

THE SEAR-BROWN GROUP
ASP 95 - VOLATILES
ANALYSIS DATA SHEET

Client No.

WSFDBA-DUP

Lab Name: STL Buffalo   Contract: ____________

Lab Code: RECNY   Case No.: _____   SAS No.: ______   SDG No.: 012100

Matrix: (soil/water) SOIL   Lab Sample ID: A0045501FD

Sample wt/vol: 5.12 (g/mL) G   Lab File ID: H8621.RR

Level: (low/med) LOW   Date Samp/Recv: 01/19/2000 01/21/2000

% Moisture: not dec. 3.9   Heated Purge: Y   Date Analyzed: 01/28/2000

GC Column: DB-624   ID: 0.53 (mm)   Dilution Factor: 1.00

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

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

CAS NO.	COMPOUND	UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene chloride	49	B
67-64-1	Acetone	28	
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	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
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	2	J
108-88-3	Toluene	1	J
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Total Xylenes	2	J

THE SEAR-BROWN GROUP
ASP 95 - VOLATILES
TENTATIVELY IDENTIFIED COMPOUNDS

Client No.

WSFDBA-DUP

Lab Name: STL Buffalo Contract: ____________

Lab Code: RECNY Case No.: _____ SAS No.: ______ SDG No.: 012100

Matrix: (soil/water) SOIL Lab Sample ID: A0045501FD

Sample wt/vol: 5.12 (g/mL) G Lab File ID: H8621.RR

Level: (low/med) LOW Date Samp/Recv: 01/19/2000 01/21/2000

% Moisture: not dec. 3.9 Date Analyzed: 01/28/2000

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.00

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

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

Number TICs found: 2

CAS NO.	Compound Name	RT	Est. Conc.	Q
1. 76-13-1	ETHANE, 1,1,2-TRICLHLORO-1,2	6.95	62	JN
2.	UNKNOWN	23.37	16	J

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

000015

WS-HPBA

Lab Name: STL Buffalo Contract:

Lab Code: RECNY Case No.: 0455 SAS No.: SDG No.: 012100

Matrix: (soil/water) SOIL Lab Sample ID: A0045502

Sample wt/vol: 0.2 (g/mL) G Lab File ID:

% Moisture: 0 decanted: (Y/N) N Date Received: 01/21/00

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/25/00

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 02/02/00

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 5.5 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	230	U
319-85-7	beta-BHC	230	U
319-86-8	delta-BHC	230	U
58-89-9	gamma-BHC (Lindane)	230	U
76-44-8	Heptachlor	230	U
309-00-2	Aldrin	230	U
1024-57-3	Heptachlor epoxide	230	U
959-98-8	Endosulfan I	230	U
60-57-1	Dieldrin	450	U
72-55-9	4,4'-DDE	450	U
72-20-8	Endrin	450	U
33213-65-9	Endosulfan II	450	U
72-54-8	4,4'-DDD	450	U
1031-07-8	Endosulfan sulfate	450	U
50-29-3	4,4'-DDT	450	U
72-43-5	Methoxychlor	2300	U
53494-70-5	Endrin ketone	450	U
7421-93-4	Endrin aldehyde	450	U
5103-71-9	alpha-Chlordane	230	U
5103-74-2	gamma-Chlordane	230	U
8001-35-2	Toxaphene	23000	U
12674-11-2	Aroclor-1016	4500	U
11104-28-2	Aroclor-1221	9100	U
11141-16-5	Aroclor-1232	4500	U
53469-21-9	Aroclor-1242	4500	U
12672-29-6	Aroclor-1248	4500	U
11097-69-1	Aroclor-1254	4500	U
11096-82-5	Aroclor-1260	4500	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. A00011

WS-HPBAFD

Lab Name: STL Buffalo Contract:

Lab Code: RECNY Case No.: 0455 SAS No.: SDG No.: 012100

Matrix: (soil/water) SOIL Lab Sample ID: A0045502FD

Sample wt/vol: 0.2 (g/mL) G Lab File ID:

% Moisture: 0 decanted: (Y/N) N Date Received: 01/21/00

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/25/00

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 02/02/00

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 5.5 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	210	U
319-85-7	beta-BHC	210	U
319-86-8	delta-BHC	210	U
58-89-9	gamma-BHC (Lindane)	210	U
76-44-8	Heptachlor	210	U
309-00-2	Aldrin	210	U
1024-57-3	Heptachlor epoxide	210	U
959-98-8	Endosulfan I	210	U
60-57-1	Dieldrin	410	U
72-55-9	4,4'-DDE	410	U
72-20-8	Endrin	410	U
33213-65-9	Endosulfan II	410	U
72-54-8	4,4'-DDD	410	U
1031-07-8	Endosulfan sulfate	410	U
50-29-3	4,4'-DDT	410	U
72-43-5	Methoxychlor	2100	U
53494-70-5	Endrin ketone	410	U
7421-93-4	Endrin aldehyde	410	U
5103-71-9	alpha-Chlordane	210	U
5103-74-2	gamma-Chlordane	210	U
8001-35-2	Toxaphene	21000	U
12674-11-2	Aroclor-1016	4100	U
11104-28-2	Aroclor-1221	8400	U
11141-16-5	Aroclor-1232	4100	U
53469-21-9	Aroclor-1242	4100	U
12672-29-6	Aroclor-1248	4100	U
11097-69-1	Aroclor-1254	4100	U
11096-82-5	Aroclor-1260	4100	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WSFDBA

Lab Name: STL Buffalo   Contract:

Lab Code: RECNY   Case No.: 0455   SAS No.:   SDG No.: 012100

Matrix: (soil/water) SOIL   Lab Sample ID: A0045501

Sample wt/vol: 31.0 (g/mL) G   Lab File ID:

% Moisture: 4   decanted: (Y/N) N   Date Received: 01/21/00

Extraction: (SepF/Cont/Sonc) SONC   Date Extracted: 01/25/00

Concentrated Extract Volume: 5000 (uL)   Date Analyzed: 02/02/00

Injection Volume: 1.00 (uL)   Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y   pH: 6.0   Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	86	U
319-85-7	beta-BHC	86	U
319-86-8	delta-BHC	86	U
58-89-9	gamma-BHC (Lindane)	86	U
76-44-8	Heptachlor	86	U
309-00-2	Aldrin	86	U
1024-57-3	Heptachlor epoxide	86	U
959-98-8	Endosulfan I	86	U
60-57-1	Dieldrin	170	U
72-55-9	4,4'-DDE	170	U
72-20-8	Endrin	170	U
33213-65-9	Endosulfan II	170	U
72-54-8	4,4'-DDD	170	U
1031-07-8	Endosulfan sulfate	170	U
50-29-3	4,4'-DDT	170	U
72-43-5	Methoxychlor	860	U
53494-70-5	Endrin ketone	170	U
7421-93-4	Endrin aldehyde	170	U
5103-71-9	alpha-Chlordane	86	U
5103-74-2	gamma-Chlordane	86	U
8001-35-2	Toxaphene	8600	U
12674-11-2	Aroclor-1016	1700	U
11104-28-2	Aroclor-1221	3400	U
11141-16-5	Aroclor-1232	1700	U
53469-21-9	Aroclor-1242	1700	U
12672-29-6	Aroclor-1248	1700	U
11097-69-1	Aroclor-1254	2400	P
11096-82-5	Aroclor-1260	1700	U

THE SEAR-BROWN GROUP
ASP 95 - VOLATILES
ANALYSIS DATA SHEET

Client No.

VBLK72

Lab Name: STL Buffalo   Contract: ______

ab Code: RECNY   Case No.: ______   SAS No.: ______   SDG No.: 012100

Matrix: (soil/water) SOIL   Lab Sample ID: A0045512

Sample wt/vol: 5.00 (g/mL) G   Lab File ID: H8613.RR

evel: (low/med) LOW   Date Samp/Recv: ______ ______

% Moisture: not dec. ______   Heated Purge: Y   Date Analyzed: 01/28/2000

C Column: DB-624   ID: 0.53 (mm)   Dilution Factor: 1.00

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

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

CAS NO.	COMPOUND	UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene chloride	3	J
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
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
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
108-88-3	Toluene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Total Xylenes	10	U

THE SEAR-BROWN GROUP
ASP 95 - VOLATILES
TENTATIVELY IDENTIFIED COMPOUNDS

Client No.

VBLK72

Lab Name: STL Buffalo Contract: ______

Lab Code: RECNY Case No.: ______ SAS No.: ______ SDG No.: 012100

Matrix: (soil/water) SOIL Lab Sample ID: A0045512

Sample wt/vol: 5.00 (g/mL) G Lab File ID: H8613.RR

Level: (low/med) LOW Date Samp/Recv: ______ ______

% Moisture: not dec. ______ Date Analyzed: 01/28/2000

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.00

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

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

Number TICs found: 2

CAS NO.	Compound Name	RT	Est. Conc.	Q
1.	UNKNOWN SILANE	17.23	9	J
2.	UNKNOWN SILANE	21.20	6	J

STL
Committed To *Your* Success

Report To:
Contact: MIKE STDRONSKY
Company: SEAR-BROWN
Address: 85 METRO PARK
ROCHESTER, NY 14623
Phone: (716) 475-1440
Fax: (716) 424-5951
E-Mail: MIKE.STDRONSKY@SEARBROWN.COM

Bill To:
Contact:
Company:
Address:
Phone:
Fax:
SAME
PO#:
Quote: NY99-367

Internal Use Only
0455

Sampler Name:	Signature:
MATT GORMAN	Matt P. [signature]
Project Name:	**Project Number:**
WARD STREET	14052.01
Project Location:	**Date Required:**
ROCHESTER	(STD TURNAROUND)

INDICATE PRESERVATIVE BY USING KEY BELOW
INDICATE CONTAINER BY USING KEY BELOW

STL Sample No.	Client Sample ID	Sampling Date	Sampling Time	MATRIX	COMP / GRAB	TCL VOLATILES 95-1	TCL PEST/PCB 95-3	Additional Analyses / Remarks
	WS-FDBA	1/19/2000	11:00	MS	G	X	X	
	WS-FDBA-MS	1/19/2000	11:00	MS	G	X	X	
	WS-FDBA-MSD	1/19/2000	11:00	MS	G	X	X	
	WS-FDBA-DUP	1/19/2000	11:00	MS	G	X	X	
	WS-HPBA-	1/19/2000	11:20	OL	G		X	
	WS-HPBA-MS	1/19/2000	11:20	OL	G		X	
	WS-HPBA-MSD	1/19/2000	11:20	OL	G		X	
	WS-HPBA-DUP	1/19/2000	11:20	OL	G		X	
	WS-FDBB	1/19/2000	12:15	W	G	X	X	
	WS-FDBB-MS	1/19/2000	12:15	W	G	X	X	(PAGE 1 OF 2)
	WS-FDBB-MSD	1/19/2000	12:15	W	G	X	X	
	WS-FDBB-DUP	1/19/2000	12:15	W	G	X	X	

RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
Matt P. [signature]	SEAR-BROWN	1/20/2000	14:40	[signature]		1/21/00	0930

Matrix Key
WW = Wastewater
W = Water
S = Soil
SL = Sludge
MS = Miscellaneous Solids
OL = Oil
A = Air
O =

Container Key
1. Plastic
2. VOA Vial
3. Sterile Plastic
4. Amber Glass
5. Widemouth Glass
6. Other

Preservative Key
1. HCl, Cool to 4°
2. H2SO4, Cool to 4°
3. HNO3, Cool to 4°
4. NaOH, Cool to 4°
5. NaOH/Zn Acetate, Cool to 4°
6. Cool to 4°
7. None

COMMENTS:
ASP CATEGORY B DELIVERABLES
cooler 4/5 °C

Courier:
FedEx

Bill of Lading:

STL
Committed To *Your* Success

Report To:
Contact: MIKE STORINSKY
Company: SEAR-BROWN
Address: 85 METRO PARK
ROCHESTER, NY 14623
Phone: (716) 475-1440
Fax: (716) 424-5951
E-Mail: MIKE.STORINSKY@SEARBROWN.COM

Bill To:
Contact:
Company:
Address: SAME
Phone:
Fax:
PO#:
Quote:

Internal Use Only

Sampler Name: MATT GORMAN
Signature: Matt P. Gorman
Project Name: WARD STREET
Project Number: 14052.01
Project Location: ROCHESTER
Date Required: (STD TURNAROUND)

INDICATE PRESERVATIVE BY USING KEY BELOW (Optional)
INDICATE CONTAINER BY USING KEY BELOW (Optional)

STL Sample No	Client Sample ID	Sampling Date	Sampling Time	MATRIX	COMP / GRAB	TCL PEST/PCBs 95-3	TCL VOLATILES 95-1	Additional Analyses / Remarks
	[redacted] MPG	—	—	[redacted] MPG			[redacted] MPG	TB = TRIP BLANK
	[redacted] MPG							
	[redacted] MPG							
	[redacted] MPG							
	WS-FDBAB-TB	—	—	W			X	
								(PAGE 2 OF 2)

RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
Matt P. Gorman	SEAR-BROWN	1/20/2000	14:40	[signature]		1/21/00	0930

Matrix Key
WW = Wastewater
W = Water
S = Soil
SL = Sludge
MS = Miscellaneous Solids
OL = Oil
A = Air
O = ____________

Container Key
1. Plastic
2. VOA Vial
3. Sterile Plastic
4. Amber Glass
5. Widemouth Glass
6. Other

Preservative Key
1. HCl, Cool to 4°
2. H2SO4, Cool to 4°
3. HNO3, Cool to 4°
4. NaOH, Cool to 4°
5. NaOH/Zn Acetate, Cool to 4°
6. Cool to 4°
7. None

COMMENTS:
ASP CATEGORY B DELIVERABLES
coolers 4/5 C

Courier: FedEx

Bill of Lading:

10/98

THE SEAR-BROWN GROUP
ASP 95 - VOLATILES
ANALYSIS DATA SHEET

Client No.

WS-FDBAB-TB

Lab Name: STL Buffalo   Contract: ______

Lab Code: RECNY   Case No.: ______   SAS No.: ______   SDG No.: 012100

Matrix: (soil/water) WATER   Lab Sample ID: A0045504

Sample wt/vol: 5.00 (g/mL) ML   Lab File ID: M3633.RR

Level: (low/med) LOW   Date Samp/Recv: 01/19/2000 01/21/2000

% Moisture: not dec. ______   Heated Purge: N   Date Analyzed: 01/26/2000

GC Column: 502.2   ID: 0.25 (mm)   Dilution Factor: 1.00

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

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

THE SEAR-BROWN GROUP
ASP 95 - VOLATILES
TENTATIVELY IDENTIFIED COMPOUNDS

Client No.

WS-FDBAB-TB

Lab Name: STL Buffalo Contract: ____________

Lab Code: RECNY Case No.: _____ SAS No.: ______ SDG No.: 012100

Matrix: (soil/water) WATER Lab Sample ID: A0045504

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: M3633.RR

Level: (low/med) LOW Date Samp/Recv: 01/19/2000 01/21/2000

% Moisture: not dec. ______ Date Analyzed: 01/26/2000

GC Column: 502.2 ID: 0.25 (mm) Dilution Factor: 1.00

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

CONCENTRATION UNITS:
Number TICs found: 0 (ug/L or ug/Kg) UG/L

CAS NO.	Compound Name	RT	Est. Conc.	Q

UUU232

THE SEAR-BROWN GROUP
ASP 95 - VOLATILES
ANALYSIS DATA SHEET

Client No.

WSFDBA-MS

Lab Name: STL Buffalo Contract: ________

Lab Code: RECNY Case No.: ____ SAS No.: ____ SDG No.: 012100

Matrix: (soil/water) SOIL Lab Sample ID: A0045501MS

Sample wt/vol: 5.09 (g/mL) G Lab File ID: H8622.RR

Level: (low/med) LOW Date Samp/Recv: 01/19/2000 01/21/2000

% Moisture: not dec. 3.9 Heated Purge: Y Date Analyzed: 01/28/2000

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.00

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

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

CAS NO.	COMPOUND	UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene chloride	8	BJ
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	26	
75-34-3	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
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	12	
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	16	
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	1	J
108-88-3	Toluene	12	
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-90-7	Chlorobenzene	8	J
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Total Xylenes	2	J

THE SEAR-BROWN GROUP
ASP 95 - VOLATILES
ANALYSIS DATA SHEET

Client No.

WSFDBA-MSD

Lab Name: STL Buffalo Contract: ____

Lab Code: RECNY Case No.: ____ SAS No.: ____ SDG No.: 012100

Matrix: (soil/water) SOIL Lab Sample ID: A0045501SD

Sample wt/vol: 5.08 (g/mL) G Lab File ID: H8623.RR

Level: (low/med) LOW Date Samp/Recv: 01/19/2000 01/21/2000

% Moisture: not dec. 3.9 Heated Purge: Y Date Analyzed: 01/28/2000

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.00

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene chloride	10	B
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	32	
75-34-3	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
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	
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	18	
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	2	J
108-88-3	Toluene	9	J
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-90-7	Chlorobenzene	6	J
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Total Xylenes	2	J

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WSFDBAMSD

Lab Name: STL Buffalo Contract:

Lab Code: RECNY Case No.: 0455 SAS No.: SDG No.: 012100

Matrix: (soil/water) SOIL Lab Sample ID: A0045501SD

Sample wt/vol: 30.9 (g/mL) G Lab File ID:

% Moisture: 4 decanted: (Y/N) N Date Received: 01/21/00

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/25/00

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 02/02/00

Injection Volume: 1.00 (uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 6.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	86	U
319-85-7	beta-BHC	86	U
319-86-8	delta-BHC	86	U
58-89-9	gamma-BHC (Lindane)	17	J
76-44-8	Heptachlor	24	J
309-00-2	Aldrin	3.5	JP
1024-57-3	Heptachlor epoxide	86	U
959-98-8	Endosulfan I	86	U
60-57-1	Dieldrin	73	JP
72-55-9	4,4'-DDE	170	U
72-20-8	Endrin	23	JP
33213-65-9	Endosulfan II	170	U
72-54-8	4,4'-DDD	170	U
1031-07-8	Endosulfan sulfate	170	U
50-29-3	4,4'-DDT	150	JP
72-43-5	Methoxychlor	860	U
53494-70-5	Endrin ketone	170	U
7421-93-4	Endrin aldehyde	170	U
5103-71-9	alpha-Chlordane	86	U
5103-74-2	gamma-Chlordane	86	U
8001-35-2	Toxaphene	8600	U
12674-11-2	Aroclor-1016	1700	U
11104-28-2	Aroclor-1221	3400	U
11141-16-5	Aroclor-1232	1700	U
53469-21-9	Aroclor-1242	1700	U
12672-29-6	Aroclor-1248	1700	U
11097-69-1	Aroclor-1254	2900	P
11096-82-5	Aroclor-1260	1700	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WS-HPBAMS

Lab Name: STL Buffalo Contract:

Lab Code: RECNY Case No.: 0455 SAS No.: SDG No.: 012100

Matrix: (soil/water) SOIL Lab Sample ID: A0045502MS

Sample wt/vol: 0.2 (g/mL) G Lab File ID:

% Moisture: 0 decanted: (Y/N) N Date Received: 01/21/00

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/25/00

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 02/02/00

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 5.5 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	200	U
319-85-7	beta-BHC	200	U
319-86-8	delta-BHC	200	U
58-89-9	gamma-BHC (Lindane)	1200	P
76-44-8	Heptachlor	1300	P
309-00-2	Aldrin	990	
1024-57-3	Heptachlor epoxide	200	U
959-98-8	Endosulfan I	200	U
60-57-1	Dieldrin	2600	
72-55-9	4,4'-DDE	400	U
72-20-8	Endrin	2900	
33213-65-9	Endosulfan II	400	U
72-54-8	4,4'-DDD	400	U
1031-07-8	Endosulfan sulfate	400	U
50-29-3	4,4'-DDT	2400	
72-43-5	Methoxychlor	2000	U
53494-70-5	Endrin ketone	400	U
7421-93-4	Endrin aldehyde	400	U
5103-71-9	alpha-Chlordane	200	U
5103-74-2	gamma-Chlordane	200	U
8001-35-2	Toxaphene	20000	U
12674-11-2	Aroclor-1016	4000	U
11104-28-2	Aroclor-1221	8000	U
11141-16-5	Aroclor-1232	4000	U
53469-21-9	Aroclor-1242	4000	U
12672-29-6	Aroclor-1248	4000	U
11097-69-1	Aroclor-1254	4000	U
11096-82-5	Aroclor-1260	4000	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WS-HPBAMSD

Lab Name: STL Buffalo Contract:

Lab Code: RECNY Case No.: 0455 SAS No.: SDG No.: 012100

Matrix: (soil/water) SOIL Lab Sample ID: A0045502SD

Sample wt/vol: 0.2 (g/mL) G Lab File ID:

% Moisture: 0 decanted: (Y/N) N Date Received: 01/21/00

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/25/00

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 02/02/00

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 5.5 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	220	U
319-85-7	beta-BHC	220	U
319-86-8	delta-BHC	220	U
58-89-9	gamma-BHC (Lindane)	1300	P
76-44-8	Heptachlor	1400	P
309-00-2	Aldrin	1200	
1024-57-3	Heptachlor epoxide	220	U
959-98-8	Endosulfan I	220	U
60-57-1	Dieldrin	2800	
72-55-9	4,4'-DDE	430	U
72-20-8	Endrin	3100	
33213-65-9	Endosulfan II	430	U
72-54-8	4,4'-DDD	430	U
1031-07-8	Endosulfan sulfate	430	U
50-29-3	4,4'-DDT	2600	
72-43-5	Methoxychlor	2200	U
53494-70-5	Endrin ketone	430	U
7421-93-4	Endrin aldehyde	430	U
5103-71-9	alpha-Chlordane	220	U
5103-74-2	gamma-Chlordane	220	U
8001-35-2	Toxaphene	22000	U
12674-11-2	Aroclor-1016	4300	U
11104-28-2	Aroclor-1221	8700	U
11141-16-5	Aroclor-1232	4300	U
53469-21-9	Aroclor-1242	4300	U
12672-29-6	Aroclor-1248	4300	U
11097-69-1	Aroclor-1254	4300	U
11096-82-5	Aroclor-1260	4300	U

Appendix C

APPENDIX C

QUALITY ASSURANCE PROJECT PLAN
FOR
INVESTIGATION WORK PLAN
WARD STREET SITE
SITE #:V00271-8
ROCHESTER, NEW YORK

JUNE 2001

Prepared for:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
6274 EAST AVON-LIMA ROAD
AVON, NEW YORK 14414

Prepared on Behalf of:

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408 ST. PAUL STREET
ROCHESTER, NEW YORK 14601-0144

Prepared by:

THE SEAR-BROWN GROUP, INC.
85 METRO PARK
ROCHESTER, NEW YORK 14623

QUALITY ASSURANCE PROJECT PLAN
FOR
INVESTIGATION WORK PLAN
WARD STREET SITE
SITE #: V00271-8
ROCHESTER, NEW YORK

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Attachments

A Seven Trent Laboratories – Laboratory Quality Manual

1.0 Introduction

This Quality Assurance Project Plan (QAPP) is to be used in conjunction with the Investigation Work Plan (Work Plan) to be conducted at the Ward Street Site located in the City of Rochester, Monroe County, New York (Figure 1). This QAPP presents the policies, organization, objectives, functional activities, and specific quality assurance and quality control activities to ensure the validity of data generated in the completion of the investigation. The purpose of this QAPP program is to ensure that all technical data generated are accurate and representative.

Quality assurance (QA) is a management system for ensuring that all information, data, and decisions resulting from investigation and environmental monitoring programs are technically sound, and properly documented. Quality control (QC) is the functional mechanism through which quality assurance achieves its goals. Quality control programs, for example, define the frequency and methods of checks, audits, and reviews necessary to identify problems and dictate corrective actions to resolve these problems, thus ensuring high quality data. As such, a quality assurance and quality control program pertains to all data collection, evaluation, and review activities which are part of the investigation.

All QA/QC procedures will be in accordance with applicable professional technical standards, government regulations and guidelines, and specific project goals and requirements. This QAPP has been prepared in accordance with New York State Department of Environmental Conservation (DEC) and United States Environmental Protection Agency (EPA) Region II guidance documents.

The QAPP incorporates the following activities:

- Sample collection, control, chain-of-custody, and analysis;
- Document control;
- Laboratory instrumentation, analysis, and control; and
- Review of project reports.

Analytical samples will be collected in the field using standard operating procedures and sent to a DEC - certified[1] laboratory for analysis. Duplicates, replicates, and spiked samples will be used to identify the quality of the analytical data. Field audits may be conducted to verify that proper sampling techniques and chain-of-custody procedures are followed. Field data compilation, tabulation, and analysis will be

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[1] Certified by NYSDEC to perform analyses and provide deliverables in accordance with NYSDEC Analytical Services Protocol (ASP), Category B or a USEPA Contract Laboratory Protocol (USEPA CLP) deliverables package.

checked for accuracy. Calculations and other post-field tasks will be reviewed by senior project personnel. Equipment used to take field measurements will be maintained and calibrated in accordance with established procedures. Records of calibration and maintenance will be kept by assigned personnel. Field testing and data acquisition will be performed following strict guidelines as described herein.

Document control procedures will be used to coordinate the distribution, coding, storage, retrieval, and review of all data collected during all sampling tasks.

A Data Usability Summary Report (DUSR) will be prepared for analytical results from each monitoring activity. The DUSR will be prepared by an independent consultant with the required experience, in accordance with DEC's "Guidance for the Development of Data Usability Summary Reports," revised September 1997.

2.0 Project Description

This QAPP pertains to the completion of field activities and subsequent laboratory and data analysis associated with the Voluntary Investigation of the Ward Street Site. The investigation elements are described in detail in the Work Plan.

Germanow-Simon Corporation (Germanow-Simon) is proposing to enter into an agreement with the DEC to conduct a Voluntary Investigation of the facility due to the suspected presence of chlorinated solvent and petroleum in the site's soils and groundwater. The activities are intended to:

1. assess potential source areas;
2. evaluate the potential for off-site impacts to receptors (i.e., occupants of downgradient buildings with basements);
3. evaluate if local utilities are likely to constitute preferred flow zones for impacted groundwater;
4. assess migration of contaminants in the saturated unconsolidated overburden; and
5. evaluate potential impacts to the shallow bedrock flow system beneath and downgradient from the site.

2.1 Site Description

Germanow-Simon currently occupies the Site and employs approximately 140 individuals at the manufacturing facility which produces bimetal thermometers, plastic optics, and gauge and watch crystals. Germanow-Simon has been working for sometime with the City of Rochester and the U.S. Department of Housing and Urban Development (HUD) to pursue expansion and modernization of its facility. These plans will ensure that all of the existing jobs will be retained in this urban Economic Development Zone and will result in an additional 20 jobs over the next seven years.

The Site contains three major buildings that have been designated Buildings A, B and C (Figure 2). The expansion plans involve enlargement of the north side of Building C (completed), abandonment of Cork Street, connection of the rear portion of Building A with Building C across Cork Street (completed), and demolition of the front half of Building A. Review of historic information has identified a former dry cleaning establishment once operated by the Lilac Laundry Inc. and a former gasoline station which was also once occupied by S. Dinaburg, a distributor of dry cleaning and industrial solvents, relative to the Site.

2.2 *Previous Investigations*

As a routine step in the process of obtaining financing for the proposed expansion, Germanow-Simon commissioned the Phase I, the findings of which led to the Phase II performed by Sear-Brown. A third investigation was performed as a result of the removal of a former gasoline underground storage tank (UST) from the area to the north of Building C during the Summer of 1999. The major findings and recommendations of these previous investigations are provided below.

Phase I Environmental Site Assessment (February 26, 1999)

D. J. Parrone and Associates, P.C. (Parrone) completed the Phase I of the subject property, which included the following findings and recommendations for further action.

A trench drain system was observed near hydraulic pumps in the basement of Building "A". This trench drain contained an oily sludge (which was sampled and analyzed for PCBs). Arochlor 1254 was detected at 2.5 - 2.6 ppm and Arochlor 1260 was detected at 0.81 - 0.83 ppm in the sludge. Parrone recommended an investigation of this trench drain system to determine where the drain discharges and whether petroleum or PCBs are present beneath the floors in this area. The recommended investigation included dye tests of the drains and sewer lines to determine if they are connected to the combination sewers. If the on-site sewers did not appear to be connected to combination sewers, a series of borings was recommended through the floor near the trench drain. Soil testing was recommended to determine whether any adverse impacts to soil exist.

Review of historic Sanborn maps revealed the location of the former Lilac Laundry dry cleaning operation to be in the area between, but not beneath, Buildings "A" & "B". Parrone recommended an investigation of the area involving soil borings and soil testing to determine if any compounds or analytes of concern were present. In addition to analysis for chlorinated solvents, testing for pesticides in the former fumigation areas east of the former fur storage vault was also recommended.

An oily substance was observed on the surface of standing water in a floor drain near the "CNC machinery" operation in Building "B". This drain reportedly backs up and floods the floor during significant rain events. Parrone recommended pumping the drain dry and then conducting a dye test to confirm that the floor drain is connected to the combination sewers as suspected, or if not, to determine whether it is connected to a drywell system along with the roof leaders.

Review of historic Sanborn maps revealed the former location of a gasoline station at the corner of Ward Street and St. Paul Street. A test pit or soil gas survey was recommended to determine if residual petroleum impacts remain that could be related to the former gas station which appeared to have been built in 1938.

One fill port and two vent lines to presumably abandoned USTs were observed near the northwest corner of Building "C". Closure of the existing underground storage tanks at the northwest exterior corner of Building "C" was recommended. Parrone recommended that the tanks be removed along with any related petroleum impacted soils in the area so that suitable fill can be placed and compacted to handle future foundation loads.

Two additional USTs were observed along the south wall of the northern portion of Building "C" (near the middle of the building) that were installed in 1940 for use by a taxi garage that was located on the property from at least 1949-1971. In-situ closure of the two other tanks identified as being beneath Building "C" was also recommended.

Limited Phase II Environmental Site Investigation (May 25, 1999)

Sear-Brown completed the Phase II investigation of the subject property. Soil borings were drilled at 19 locations and 13 soil samples were collected for laboratory analyses. Twelve soil borings, B-1 through B-12, were drilled in the location of the former dry cleaning operations between Buildings A and B. A total of six borings, B-101 through B-104, B-14 and B-15 were drilled in the area of the former gasoline station location near the intersection of Ward and St. Paul Streets.

Six of the 19 borings were completed as groundwater monitoring wells: MW-3, MW-5, MW-9, MW-14, MW-15 and MW-101. Groundwater samples from these monitoring wells were also subjected to laboratory analysis.

Seven soil samples were collected from the former dry cleaning area for analysis. Six of these soil samples were submitted to a NYSDOH certified analytical laboratory, for analysis of Target Compound List (TCL) volatile organic compounds using EPA method 8240 or 8021a. Three samples were submitted for analysis of total concentrations of the 8 RCRA metals by various methods. One of the samples collected from the former dry cleaning/fumigation area was also tested for pesticides using EPA method 8081.

Based upon PID readings, visual observations and/or odors, a total of six soil samples were selected for analysis from the former gasoline station area, including two samples from beneath the floor slab of the current 1-1/2 story building at the location of the former garage. These six soil samples were submitted for analysis of STARS list volatile organic and semi-volatile organic base-neutral compounds (SVOCs) using EPA methods 8021 and 8270, respectively.

No SVOCs or pesticides were detected in soil samples. Those data indicate that a petroleum hydrocarbon plume is centered on borings B-8 and B-9, which is possibly related to the former use of Stoddard-like solvents at the former Lilac Laundry dry cleaning operation.

In addition, two discrete, but closely spaced, petroleum hydrocarbon plumes appear to be situated at the southwest corner of the property. Both of these plumes are likely to be related to the former gasoline station. Subsequent groundwater analyses suggest that the plume nearest to St. Paul Street is related to gasoline, and the plume near the former gasoline station building is a mixture of lube oil and fuel oil (possibly waste oil).

Chlorinated VOCs were reported at estimated concentrations in the samples from borings B-101 and B-104. This plume is apparently centered beneath the former gas station building. Chlorinated VOCs were not detected in soils at the former Lilac dry cleaners. However, high detection limits associated with the required sample dilution due to matrix interference from petroleum compounds may have precluded their detection.

A floating product layer (LNAPL) was present in monitoring well MW-101. This well is located inside the Ward Street entrance to the 1-1/2 story building addition to Building "B" at the location of the former gasoline station building. The thickness of the LNAPL was 0.2 feet as measured on April 14, 1999. Analytical results revealed that the LNAPL contained a mixture of 7.1% diesel fuel and 79.4% lube oil.

Groundwater samples were collected and analyzed for VOCs, SVOCs, mercury and arsenic. No base-neutral SVOCs were detected in the samples. Mercury levels were below detection limits and arsenic concentrations were also low or non-detectable. VOCs commonly associated with petroleum products were, however, detected in four wells.

The aqueous phase sample from MW-101 exhibited elevated total concentrations of chlorinated VOCs (107 ppm) including 78 ppm of tetrachloroethene (PCE), 25 ppm of trichloroethene (TCE) and 4 ppm of cis-1,2 dichloroethene (cis-1,2 DCE). The chlorinated VOC plume, which appears to extend in a southerly direction, may be related to the historic handling of chlorinated products by a former occupant, S. Dinaburg. Relatively low concentrations (ppb level) of chlorinated compounds were reported in monitoring wells MW-14 and MW-15 that are located west of well MW-101.

Monitoring well MW-9, which was installed in the former location of the Lilac Laundry, contained ppb level concentrations of several chlorinated VOCs. The relatively low concentrations of VOCs at MW-9 relative to the VOC levels at MW-101 suggests the possibility of a different origin.

Subsurface Investigation Report, North Side of Building C (August 31, 1999)

Sear-Brown conducted a subsurface investigation of soil and groundwater quality adjacent to the recently removed USTs that were located on the north side of Building C. Piedmont Equipment (Piedmont) removed two gasoline USTs between June 16 – 18, 1999. Evidence of what may have been a discharge was noted and a spill report (#9970160) was called into the Department on June 16. Since it was not possible to excavate the affected soil given the proximity of the adjacent building, Piedmont and representatives of the Department, Monroe County Health Department and the City Fire Marshall concurred that a small diameter soil boring program would be conducted to assess the extent of petroleum contamination, if any.

Given the proposed construction of a building addition in this area, and the pending VCP Application with the Department, it was recommended that the soil boring program originally proposed by Piedmont be expanded to evaluate for both petroleum and chlorinated VOCs. In addition, based on the history of the building, it was recommended that sets of two soil samples each be composited for analysis of SVOCs, PCBs, and total concentrations of the eight RCRA metals.

It was further recommended that groundwater samples be collected for analysis through small diameter PVC wells installed within the soil borings. Following receipt of soil analytical data, it was proposed that the groundwater wells be sampled for the parameters of concern identified during the soil sampling program. The plans to expand the investigation program in hopes that it would satisfy certain aspects of, and the results could be incorporated into, the investigation to be performed pursuant to the VCP Agreement, were verbally reviewed with Messrs. Carl Hettenbaugh and Todd Caffoe of the Department and concurrence was obtained.

A limited subsurface investigation consisting of five small-diameter soil borings (GP-201 through GP-205) was conducted to evaluate the extent of potential contamination in the vicinity of the former USTs located on the northwest corner of Building C. Soil borings were drilled using direct push methods on July 1, 1999. The soil borings were advanced to a target depth of 16 feet below ground surface (bgs). Continuous soil samples were collected at each soil boring location beginning at a depth of approximately 4 feet bgs. The borings were extended vertically to the estimated limits of affected soil and below the groundwater table to facilitate delineation of potential impacts.

In general, soil conditions adjacent to the former USTs included an asphaltic surface underlain by approximately 3.0 feet of fill. The fill layer consisted primarily of gray silty sand and gravel, with some brick. The fill was underlain by a native sandy till.

Soil samples were screened with a calibrated HNu photoionization detector (PID) equipped with a 10.2 eV lamp for the presence of volatile organic vapors. No elevated headspace readings above background were noted. No indications of stains or odors were observed in the soil samples.

Based upon field observations, Sear-Brown selected one soil sample from the four borings closest to the tank excavation (GP-201 through GP-204) for analytical testing of VOCs using EPA method 8021a by a NYSDOH certified analytical laboratory. There was insufficient soil recovery from GP-205 to allow analysis of soil from this boring. Additional samples were collected from the same four borings for compositing by the laboratory into two samples and analytical testing for SVOCs using EPA method 8270, PCBs using EPA method 8080, and total concentrations of the eight RCRA metals using EPA methods 6010/7471. The laboratory data revealed no consequential environmental impacts to soils.

Three of the six borings were completed as temporary small diameter groundwater monitoring wells using 1-inch diameter PVC well screen and riser. Each groundwater monitoring well was screened within the first water-bearing zone encountered. Based on the previous investigations of the Site, the groundwater monitoring wells were installed at depths of 13 to 16 feet bgs. Water levels ranged between 8.4 and 9.5-feet bgs and suggested a westerly groundwater flow direction in this area.

Given the soil findings and with the concurrence of Messrs. Carl Hettenbaugh and Todd Caffoe of the Department, the three wells that were installed were sampled for VOCs only using EPA Method 8021a. Three groundwater samples were collected from the small diameter PVC wells by peristaltic pump with new dedicated 1/4-inch high density polyethylene tubing.

The groundwater samples from the wells did not exhibit concentrations of VOCs above applicable standards or guidance values. A trace concentration (2.3 ug/l) of methyl tert-butyl ether (MTBE), a gasoline additive, was reported in one sample (GP-205). No other compounds or analytes of concern were present above their respective detection limits.

The results of the subsurface investigation suggest that the former USTs have not adversely affected the environmental quality of the soil and groundwater on the north side of Building C. Furthermore, there is no indication of other site contaminants of concerns related to this area.

<u>Progress Report (October 25, 2000)</u>

A Progress Report describing limited Voluntary Investigation work conducted to date was provided to the Department on October 25, 2000. The work was completed during the months of December 1999 and January 2000.

The property boundary and topographic survey of the subject property was completed by Sear-Brown on January 31, 2000. The topographic survey is referenced to the Rochester City Survey (RCS) datum.

Sear-Brown prepared a draft written notice to the owner of the high rise residential property south of the subject property identifying the purpose of, and reasons for, the proposed basement survey.

A geophysical survey was conducted by Geomatrix Consultants, Inc. on December 17, 1999 to assist in determining the location of potential underground storage tanks and other subsurface structures associated with the former filling station at the corner of St. Paul Street and Ward Street. The geophysical survey results identified two anomalous responses that will be used to refine the proposed subsurface investigation of the former gasoline station parcel. Anomaly A is a buried metal anomaly characterized by high electromagnetic response. Several linear anomalies appear to be associated with anomaly A suggesting the potential for buried pipes or utilities. Anomaly B is a buried metal anomaly located adjacent to a natural gas meter. It is possible that the gas meter and surrounding fencing are contributing to the geophysical response that was observed. Based on the information obtained from the geophysical survey, it has been proposed that a test pit program be performed to further investigate the two identified anomalies.

To investigate the potential discharge destination points of several floor drains, Sear Brown conducted dye tests on January 19, 2000. Prior to the dye tests, Sear-Brown researched the locations of the nearest municipal sewer system manholes. The dye tests involved introduction of a coloring agent to the floor drains and flushing the drains with potable water to observe the possible discharge locations (i.e. manhole, outfall) for the coloring agent.

It was determined that the floor drain in building "B" discharges to the municipal sewer system. Specifically, tracer dye was introduced to the floor drain and was observed flowing in the sanitary sewer under St. Paul Street.

The discharge location of the floor drain in building "A" could not be determined. Cold weather conditions during the investigation produced foggy conditions in several sewer manholes and obscured the observation of the tracer dye test at these locations. The dye test of the floor drain in Building "A" will, therefore, be repeated. In addition, floor drain sediment in Building "A" was sampled and reported to contain Aroclor 1254 at concentrations of 2.4 and 2.6 parts per million (ppm).

Tank Closure Beneath Building "C"

Sear-Brown observed in the closed-in-place abandonment of two (2) gasoline USTs within Building "C". Impacted soils were noted during bottom and side wall testing, the DEC was notified and a spill report (#0070547) was issued.

Piedmont filled the USTs with flowable fill on December 29, 2000. Upon a review by the Department of information gathered by Sear-Brown and Piedmont and a site visit by the Department, the DEC stated on January 11, 2001 that no further investigation or remedial action was necessary and that the spill would be removed from the Department's active files.

It is understood that since the work for the closure of spill file #0070547 was not conducted pursuant to the Voluntary Agreement, it will not be included in the final release for this site.

3.0 Project Organization and Responsibility

This QAPP provides for designated qualified personnel to review products and provide guidance on QA matters. This QAPP also outlines the approach to be followed to ensure that products of sufficient quality are obtained. Figure 3 illustrates the program organization. This structure will provide for direct and constant operational responsibility, clear lines of authority, and the integration of QA activities. The various QA functions of the project positions are explained in the following subsections.

Project Manager

The project manager will have overall responsibility for ensuring that the project meets the objectives and quality standards as presented in the Voluntary Environmental Investigation Work Plan and this QAPP. He will be responsible for implementing the project and will have the authority to commit the resources necessary to meet project objectives and requirements. The project manager's primary function is to ensure that technical, financial, and scheduling objectives are achieved successfully. The project manager will provide the major point of contact and control for matters concerning the project. In addition, he will be responsible for technical quality control and project oversight.

Team Leaders

The project manager will be supported by a team leader or leaders who will be responsible for leading and coordinating the day-to-day activities of the various resource specialists under their supervision. The team leader is a highly experienced environmental professional who will report directly to the project manager.

Technical Staff

The technical staff (team members) for this project will be drawn from corporate resources and appropriately qualified subcontractors. The technical team staff will be used to gather and analyze data, and to prepare various task reports and support materials. All of the designated technical team members will be experienced professionals who possess the degree of specialization and technical competence required to effectively and efficiently perform the required work.

Project QA Director

The Project QA Director will be responsible for maintaining QA for the project.

Laboratory Director

The laboratory director will be responsible for all analytical work and works in conjunction with the QA unit. He maintains liaison with the QA officer regarding QA and custody requirements.

Laboratory Manager

The laboratory manager will maintain liaison with the laboratory director regarding QA elements of specific sample analyses tasks. He will report to the laboratory director and work in conjunction with the laboratory QA unit.

Laboratory QA Coordinator

The Laboratory QA officer will be responsible for overseeing the QA program within the laboratory and for maintaining all QC documentation. He reports directly to the laboratory director.

Laboratory Staff

Each member of the laboratory staff will perform an assigned QA or analytical function that is pertinent to and within the scope of his or her knowledge, experience, training, and aptitude. An individual will be assigned the responsibility for checking, reviewing, or otherwise verifying that a sample analysis activity has been correctly performed.

Laboratory Facilities

All laboratory work will be performed in accordance with guidelines established by NYSDEC, USEPA, the Water Pollution Control Federation, and/or the American Society for Testing and Materials (ASTM). In case of conflict, these guidelines and protocols will be considered in the order shown (i.e., NYSDEC criteria is of primary precedence). In addition, QA and QC programs will be maintained for the instruments and the analytical procedures used. Severn Trent Laboratories has been identified to provide laboratory services for this project. The laboratory's preventative maintenance procedures are provided and outlined in their Laboratory Quality Manual presented in Attachment A.

The laboratory is certified by the DEC for the analysis and preparation of ASP Category B deliverables.

4.0 QA Objectives for Data Measurement

All measurements will be made to ensure that analytical results are representative of the media and conditions measured. Unless otherwise specified, all data will be calculated and reported in units consistent with other organizations who report similar data to allow comparability of databases among organizations.

The key considerations for the QA assessment of generated data are accuracy, precision, completeness, representativeness, and comparability. These characteristics are defined below:

Accuracy: Accuracy is the degree of agreement of a measurement or average of measurements with an accepted reference or "true" value and is a measure of bias in the system.

Precision: Precision is the degree of mutual agreement among individual measurements of a given parameter.

Completeness: Completeness is a measure of the amount of valid data obtained from a measurement system compared to the amount expected to be obtained under correct normal conditions.

Representativeness: Representativeness expresses the degree to which data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition.

Comparability: Comparability expresses the confidence with which one data set can be compared to another.

4.1 Goals

The QA/QC goal will focus on controlling measurement error within the limits established and will ultimately provide a database for estimating the actual uncertainty in the measurement data.

Target values for detection limit, percent spike recovery and percent "true" value of known check standards, and RPD of duplicates/replicates are provided in the referenced analytical procedures. It should be noted that target values are not always attainable. Instances may arise where high sample concentrations, non-homogeneity of samples, or matrix interferences preclude achievement of target detection limits or other quality control criteria. In such instances, the laboratory will report reasons for deviations from these detection limits or noncompliance with quality control criteria.

5.0 Sampling Procedures

The sampling of various environmental media will be completed as part of the Voluntary Investigation activities. Table 1 presents the location, type, and analytical requirements of samples to be collected as part of the Voluntary Investigation activities.

5.1 Sampling Protocol

The following sections outline the sampling procedures for the collection of environmental media samples of soils, groundwater, floor drain sludge, basement sump water, and basement air. Groundwater monitoring well installation procedures are described in the Work Plan.

5.1.1 Floor Drain Related Sampling

To complete the floor drain investigation, the above referenced floor drain in building "B" will be sampled for VOCs by ASP Method 95-1 and TCL Pesticides/PCBs by ASP Method 95-3 (Table 6). In addition, representative samples of the fluid in the hydraulic pumps within the basement of Building A will be collected for analysis of TCL Pesticides/PCBs by ASP Method 95-3.Samples will be collected from the drains and from within the pumps using a Teflon or stainless steel beaker or directly into the sample jars. Floor drain samples will be containerized for the type of analysis planned and the container requirements as shown on Table 2. The sample containers will be labeled in accordance with Section 6.3.

5.1.2 Basement Sump Sampling

The previously completed Limited Phase II Investigation suggested the potential for south-southwesterly off-site migration of contaminants in concentrations that may pose a concern to off-site receptors. Consequently, a basement survey of the residential high rise building south of the subject property will be conducted. Prior to collecting water samples from the sumps, the sump will be purged to remove stagnant water and allow fresh water to enter the sump, if sumps with water are present. Sumps will be purged using the existing sump-pump system. Following the completion of purging and recovery of water into the sump, water samples will be collected from the sump using a Teflon or stainless steel beaker or filled directly into the sample jars.

Sump water samples will be containerized for the type of analysis planned and the container requirements as shown on Table 2. The sample containers will be labeled in accordance with Section 6.3.

5.1.3 Basement Air Sampling

In the event that a sump containing water is not present, or if there are indications of chlorinated VOCs possibly being present in the sump sample, a time integrated air sampling program would be conducted during a second visit to the building. Sampling would be performed using DOH Method 311-6. If sump samples show specific VOCs that have been found at the Ward Street site, the analysis would be performed for those compounds. If a sump containing water is not present, the analysis would be performed for the following site-related VOCs: PCE, TCE, cis-1,2 DCE, vinyl chloride and 1,2 dibromo-3-chloropropane (Table 6).

Contingent on the size of the basement, and/or findings of the sump sampling program, up to three air samples would be collected using charcoal/Poropak tubes and pre-, and post-calibrated low flow personal sampling pumps.

5.1.4 Passive Soil Gas Survey

Sear-Brown will conduct a passive soil gas survey, using EMFLUX Soil-Gas Collectors, to evaluate the potential for impacts to nearby residential properties. A 1/2-inch boring (3 feet deep) will first be first drilled with a hand held rotary drill-hammer at each sample location. The drill bit will be decontaminated between locations by the method presented in Section 5.4. The soil gas collectors are next inserted in a second shallow (4 inch deep) small diameter (3/4-inch) boring on top of the 1/2-inch boring near the surface. 15 soil gas collectors are proposed to be installed. Some of the locations will be situated in the ROW which requires coordination with the City of Rochester. Product literature from the vendor on the installation of the soil gas collectors is presented in Appendix F of the Work Plan.

Following installation, each passive soil gas location will be surveyed. The northing and easting coordinates of each sample location will be determined by a licensed Sear-Brown survey crew using an existing horizontal site datum.

After three days, the soil gas collectors will be retrieved. The soil gas collectors will be analyzed for the presence of tetrachloroethene, trichloroethene, cis-1,2 dichloroethene and vinyl chloride as noted on Table 2 and labeled in accordance with Section 6.3. In addition, one trip blank sample will be analyzed for QA/QC purposes. The results of the soil gas survey may be used to assist in placement of the proposed groundwater monitoring wells described below.

5.1.5 Test Pit Soil Sampling

If evidence of impacts are noted, representative samples from the two test pits will be collected from the backhoe bucket or stockpiled soils. The test pits will be excavated to the top of native soils. In the event that indications of contamination are encountered at the fill/native soil interface, the test pit/test trench will extend into native soils to the base of any readily apparent contamination or the top of the water table, whichever is encountered first.

Test pit soils will be returned to the excavation, unless a source (e.g. tank, drum, drywell, and miscellaneous containers) is identified. Source materials will be excavated and staged on plastic sheeting for future disposal.

The sample containers will be labeled in accordance with Section 6.2. Sample handling, packaging and shipping is presented in Section 6.3.

5.1.6 Soil Boring Samples

Soil borings will be continuously sampled using a split-spoon sampler and methods specified in ASTM Methods D1586-84. This method requires driving the split spoon into the formation with a 140 pound hammer dropped from a height of 30 inches. Soil samples to be submitted for chemical analysis will be extracted from the core to provide a representative sample of that depth interval. These sub-cores will be extracted using a stainless steel trowel or knife. Care will be taken to ensure that the outer portion of the soil core which contacted the split spoon is removed by scraping with the trowel or knife.

Soil samples will be containerized for the type of analysis planned for the boring and the container requirements shown on Table 2. The sample containers will be labeled in accordance with Section 6.3.

5.1.7 Groundwater Samples

Groundwater monitoring wells will be developed and purged prior to sampling. Acceptable methods include bailers, peristaltic pumps, and inertia pumps. Bailers or inertia pumps may be initially used for development if the turbidity of the water is high. If evidence of contamination is observed or has been previously documented in existing wells, development and purge water will be collected and stored on site in 55-gallon drums. The wells will be sufficiently developed to reduce turbidity and to allow representative formation water to enter the well prior to sample collection. Water quality field parameters (turbidity, pH, specific conductance and temperature) will be monitored for each successive well volume removed during development. All well development water will be containerized.

Following well development and prior to collecting groundwater samples, the monitoring well will be purged to remove stagnant water and allow fresh formation water to enter the well. Wells will be purged using bailers and/or peristaltic pumps. Stabilized field parameter measurements (i.e., varying less than 10% over two successive well volumes) will be used as indications of inflow of representative groundwater to the wells. All purge water will be containerized.

Following the completion of purging, groundwater samples will be collected using dedicated Teflon bottom-filling bailers. Bailer cords will be made of polypropylene monofilament. A five -foot leader constructed of Teflon coated wire will be used with the polypropylene cord above.

Groundwater samples will be containerized for the type of analysis planned for the well and the container requirements as shown on Table 2. The sample containers will be labeled in accordance with Section 6.3.

5.2 Field Quality Control Samples

Field quality control samples will consist of trip blanks, field blanks, field duplicates, matrix spikes and matrix spike duplicates, as shown on Table 3.

5.3 Sample Containers

The volumes and containers required for the sampling activities are included in Table 2. Pre-washed sample containers will be provided by the laboratory. All bottles are to be prepared in accordance with EPA bottle washing procedures.

5.4 Decontamination

Dedicated and/or disposable sampling equipment will be used to minimize decontamination requirements and the possibility of cross-contamination.

The water level indicator is one piece of sampling equipment to be used at more than one location. The water level indicator will be decontaminated between locations by one of the following decontamination procedures:

- Initial cleaning of any foreign matter with paper towels;
- Low phosphate detergent wash;
- De-ionized water rinse; and
- Air dry.

The drill rig, augers, rods, split spoon samplers, and other related downhole equipment will be decontaminated using high pressure steam prior to initiating the soil boring program. This decontamination procedure will also used on the downhole equipment between each boring. Steam cleaning will be performed in a designated on-site decontamination area. Throughout and after the cleaning processes, direct contact between the equipment and the ground surface will not be permitted. Decontamination waste water will be collected in 55-gallon drums. The drill rig and associated equipment will also be cleaned upon completion of the investigation prior to departure from the site using the following methods:

- Initial cleaning of all foreign matter;
- Wash down with high pressure, high temperature spray to remove and/or volatilize organic contamination.

5.5 *Levels of Protection/Site Safety*

All sampling will be conducted under a documented Health and Safety Plan. On the basis of air monitoring, the level of protection may be downgraded or upgraded at the discretion of the site safety officer. Crew members will stand upwind of open boreholes or wellheads during the collection of samples, when possible.

All work will initially be conducted in Level D (refer to Site Specific Health and Safety Plan). Air purifying respirators (APRs) will be available if monitoring indicates an upgrade to Level C is appropriate.

6.0 Sample Custody

This section describes standard operating procedures for sample identification and chain-of-custody to be used for all field activities. The purpose of these procedures is to ensure that the quality of the samples is maintained during collection, transportation, storage, and analysis. All chain-of-custody requirements comply with standard operating procedures indicated in USEPA and NYSDEC sample-handling protocol.

Sample identification documents must be carefully prepared so that sample identification and chain-of-custody can be maintained and sample disposition controlled. Sample identification documents include:

- Field records,
- Sample label,
- Custody seals, and
- Chain-of-custody records.

6.1 Chain-Of-Custody

The primary objective of the chain-of-custody procedures is to provide an accurate written or computerized record that can be used to trace the possession and handling of a sample from collection to completion of all required analyses.

6.1.1 Sample Tags

Sample tags attached to or affixed around the sample container must be used to properly identify all samples collected in the field. The sample tags are to be placed on the bottles so as not to obscure any QA/QC lot numbers on the bottles; sample information must be printed in a legible manner using waterproof ink. Field identification must be sufficient to enable cross-reference with the field sampling records or sample logbook. For chain-of-custody purposes, all QC samples are subject to exactly the same custodial procedures and documentation as "real" samples.

6.1.2 Custody Seals

Custody seals are preprinted adhesive-backed seals with security slots designed to break if the seals are disturbed. Sample shipping containers (coolers, cardboard boxes, etc., as appropriate) are sealed in as many places as necessary to ensure security. Seals must be signed and dated before use. On receipt at the laboratory, the custodian must check (and certify, by completing logbook entries) that seals on shipping containers are intact. Strapping tape should be placed over the seals to ensure that seals on shipping containers are not accidentally broken during shipment.

6.1.3 Chain-Of-Custody Record

The chain-of-custody record must be fully completed at least in duplicate by the field technician who has been designated by the project manager as being responsible for sample shipment to the appropriate laboratory for analysis. In addition, if samples are known to require rapid turnaround in the laboratory because of project time constraints or analytical concerns (e.g., extraction time or sample retention period limitations, etc.), the person completing the chain-of-custody record should note these constraints in the "Remarks" section of the custody record.

6.1.4 Field Custody Procedures

- As few persons as possible should handle samples.

- Sample bottles will be obtained pre-cleaned by the laboratory and shipped to the sampling personnel in charge of the field activities. Coolers or boxes containing cleaned bottles should be sealed with a custody tape seal during transport to the field or while in storage prior to use.

- The sample collector is personally responsible for the care and custody of samples collected until they are transferred to another person or dispatched properly under chain-of-custody rules.

- The sample collector will record sample data in a controlled field notebook and/or on appropriate field sampling records.

- The site team leader will determine whether proper custody procedures were followed during the fieldwork and decide if additional samples are required.

6.2 Documentation

6.2.1 Sample Identification

All containers of samples collected from the project will be identified using the following format on a label or tag fixed to the sample container:

WS-XX-YY

- WS - This set of initials indicates the Ward Street Site investigation project.

- XX - These initials identify the sample. Actual sample locations will be recorded on the sampling record. Field duplicates, field blanks and rinsate blanks will be assigned unique sample numbers.

- YY - These initials identify the sample matrix in accordance with the following abbreviations:

GW - Groundwater Sample
BAW - Basement Sump Sample (if necessary)
BAS - Basement Air Sample
FD - Floor Drain Sample
HP - Hydraulic Pump Sample
SS - Soil Sample
CSS - Composite Soil Sample
SV – Soil Vapor Sample

Each sample will be labeled, chemically preserved, if required and sealed immediately after collection. To minimize handling of sample containers, labels will be filled out prior to sample collection. The sample label will be filled out using waterproof ink and will be firmly affixed to the sample containers. The sample label will give the following information:

- Name of sampler;
- Date and time of collection;
- Sample number;
- Intended analysis; and
- Preservation required.

6.2.2 Daily Logs

Daily logs and data forms are necessary to provide sufficient data and observations to enable participants to reconstruct events that occurred during the project. All daily logs will be kept in a notebook and consecutively numbered. All entries will be made in waterproof ink, dated, and signed. Sampling data will be recorded in the sampling records. All information will be completed in waterproof ink. Corrections will be made according to the procedures given at the end of this section.

6.3 *Sample Handling, Packaging, And Shipping*

The transportation and handling of samples must be accomplished in a manner that not only protects the integrity of the sample, but also prevents any detrimental effects due to the possible hazardous nature of samples. Regulations for packaging, marking, labeling, and shipping hazardous materials are promulgated by the United States Department of Transportation (DOT) in the Code of Federal Regulations, 49 CFR 171 through 177.

All chain-of-custody requirements must comply with standard operating procedures in the NYSDEC and USEPA sample handling protocol. Field personnel will make arrangements for transportation of samples to the laboratory. When custody is relinquished to a shipper, field personnel will telephone the laboratory custodian to inform him of the expected time of arrival of the sample shipment and to advise him of any time constraints on sample analysis. All samples will be delivered to the laboratory no later than 72 hours from the day of collection.

7.0 Calibration Procedures And Frequency

All instruments and equipment used during sampling and analysis will be operated, calibrated, and maintained according to the manufacturer's guidelines and recommendations as well as criteria set forth in the applicable analytical methodology references.

7.1 Field Instruments

A calibration program will be implemented to ensure that routine calibration is performed on all field instruments. Field team members familiar with the field calibration and operations of the equipment will maintain proficiency and perform the prescribed calibration procedures outlined in the Operation and Field Manuals accompanying the respective instruments. Calibration records for each field instrument used on the project will be maintained on-site during the respective field activities and a copy will be kept in the project files.

7.1.1 Portable Total Organic Vapor Monitor

Any vapor monitor used will undergo routine maintenance and calibration prior to shipment to the project site. Daily calibration and instrument checks will be performed by a trained team member at the start of each day. Daily calibrations will be performed according to the manufacturer's specifications and are to include the following:

Battery check: If the equipment fails the battery check, recharge the battery.

- Gas standard: The gauge should display an accurate reading when a standard gas is used.
- Cleaning: If proper calibration cannot be achieved, then the instrument ports must be cleaned.

7.1.2 pH and Specific Conductance

The following steps should be observed by personnel engaged in groundwater sampling for pH and specific conductance:

- The operation of the instrument should be checked with fresh standard buffer solution (pH 4 and pH 10) prior to each day's sampling.

- The specific conductance meter should be calibrated prior to each sampling event using a standard solution of known specific conductance.

More frequent calibrations may be performed as necessary to maintain analytical integrity. Calibration records for each field instrument used on the project should be maintained and a copy kept in the project files.

7.2 Laboratory Instruments

Laboratory calibration procedures are addressed in detail in the laboratory QAPP. A copy of the laboratory QAPP will be provided upon selection of a certified laboratory. All calibration procedures will be consistent with the method used for analysis.

8.0 Analytical Procedures

8.1 Field

On-site procedures for analysis of total organic vapor and other field parameters are addressed in the Investigation Work Plan.

8.2 Laboratory

Specific analytical methods for constituents of interest in soil and groundwater are listed in Table 2. The laboratory will maintain and have available for the appropriate operators standard operating procedures relating to sample preparation and analysis according to the methods stipulated in Table 2. Where the noted method does not contain a detection limit for the listed compound, the laboratory will complete method detection limit studies according to SW-846 protocols. The studies will be completed prior to the analysis of samples, and the documentation submitted to the designated representative for approval.

9.0 Data Reduction and Reporting

QA/QC requirements will be strictly adhered to during sampling and analytical work. All data generated will be reviewed by comparing and interpreting results from chromatograms (responses, stability of retention times), accuracy (mean percent recovery of spiked samples), and precision (reproducibility of results). Refer to Section 10 for detailed discussion of QA/QC protocol.

Data storage and documentation will be maintained using logbooks and data sheets that will be kept on file. Analytical QC will be documented and included in the analytical testing report. A central file will be maintained for the sampling and analytical effort after the final laboratory report is issued.

All calculations and data manipulations are included in the appropriate methodology references. Control charts and calibration curves will be used to review the data and identify outlying results. Prior to the submission of the report to the client, all data will be evaluated for precision, accuracy, and completeness. Sections 4.0, 8.0, and 13.0 of this document include some of the QC criteria to be used in the data evaluation process.

Laboratory reports will be reviewed by the laboratory supervisor, the QA officer, laboratory manager and/or director, and the project manager. Analytical reports will contain a data tabulation including results and supporting QC information will be provided. Raw data will be available for later inspection, if required, and maintained in the control job file.

10.0 Internal Quality Control Checks

QC data are necessary to determine precision and accuracy and to demonstrate the absence of interferences and/or contamination of glassware and reagents. The procedures to be followed for internal quality control checks are consistent with DEC ASP protocols.

11.0 Performance And System Audits

11.1 Field Audits

The Project QA Director may conduct episodic audits of the operations at the site to ensure that work is being performed in accordance with the work plan and associated standard operating practice. The audit will cover, but not necessarily be limited to, such areas as:

- Conformance to standard operating procedures
- Completeness and accuracy of documentation
- Chain of custody procedures
- Compliance with the Health and Safety Plan
- Construction specifications

11.2 Laboratory Audits

In addition to any audits required by DEC, the Project QA Director may chose to audit the laboratory. These additional audits may take the form of Performance evaluation samples or on-site inspections of the laboratory. Performance evaluation samples may be either blind samples or samples of known origin to the laboratory. Reasonable notice will be provided if the audit is to include an on-site inspection of the laboratory.

12.0 Preventive Maintenance

12.1 Field

Field personnel assigned to complete the work will be responsible for preventative maintenance of all field instruments. The field sampling personnel will protect the portable total organic vapor monitors, temperature, conductivity, and pH instruments by placing them in portable boxes and/or protective cases.

All field equipment will be subject to a routine maintenance program, prior to and after each use. The routine maintenance program for each piece of equipment will be in accordance with the manufacturer's operations and maintenance manual. All equipment will be cleaned and checked for integrity after each use. Necessary repairs will be performed immediately after any defects are observed, and before the item of equipment is used again. Equipment parts with a limited life (such as batteries, membranes and some electronic components) will be periodically checked and replaced or recharged as necessary according to the manufacturer's specifications.

12.2 Laboratory

Severn Trent Laboratories has been identified to provide laboratory services for this project. The laboratory's preventative maintenance procedures are provided and outlined in their Laboratory Quality Manual presented in Attachment A.

13.0 Data Assessment Procedures

Performance of the following calculations will be completed to evaluate the accuracy, precision and completeness of collected measurement data.

13.1 Precision

Precision of a particular analysis is measured by assessing its performance with duplicate or replicate samples. Duplicate samples are pairs of samples taken in the field and transported to the laboratory as distinct samples. Their identity as duplicates is sometimes not known to the laboratory and usually not known to bench analysts, so their usefulness for monitoring analytical precision at bench level is limited. For most purposes precision is determined by the analysis of replicate pairs (i.e., two samples prepared at the laboratory from one original sample). Often in replicate analysis the sample chosen for replication does not contain target analytes so that quantification of precision is impossible. Replicate pairs of spiked samples, known as matrix spike/matrix spike duplicate samples, are used for precision studies. This has the advantage that two real positive values for a target analyte can be compared.

Precision is calculated in terms of Relative Percent Difference (RPD), which is expressed as follows:

$$RPD = \frac{(X_1 - X_2)}{(X1 + X2)/2} \times 100$$

where X_1 and X_2 represent the individual values found for the target analyte in the two replicate analyses or in the matrix spike/matrix spike duplicate analyses.

RPDs must be compared to the method RPD for the analysis. The analyst or his supervisor must investigate the cause of RPDs outside stated acceptance limits. This may include a visual inspection of the sample for non-homogeneity, analysis of check samples, etc. Follow-up action may include sample re-analysis or flagging of the data as suspect if problems cannot be resolved.

13.2 Accuracy

Accuracy of a particular analysis is measured by assessing its performance with "known" samples. These "knowns" can take the form of EPA or NBS traceable standards (usually spiked into a pure water matrix), or laboratory prepared solutions of target analytes into a pure water or sample matrix; or (in the case of GC or GC/MS analyses) solutions of surrogate compounds which can be spiked into every sample and are designed to mimic the behavior of target analytes without interfering with their determination. In each case the recovery of the analyte is measured as a percentage, corrected for analytes known to be present in the original sample if necessary, as in the case of a matrix spike analysis. For EPA or NBS supplied known solutions, this recovery is compared to the published data that accompany the solution. For prepared solutions, the recovery is compared to EPA-developed data or historical data as available. For surrogate compounds, recoveries are compared to USEPA CLP acceptable recovery tables. If recoveries do not meet required criteria, then the analytical data for the batch (or, in the case of surrogate compounds, for the individual sample) are considered potentially inaccurate.

For highly contaminated samples, recovery of matrix spike may depend on sample homogeneity. As a rule, analyses are not corrected for recovery of matrix spike or surrogate compounds.

13.3 Completeness

Completeness is a measure of the amount of valid data obtained from a measurement system compared to the total amount expected to be obtained under normal conditions. Completeness for each parameter is calculated as:

$$\text{Completeness} = \frac{\text{Number of successful analyses x 100}}{\text{Number of requested analyses}}$$

Target value for completeness for all parameters is 100%. A completeness value of 95% will be considered acceptable. Incomplete results will be reported to the client project officer.

13.4 Representativeness

The characteristic of representativeness is not quantifiable. Subjective factors to be taken into account are as follows:

- The degree of homogeneity of a site;
- The degree of homogeneity of a sample taken from one point in a site; and
- The available information on which a sampling plan is based.

To maximize representativeness of results, sampling techniques and sample locations will be carefully chosen so that they provide laboratory samples representative of the site and the specific area.

14.0 Corrective Action

Corrective actions can be initiated as a result of performance and system audits, laboratory and interfield comparison studies, data validation, and/or a QA program audit. They may also be required as a result of a request from project representatives. All corrective action necessary to resolve analytical problems will be taken. Success or failure of corrective actions will be reported with an estimate of effect on data quality, if any.

Corrective actions may include altering procedures in the field, conducting subsequent audits, or modifying project protocol. Time and type of corrective action, if needed, will depend on the severity of the problem and relative overall project importance. The project manager is responsible for initiating corrective action and the team leader is responsible for its implementation in the correction of field non-conformance corrective actions.

15.0 Quality Assurance Reports

Upon completion of a project sampling effort, analytical and QC data will be included in a Data Usability Summary Report (DUSR) that summarizes the work and provides a data evaluation. A discussion of the usability of the results in the context of QA/QC procedures will be made, as well as a summation of the QA/QC activity. The DUSR will be performed in accordance with the DEC's "Guidance for the Development of Data Usability Summary Reports," revised September, 1997. The data usability evaluation will be performed by Ms. Judy Harry of Data Validation Services, North Creek, New York. Ms. Harry has been providing independent data validation services for 12 years.

Serious analytical problems will be reported. Time and type of corrective action, if needed, will depend on the severity of the problem and relative overall project importance. Corrective actions may include altering procedures in the field, conducting an audit, or modifying laboratory protocol. All corrective action will be implemented after notification of project representatives.

TABLES

TABLE 1
SUMMARY OF SAMPLING LOCATIONS AND ANALYSIS

Sample No.	Location(s)	Sampling Depth	Media	Sampling Method	Analyses
WS-BAW-1	Basement Sump[1]	TBD	Sump Water	Grab	95-1 VOCs
WS-BAA-1	Basement Air[3]	TBD	Air	Sampling Pump	DOH Method 311-6
WS-BAA-2	Basement Air[3]	TBD	Air	Sampling Pump	DOH Method 311-6
WS-BAA-3	Basement Air[3]	TBD	Air	Sampling Pump	DOH Method 311-6
WS-FD-BA [4]	Floor Drain Building A	TBD	Sludge	Grab	95-1 VOCs, 95-3 Pest/PCBs
WS-FD-BA-1	Hydraulic Pumps Building A-1	TBD	Sludge	Grab	95-3 Pest/PCBs
WS-FD-BA-2	Hydraulic Pumps Building A-2	TBD	Sludge	Grab	95-3 Pest/PCBs
WS-FD-BAB	Floor Drain Building B	TBD	Sludge	Grab	95-1 VOCs, 95-3 Pest/PCBs
WS-SV-1	Ward Street R.O.W.	0-4"	Vapor	Emflux™ Sampler	EPA Method 8260 [5]
WS-SV-2	Ward Street R.O.W.	0-4"	Vapor	Emflux™ Sampler	EPA Method 8260 [5]
WS-SV-3	Ward Street R.O.W.	0-4"	Vapor	Emflux™ Sampler	EPA Method 8260 [5]
WS-SV-4	Ward Street R.O.W.	0-4"	Vapor	Emflux™ Sampler	EPA Method 8260 [5]
WS-SV-5	Ward Street R.O.W.	0-4"	Vapor	Emflux™ Sampler	EPA Method 8260 [5]
WS-SV-6	Ward Street R.O.W.	0-4"	Vapor	Emflux™ Sampler	EPA Method 8260 [5]
WS-SV-7	Ward Street R.O.W.	0-4"	Vapor	Emflux™ Sampler	EPA Method 8260 [5]
WS-SV-8	Ward Street R.O.W.	0-4"	Vapor	Emflux™ Sampler	EPA Method 8260 [5]
WS-SV-9	Ward Street R.O.W.	0-4"	Vapor	Emflux™ Sampler	EPA Method 8260 [5]
WS-SV-10	Ward Street R.O.W.	0-4"	Vapor	Emflux™ Sampler	EPA Method 8260 [5]
WS-SV-11	Ward Street R.O.W.	0-4"	Vapor	Emflux™ Sampler	EPA Method 8260 [5]
WS-SV-12	Ward Street R.O.W.	0-4"	Vapor	Emflux™ Sampler	EPA Method 8260 [5]
WS-SV-13	Ward Street R.O.W.	0-4"	Vapor	Emflux™ Sampler	EPA Method 8260 [5]
WS-SV-14	Ward Street R.O.W.	0-4"	Vapor	Emflux™ Sampler	EPA Method 8260 [5]
WS-SV-15	Ward Street R.O.W.	0-4"	Vapor	Emflux™ Sampler	EPA Method 8260 [5]
WS-TP-1-S [6]	Test Pit 1	TBD	Soil	Grab	95-1 VOCs, 95-2 SVOCs
WS-TP-2-S [6]	Test Pit 2	TBD	Soil	Grab	95-1 VOCs, 95-2 SVOCs
WS-B9R-SS	B-9R	TBD	Soil	Split Spoon	95-1 VOCs, 95-2 SVOCs 95-3 Pest/PCBs , TAL Metals

TABLE 1
SUMMARY OF SAMPLING LOCATIONS AND ANALYSIS

Sample No.	Location(s)	Sampling Depth	Media	Sampling Method	Analyses
WS-B15R-SS [7]	B-15R	TBD	Soil	Split Spoon	95-1 VOCs
WS-B16-SS[7]	B-16	TBD	Soil	Split Spoon	95-1 VOCs
WS-B17-SS [7]	B-17	TBD	Soil	Split Spoon	95-1 VOCs
WS-B18-SS	B-18	TBD	Soil	Split Spoon	95-1 VOCs, 95-2 SVOCs, 95-3 Pest/PCBs , TAL Metals
WS-B19-SS	B-19	TBD	Soil	Split Spoon	95-1 VOCs, 95-2 SVOCs, 95-3 Pest/PCBs , TAL Metals
WS-B20-SS[7]	B-20	TBD	Soil	Split Spoon	95-1 VOCs
WS-B21-SS[7]	B-21	TBD	Soil	Split Spoon	95-1 VOCs
WS-B22-SS	B-22	TBD	Soil	Split Spoon	95-1 VOCs, 95-2 SVOCs, 95-3 Pest/PCBs , TAL Metals
WS-B105-SS[7]	B-105	TBD	Soil	Geoprobe	95-1 VOCs
WS-B106-SS [7]	B-106	TBD	Soil	Geoprobe	95-1 VOCs
WS-B107-SS[7]	B-107	TBD	Soil	Geoprobe	95-1 VOCs
WS-B20/21-CSS	B-20/B-21[8]	TBD	Soil	Split Spoon	95-2 SVOCs, 95-3 Pest/PCBs, TAL Metals
WS-B105/106/107-CSS	B-105/B-106/B-107[8]	TBD	Soil	Geoprobe	95-2 SVOCs, 95-3 Pest/PCBs, TAL Metals
WS-B16/17-CSS	B-16/B-17[8]	TBD	Soil	Split Spoon	95-2 SVOCs, 95-3 Pest/PCBs, TAL Metals
WS-MW3-GW	MW-3	Mid-depth	Groundwater	Peristaltic pump	95-1 VOCs, 95-2 SVOCs [9]
WS-MW5-GW	MW-5	Mid-depth	Groundwater	Peristaltic pump	95-1 VOCs, 95-2 SVOCs 9[5]
WS-MW9-GW	MW-9	Mid-depth	Groundwater	Peristaltic pump	95-1 VOCs, 95-2 SVOCs [9], 95-3 Pest/PCBs, TAL Metals, Inorganic Analyses [10]
WS-MW9R-GW	MW-9R	Mid-depth	Groundwater	Peristaltic pump	95-1 VOCs, SVOCs [9], Inorganic Analyses [10]
WS-MW14-GW	MW-14	Mid-depth	Groundwater	Peristaltic pump	95-1 VOCs, 95-2 SVOCs [9]
WS-MW15-GW	MW-15	Mid-depth	Groundwater	Peristaltic pump	95-1 VOCs, 95-2 SVOCs [9]
WS-MW16-GW	MW-16	Mid-depth	Groundwater	Peristaltic pump	95-1 VOCs, 95-2 SVOCs [9]
WS-MW16R-GW	MW-16R	Mid-depth	Groundwater	Peristaltic pump	95-1 VOCs, 95-2 SVOCs [9]
WS-MW17-GW	MW-17	Mid-depth	Groundwater	Peristaltic pump	95-1 VOCs, 95-2 SVOCs [9]
WS-MW17R-GW	MW-17R	Mid-depth	Groundwater	Peristaltic pump	95-1 VOCs, 95-2 SVOCs [9]
WS-MW18-GW	MW-18	Mid-depth	Groundwater	Peristaltic pump	95-1 VOCs, 95-2 SVOCs [9]

TABLE 1
SUMMARY OF SAMPLING LOCATIONS AND ANALYSIS

Sample No.	Location(s)	Sampling Depth	Media	Sampling Method	Analyses
WS-MW19-GW	MW-19	Mid-depth	Groundwater	Peristaltic pump	95-1 VOCs, 95-2 SVOCs [9]
WS-MW20-GW	MW-20	Mid-depth	Groundwater	Peristaltic pump	95-1 VOCs, 95-2 SVOCs, 95-3 Pest/PCBs , TAL Metals
WS-MW21-GW	MW-21	Mid-depth	Groundwater	Peristaltic pump	95-1 VOCs, 95-2 SVOCs [9]
WS-MW22-GW	MW-22	Mid-depth	Groundwater	Peristaltic pump	95-1 VOCs, 95-2 SVOCs [9] 95-3 Pest/PCBs , TAL Metals, Inorganic Analyses [10]
WS-MW101-GW	MW-101	Mid-depth	Groundwater	Peristaltic pump	95-1 VOCs, 95-2 SVOCs [9]
WS-MW107-GW	MW-107	Mid-depth	Groundwater	Peristaltic pump	95-1 VOCs, 95-2 SVOCs [9]

Notes:

1. Sample collection contingent on the presence of sumps containing water.
2. TBD is to be determined, based upon the results of field screening.
3. If elevated VOC levels are detected in sump water samples or HNu PID measurements.
4. Sample collected on January 19, 2000.
5. Soil gas VOCs to include tetrachlorethene, tricholoethene, cis-1,2-dichloroethene and vinyl chloride.
6. Samples will be submitted if indications of environmental imapcts are suggested by field observations.
7. Grab samples will be collected and submitted for analysis of SVOCs by ASP Method 95-2 if indications of petroleum related impacts are suggested by field observations.
8. If field observations do not suggest an environmental impact, one grab sample will be collected from one boring in each group.
9. Analysis for SVOCs will be contingent upon analytical soil results.
10. Inorganic analyses will include TOC, TDS, TSS, alkalinity, hardness, chloride, sulfate, calcium, sodium, potassium, magnesium, iron and manganese.

TABLE 2
REQUIRED SAMPLE CONTAINERS, VOLUMES, PRESERVATION, AND HOLDING TIMES

Media	Type of Analysis	Required Container	Preferred Sample Volume	Preservation	Maximum Holding Time
Soil	NYSDEC ASP 95-1 VOCs	4 oz.cwm	4 oz.	Cool 4°C	VSTR + 10 days
	NYSDEC ASP 95-2 SVOCs	4 oz.cwm	4 oz.	Cool 4°C	VSTR + 5 days
	NYSDEC ASP 95-3 Pest/PCBs	4 oz.cwm	4 oz.	Cool 4°C	VSTR + 5 days
	TAL Metals	4 oz.cwm	4 oz.	Cool 4°C	VSTR + 6 Months
*Groundwater and Sump Water**	NYSDEC ASP 95-1 VOCs	(2) 40 ml glass vials	80 ml	pH<2, HCL	VTSR + 10 days if acidified with HCL
	NYSDEC ASP 95-2 SVOCs	1000 ml amber glass jar	1000 ml	pH<2, HCL	VTSR + 5 days if acidified with HCL
	NYSDEC ASP 95-3 Pest/PCBs	1000 ml amber glass jar	1000 ml	Cool 4°C	VTSR + 5 days if acidified with HCL
	TAL Metals	100-200 ml plastic or glass jar	100-200 ml	pH<2, HNO3	VTSR + 6 Months
Basement Air	DOH Method 311-6	SKC 226-127 Poropac Filter	N/A	Cool 4°C	14 Days

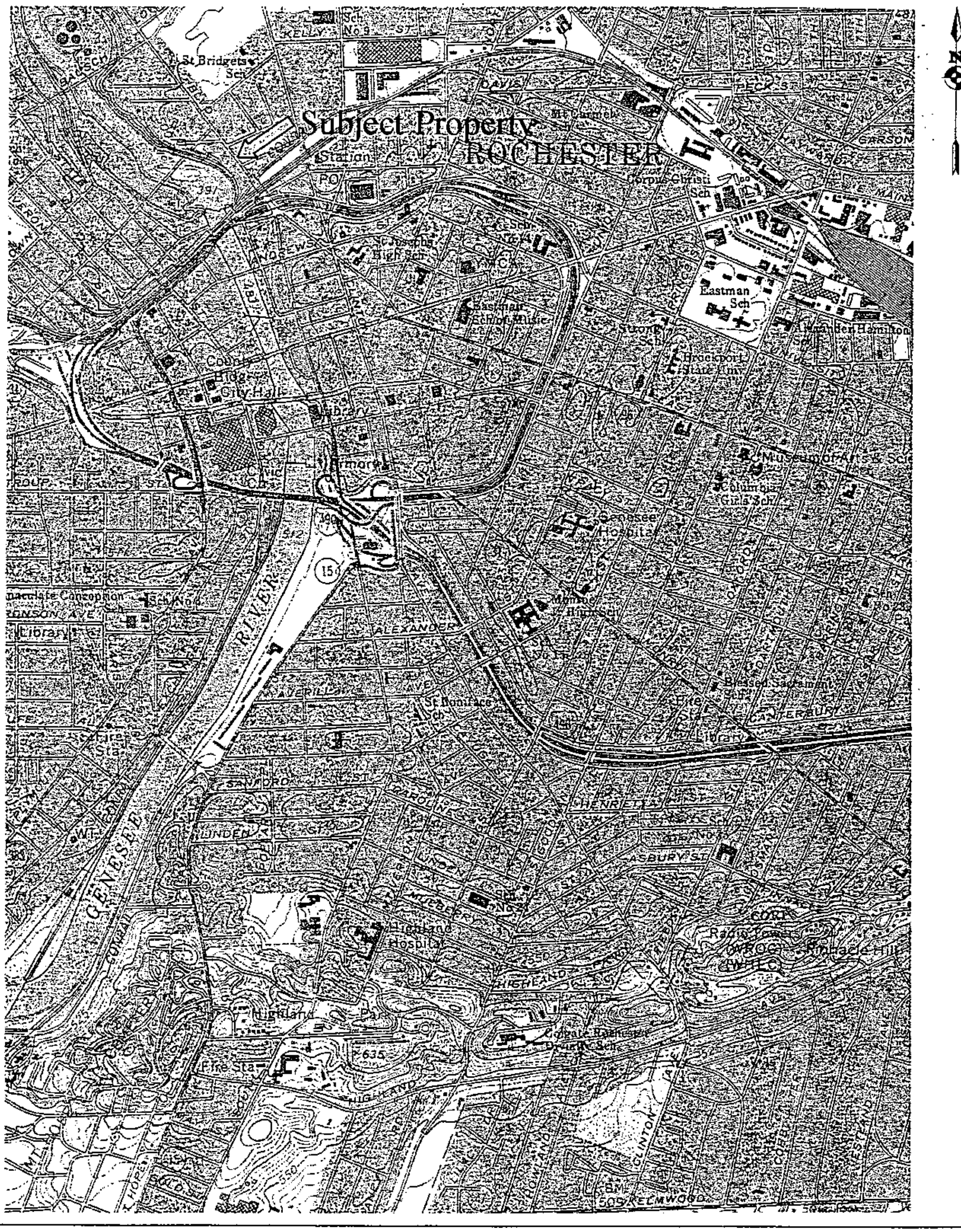
Notes:

1. Samples have to be received by the lab within 48 hours of the first sample being taken.
2. * = if necessary and present
3. VTSR = Validated Time of Sample Receipt at laboratory
4. cwm = clear wide mouth jar

TABLE 3
SUMMARY OF QUALITY CONTROL CHECKS

Type of QC Check	Frequency	Min. Number Required	Remarks
Laboratory Blanks			
Method Blanks	1 per sample batch	1 or 5% of batch size	Batch may include samples from other projects
Reagent/Solvent Blanks	1 per lot	1	
Standard Reference Blanks	1 per sample batch	1 or 5% of batch size	Batch may include samples from other projects
Matrix Spike Blanks	1 per sample batch	1 or 5% of batch size	Batch may include samples from other projects
Duplicates/ Replicates			
Field Duplicates	1 per event per media	1	Sample to be selected based on field screening
Laboratory Replicates	1 per batch	1	None planned but may be required to perform additional analyses on a sample

FIGURES



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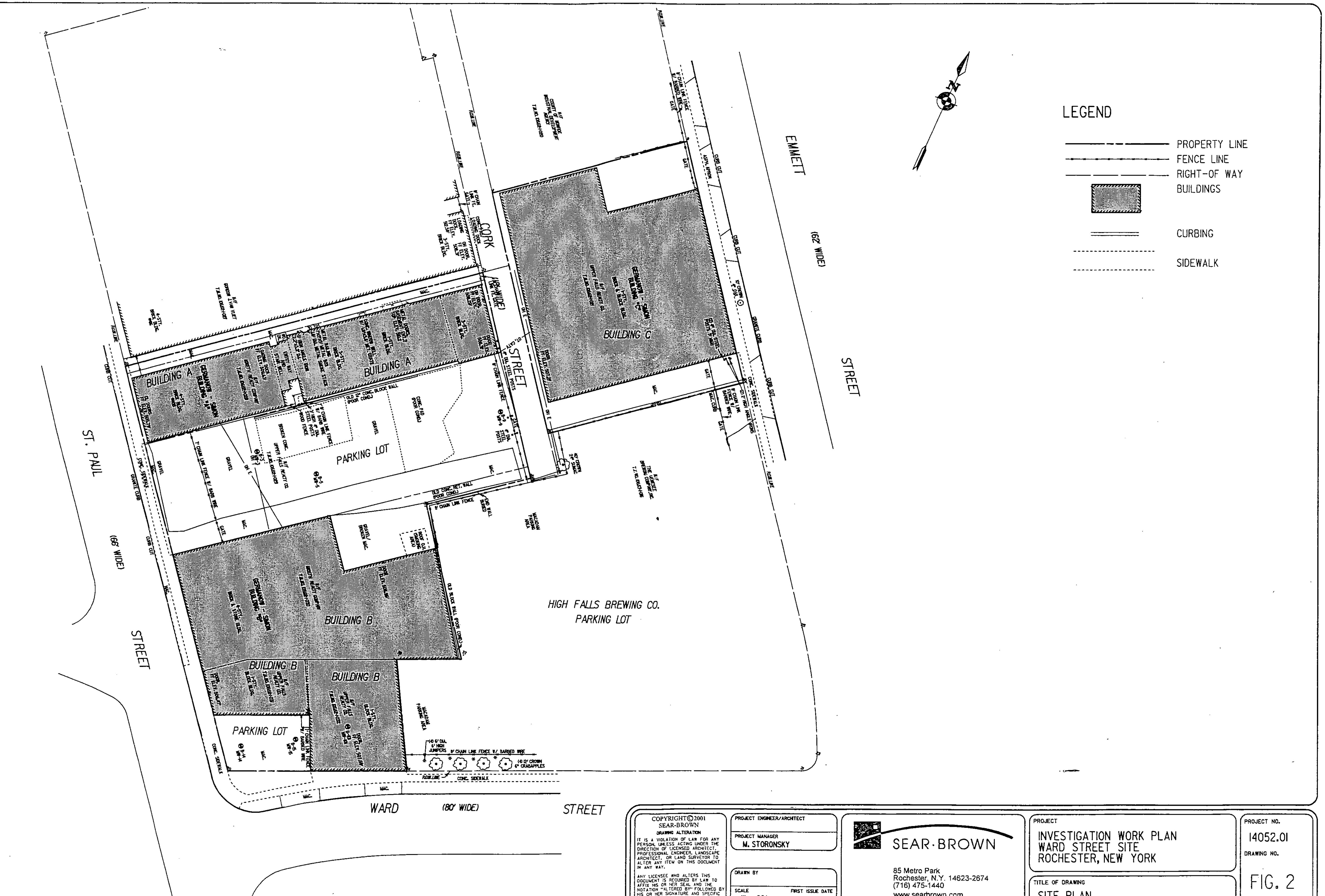
PROJECT
Ward Street Site
Rochester , NY

TITLE OF DRAWING
SITE LOCATION

PROJECT NO.
14052.01

DRAWING NO.
Fig. 1



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SCALE
1" = 60'

FIRST ISSUE DATE

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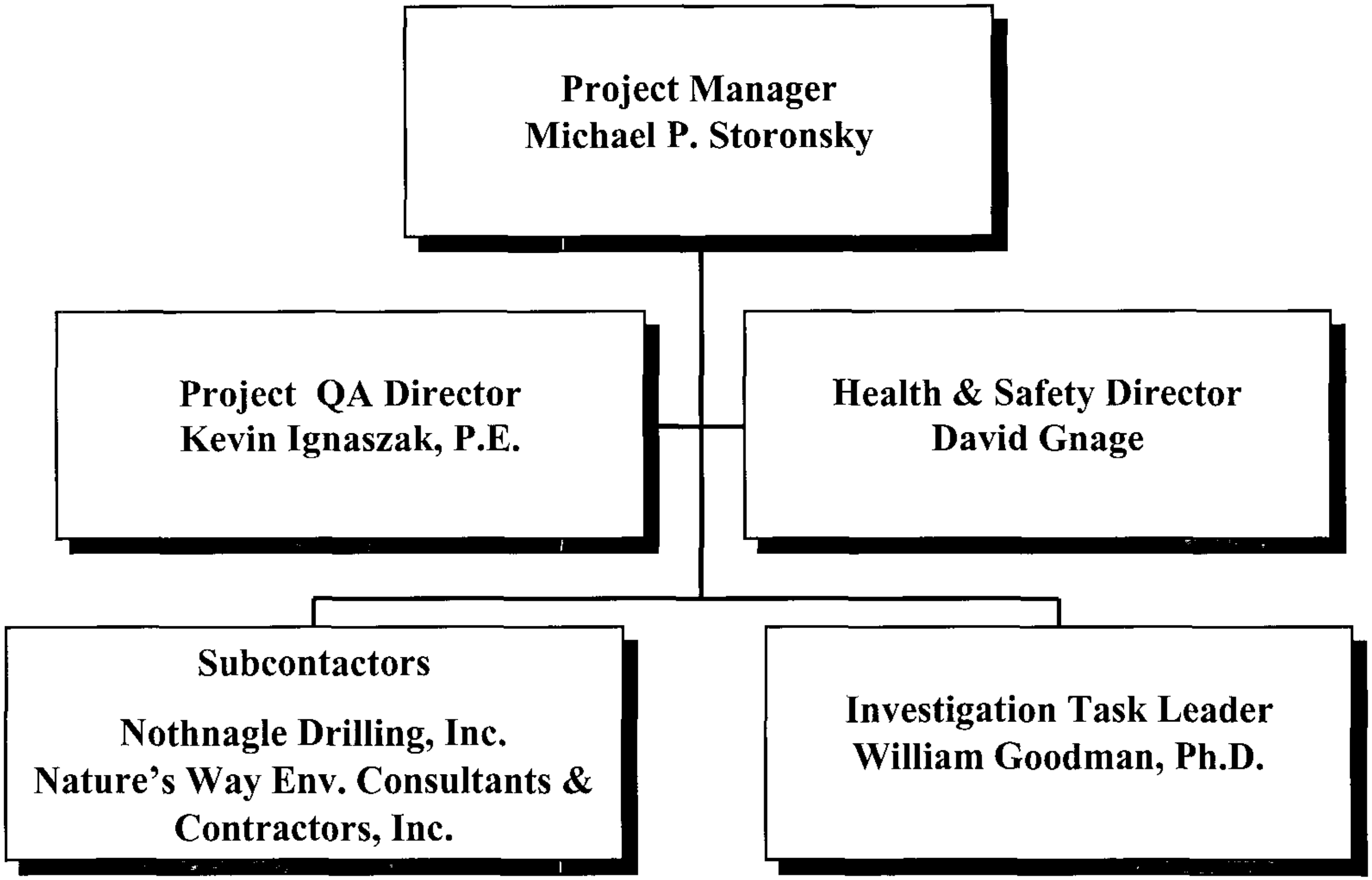
PROJECT
INVESTIGATION WORK PLAN
WARD STREET SITE
ROCHESTER, NEW YORK

TITLE OF DRAWING
SITE PLAN

PROJECT NO.
14052.01

DRAWING NO.
FIG. 2

FIGURE 3
PROJECT ORGANIZATIONAL CHART



ATTACHMENT A

Qu
Quality

STL Buffalo

10 Hazelwood Drive
Amherst, New York 14228

Laboratory Quality Manual

Revision: 1

Written: January 18, 2001

UNCONTROLLED COPY

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3.0 Description

3.1 Introduction

Severn Trent Laboratories (STL)-Buffalo is a part of Severn Trent Services Inc. (STS), a major group of US based companies. Both companies are owned by Severn Trent, plc, an international provider of water and wastewater services headquartered in Birmingham, UK.

3.2 Terms and Definitions

Accuracy: the degree of agreement between an observed value and an accepted reference value.

Audit: a systematic evaluation to determine the conformance to specifications of an operational function or activity.

Batch: environmental samples, which are prepared and/or analyzed together with the same process, using the same lot(s) of reagents. A preparation batch is composed of one to 20 environmental samples of the same matrix, meeting the above mentioned criteria. An analytical batch is composed of prepared environmental samples, extracts, digestates or concentrates that are analyzed together as a group. An analytical batch can include prepared samples originating from various environmental matrices and can exceed 20 samples.

Chain of Custody (COC): an unbroken trail of accountability that ensures the physical security of samples, data and records.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA/Superfund): legislation (42 U.S.C. 9601-9675 et seq., as amended by the Superfund Amendments and reauthorization Act of 1986 (SARA), 42 U.S.C. 9601et seq.)

Compromised Sample: a sample received in a condition that jeopardizes the integrity of the results.

Confidential Business Information (CBI): information that an organization designates as having the potential of providing a competitor with inappropriate insight into its management, operation or products.

Confirmation: verification of the presence of a component using an additional analytical technique. These may include second column confirmation, alternate wavelength, derivatization, mass spectral interpretation, alternative detectors, or additional cleanup procedures.

Corrective Action: action taken to eliminate the causes of an existing non-conformance, defect or other undesirable situation in order to prevent recurrence.

Data Audit: a qualitative and quantitative evaluation of the documentation and procedures associated with environmental measurements to verify that the resulting data are of acceptable quality.

Equipment Blank: a portion of the final rinse water used after decontamination of field equipment; also referred to as Rinsate Blank and Equipment Rinsate.

Document Control: the act of ensuring that documents (and revisions thereto) are proposed, reviewed for accuracy, approved for release by authorized personnel, distributed properly and controlled to ensure use of the correct version at the location where the prescribed activity is performed.

Federal Water Pollution Control Act (Clean Water Act, CWA): legislation under 33 U.S.C. 1251 et seq., Public Law 92-50086 Stat. 816.

Field Blank: a blank matrix brought to the field and exposed to field environmental conditions.

Good Laboratory Practices (GLP): formal regulations for performing basic laboratory operations outlined in 40 CFR Part 160 and 40 CFR Part 729 and required for activities performed under FIFRA and TSCA.

Good Automated Laboratory Practices (GALP): EPA 2185, 1995. Referenced as part of the basis of the STL Buffalo Quality system.

Holding Time: the maximum time that a sample may be held before preparation and/or analysis and still be considered valid as promulgated in the method.

Initial Demonstration of Capability (IDOC): procedure to establish the ability to generate acceptable accuracy and precision. Also referred to as Initial Demonstration of Proficiency.

Instrument Blank: a blank matrix that is the same as the processed sample matrix (i.e. extract, digestate, and condensate) and introduced onto the instrument for analysis.

Laboratory Control Sample (LCS): a blank matrix spiked with a known amount of analyte(s), processed simultaneously with, and under the same conditions as, samples through all steps of the analytical procedure. Also known as a Matrix Spike Blank (MSB).

Laboratory Quality Manual (LQM): a document stating the quality policy, quality system and quality practices of the laboratory. The LQM may include by reference other documentation relating to the laboratory's quality system.

Matrix: The substrate of a test sample. For purposes of batch and QC requirement determination, the matrix descriptions in Table 1 are used.

Table 1 Matrix Descriptions

Matrix	Description
Aqueous	Aqueous sample excluded from the definition of Drinking Water or Saline/Estuarine source. Includes surface water, groundwater and effluents.
Drinking Water	Aqueous sample that has been designated a potable water source.
Saline	Aqueous sample from an ocean or estuary, or other salt-water source such as the Great Salt Lake.
Air	Air samples are ambient air particulate filters, PUF's, cartridges or cannisters.
Leachate / Synthetic Leachate	Product of a solid matrix that is exposed to/reacted with an aqueous matrix.
Liquid	Non solid material with < 0.5% non-dissolved solids
Solid	Soil, sediment, sludge or non-liquid matrices
Waste	A product or by-product of an industrial process that results in a matrix not previously defined.

Matrix Duplicate (MD): duplicate aliquot of a sample processed and analyzed independently; under the same laboratory conditions; also referred to as Sample Duplicate.

Matrix Spike (MS): field sample to which a known amount of target analyte(s) is added.

Matrix Spike Duplicate (MSD): a replicate matrix spike.

Method Blank: a blank matrix processed simultaneously with, and under the same conditions as, samples through all steps of the analytical procedure.

Method Detection Limit (MDL): the minimum amount of a substance that can be measured with a specified degree of confidence that the amount is greater than zero using a specific method. An MDL value, by definition, has an uncertainty of $\pm$ 100%. The MDL thus represents the range where qualitative detection occurs using a specific method. Quanitative results are not produced in this range. Also referred to as a Limit of Detection (LOD).

Non-conformance: an indication, judgement, or state of not having met the requirements of the relevant specifications, contract, or regulation.

Precision: the degree to which a set of observations or measurements of the same property, usually obtained under similar conditions, conform to themselves; a data quality indicator.

Preservation: refrigeration and or reagents added, at the time of sample collection or after filtration, to maintain the chemical and or biological integrity of the sample.

Proficiency Testing: determination of the laboratory calibration or testing performance by means of inter-laboratory comparisons.

Proficiency Test (PT) Sample: a sample, the composition of which is unknown to the analyst, that is provided to test whether the analyst/laboratory can produce analytical results within specified performance limits.

Proprietary: belonging to a private person or company.

Storage Blank: a blank matrix stored with field samples of a similar matrix. Sometimes referred to as a holding blank.

Trip Blank: a blank matrix placed in a sealed container at the laboratory that is shipped and held unopened in the field and returned to the laboratory in the shipping container with the field samples.

Quality Assurance (QA): an integrated system of activities involving planning, quality control, quality assessment, reporting and quality improvement to ensure that a product or service meets defined standards of quality with a stated level of confidence.

Quality Assurance (Project) Plan (QAPP): a formal document describing the detailed quality control procedures by which the quality requirements defined for the data and decisions pertaining to a specific project are to be achieved.

Quality Control (QC): the overall system of technical activities whose purpose is to measure and control the quality of a product or service so that it meets the needs of users.

Quality Control Sample: an uncontaminated sample matrix spiked with a known amount(s) of an analyte(s) from a source independent from the calibration standards. It is generally used to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system.

Quality Management Plan (QMP): a formal document describing the management policies, objectives, principles, organizational authority, responsibilities, accountability, and implementation plan of an agency, organization or laboratory to ensure the quality of its product and the utility of the product to its users.

Quality System: a structured and documented management system describing the policies, objectives, principles, organizational authority, responsibilities, accountability, and implementation plan of an organization for ensuring quality in its work processes, products (items), and services. The quality system provides the framework for planning, implementing, and assessing work performed by the organization and for carrying out required QA/QC.

Raw Data: any original information from a measurement activity or study recorded in a laboratory notebook, worksheets, records, memoranda, notes, or exact copies thereof and that are necessary for the reconstruction and evaluation of the report of the activity or study. Raw data may include photography, microfilm or microfiche copies, computer printouts, magnetic media, including dictated observations, and recorded data from automated instruments.

Record Retention: the systematic collection, indexing and storing of documented information under secure conditions.

Reference Standard: a standard, generally of the highest quality available at a given location, from which measurements made at that location are derived.

Resource Conservation and Recovery Act (RCRA): legislation under 42 USC 321 et seq. (1976).

Safe Drinking Water Act (SDWA): legislation under 42 USC 300f et seq. (1974), (Public Law 93-523).

Selectivity: The capability of a method or instrument to respond to a target substance or constituent in the presence of non-target substances.

Sensitivity: the capability of a method or instrument to discriminate between measurement responses representing different levels (e.g., concentrations) of a variable of interest.

Spike: a known amount of an analyte added to a blank, sample or sub-sample.

Standard Operating Procedure (SOP): a written document which details the method of an operation, analysis or action whose techniques and procedures are thoroughly prescribed and which is accepted as the method for performing certain routine or repetitive tasks.

Systems Audit: a thorough, systematic, on-site, qualitative review of the facilities, equipment, personnel, training, procedures, record keeping, data validation, data management, and reporting aspects of a total measurement system.

Test Method: defined technical procedure for performing a test.

Toxic Substances Control Act (TSCA): legislation under 15 USC 2601 et seq., (1976).

Traceability: the property of a result of a measurement that can be related to appropriate international or national standards through an unbroken chain of comparisons.

Verification: confirmation by examination and provision of evidence that specified requirements have been met.

4.0 Organization and Personnel

4.1 QA Policy and Objectives

It is STL's policy to:

- provide high quality, consistent, and objective environmental testing services that meet all federal, state, and municipal regulatory requirements.
- generate data that are scientifically sound, legally defensible, meet project objectives, and are appropriate for their intended use.
- provide STL clients with the highest level of professionalism and the best service practices in the industry.
- build continuous improvement mechanisms into all laboratory, administrative, and managerial activities.
- maintain a working environment that fosters open communication with both clients and staff.

Management Commitment to Quality Assurance

STL management is committed to providing the highest quality data and the best overall service in the environmental testing industry. To ensure that the data produced and reported by STL meet the requirements of its clients, complies with the ISO 17025 Quality Policy and agrees with the letter and spirit of municipal, state and federal regulations. STL maintains a Quality System that is clear, effective, well communicated, and supported at all levels within the company.

STL Mission Statement
We enable our customers to create safe and environmentally favorable policies and practices, by leading the market in scientific and consultancy services. We provide this support within a customer service framework that sets the standard to which others aspire. This is achieved by people whose professionalism and development is valued as the key to success and through continued investments in science and technology.

Purpose

The purpose of the Quality Manual (QM) is to describe the STL Quality System and to outline how that system enables all employees of STL to meet the Quality Assurance (QA) policy. The QMP also describes specific QA activities and requirements and prescribes their frequencies. Roles and responsibilities of management and laboratory staff in support of the Quality System are also defined in the QMP.

4.2 QA Management

4.2.1 Organization and Responsibilities

A functional organizational chart of STL Buffalo is depicted in Appendix A. The responsibilities of the individuals associated with Quality Assurance Management are described below. A list of STL Buffalo personnel (management and supervisory level) including education and experience is found in Appendix B. A designee will be appointed by the General Manager/Laboratory Director, for an interim period not to exceed three months, if a prolonged absence in a supervisory position occurs.

The General Manager is directly responsible for the overall operations of one or more operating facilities within STL. The GM's responsibilities include:

- Allocation of personnel and resources, long term planning, setting goals, and achieving the financial, business, and quality objectives of STL.

- Ensures Timely compliance with corporate management directives, policies, and management systems reviews.

The Laboratory Director oversees the daily operations of the facility. The duties and responsibilities of the Laboratory Director are:

- Supervision of staff, setting goals and objectives for both the business and the employees
- Achieving the financial, business, and quality objectives of the facility
- Ensures timely compliance with audits and corrective actions
- Responsible for maintaining a working environment that encourages open, constructive problem solving and continuous improvement.

The Technical Director is responsible for technical operations and business management. The duties and responsibilities of the Technical Director are:

- Facility design, construction and management
- Maintaining environmental conditions
- Technical and financial evaluation of capital equipment
- Capital budgeting and asset valuation

The Program Management Supervisor has overall responsibility for management of the analytical requirements for sample analysis. The duties and responsibilities of the Program Management Supervisor are to:

- Administer and supervise all requirements of the analytical tasks to ensure meeting the client objectives on schedule.
- Act as liaison between the laboratory and the client to discuss and resolve any problems that may occur.
- Work with laboratory supervisors in planning and conducting progress meetings.
- Take part in corrective actions.

The Health & Safety Officer has overall responsibility for the facility's safety training and compliance with all required safety regulations. The Health & Safety Officer is responsible for:

- Development of the safety training manual.
- Oversight on the facility safety committee. Acting as liaison between the committee and management.
- Conduct and document training on waste handling and disposal.
- Documenting and tracking all incidents and accidents.

The QA Manager is responsible for reviewing and advising on programs all aspects of QA/QC. The duties and responsibilities of the QA Manager are to:

- Assist the Project Manager in specifying QA/QC procedures to be used during sample analysis.

- Maintain, update and pursue certifications with various state and federal agencies.
- Implement quality control procedures and techniques to assure that the laboratory achieves established standards of quality.
- Evaluate data quality and maintain records on other pertinent information.
- Monitor laboratory activities to determine conformance with the authorized quality assurance policy and to implement appropriate steps to ensure adherence to quality assurance programs.
- Coordinate internal facility audits
- Review performance evaluation results.
- Administer intralaboratory and interlaboratory QA efforts.
- Review all new or revised controlled documents.
- Responsible for implementing and communicating the Laboratory Quality Manual
- Providing Quality Systems and Ethics training to all new personnel
- Prepare quality assurance report to management
- Has final authority to accept or reject data, and to stop work in progress in the event that procedures or practices compromise the validity and integrity of the analytical data.
- Authorized representative/contact for state/agency certification procedures.

The Laboratory Manager oversees the daily operations of the analytical laboratory. The duties and responsibilities of the Laboratory Manager are:

- Supervision of laboratory staff, setting goals and objectives for the laboratory.
- Ensures compliance with project/client requirements (report/data due date, holding time, client/agency specific QAPP).
- Oversees the implementation of the quality systems.
- Ensures timely compliance with audits and corrective actions
- Responsible for maintaining a working environment that encourages open, constructive problem solving and continuous improvement.

The Information Services Manager is responsible for maintaining the in-house and commercially purchased software systems. Their areas of responsibility are to:

- Supervise the design, development, testing/validation, implementation and output of software modifications.
- Control/Monitor access of personnel and clients to data information.

The Laboratory Supervisors are responsible for meeting all the technical and analytical terms and conditions for sample analysis. Their areas of responsibilities are to:

- Organize the personnel, equipment and materials in a manner required fulfilling the analytical requirements of sample analysis.
- Oversee all aspects of laboratory analyses and provide technical support when necessary.
- Review analytical data for validity and clarity.
- Maintain contact with the Project Manager in areas of technical concern, and advise the Project Manager of analytical progress, needs of potential problems that occur.
- Advise the Laboratory Director of progress, needs and potential problems that occur.
- Inform Laboratory Manager if the daily review indicates a decline in data quality, deviations or deficiencies in QC and implement corrective actions.
- Perform, evaluate and implement annual MDL & QC limit studies.
- Train employees on the proper methods and procedures performed in their department.

The Sample Analysts are responsible for the analysis of samples. The analysts will:

- Schedule, prepare and analyze samples according to the method specific requirements indicated by the chain-of custody or CPO.
- Advise the section supervisor of progress, needs and potential problems that occur.
- Verify that the laboratory QC and analytical procedures are being followed as specified.
- Review sample QC data, at least daily, including inspection of raw chromatograms and calibration curves.
- Inform Laboratory Supervisors if the daily review indicates a decline in data quality and implement actions.

The Sample Custodian is responsible for the receipt and login of client samples:

- Confirming the samples received against the Chain of Custody (COC).
- Transporting the samples to the proper storage unit within the facility.
- Tracking the disposal of client samples after the required holding time.

The Document Control Officer is responsible for the filing, archiving and unarchiving of all related job data and report:

- Responsible for the security of all on-site issued reports/raw data.
- Tracking all requests for the unarchiving of raw data and job folders.
- Arranging for the off-site archival of data/job reports as space is needed.

4.3 Quality System

4.3.1Objectives of STL Quality System

The goal of the STL Quality System is to ensure that business operations are conducted with the highest standards of professionalism in the industry.

To achieve this goal, it is necessary to provide STL clients with not only scientifically sound, well documented, and regulatory compliant data, but also to ensure that STL provides the highest quality service available in the industry. A well-structured and well-communicated Quality System is essential in meeting this goal. STL's Quality System is designed to minimize systematic error, encourage constructive communication, documented problem solving, and provide a framework for continuous improvement within the organization.

The Corporate Quality Management Plan (QMP) is the basis and outline for STL's Quality System and contains general guidelines under which all STL facilities conduct their operations.

4.4 Project Document Control Procedures

The goal of the document control program is to assure that all documents for a group of samples will be accounted for. Before releasing analytical result, the laboratory assembles and cross checks the information of custody records, lab bench sheets, analyst and instrument logs and other relevant data to ensure that data pertaining to each particular sample is consistent throughout the record.

4.4.1 Sample File Organization, Preparation and Review Procedures

Project file folders are created prior to sample analysis and stored in the assigned project manger's office. A specific job number will be assigned to samples that are received for analysis for each project. The assignment of job number is sequential, based on the date and time of receipt. All documents, sample tags (if applicable), custody forms, and all other laboratory data pertaining to a particular case will be placed in the job folder. Issued job folders will be filed in numerical order, by client, and stored in a secure area with access limited to authorized personnel.

Authorized personnel are limited to Project Managers, Supervisors, Lab Director, QA Manager and Document Control Officer or designee.

4.5 Request, Tender, and Contract Review

4.5.1 Contract Review

For many environmental sampling and analysis programs, testing design is site or program specific and does not necessarily "fit" into a standard laboratory service or product. It is STL Buffalo's intent to provide both standard and customized environmental laboratory services to our clients. To ensure project success, the technical staff performs a thorough review of technical and QC requirements contained in contracts prior to the receipt of samples. Contracts are reviewed for adequately defined requirements and STL Buffalo's capability to meet those requirements.

All contracts entered into by STL Buffalo are reviewed and approved by the appropriate personnel at the facility or facilities performing the work. Any contract requirement or amendment to a contract communicated to STL Buffalo verbally is documented and confirmed with the client in writing. Any discrepancy between the client's requirements and STL Buffalo's capability to meet those requirements is resolved in writing before acceptance of the contract. Contract amendments, initiated by the client and/or STL Buffalo, are documented in writing for the benefit of both the client and STL Buffalo.

All contracts, Quality Assurance Project Plans (QAPPs), Sampling and Analysis Plans (SAPs) contract amendments, and documented communications are part of the permanent project record. The permanent project record is stored in accordance with section 4.7.4 of the LQM.

4.5.2 Project Specific Quality Planning

Communication of contract specific technical and QC criteria is an essential activity in ensuring the success of site specific testing programs. To achieve this goal, STL Buffalo assigns a Project Manager (PM) to each client. The PM is the first point of contact for the client. It is the PM's responsibility to ensure that project specific technical and QC requirements are effectively communicated to the laboratory personnel before and during the project.

STL Buffalo has established procedures in order to ensure that communication is inclusive and effective. These include project memos, designation and meetings of project teams, and meetings between the laboratory staff and the client. STL has found it very effective to invite the client into this process. STL strongly encourages our clients to visit the laboratories and hold formal or informal sessions with employees in order to effectively communicate client needs on an ongoing basis, as well as project specific details for customized testing programs.

4.5.3 Subcontracting

Subcontracting is arranged with the documented consent of the client, in a timely response that shall not be unreasonably refused. All QC guidelines specific to the client's analytical program are transmitted to the subcontractor and agreed upon before sending the samples to the subcontract facility. Proof of required certifications from the subcontract facility is maintained in STL Buffalo's subcontract laboratory file. Where applicable, specific QC guidelines and QAPPs, are transmitted to the subcontract laboratory. Samples are subcontracted under formal Chain of Custody (COC). A separate QAPP for the subcontract work may be prepared by the subcontract laboratory and submitted under a separate cover. The Quality Department will keep a file on each subcontract laboratory providing analytical results. The file may contain a subcontract lab's QAMP, certifications and or method specific SOPs.

Subcontract laboratories may receive an on-site audit by a representative of STL's QA staff if it is deemed appropriate by the Corporate or facility QA Manager. An audit may be scheduled after a review of SOPs, PE scores or at the request of the client. The audit involves a measure of compliance with the required test method, QC requirements, as well as any special client requirements. Audit reports from applicable state and federal agencies may be substituted for the on-site audit.

Project reports from external subcontract laboratories are not altered and are included in original form in the final project report provided by STL.

Subcontracting may also occur between STL facilities. Subcontracting within STL is subject to the same requirements as detailed above. STL's Corporate Quality Manager oversees each facilities compliance with the corporate quality requirements.

4.5.4 Purchasing Services and Supplies

Evaluation and selection of suppliers and vendors is done, in part, on the basis of the quality of their products, their ability to meet the demand for their products on a continuous and short term basis, the overall quality of their services, their past history, and competitive pricing. This is achieved through evaluation of objective evidence of quality furnished by the supplier, which can include certificates of analysis, recommendations, and proof of historical compliance with similar programs for other clients. To ensure that quality critical consumables and equipment conform to specified requirements, a member of the supervisory or management staff approves all purchases from specific vendors.

Chemical reagents, solvents, glassware, and general supplies are ordered as needed to maintain sufficient quantities on hand. Purchasing guidelines for equipment and reagents meet or exceed the requirements of the specific method and testing procedures for which they are being purchased. National vendors and suppliers are available from the on-site purchasing agent. The corporate policy (NQA-1) is available on the corporate intra-net site.

4.5.5 Instrument Maintenance Activities and Schedules

A complete listing of instrumentation may be found in Appendix C. Instrument preventative maintenance and careful calibration help to assure accurate measurements from laboratory instruments. Where applicable, all laboratory instrumentation is on a service contract with the instrument manufacturer or licensed service organization. The service contracts include regular preventative maintenance service calls on a scheduled basis.

Preventative maintenance procedures such as lubrication, source cleaning, detector cleaning and the frequency of such maintenance are performed according to the procedures delineated in the manufacturer's instrument manual or when deemed necessary by the analyst. All maintenance is documented in the instrument's injection log or maintenance logbooks.

Instrument logbooks are in the laboratory at all times. They contain records of usage, calibration, maintenance and repairs. Adequate supplies of spare parts such as GC columns, syringes, septa, injection port liners, and electronic parts are maintained in the laboratory so that they are available when needed or on expedited delivery.

4.6 QA Document Control Procedure

4.6.1 Document Type

The following documents, at a minimum, are controlled at each STL Facility:

- Laboratory Quality Manual
- Standard Operating Procedures (SOP)
- Quality Management Plan
- Laboratory Logbooks

4.6.2 Document Control Procedure

Security and control of documents is necessary to ensure that confidential information is not distributed and that all current copies of a given document are from the latest applicable revision. Unambiguous identification of a controlled document is maintained by identification of the following items in the document header: Document Name, Document Number, Revision Number, Effective Date, and Number of Pages. Management and/or the QA Department authorize controlled documents. Controlled documents are marked as such and the QA Department keeps records of their distribution.

Controlled documents are available at all locations where the operational activity described in the document is performed.

4.6.3 Document Revision

Changes to documents occur when a procedural change warrants a revision of the document. When an approved revision of a controlled document is ready for distribution, obsolete copies of the document are replaced with the current version of the document. The previous revision of the controlled document is archived by the QA Department. Obsolete documents are retired by the QA Department and stored on-site for a minimum of five years.

4.7 Records

4.7.1 Record Types

Record types are described in Table 2.

Table 2 STL Record Types

Raw Data	Controlled Documents	QC Records	Project Records	Administrative Records
Calibration	LQM	Audits/ Responses	COC Documentation	Accounting
Computer Tapes/Disks	QMP	Certifications	Contracts and Amendments	EH&S, Manual, Permits, Disposal Records
QC Samples	SOPs	Corrective Action	Correspondence	Employee Handbook
Sample data		Logbooks*	QAPP	OSHA 29 CFR Part 1910

Raw Data	Controlled Documents	QC Records	Project Records	Administrative Records
Software (Version control)		Method & Software Validation, Verification	SAP	Personnel files, Employee Signature & Initials, Training Records
		Standards Certificates	Telephone Logbooks	Technical and Administrative Policies

*Logbooks: Maintenance, Instrument Run, Preparation (standard and samples), Standard and Reagent Receipt, Archiving, Balance Calibration, Temperature.

4.7.2 Record Retention

Table 3 outlines STL's standard record retention time. For raw data and project records, record retention is calculated from the date the project report is issued. For other records, such as Controlled Documents, QC, or Administrative Records, the retention time is calculated from the date the document is formally retired. Records related to the programs listed in Table 4 have lengthier retention requirements and are not subject to STL's standard record retention time. Record retention responsibilities will be included in the event of an ownership change. Clients will be notified of any change in policy.

Table 3 STL Record Retention

Record Type		Archival Requirement
Raw Data	All*	5 Years from project completion
Controlled Documents	All*	5 Years from document retirement date
QC	All*	5 Years from archival
Project	All*	5 Years from project completion
Administrative	Personnel/Training	7 years from date of hire
	Accounting	See Accounting and Control Procedures Manual

* Exceptions listed in Table 4.

4.7.3 Programs with Longer Retention Requirements

Specific client projects and regulatory programs have longer record retention requirements than the STL standard record retention length. In these cases, the longer retention requirement is noted in the archive. If special instructions exist such that client data cannot be destroyed prior to notification of the client, the container or box containing that data is marked as to who to contact for authorization prior to destroying the data.

Programs with record retention requirements greater than five years are detailed in Table 4.

Table 4 Special Record Retention Requirements

Program	Retention Requirement
Commonwealth of MA – All environmental data 310 CMR 42.14	10 years
NY Potable Water NYCRR Part 55-2	10 years
Pennsylvania – Drinking Water	10 years

4.7.4 Archives and Record Transfer

Archives are indexed such that records are accessible on either a project or temporal basis. Archives are protected against fire, theft, loss, deterioration, and vermin. Electronic records are protected from deterioration caused by magnetic fields and/or electronic deterioration. The electronic records (EDDs) are archived off-site in a secured facility. Access to archives is controlled and documented.

STL Buffalo ensures that all records are maintained as required by the regulatory guidelines and per the QMP upon facility location change or ownership transfer.

All observations and results recorded by STL Buffalo are entered into the laboratory data entry system or into permanent laboratory logbooks. Data recorded are referenced with the sample laboratory number, date and analyst's signature at the top of the page. Test records will reference the method of analysis, analyst, date of analysis, instrument, client ID, laboratory ID and results.

All logbooks, data records and other document entries are made in ink. Any corrections made to a logbook entry, data record or other documented entry will be made by crossing a single line through the error and entering the correct information. The person will subsequently date and initial the correction.

All chemicals and reagents received by STL Buffalo must be dated upon receipt, and again dated and initialed upon opening. All samples, standards, extracts, reagents and equipment will be labeled with appropriate inks (labels) to ensure that the identification is permanent when subject to adverse environmental conditions. Documentation of purity, if received, will be kept on file in the laboratory department that received the chemical or reagent.

The preparation of all standards and reagents must be in accordance with the written SOP. Preparation must be documented in a bound preparation log. Documentation must include the date, analyst initials, identification of stock source and the final concentration of the solution.

Once in the possession of the Analyst, all logbooks are their responsibility to maintain. No logbooks are permitted outside the facility. Analysts are responsible for proper documentation in the logbooks. Once a Logbook has been completed it is returned to the QA Manager for proper archiving. Logbooks are archived on-site for a year and then off-site for an additional four years.

4.8 Service to the Client

4.8.1 Sample Acceptance Policy

Samples are considered "compromised" if the following conditions are observed upon sample receipt:

- Cooler and/or samples are received outside of temperature specification.
- Samples are received broken or leaking.
- Samples are received beyond holding time.
- Samples are received without appropriate preservative.
- Samples are received in inappropriate containers.
- COC does not match samples received.
- COC is not properly completed or not received.
- Breakage of any Custody Seal.
- Headspace in volatiles samples.
- Seepage of extraneous water or materials into samples.
- Inadequate sample volume.
- Illegible, impermanent, or non-unique sample labeling.

When "compromised" samples are received, it is documented on the chain of custody and the client is contacted for instructions. If the client decides to proceed with analysis, the project report will clearly indicate any of the above conditions and the resolution.

4.8.2 Client Confidentiality and Proprietary Rights

Data and sample materials provided by the client or at the client's request, and the results obtained by STL, shall be held in confidence (unless such information is generally available to the public or is in the public domain or client has failed to pay STL for all services rendered or is otherwise in breach of the terms and conditions set forth in the STL and client contract) subject to any disclosure required by law or legal process. STL's reports, and the data and information provided therein, are for the exclusive use and benefit of client, and are not released to a third party without written consent from the client.

4.8.3 Samples Tracking/Custody Procedures

- Sample are received at the laboratory by the sample custodian or designee who removes the samples from the shipping containers together with all accompanying documentation such as chain-of-custody (COC) forms, analysis request forms, etc.
- The condition of the custody seal if present, is examined and recorded on the COC.
- The temperature of the samples, upon receipt, will be recorded on the COC.
- The cooler or sample container is scanned for radiation.
- The pH of the sample (when required) will be taken upon receipt. Any inappropriate pH reading for reportedly preserved samples will be recorded on the COC. Necessary pH adjustments will be made, after confirming with the client and only with their consent, as required and documented on the COC.
- The samples are inspected for general condition and the COC received with any samples is examined for discrepancies between package contents and the enclosed documents.
- Discrepancies, omissions, or inappropriate samples discovered would be noted and an ARRF form generated and sent to the Project Manager. The Project Manager will contact the client to resolve the problem.
- If the client cannot be reached, the samples will be assigned to cold storage (4 degrees +- 2 degrees C) until the problem is resolved. Time critical analysis will be started to ensure holding time compliance.
- Samples delivered directly by the sample collector are received and inspected by the Sample Custodian or designee in the presence of the sample collector. Discrepancies, omissions, or inappropriate samples should be noted and discussed with the sample collector to resolve the problem.

- Samples received through COC by the Sample Custodian or designee will be assigned an STL Buffalo laboratory number.
- The Sample Custodian or designee will complete the STL COC with the STL Buffalo laboratory number and corresponding individual sample number. The STL Buffalo sample number will be written on the client sample bottle or adhered via printed label to the client sample bottle, making sure the label does not obscure the original sample information..
- All documents will be reviewed a second time to ensure that there are no transposition errors. The project manager or designee will validate the accuracy of the sample log-in procedure by initialing the job folder after reviewing the documents against the project set up.
- The samples will be entered by sample control into the laboratory sample database (AIMS ®) upon successful completion of the sample log-in procedure. Each sample will be given a unique laboratory identification number. All documents, sample tags, shipping labels, will be stored in the job folder.
- When a sample is to be analyzed/prepared for analyses the analyst/ technician must verify that the sample ID number and parameter match with the analysis/prep they are performing. This is accomplished by confirming the sample ID with the ID on the analytical batch. In addition, the client ID printed on the label must match the client ID found on the original sample label. If any discrepancies are found the department supervisor is to be notified immediately. All discrepancies need to be addressed and resolved by the supervisor/program manager and with client input if needed.
- Once in the possession of the Laboratory, all samples and extracts are refrigerated and/or stored in areas that are accessible only to Laboratory personnel. Internal COCs are used to track the sample or extract in the lab facility. All coolers and refrigerators are monitored for temperature compliance.
- Access to the facility is limited to STL Buffalo employees and monitored by an outside agency. Employees are granted access to the facility based on their job requirements and normal working hours. A swipe card system is used to open the electronically locked entrances. All visitor access to the building is controlled and monitored. All visitors are required to sign in at the reception desk and escorted through the facility. A log of all visitors is available from the QA Department. The facility is equipped with fire and burglar alarms throughout the facility.
- All Samples are stored at the Laboratory for a minimum of 30 days after receipt and are not disposed of until at least one week after the final report has been issued. Specific client or project requirements may lengthen the time a sample is held before disposal. Client and

laboratory labels may be removed prior to sample container disposal/recycling.

4.9 Complaints/Inquiries

Client complaints/inquiries are documented, communicated to management, and addressed promptly and thoroughly. The employee receiving the call/letter/fax, normally the Project Manager or a client service representative documents the client complaints/inquiries. The documentation can take the form of a corrective action report (as described in Section 4.11) or in a format specifically designed for that purpose (DQR form). Service to client complaints are forwarded to the Project Manager for response. The Laboratory Director, Project Manager, and QA Manager are informed of all client complaints, and assist in resolving the complaint.

The nature of the complaint is identified, documented, and investigated, and an appropriate action is determined and taken. In cases where a client complaint indicates that an established policy or procedure was not followed, the QA department may conduct a special audit to assist in resolving the issue. A written confirmation, or letter to the client, outlining the issue and response taken is usually part of the overall action taken.

The number and nature of client complaints is reported to the Corporate QA Manager in the QA Monthly report, submitted by STL Buffalo. The overall number of complaints is tracked and the appropriateness of the response to client complaints is assessed. Monitoring and addressing the overall level and nature of client complaints and the effectiveness of the solutions is part of the Management Systems Review.

4.10 Control of Non-conformances

Non-conformances include any out of control occurrence. Non-conformances may relate to client specific requirements, procedural requirements, or equipment issues. All non-conformances in the laboratory are documented at the time of their occurrence.

All non-conformances that affect a sample and/or sample data become part of the affected project's permanent record. A Job Exception form is filed with the Project Manager and QA Department relaying any non-conformance. When appropriate, reanalysis is performed where QC data falls outside of specifications, or where data appears anomalous. If the reanalysis comes back within established tolerances, the results are approved. If the reanalysis is still outside tolerances, further reanalysis or consultation with the Supervisor, Manager, Project Manager, Laboratory Director, or QA Manager for direction may be required. The client may also be consulted for direction in non-compliant situations. All records of reanalysis are kept with the project files.

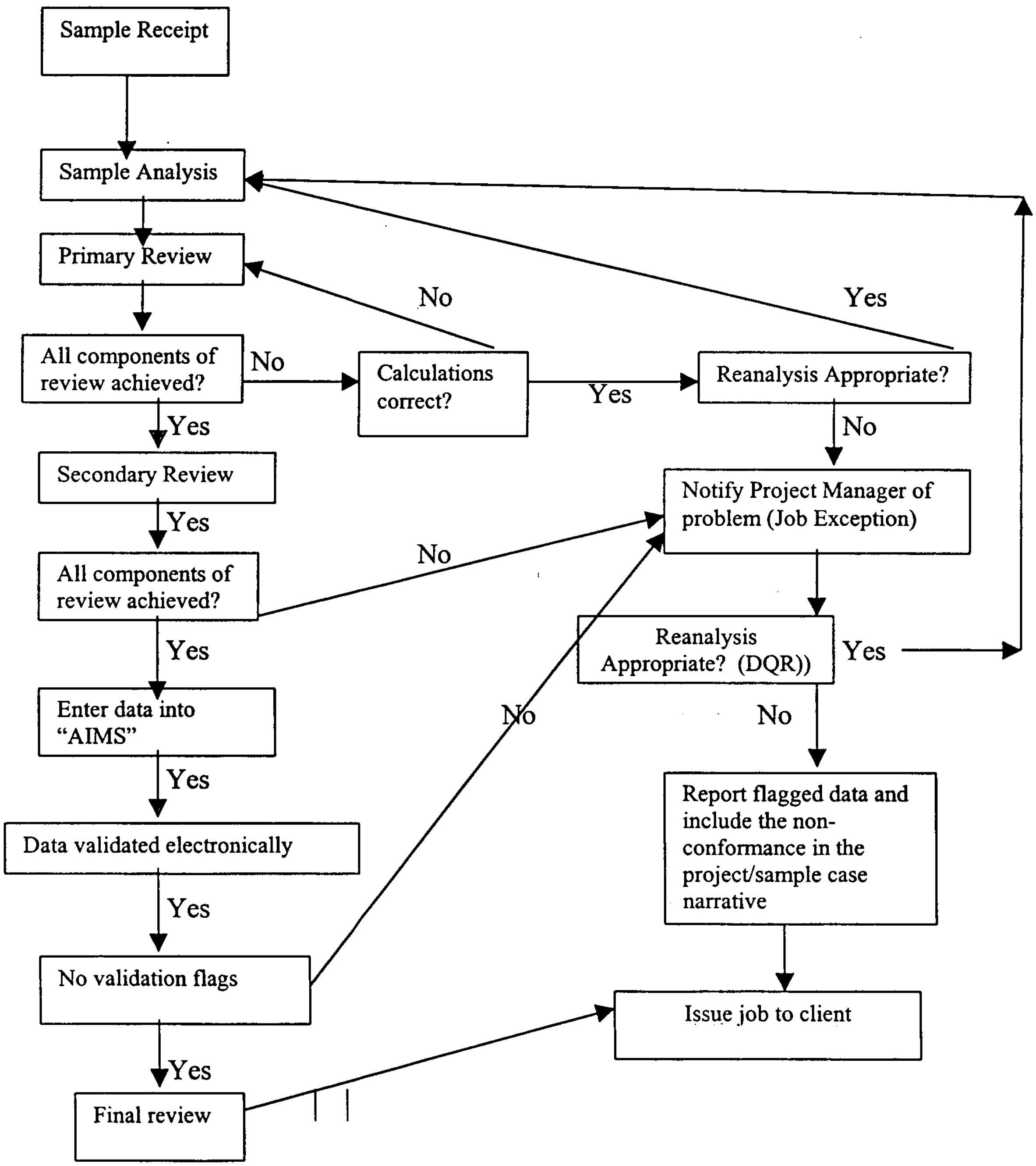
Where non-conformances specifically affect a client's sample and/or data, the client is informed and action must be taken. Action can take the form of flagging and reporting the affected data, and including the non-conformance in the project narrative or cover letter.

Where a non-conformance has no affect on the analytical data a comment in the job summary will be included with the raw data. The comment will be included in the case narrative.

4.11 Corrective Action

An important part of any quality assurance program is a well-defined, effective policy for correcting quality problems. This is depicted in the Figure 1. STL Buffalo maintains a closed-loop corrective action system, which operates under the direction of the QA Manager. While the entire quality assurance program is designed to avoid problems, it also serves to identify and correct those that may exist. Usually these quality problems fall into two categories, immediate corrective action or long- term corrective action.

Figure 1: STL Buffalo Decision Processes, Procedures and Responsibility for Initiation of Corrective Action



Specific quality control procedures are designed to help analysts detect the need for corrective action. Often an analyst's experience will be most valuable in identifying suspicious data or malfunctioning equipment; and an immediate corrective action may then be taken. The actions should be noted in laboratory notebooks but no other formal documentation is required unless further corrective action is necessary.

The need for long-term action may be identified by standard QC procedures, control charts, performance or system audits. Any quality problem, which can not be solved by immediate corrective action, falls into this long-term category. STL Buffalo uses a system to insure that the condition is reported to a person who is part of the closed-loop action and follow up plan (Figure 1)

The essential steps in the closed –loop corrective action system are:

- the problem will be identified
- responsibility for investigating the problem will be assigned.
- The cause of the problem will be investigated and determined.
- A corrective action to eliminate the problem will be determined
- Responsibility for implementing the corrective action will be assigned
- The effectiveness of the corrective action will be established and corrective action implemented
- The fact that the corrective action has eliminated the problem will be verified
- The complete process of establishing and implementing corrective action will be documented.

This process of corrective action will be used to make all corrections deemed necessary by the STL Buffalo management or QA Department. The corrective action will be assigned for timely completion and tracked by the QA Department.

4.12 Preventative Action

Preventative action is defined as noting and correcting a problem before it happens, because of a weakness in a system, method, or procedure. Preventative action includes analysis of the Quality System to detect, analyze, and eliminate potential causes of non-conformances. When potential problems are identified, preventative action is initiated to effectively address the problem to eliminate or reduce the risk identified. The preventative action process takes the same format as the corrective action process

5.0 Data Generation and Validation

5.1 Data Reduction

Analysis results will be reduced to the concentration units specified in the analytical procedures using the equations provided in the analytical references utilizing AIMS ® or by technician/analyst. The appropriate senior laboratory staff or designee will independently check the analytical calculations.

5.2 Data Validation

Data validation is the process by which analytical data are evaluated and accepted or rejected based on a set of criteria. STL Buffalo uses an electronic data validator built into the AIMS ® computer system. To monitor compliance with approximately 70 QA issues. In addition, STL Buffalo personnel use the following criteria in the validation of laboratory data:

- use of published or approved analytical procedures
- use of properly operating and calibrated instrumentation
- precision and accuracy achieved comparable to that achieved in similar analytical programs
- precision, accuracy and blank contamination meeting the analysis specified criteria as and/or the criteria found in the applicable method.
- completeness of data set.

All data will be validated by laboratory supervisors or trained data entry personnel prior to being released for reporting purposes to the STL Buffalo report preparation supervisor. The persons validating the data will have sufficient knowledge of the technical work to identify questionable values.

5.3 Data Reporting

All analytical data is submitted to the report writing department after the secondary review. The completed job is assigned to a report writer whom generates the case narrative, cover letter and proper analytical forms. The completed report is forwarded for final review. The reviewed report is copied and issued by the client service department. A copy of the report, original raw data and all job summaries are archived.

5.4 Data Review

5.4.1 Primary Review

The primary review is often referred to as a "bench-level" review. In most cases, the analyst who generates the data (i.e. logs in the samples, prepares the samples and/or analyzes the samples) is the primary reviewer. In some cases, an analyst may be reducing data for samples run by an auto-sampler set up by a different analyst. In this case, the identity of both the analyst and the primary reviewer is identified in the raw data.

One of the most important aspects of primary review is to make sure that the test instructions are clear, and that all project specific requirements have been understood and followed. A completed job summary form is used to document the procedure. If directions to the analyst are not clear, the analyst must go to the Supervisor, QA Manager, or Project Manager, who must clarify the instructions.

Once an analysis is complete, the primary reviewer ensures that:

- Sample preparation information is complete, accurate, and documented.
- Calculations have been performed correctly.
- Quantitation has been performed accurately.
- Qualitative identifications are accurate.
- Client specific requirements have been followed.
- Method and process SOPs have been followed.
- Method and/or QAPP specific QC criteria have been met.
- QC samples are within established limits.
- Dilution factors are correctly recorded and applied.
- Non-conformances and/or anomalous data have been properly documented and appropriately communicated.
- Internal COC procedures have been followed.

Any anomalous results and/or non-conformances noted during the Primary Review are communicated to the Supervisor and the QA Manager for resolution. Resolution can require sample reanalysis, or it may require that data be reported with a qualification.

5.4.2 Secondary Review

The secondary review is a technical review of a data set and is completed by the department supervisor or designee. The secondary review is conducted after the raw data has been entered into "Aims". Report forms are generated and reviewed against the raw data for compliance. The electronic data validator is run for each test and any non-compliance is commented on. The report writer transfers these comments to the case narrative. The secondary reviewer closes the sample/test to ensure the results are not changed after the review. Any change in status from closed to open is tracked electronically by the IS department. The following items are reviewed:

- Qualitative Identification
- Quantitative Accuracy
- Calibration
- QC Samples
- Method and/or QAPP specific QC Criteria
- Adherence to method and process SOPs

If problems are found during the secondary review, the reviewer must work with the appropriate personnel to resolve them and notify the project manager if delays or client input is required.

5.4.3 Final Review

Personnel from the Project Management/Report Production Department perform the final review. The final review includes a comprehensive data validation of the entire data set. The final review includes the generation of a project narrative and/or cover letter, which outlines anomalous data and all non-compliances. The final review conducted by the report production department follows the checklist in Figure 2.

If problems are found during the final review, the reviewer must work with the appropriate personnel to resolve them. If changes are made to the data, such as alternate qualitative identifications, identifications of additional target analytes, re-quantitation, or re-integration, the completeness reviewer must contact the laboratory analyst and/or primary reviewer of the data so that the primary analyst and/or reviewer is aware of the appropriate reporting procedures. This is accomplished by submitting a corrective action form to the appropriate personnel.

The final reviewed report is paginated copied, signed by the appropriate personnel, (Program Manager, Laboratory Director, Quality Manager) and mailed to the client.

The Quality Department randomly reviews 5% of all issued reports for case narrative, system and method compliance.

Figure 2

REPORT #: ____________

REPORT PREPARATION CHECKLIST

_____ Are all data folders and applicable s/c data accounted for?
_____ Are all original folders accounted for?
_____ Did you check the ASRF for all Project and Task comments?
_____ Are TICs required?
_____ Were the appropriate forms printed?
_____ Was the correct order followed in compiling the forms?
_____ Are all COCs and Field Forms present?
_____ Do the forms reflect the same number of samples, IDs, and tests as on the COC?
_____ Did you address any and ALL ***JOB EXCEPTIONS?***
_____ Did you include all Job Comments found in the data folders and in AIMS?
_____ Special Note: The lab MUST supply the reasons for dilutions for any fraction to be included in the case narrative.
_____ Special Note: The lab MUST supply comments on the status of all CCVs to be included in the case narrative.
_____ Is a deliverable (diskette) required?

ON THE COVER LETTER, DID YOU CHECK:

_____ Contact and Address?
_____ Received and Sample dates (same as on the COC)?
_____ Site Name or Event?
_____ Sample Matrix?
_____ Job Number?
_____ Project Number?
_____ Sample IDs in a Level 4 Case Narrative?
_____ Are carbon copies (cc) required and are they reflected on the Cover Letter?
_____ Does the deliverable go to someone other than the Contact?
_____ Did you check for grammatical errors throughout?

Date Prepared: ____________ Technical Writer: ____________

6.0 QA Program

6.1 Levels of QC Efforts

Every attempt will be made to have all data generated be valid data and compliant. The precision of laboratory analysis will be evaluated using sample duplicates and matrix spike duplicates. Analytical accuracy will be monitoring using recovery of analytes from system monitoring compounds, matrix spikes, blank spikes, EPA reference check standards and Performance Evaluation (PE) samples. These quality control measures and frequencies are summarized in Section 8.1. These QA efforts will assist in determining the reliability of the analytical data.

6.2 Accuracy and Precision

Accuracy is a measure of the degree of agreement between the analyzed value and the true or accepted reference value where it is known. Accuracy is usually expressed as a percent recovery. Precision is a measure of the mutual agreement among individual measurements of the sample parameter under similar conditions, usually expressed as a relative percent difference or as standard deviation. Accuracy and precision in the laboratory are assessed by the regular analysis of known standards and duplicate samples.

6.3 Completeness

Completeness is a measure of the amount of valid data obtained from the analytical measurement system, expressed as a percentage of the number of valid measurements that should have been or were planned to be collected. STL Buffalo will make every attempt to generate valid data from all samples received. However, realistically, some samples may be lost in laboratory accidents or some results may be deemed questionable based on internal QC procedures. Due to the variable nature of the completeness value, the objective will be to have data completeness for all samples received for analysis as high as possible to meet completeness objectives as described by the client.

6.4 Representativeness

Representativeness is a measure of how closely the measured results reflect the actual concentration of distribution of the chemical compounds in the sample. Sample handling protocols (e.g., storage, preservation and transportation) have been developed to preserve the representativeness of the collected samples. Subsamples are obtained within the lab using proper homogenization techniques. The techniques are outlined in specific department SOPs. Compliance with established SOPs ensures representative subsample aliquot within the laboratory. Proper documentation will establish that protocols have been followed and that sample identification and integrity have been assured.

6.5 Comparability

Comparability is a QA objective wherein all sample data are comparable with other representative measurements made by STL Buffalo for past results. STL Buffalo will achieve comparability by operating within the instrument linear range and by strict adherence to analytical protocols. The use of published analytical methods, standards reporting units and thorough documentation will ensure meeting this objective. Comparison of historical data may also be used for this purpose.

7.0 Quality Control

7.1 Internal Quality Control

Quality control is the routine application of procedures for obtaining prescribed standards of performance in the monitoring and measurement process. Quality Control checks are the application of STL Buffalo Quality Control program for laboratory analysis in order to ensure the generation of valid analytical results on project samples. These checks are performed by project participants throughout the program, under the guidance of the Quality Manager.

7.2 Quality Control Samples

STL Buffalo makes use of a number of different types of QC samples to document the validity of the generated data. The following types of QC samples are used routinely:

A. Blank Samples - Blanks are used to assess contamination introduced in transit, storage or in the laboratory.
   - Laboratory Method Blanks – For inorganic analyses, these deionized water blanks are prepared using the same reagents and analytical procedures as the samples, in order to assess possible laboratory contamination.
   - Laboratory Method Blanks – For organic analyses, theses blanks are "clean" samples, prepared in the laboratory to include surrogates, and analyzed according to a prescribed method in order to assess possible laboratory contamination.

- Laboratory Holding Blank – For organic analyses, these blanks are placed in cold storage with the volatile organic samples during the holding time to assess contamination which may be introduced in storage.
- Calibration Blanks – For all analyses, these blanks are used in instrument calibration and contain all the reagents used in preparing instrument calibration standards except the parameters of interest.

B. Initial and Continuing Calibration Verification - Verification samples are analyzed during each analysis run to assure calibration accuracy for each analyte. An initial calibration verification is run, minimally, at the beginning of an analytical run. The continuing calibration verification is run on a frequency defined by the analytical method. The concentration level of the verifications is generally the mid-point of the analytical curve but is varied on an annual basis.

C. System Monitoring compound – For most organic analyses, samples are spiked with surrogate compounds prior to sample preparation in order to assess the behavior of actual components in individual samples during the entire preparative and analysis scheme. Surrogate standard compounds are chemically similar to compounds of interest (target compounds).

D. Matrix Spikes – For most analyses at frequencies particular to each method, spiking solutions are added to samples in order to evaluate any matrix effects of the sample on the analytical method. Matrix spikes and analytical spikes are performed using actual elements of interest or target compounds.

E. Duplicate Samples – For all analyses, a second aliquot of a sample or sample spike is carried through all sample preparation procedures to verify the precision of the analytical method. At least one sample in each analysis batch of 20 or fewer samples is analyzed in duplicate.

F. Laboratory Control Samples / Matrix Spike Blank – For inorganic / organic analyses, at least one method blank in each preparation batch of 20 or fewer samples is spiked and analyzed for each analyte of interest, in order to verify the preparation and analytical methods.

Reagents used in the laboratory are normally of analytical reagent grade or higher purity. Each lot of acid or solvent received is checked for acceptability, i.e., no contaminants, prior to lab use. All reagents are labeled with the date received, date opened and expiration date. The quality of the laboratory deionized water is monitored daily. The deionized water used at STL Buffalo is run through activated carbon, a cation resin, an anion resin, and a mixed bed resin. The Volatile free water is carbon filtered only and is used only for volatile analyses. The deionized water and volatile free water are verified daily by the analysis of the prep blank water for inorganics and by the analysis of the method blank for organics. At the time of field blank / trip blank preparation, a sample is taken of the deionized water and volatile free water and is either analyzed immediately or held by the laboratory to be analyzed if contamination of the field blank / trip blank is determined.

7.3 Internal Quality Assurance

To monitor quality, STL Buffalo's QA Department conducts internal quality assurance audits including:

A. QC Blind Samples- STL Buffalo routinely participates in the ERA Performance Evaluation Program studies for both potable and non-potable water. This program allows STL Buffalo to monitor overall performance using a comprehensive set of single-blind check samples that are received as real-time samples. STL Buffalo participates in this program on a quarterly basis (2 of each study per year). In addition, STL Buffalo participates in the New York State Department of Health performance evaluation programs for potable water, non-potable water, solid waste, and CLP deliverables. The program evaluates report format as well as analytical accuracy. Participating laboratories receive detailed reports indicating an overall laboratory quality performance grade. The final reports along with any corrective actions are available upon request.

B. Internal Data Audit – On an ongoing basis, 5% of the issued analytical reports are chosen randomly and reviewed for analytical and client specific requirements. This data review includes each laboratory section.

C. Internal Laboratory Audits - The QA Manager will perform laboratory audits annually. The audits target each department of operations within the facility for systems as well as method compliance. This involves evaluation of:

- sample storage
- chain of custody
- instrument maintenance
- documentation
- precision
- accuracy

In addition the QA manager will meet frequently with the project managers and laboratory supervisors to review QA data summaries and other pertinent information.

7.4 System and Performance Audits

7.4.1 System Audits

A system audit is an evaluation of the various components of a laboratory's measurements system to assess proper selection and use. This audit will consist of an on-site review of a laboratory's quality assurance system and physical facilities for sampling, calibration and measurements. System audits are performed on a regular basis by the various regulatory agencies and annually by the STL QA Manager. The audit may included several or all of the components listed below:

- Personnel, facilities and equipment
- Chain - of - custody procedures
- Instrument calibration and maintenance
- Standards preparation and verification
- Analytical procedures
- Quality control procedures
- Data and sampling handling procedures
- Documentation control procedures

7.4.2 Performance Audits

Performance audits provide a systematic check of laboratory operations and measurement systems by comparing independently obtained data with routinely obtained data. To fulfill the PT requirements for NELAC accreditation, STL Buffalo routinely participates in laboratory performance evaluations received from the NYSDOH ELAP as part of the Potable and Non-Potable Water/Solid & Hazardous Waste/Air & Emissions Chemistry Proficiency Programs. STL Buffalo also analyzes proficiency samples to maintain participation in the NYSDEC CLP program. A corporate double blind proficiency study is analyzed annually and compiled by the corporate Quality Manager. The ERA WP, WS studies and NYSDOH PE studies schedules for STL Buffalo are detailed in Table 5.

Table 5 Laboratory Performance Evaluation Schedule (1 year)

Source	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
ERA WP	X		X	
ERA WS		x		x
NYSDOH Potable		X		X
NYSDOH Non-Potable Solid & Hazardous Waste Chemistry	X		X	
NYSDOH CLP	X		X	

7.5 Detection Limits

7.5.1 Instrument Detection Limit

The Instrument Detection Limit (IDL) is the level at which the instrument can reliably detect an analyte response. Method-specific sample preparation steps are not considered in the IDL calculation. IDLs will be determined on a frequency stated by the method of analysis.

Inorganic IDL Determination
Most frequently, the inorganic IDLs are determined by multiplying the standard deviation obtained for the analysis of a standard solution (each analyte in reagent water) at a concentration of 3x-5x the estimated IDL, with seven consecutive measurements per day by the appropriate Student-t value, for a 99% confidence.

Organic IDL Determination
Most frequently, organic IDLs are determined by multiplying the standard deviation obtained for three to seven replicate analyses of a standard solution (each analyte in reagent water) by the appropriate Student-t value, for a 99% confidence.

The IDL is calculated by multiplying the standard deviation by the Students t-Test (n-1) value.

No. of Replicates	t-statistic
3	6.96
4	4.54
5	3.75

6	3.36
7	3.14

7.5.2 Method Detection Limit (40 CFR 146)

Most frequently, the Method Detection Limit (MDL) is the minimum concentration of an analyte that can be measured and reported with 99% confidence that the analyte concentration is greater than zero. A MDL utilizes all preparatory steps in the final detection.

To obtain an MDL:

1. Seven method blank samples are spiked at a concentration that is two to five times the IDL, or estimated MDL
2. The MDL is calculated by multiplying the standard deviation obtained for seven replicate analyses of a standard solution (each analyte in reagent water) by the appropriate Student-t value, for a 99% confidence.
3. Calculated MDL's must meet specific requirements stated in 40 CFR part 136 or be repeated.

MDL's are determined per method per sample preparation procedure. MDL's are determined annually, for each method and when analytical conditions or methods change. The QA Department maintains copies of MDL Forms for all tests performed at STL Buffalo.

7.5.3 Reporting Limits

Method reporting limits and client required limits are set by the method or specified by the client. These limits are verified by the MDL and IDL studies. In general the reporting limit is set by the low standard analyzed for a particular parameter.

The dilution of samples will affect the reporting limit for analytes. Dilutions are required when the matrix of the sample affects the chromatogram/color or if the result is above the analytical range of the analysis.

7.6 Training

STL is committed to furthering the professional and technical development of its employees at all levels. Minimum training requirements for STL- employees are outlined in Table 6.

Table 6 STL Employee Minimum Training Requirements

Required Training	Time Frame	Employee Type
Environmental Health & Safety	Week 1 from hire	All
Basic Analytical Skills	Week 1 from hire	Technical
Ethics Training	Week 1 from hire	All
Quality System	Quarter 1	All
Initial Demonstration of Capability (IDOC)	Prior to unsupervised method performance	Technical

Technical training is accomplished within each department by the supervisor to ensure method/procedure comprehension. All new personnel are required to demonstrate competency in performing a particular method by successfully completing an Initial Demonstration of Capability (IDOC) before conducting analysis independently on client samples.

IDOCs are performed by analysis of four replicate QC check samples. Results of successive LCS analyses can be used to fulfill the IDOC requirement. The accuracy and precision, measured as average recovery and standard deviation (using n-1 as the population), of the 4 replicate results are calculated and compared to those in the test method (where available). If the test method does not include accuracy and precision requirements, the results are compared to target criteria set by the laboratory. The laboratory sets the target criteria such that they reflect the data quality objectives of the specific test method or project data quality objectives. An IDOC Certification Statement is recorded and maintained in the employee's training or personnel file.

Prior to an analyst assuming responsibility for an analysis, an Initial Demonstration of Capability (IDOC) must be performed and approved by the QA Manager.

7.7 Ethics Policy

Establishing and maintaining a high ethical standard is an important element of a Quality System. In order to ensure that all personnel understand the importance the company places on maintaining high ethical standards at all times; STL has established an Ethics Agreement. Each employee signs the Ethics Agreement, signifying agreed compliance with its stated purpose. STL Buffalo has established an Ethics Training Seminar, which is given to new employees within 1 week of employment.

7.8 Management Reviews

7.8.1 QA Reports to Management

A monthly QA report is prepared by QA Manager and forwarded to the Laboratory Director, the General Manager, and the Corporate QA Manager. The reports include statistical results that are used to assess the effectiveness of the Quality System. The format of the monthly report is shown in Figure 2.

A Corporate QA Monthly Report containing a compilation of the Facility QA reports statistics, information on progress of the Corporate QA program, and a narrative outlining significant occurrences and/or concerns is prepared by the Corporate QA Manager and forwarded to the Chief Operating Officer.

7.8.2 Management Systems Review

A management systems review of each facility is performed annually by the Corporate QA Manager or his/her designee. The management systems review is focussed on auditing compliance with the Quality System as defined in the QMP, compliance with regulatory criteria, and review of management and customer service practices. Specific issues identified in the monthly QA reports, such as outstanding corrective action issues, are included in the management systems review.

The Corporate QA Manager issues a report on the management systems review within 21 calendar days of the audit. The audit is addressed to the facility Laboratory Director, QA Manager, General Manager, and Chief Operating Officer.

Written responses are required within 21 calendar days of report issue. The response follows the format of the report, and corrective actions and time frames for their implementation are included for each deficiency. The response is directed to all individuals copied on the audit report. Where a corrective action requires longer than 21 days to complete, the target date for the corrective action implementation is stated and evidence of the corrective action is submitted to the Corporate QA Manager in the agreed upon time frame. An internal audit will verify that the corrective actions stated in the response are implemented by the facility.

Figure 3 Monthly QA Report Format

1.	Audits Internal systems audits performed, significant and/or repeat deficiencies noted. External systems audits performed. Data audits (in percent).
2.	Revised Reports/Client Complaints Revised reports in percent. Total number of client complaints, reason, and resolution.
3.	Certifications/parameters changes.
4.	Proficiency Testing Score for each PT as a percent. Note repeat failures and/or significant problems.
5.	Miscellaneous QA and Operational Issues Narrative outlining improvements, regulatory compliance issues, general concerns, and assistance required from Corporate QA. Include corrective actions and/or audit follow through that are beyond completion date.

8.0 SOPs

STL Buffalo maintains a SOP Index (see Appendix D) for all standard, non-standard, and laboratory developed methods (see Appendix E). The SOPs are available to all employees through the facility Intra-Net. Original signed copies are stored in a secure file cabinet and maintained by the QA department. SOPs are also maintained for describing processes that are not related to a specific method. Method SOPs are maintained to describe a specific test method. Process SOPs are maintained to describe function and processes not related to a specific test method.

8.1Method SOPs contain the following information:

Title Page with Document Name, Revision Number, Effective Date, Page Numbers and Total # of Pages, Authorized Signatures, Dates and Proprietary Information Statement (Figure 3), and Certification of Test Method.

1. Identification of Test Methods
2. Applicable Matrix
3. Method Detection Limit
4. Scope and Application, including test analytes
5. Summary of the Test Method
6. Definitions
7. Interferences
8. Safety
9. Equipment and Supplies
10. Reagents and Standards
11. Sample Collection, Preservation, Shipment and Storage
12. Quality control
13. Calibration and Standardization
14. Procedure
15. Calculations
16. Method Performance
17. Data Assessment and Acceptance Criteria for Quality Control Measures
18. Corrective Actions for Out-of-Control Data
19. Contingencies for Handling Out-of-Control or Unacceptable Data
20. Waste Management
21. References
22. Tables, Diagrams, Flowcharts and Validation Data

8.2 Process SOPs: contain the following information:

Title Page with Document Name, Document Number, Revision Number, Effective Date, Page Numbers and Total # of Pages, Authorized Signatures, Dates and Proprietary Information Statement (Figure 3).

1. Scope
2. Summary
3. Definitions
4. Responsibilities
5. Safety
6. Procedure
7. References
8. Tables, Diagrams, and Flowcharts

The QA Department is responsible for maintenance of SOPs, archival of SOP historical revisions, and maintenance of a SOP index. SOPs, at a minimum, undergo annual review. If the procedure, scope or content of the SOP change a revision to the SOP is issued. This revision may be implemented during the annual review or at any time that the content of the SOP is altered. Where a SOP is based on a published method, the laboratory maintains a copy of the reference method. A proprietary statement is included with each SOP (figure 3).

Figure 4 Proprietary Information Statement

This documentation has been prepared by Severn Trent Laboratories (STL) solely for STL's own use and the use of STL's customers in evaluating its qualifications and capabilities in connection with a particular project. The user of this document agrees by its acceptance to return it to Severn Trent Laboratories upon request and not to reproduce, copy, lend, or otherwise disclose its contents, directly or indirectly, and not to use if for any other purpose other than that for which it was specifically provided. The user also agrees that where consultants or other outside parties are involved in the evaluation process, access to these documents shall not be given to said parties unless those parties also specifically agree to these conditions.

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SOP Appendix

In some cases, a standard laboratory procedure is modified slightly for a specific client or project, at the client or regulatory agency's request. In these cases, an Appendix to the SOP may be attached that indicates the modifications to the SOP, which are specific to that project. The SOP may also include specific state/agency requirements within the body of the document.

8.3 Laboratory Developed Methods

Laboratory developed methods are validated and documented according to the procedure described in section 8.4.

8.4 Non-standard Methods

Non-standard methods are validated and documented according to the procedure described in section 8.4.

8.5 Method Validation

Before analyzing samples by a particular method, the method is validated. Validation of the method is required for standard methods, non-standard methods, and laboratory developed methods. While method validation can take various courses, the following activities are generally required as part of method validation. Method validation records are designated QC records and are archived accordingly.

8.5.1 Determination of Method Selectivity

Method selectivity is demonstrated for the analyte(s) in the specific matrix or matrices. In some cases, to achieve the required selectivity for an analyte, a confirmation analysis is required as part of the method.

8.5.2 Determination of Method Sensitivity

Method sensitivity is determined using detection limit studies. Method detection limit studies are routinely performed using the criteria in 40 CFR Part 136 Appendix B. Instrument detection limits are performed, where required, by specific data quality objectives or regulation.

8.5.3 Determination of Interferences

A blank matrix is analyzed to indicate that the method is free from analytical Interferences. Sample matrix spikes will be analyzed to determine matrix Interferences.

8.5.4 Determination of Range

Where appropriate, a determination of the applicable range of the method is performed. In most cases, range is determined and demonstrated by comparison of the response of an analyte in a calibration curve to established or targeted criteria. The curve is used to establish the range of quantitation and the lower and upper values of the curve represent upper and lower quantitation limits. Calibration curves are not limited to linear relationships.

8.5.5 Initial Demonstration of Capability

IDOCs are performed prior to method performance. A single blind standard is analyzed with an acceptable result prior to sample analysis. Certification is received by the regulating agency, if required, prior to analyzing samples.

8.5.6 Documentation of Method

If the method is a minor modification of a standard laboratory method that is already documented in an existing SOP, a SOP Appendix, describing the specific differences in the new method, is acceptable in place of a separate SOP.

8.5.7 Continued Demonstration of Method Performance

Continued demonstration of Method Performance is addressed in the SOP. Continued demonstration of method performance is generally accomplished by batch specific QC samples such as Laboratory Control Samples and Method Blanks.

8.6 Measurement Traceability

8.6.1 General

Traceability of measurements is assured using a system of documentation, calibration, and analysis of reference standards. Laboratory equipment that are peripheral to analysis and whose calibration are not necessarily documented in a test method analysis or by analysis of a reference standard, are subject to ongoing certifications of accuracy.

At a minimum, these include procedures for checking specifications for balances, thermometers, temperature, De-ionized (DI) water systems, automatic pipettes and other volumetric measuring devices. Wherever possible, subsidiary or peripheral equipment are checked against standard equipment or standards that are traceable to national or international standards.

An external certified service engineer services laboratory balances on an annual basis. This service is documented on each balance with a signed and dated certification sticker. Balance calibration is verified on each day of use. All mercury thermometers are calibrated annually against a traceable reference thermometer. A correction factor is listed on the calibrated thermometer. Certified (non-mercury) thermometers are used within the facility as replacements for mercury thermometers and are traceable to their certificate of analysis. The expiration date of the thermometer is documented in the thermometer logbook and on the thermometer. Temperature readings of ovens, refrigerators, and incubators are checked on each day of use. Deviations are noted along with any corrective actions.

Laboratory DI water systems have documented preventative maintenance schedules and the conductivity of the water is recorded on each day of use.

Laboratory SOPs specify the required level of accuracy in volumetric glassware. In all cases, volumetric glassware meets the requirements specified in the published test method.

8.6.2 Reference Standards

The receipt of all reference standards is documented. References standards are labeled with a unique Standard Identification Number, date received, date opened and the expiration date. All documentation received with the reference standard is retained as a QC record and references the Standard Identification Number.

All standards should be purchased with an accompanying Certificate of Analysis that documents the standard's purity. If a standard cannot be purchased from a vendor that supplies a Certificate of Analysis, the purity of the standard is documented by analysis. The documentation of standard purity is archived, and references the Standard Identification Number.

All efforts are made to purchase standards that are ≥ 97.0% purity. If this is not possible, the weight of the standard is corrected for the purity when performing calculations.

The accuracy of calibration standards is checked by comparison with a standard from a second source. In cases where a second standard manufacturer is not available, a different lot is acceptable for use as a second source. The appropriate Quality Control (QC) criteria for specific standards are defined in laboratory SOPs.

8.6.3 Reagents

Reagents are, in general, required to be analytical reagent grade unless otherwise specific in method SOPs. Reagents must be, at a minimum, the purity required in the test method. The date of reagent receipt, expiration date and the date the reagent was opened are documented. Sample bottles are certified by the manufacturer to be free of contaminants. The certificates are stored at STL Buffalo.

9.0 Project Reports

9.1 General

The criteria described in Section 9.1.1 apply to all Project Reports that are generated under NELAC, State, Federal Agency and/or client requirements. The criteria described in 9.1.2 apply to all Project Reports.

9.1.1 Project Report Content

- Title
- Laboratory name, address, telephone number, contact person
- Unique Laboratory Project Number
- Total Number of Pages (report must be paginated)
- Name and address of Client
- Client Project Name (if applicable)
- Laboratory Sample Identification
- Client Sample Identification
- Matrix and/or Description of Sample
- Dates: Sample Receipt, Collection, Preparation and/or Analysis Date
- Definition of Data Qualifiers
- Reporting Units
- Test Method
- Chain of Custody

9.1.2 Additional Content Requirements (method specific):

- Solid Samples: Indicate Dry or Wet Weight
- Whole Effluent Toxicity: Statistical package used
- If holding time $\leq$ 48 hours, Sample Collection, Preparation and/or Analysis Time
- Indication by flagging where results are reported below the quantitation limit.

9.1.3 Project Narrative

A Project Narrative and/or Cover Letter is included with each project report and at a minimum includes an explanation of any and all of the following occurrences:

- Non-conformances
- "Compromised" sample receipt, Method Deviations
- QC criteria failures

9.2 Project Release

The Laboratory Director or his/her designee authorizes the release of the project report with their signature.

Where amendments to project reports are required after issue, these shall be in the form of a separate document and/or electronic data deliverable. The revised report is clearly identified as revised with the date of revision and the initials of the person making the revision. Specific pages of a project report may be revised using the above procedure with an accompanying cover letter indicating the page numbers of the project revised. The original version of the project report must be kept intact and the revisions and cover letter included in the project files.

9.3 Subcontractor Test Results

Subcontracted data are clearly identified as such, and the name, address, and telephone number for the laboratory performing the test is included in the project report. Test results from more than one STL facility are clearly identified with the name of the STL facility that performed the testing, address, and telephone number for that facility.

9.4 Electronic Data Deliverables

Electronic Data Deliverables (EDD) are routinely offered as part of STL Buffalo's services. STL Buffalo offers a variety of EDD formats including Environmental Restoration Information Management System (ERPIMS), New Agency Standard (NAS), Format A, Excel, Dbase, GISKEY, and Text Files.

EDD specifications are submitted to the IT department by the PM for review and undergo the contract review process. Once the facility has committed to providing diskettes in a specific format, the coding of the format is performed. This coding is documented and validated. The validation of the code and associated documents are retained as a QC record.

EDDs are subject to a secondary review to ensure their accuracy and completeness.

9.5 Project Report Format

STL Buffalo offers a wide range of project formats, including EDDs, short report formats, complete data deliverable packages modeled on the Contract Laboratory Protocol (CLP) guidelines. More information on the range of project reports available can be obtained by contacting STL Buffalo. Regardless of the level of reporting, all projects undergo the same levels of review.

10.0 Analytical Methodology

STL Buffalo analyzes samples by the methods listed below. Modified versions of the methods may be used if all Quality System requirements are achieved (MDL, DOC acceptable PE study). All method specific requirements for calibration, QC limits and data analyses are followed.

References

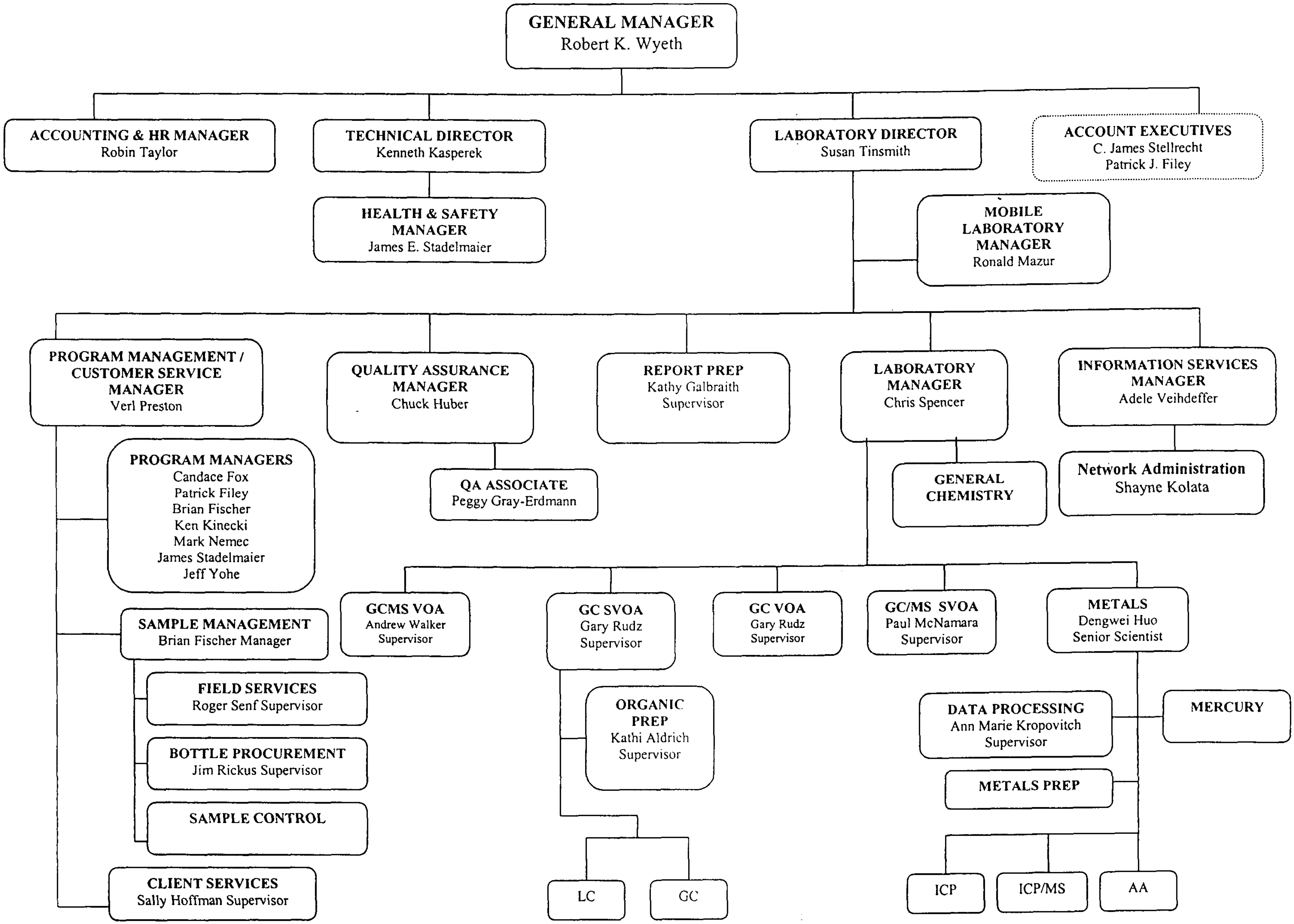
1. Methods for Chemical Analysis of Water and Wastewater", EPA-600/4-79-020, March 1983.
2. "Test Methods for Evaluating Soil Waste", USEPA-SW846, 3RD Edition, September 1986 with all current revisions.
3. "Methods for the Determination of Organic Compounds in Drinking Water EPS-600/4-88-039, December 1988.
4. The Analysis of Trihalomethanes in Finished Water by the Purge and Trap Method, EMSL, Cincinnati, Ohio 45268, November 6, 1979.
5. Volatile Aromatic and Unsaturated Organic Compounds in Water by Purge and Trap Gas Chromatography, EMSL, Cincinnati, Ohio 45268, Revision 2.0, (1989).
6. Volatile Organic Compounds in Water by Purge and Trap Capillary Column Gas Chromatography with Photoionization and Electrolytic Conductivity Detectors in Seriers, EMSL, Cincinnati, Ohio 45268, revision 2.0 (1989).
7. Determination of Chlorinated Acids in Water by Gas Chromatography with an Electron Capture Detector, EMSL, Cincinnati, Ohio 45268, Revision 4.0 (1989).
8. "New York State Department of Environmental Conservation Analytical Services Protocol, Vol. 2, October 1995.
9. "ASTM, Petroleum Products, Lubricants, and Fossil Fuel, Vol. 5.01 D56-D1947, 1990.
10. "Analytical Handbook for the Laboratory of Organic Analytical Chemistry", Wadsworth Center for Laboratories and Research, New York State Department of Health, August 1991.
11. "Standard Methods for the Examination of Water and Wastewater" 16th Edition, 1986

12. "Standard Methods for the Examination of Water and Wastewater" 17th Edition, 1989
13. "Standard Methods for the Examination of Water and Wastewater" 18th Edition, 1992
14. "Standard Methods for the Examination of Water and Wastewater" 19th Edition, 1995

APPENDIX A

STL BUFFALO ORGANIZATIONAL CHART

SEVERN TRENT LABORATORIES, INC. – BUFFALO
ORGANIZATIONAL CHART



Rev. 3/30/01

APPENDIX B

EDUCATION AND EXPERIENCE OF KEY PERSONNEL

Summary of Key Personnel.

General Manager: **Robert Wyeth**
Education: BS Physical Science, MS Chemistry
Experience: 33 years

Technical Director: **Kenneth Kasperek**
Education: BS Biochemistry, MS Pending
Experience: 15 years
Designated Deputy: Laboratory Director

Laboratory Director: **Susan Tinsmith**
Education: BS Chemistry
Experience: 11 years
Designated Deputy: Laboratory Manager

Laboratory Manager: **Christopher Spencer**
Education: BS Chemistry
Experience: 11 Years
Designated Deputy: Technical Director

Quality Assurance Officer: **Charles M. Huber**
Education: BA Chemistry
Experience: 6 Years
Designated Deputy: Peggy Gray-Erdmann

Customer Service Manager: **Verl Preston**
Education: BS Medical Technology
Experience: 13 years
Designated Deputy: Laboratory Director

Information Services Manager: **Adele Veihdeffer**
Education: AAS Computer Programming
Experience: 11 Years
Designated Deputy: Laboratory Director

Organic Department Personnel:

GC/MS Laboratory Supervisor SVOA: **Paul McNamara**
Education: BA Biology
Experience: 11 Years
Designated Deputy: Laboratory Manager

GC/MS Laboratory Supervisor VOA: **Andrew Walker**
Education: BS Chemistry
Experience: 3 Years
Designated Deputy: Laboratory Manager

GC Laboratory Supervisor: **Gary Rudz**
Education: BA Chemistry
Experience: 15 Years
Designated Deputy: Laboratory Manager

Organic Sample Prep Laboratory Supervisor: **Kathleen Aldrich**
Education: BS Biology
Experience: 5 Years
Designated Deputy: Laboratory Manager

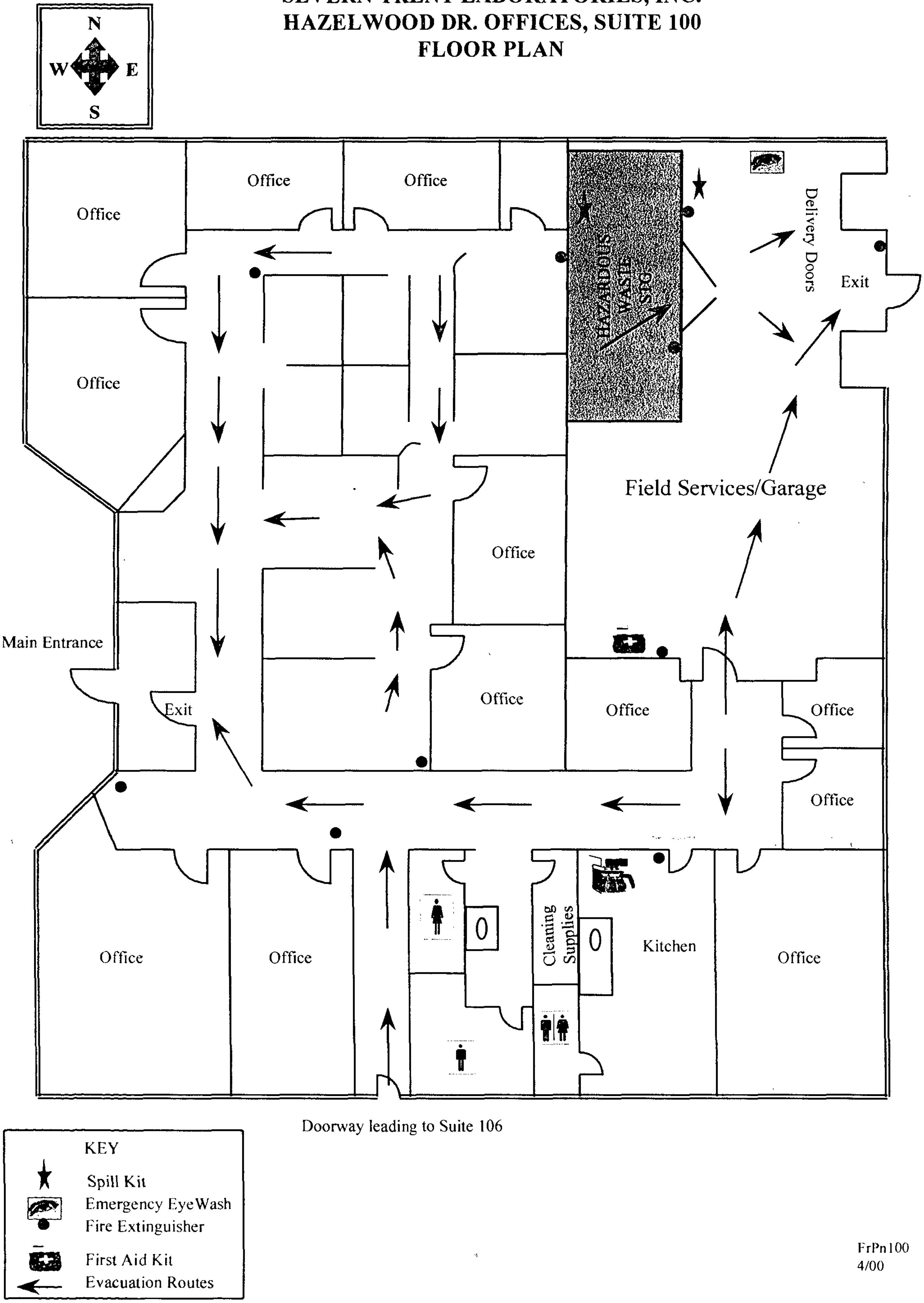
Inorganic Department Personnel:

ICP Spectroscopist: **Dengwei Huo, Ph.D.**
Education: BS Analytical Chemistry, MS Analytical Chemistry, Ph.D. Analytical Chemistry
Experience: 5 Years
Designated Deputy: Laboratory Manager

APPENDIX C

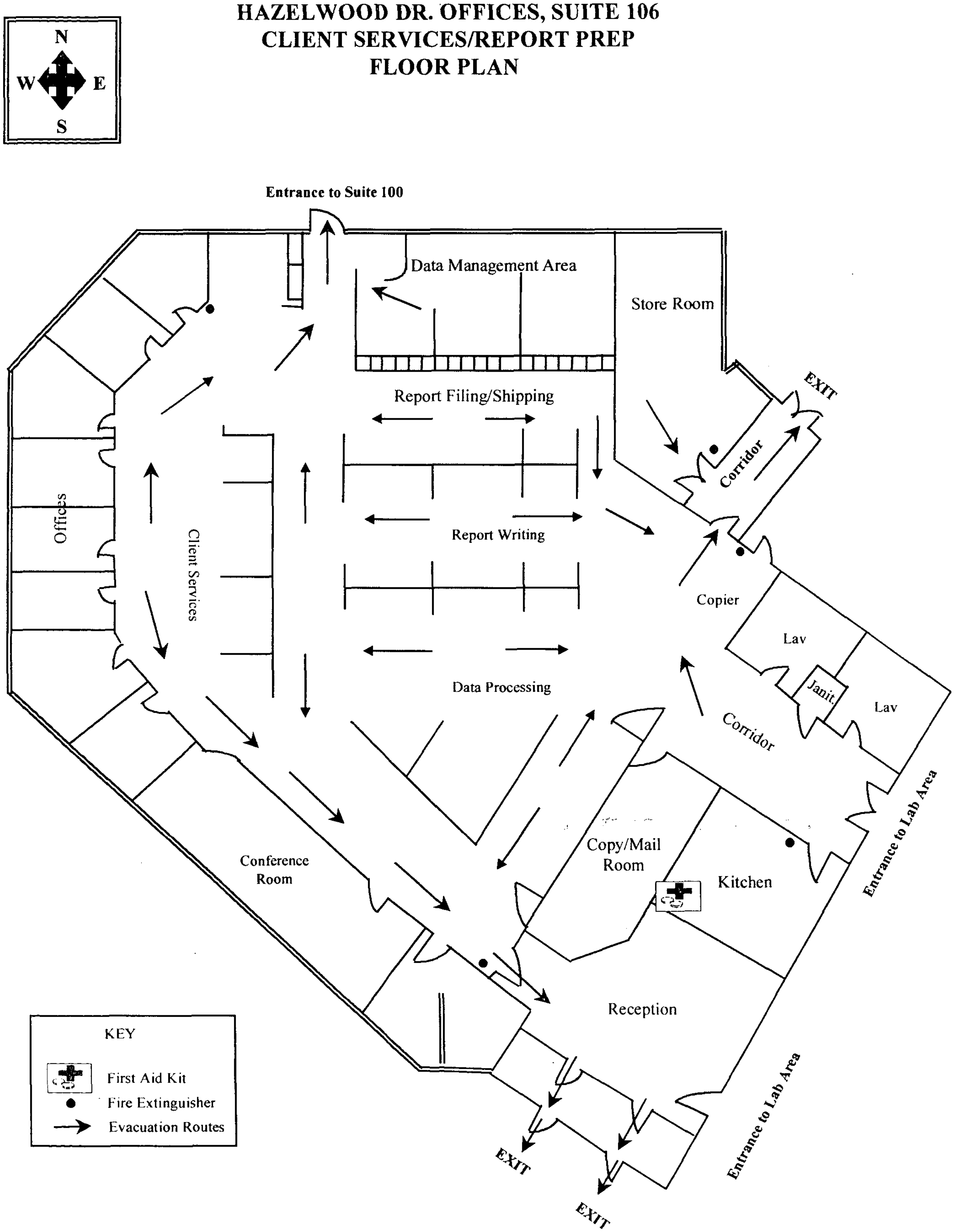
FACILITIES AND EQUIPMENT LIST

SEVERN TRENT LABORATORIES, INC.
HAZELWOOD DR. OFFICES, SUITE 100
FLOOR PLAN



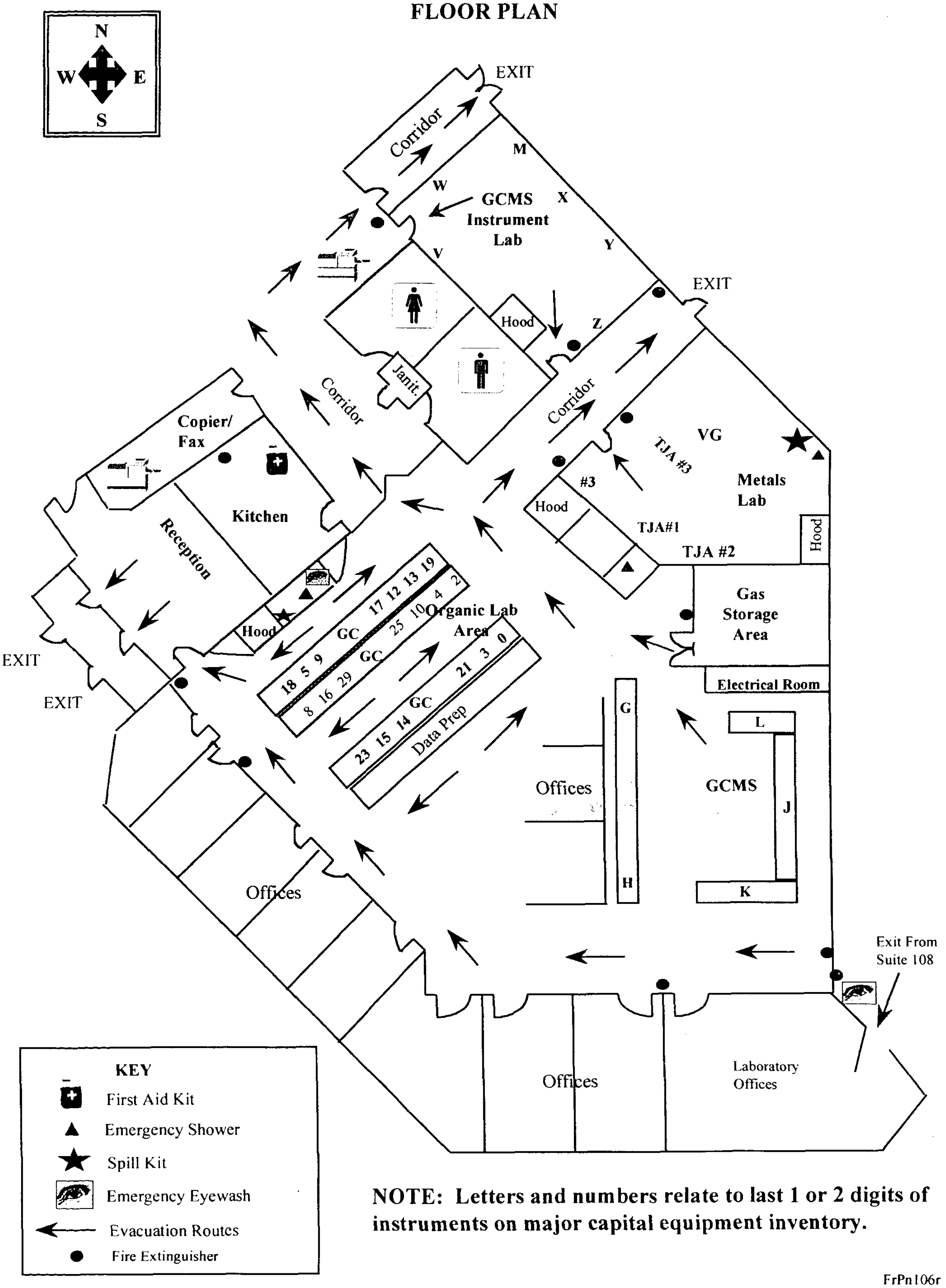
FrPn100
4/00

SEVERN TRENT LABORATORIES, INC.
HAZELWOOD DR. OFFICES, SUITE 106
CLIENT SERVICES/REPORT PREP
FLOOR PLAN



FrPl106L
4/00

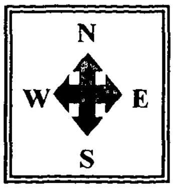
SEVERN TRENT LABORATORIES, INC.
HAZELWOOD DR. NY OFFICES, SUITE 106
LABORATORY AREA
FLOOR PLAN

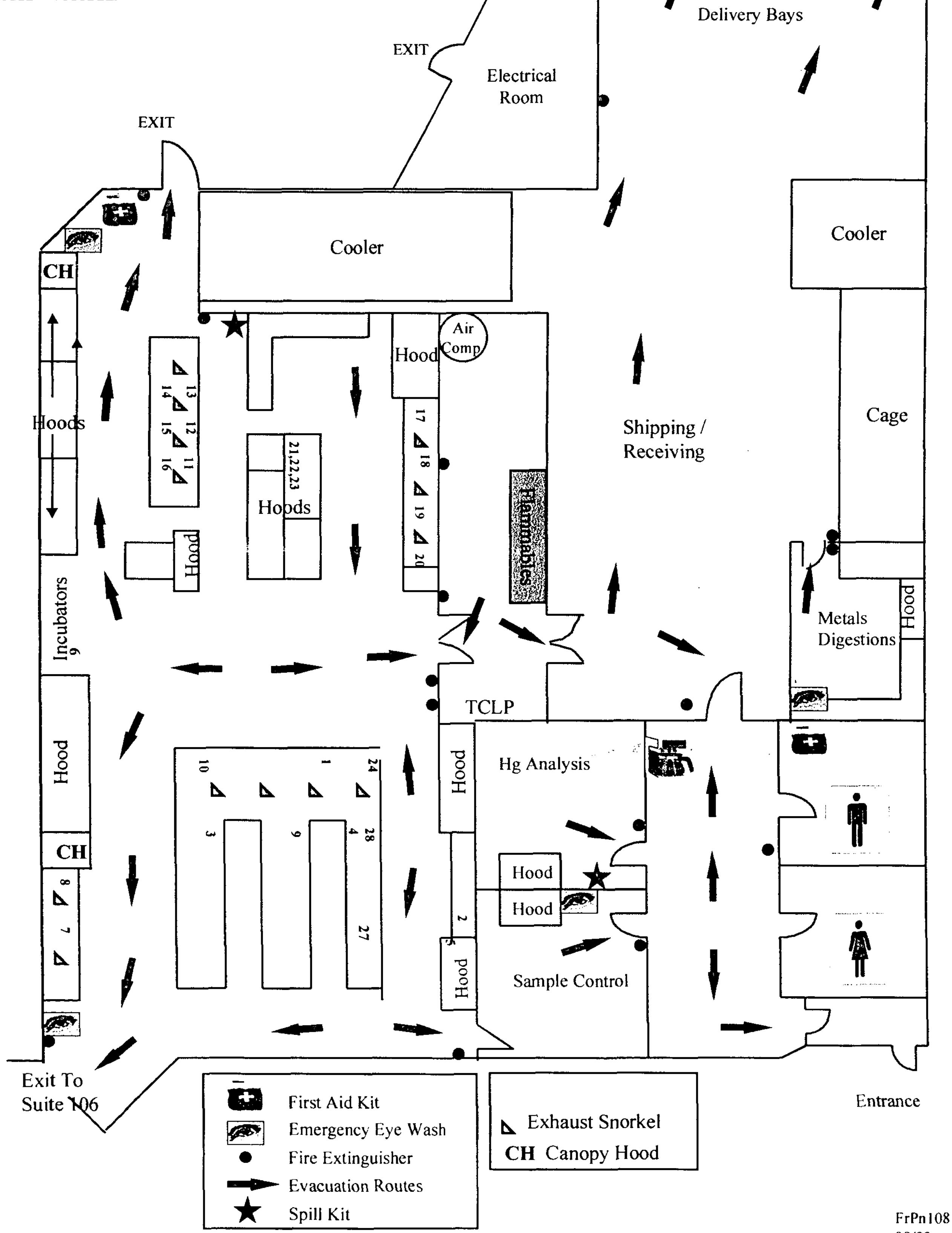


NOTE: Letters and numbers relate to last 1 or 2 digits of instruments on major capital equipment inventory.

FrPn106r
4/00

SEVERN TRENT LABORATORIES, INC.
HAZELWOOD DR. OFFICES, SUITE 108
FLOOR PLAN





SEVERN TRENT LABORATORIES, INC. - BUFFALO
MAJOR LABORATORY EQUIPMENT/SERIAL NUMBERS
AMHERST, NY FACILITY

INSTRUMENTATION	SERIAL NUMBER	Date in Service	Condition	HAZELWOOD DR. (Suite 106) FLOOR PLAN LOCATION
GC/MS Instrumentation				
Hewlett Packard 5973	A9385	2001	good	G
Hewlett Packard 5973	A10049	2001	good	I
Hewlett Packard 5973	A10040	2001	good	J
Finnigan Mat INCOS 50	IN000586	1991	good	H
Finnigan Mat INCOS 50	IN002568	1992	good	K
Finnigan Mat INCOS 50	IN002571	1992	good	L
Finnigan Mat INCOS 50	IN000303	1991	good	Y
Finnigan Mat INCOS 50	IN000309	1991	good	Z
Finnigan Mat INCOS 50	IN000470	1991	good	W
Finnigan Mat INCOS 50	IN002570	1991	good	V
Finnigan Mat INCOS 50	IN000296	1991	good	X
Finnigan Magnum Ion Trap	IS3650	1995	good	M
GC Instrumentation				
Hewlett Packard 5890 dual FID	2518A04945	1991	good	2
Hewlett Packard 5890 dual FID	3019A28433	1991	good	4
Hewlett Packard 5890 dual ECD	3019A28434	1991	good	5
Hewlett Packard 5890 dual ECD	2518A04944	1992	good	7
Hewlett Packard 5890 dual ECD	3203A42206	1992	good	9
Hewlett Packard 5890 dual FID	3310A47662	1993	good	10
Hewlett Packard 5890 dual ECD	3310A47661	1993	good	12
Hewlett Packard 5890 dual ECD	3336A53325	1993	good	13
Hewlett Packard 5890 dual NPD	3336A63126	1994	good	14
Hewlett Packard 5890 dual ECD	3336A53465	1994	good	15
Hewlett Packard 5890 dual ECD	3336A53464	1994	good	16
Hewlett Packard 5890 dual ECD	3336A53463	1994	good	17
Hewlett Packard 5890 dual ECD	3336A54409	1994	good	18
Hewlett Packard 5890 dual ECD	3336A54408	1994	good	19
Hewlett Packard 5890 Hall/PID	2020A01362	1990	good	3
Hewlett Packard 5890 PID/FID	3133A37157	1993	good	8
Hewlett Packard 5890 PID/FID	3336A51040	1994	good	21
Hewlett Packard 5890 Hall/PID	3235A54089	1994	good	22
Hewlett Packard 5890 PID/FID	3336A53728	1994	good	23
Hewlett Packard 5890 dual FID	3336A53729	1994	good	24
Perkin Elmer 8500 dual PID	042923001070	1991	good	Mobile Lab
Perkin Elmer 8500 dual PID	045645001089	1991	good	Mobile Lab
LC Instrumentation				
Hewlett Packard 1100 HPLC	DE92001578	2000	good	25

INSTRUMENTATION	SERIAL NUMBER	Date in Service	Condition	HAZELWOOD DR. (Suite 106) FLOOR PLAN LOCATION
Metals Instrumentation				
Thermo Jarrell Ash ICP61E Trace	334490	1995	good	TJA
Thermo Jarrell Ash ICP61E Trace	382590	1995	good	TJA
Thermo Jarrell Ash ICP61E Trace	339490	1995	good	TJA
VG PlasmaQuad PQ2 ICP-MS	763	1991	good	VG
Perkin Elmer 5100	148244-6788	1992	good	Storage
Perkin Elmer 5100	148244-6846	1992	good	3
Perkin Elmer 3100	139289	1992	good	Storage
Leeman PS200 II	HG9045	2000	good	Hg Room
Leeman PS200 II	HG0033	2000	good	Hg Room
Water Quality Instrumentation				**(Suite 108)**
OI Carbon Analyzer Model 1010 #1	H92170411	1999	good	1
OI Carbon Analyzer Model 1010 #2	H014710903	2000	good	24
Shimadzu UV-VIS Spectrometer # UV-120-02	27A06763	1991	good	2
Spectronic Genesis 4001/4	3SGC199091	2000	good	3
ALPKEM 510 Wet Chemistry Auto-Analyzer	9380	1993	good	4
Andrews Cyanide Midi-Distillation Apparatus	MCVA-1290380 MCVA-1290381	1994 1994	good good	5
Lab Line Ambi Hi-Lo Chamber (for BOD)	391-010 1043	1994 1994	good good	6
Dohrmann Tox Analyzer Model DX2000	99243010	1999	good	7
Dohrmann Tox Analyzer Model DX2000	99243011	1999	good	8
Lachat Autoanalyzer Model QuickChem 8000	A83000-1439	1999	good	9
Lachat Autoanalyzer Model QuickChem 8000	A83000-1527	2000	good	27
Dionex Ion Chromatograph Model DX-120	99010157	1999	good	28
YSI, Inc. Oxygen Meter Model 57	93J09826	1995	good	WQ Lab
VWR Ion Meter Model 2100	1063	1997	good	WQ Lab
Orion Ion Meter Model 230A	2229	1999	good	WQ Lab
Fischer Accumet Ion Meter Model 925	860	1991	fair	WQ Lab
HACH DR/2000 Spectrophotometer	940200028465	1995	good	WQ Lab

INSTRUMENTATION	SERIAL NUMBER	Date in Service	Condition	HAZELWOOD DR. (Suite 108) FLOOR PLAN LOCATION
Sample Preparation Equipment				
ISCO Foxy 200 Fraction Collector	662130002	2000	good	10
ABC Industries GPC:	822B-222/2335	1992	poor	Storage
Autoprep 1002B UV-106	AP001-9113-9128/3537	1992	poor	Storage
Autoprep 100 UVD-1	772B/1470	1992	poor	Storage
Autoprep 1002 UV-106				
Organomation Rot-X-Tractor	16902	1999	good	11
Organomation Rot-X-Tractor	16907	1999	good	12
Organomation Rot-X-Tractor	16913	1999	good	13
Organomation Rot-X-Tractor	14206	1995	good	14
Organomation Rot-X-Tractor	15206	1995	good	15
Organomation Rot-X-Tractor	15224	1995	good	16
Turbovap Unit	TV9445N5816	1996	good	17
Turbovap Unit	TV9427N4133	1996	good	18
Turbovap Unit	TV944N5819	1996	good	19
Turbovap Unit	TV944N5820	1996	good	20
Heat Systems Model XL-2020 Sonicator	G1647/C5659	1994	good	21
Heat Systems Model XL-2020 Sonicator	G2665/C5674	1994	good	22
Heat Systems Model XL-2020 Sonicator	G2620/C5660	1994	good	23
Microtip	G2245/C6328	1995	good	Storage
Microtip	G2621/C6733	1995	good	Storage
Microtip	G2713/C6732	1995	good	Storage
Microtip	G1643/C6837	1995	good	Storage
Microtip	G2742/C6842	1995	good	Storage
Microtip	G2246/C6327	1995	good	Storage
Heat Systems Model W385 Sonicator	G9286/C4121	1994	good	Storage
	G3907/C4045	1994	good	
Heat System Model W375 Sonicator	G7122	1994	good	Storage
	G7134/C1336	1994	good	
Heating Banks for Soxhlet Extractor	237230	1993	good	Storage
Heating Banks for Soxhlet Extractor	240180	1993	good	Storage
Heating Banks for Soxhlet Extractor	240181	1993	good	Storage
Heating Banks for Soxhlet Extractor	240182	1993	good	Storage
Heating Banks for Soxhlet Extractor	240183	1993	good	Storage
Heating Banks for Soxhlet Extractor	240184	1993	good	Storage
Heating Banks for Soxhlet Extractor	240185	1993	good	Storage

APPENDIX D

SOP INDEX

SEVERN TRENT LABORATORIES, INC. - BUFFALO
STANDARD OPERATING PROCEDURES
MASTER INDEX

SOP No.	Title	Revision #	Date	Review Date	Reviewed By	Scheduled Review	Word ID#
AGP-PIPET-01	Calibration of Autopipettes, Re-Pipettors & Syringes	0 1 2 3	8/11/97 4/21/98 1/27/99 5/17/00			5/01	799
AGP-TEMP-03	Recordkeeping and Corrective Actions for Temperature Control Devices	1 2 3	1/27/99 5/13/99 5/18/00			5/01	145
AGP-BAL-05	Maintenance of Analytical Balances	0 1 2	4/4/94 1/27/99 5/16/00			5/01	146
AGP-DRYWT-07	Determination of Dry Weight	0 1 2	1/31/97 1/27/99 5/18/00			5/01	147
AGP-SUPPLY-08	Procurement of Laboratory Supplies and Services	0 1 2	10/24/96 1/27/99 5/16/00			5/01	148
AGP-CRHT-10	Tracking of Critical Holding Time Parameters	0 1 2	12/30/96 1/27/99 5/16/00			5/01	144
AGP-WATER-12	Preparation and QA/QC Procedures for Laboratory Reagent Water	0 1 2	11/21/96 1/27/99 5/18/00			5/01	150
AGP-STD-14	Standards Traceability and Preparation Logbooks	0 1 2	2/6/97 1/26/99 5/18/00			5/01	152
AGP-TIME-16	Military Time	0 1 2	11/16/93 1/27/99 5/16/00			5/01	154
AGP-MAN.INT-20	Manual Integration	0 1 2	4/2/92 1/27/99 5/18/00			5/01	157
AGP-LABCONT-23	Sample Storage & Handling Procedures for Mitigation of Sample & Laboratory Contamination	0 1 2	4/13/93 1/28/99 6/15/00			6/01	174
AGP –SAMP.SECUR-25	Sample Security and Storage	0 1 2	1/25/94 1/28/99 6/14/00			6/01	176
AGP-HOMO-30	Sample Homogenization and Subsampling	0 1 2	1/6/98 1/28/99 7/14/00			7/01	177
AGP-THERMCAL-33	Thermometer Calibration	0 1 2	6/9/93 1/28/99 7/14/00			7/01	184
AGP-MAINTAUTH-40	Maintenance Authorization	0 1 2	4/13/93 1/28/99 8/2/00			8/01	186
AGP-PREV.MT-43 **ARCHIVED**	Preventative Maintenance Schedule & Procedures	0 1	4/2/92 1/28/99				187

A Bold **SOP No.** means that SOP has been updated in the NELAP format.

SOP No.	Title	Revision #	Date	Review Date	Reviewed By	Scheduled Review	Word ID#
AGP-MSPREV-45	Preventative Maintenance Schedule & Procedures-GCMS Semivolatile & VOA Lab	0 1 2	4/13/93 1/28/99 1/3/01			9/00	188
AGP-COMPUTER-50	Computer User Responsibilities	0 1 2	11/1/95 1/28/99 9/12/00			9/01	192
AGP-OFF-SITE-55	Off-Site Storage Procedures	0	1/5/2000			1/01	821
AGP-ON-SITE-56	On-Site Storage Procedures	0	1/5/2000			1/01	820
AGP-TBNK-60	Time Bank Policy	0 1	5/30/00 6/16/00			6/01	831
AGP-Out of Service-65	Out of Service Equipment	0	9/19/00			9/01	851
AGP-DILUTIONS-70	Procedure for Diluting Volatile Samples	0	12/11/00				854
ASR-BOT.CONT-01	Sample Bottle Control	0 1	4/22/98 1/28/99	4/5/00	PC	4/01	149
ASR-BOTTLE-03	Sample Container Preparation & Shipment, & Preparation of Pre-Preserved Sample Bottles for Use in Collection of Materials for Environmental Analytical Testing	0 1	8/10/92 1/28/99	4/5/00	PC	4/01	151
ASR-RECEIPT-05	Receipt of Analytical Samples	0 1 2	2/20/98 1/28/99 2/25/00			2/01	163
ASR-PRES-07	The Chemical Preservation or Checking of Chemical Preservation of Analytical Samples	0 1 2 3	3/4/98 1/28/99 3/3/00 4/6/00			4/01	164
ASR-INV-08	Analytical Sample Inventory/Preservation Logbook	0 1	1/25/94 1/28/99	4/6/00	PC	4/01	165
ASR-ASRF-10	Analytical Services Request Form	0 1	1/25/94 1/28/99	4/6/00	PC	4/01	166
ASR-ARRF-11	Analytical Receipt Resolution Form	0 1 2 3	1/25/94 1/28/99 4/6/00 5/18/00			5/01	167
ASR-COCLOG-15	Internal Chain-of-Custody Logbook	0 1	11/19/93 1/28/99	4/6/00	PC	4/01	168
ASR-COCFORM-17	Internal Chain-of-Custody Form	0 1 2	1/25/94 1/29/99 5/24/00			5/01	169
ASR-COC-18	Intracompany Chain-of-Custody	0 1	10/13/97 1/29/99			5/00	803
ASR-ID-20	AIMS™ Laboratory Sample Identification Systems	0 1	1/25/94 1/29/99			6/00	170
ASR-TEMPBL-21	Temperature Blanks	0 1	11/16/93 1/29/99			6/00	178
ASR-DC1-23	Sample Receiving; USEPA CLP, DC-1 Form	0 1	10/8/92 1/29/99			7/00	173
ASR-NJSHIP-25	Preparation and Shipment of Sample Containers – NJDEPE	0 1	2/17/94 1/29/99			7/00	179
ASR-NJCOC-26	NJDEPE Internal Chain of Custody Logbook and Form 077	0 1	2/17/94 1/29/99			8/00	180
ASR-STORAGE-27	Sample Transportation/Storage	0 1	7/27/95 1/29/99			8/00	182
ASR-TEMP-28	Sample-Receipt; Temperature Monitoring	0 1 2	7/11/94 1/29/99 2/25/00			9/00	181
ASR-RAD-30	Low-Level Radioactive Waste Minimization	0	9/15/95			10/00	183

A Bold **SOP No.** means that SOP has been updated in the NELAP format.

SOP No.	Title	Revision #	Date	Review Date	Reviewed By	Scheduled Review	Word ID#
	Plan	1	1/29/99				
ASR-DISP-33	Sample Disposal	0 1 2 3	4/13/93 2/20/98 1/29/99 2/25/00			10/00	175
ASP-GLASS-10	Organic Glassware Cleaning	0 1 2	4/3/95 3/5/99 12/27/99			12/00	119
ASP-SOLVENT-15	Solvent Purity Check	0 1 2	4/2/92 1/29/99 12/29/99			12/00	120
ASP-SONC-20	Sonicator Maintenance	0 1 2	2/17/94 1/29/99 12/29/99			12/00	125
ASP-GPCCAL-25	3/90 GPC Calibration	0 1 2 3	6/17/92 2/1/99 11/4/99 12/27/99			12/00	126
ASP-507/508-50	Organic Preparation – Methods 507 and 508	0 1 2	4/12/94 2/1/99 3/1/00			3/01	061
ASP-515.1-53	Sample Preparation – Method 515.2	0 1 2 3 4	1/3/95 2/1/99 9/21/99 11/23/99 2/28/00			2/01	063
ASP-525.1-55	Sample Preparation – Method 525.2	0 1 2 3 4	3/29/94 2/1/99 10/5/99 12/27/99 2/4/00			2/01	060
ASP-608-65	Organic Prep Laboratory – EPA Method 608 (Recra Method 305): Non-CLP Pesticides and PCB	0 1 2 3	8/4/92 2/1/99 9/27/99 12/27/99			5/00	123
ASP-625-68	EPA Method 625 (Recra Method 401): Base/Neutral & Acid/Phenols (BN/AP)	0 1 2 3	8/4/92 2/1/99 10/13/99 12/23/99			5/00	127
ASP-CLPSONC-75	3/90 Pesticide/PCB and BNA Sonication	0 1 2	6/17/92 2/1/99 11/23/99			4/00	124
ASP-3510-80	Method 3510B: Aqueous Separatory Funnel Extraction Procedure Method 3510C: Aqueous Separatory Funnel Extraction Procedure	0 1 2 3 4 5	5/7/97 4/6/98 1/26/99 9/24/99 12/27/99 3/2/00			3/01	128
ASP-3520B-85	Method 3520B – Continuous Liquid/Liquid Extraction & Accelerated Liquid/Liquid Extraction	0 1 2 3 4	5/7/98 2/1/99 9/25/99 12/27/99 3/2/00			3/01	224

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ASP-3502B-85	Method 3520B – Continuous Liquid-Liquid Extraction	0 1	1/20/97 2/1/99			3/01	129
ASP-3540-90	EPA Method 3540: Non-CLP Method for Extraction of Organic Constituents from Soil/Solid Samples	0 1 2 3	3/8/94 2/1/99 9/27/99 12/27/99				131
ASP-3550A-93	Method 3550A: Ultrasonic Extraction of Soils Method 3550A: Ultrasonic Extraction Of Soils And Wipes	0 1 4 5	2/24/97 1/26/99 3/2/00 3/10/00			3/01	136
ASP-3580A-94	Waste Dilution – Method 3580A	0 1 2 3	4/10/98 2/1/99 8/4/99 3/2/00			3/01	216
ASP-3620A-95	Method 3620A – Florisil Cartridge Cleanup	0 1 2	12/4/96 2/1/99 2/3/00			2/01	139
ASP-3640A-96	Method 3640A: Gel Permeation Chromatography	0 1 2 3	3/10/98 2/1/99 9/13/99 12/27/99	2/3/00	KA	2/01	210
ASP-3665A-98	Method 3665A: Acid Cleanup	0 1 2 3	1/15/98 2/1/99 9/11/99 12/23/99	2/3/00	KA	2/01	201
ASP-DROS-100	Extraction Procedure for Diesel Range Organics from Soil	0 1	3/20/96 2/2/99			4/00	137
ASP-DROW-103	Extraction Procedure for Diesel Range Organics (DRO) Waters	0 1	3/20/96 2/2/99			4/00	138
ASP-310/13-105	Extraction of Petroleum Products in Water (Method DOH 310-13)	0 1 2	3/9/94 5/6/98 2/2/99			4/00	132
ASP-LANDBAN-106 **ARCHIVED**	Extraction of Solids/Wastes for Landfill Ban Analysis	0 1	3/15/94 2/2/99	5/1/98	DL		133
ASP-8150W-110 **ARCHIVED**	Organic Prep Laboratory – EPA Method 8150 for Waters	0 1	6/27/94 2/2/99				134
ASP-8150S-113 **ARCHIVED**	Organic Prep Laboratory – EPA Method 8150 for Soils	0 1	6/27/94 2/2/99				135
ASP-8151A,S-115	Method 8151A Herbicide Extraction-Soil	0 1 2 3 4	3/9/98 10/30/98 2/2/99 9/11/99 12/27/99			4/00	211
ASP-8151A,W-118	Method-8151A Herbicide Extraction – Water	0 1 2 3 4 5	4/27/98 10/30/98 3/8/995/1 8/18/99 9/13/99 12/27/99			4/00	213
AGE-504-05	**Previous Title:** 1,2-Dibromoethane (EDB) & 1,2-Dibromo-3-Chloropropane (DBCP) in Water – Method 504 **Current Title:** Method 504.1/8011 Microextractables in Water	0 1 2 3	9/6/95 8/19/98 2/4/99 8/23/00			8/01	058
AGE-8011-07	1,2-Dibromoethane (EDB) & 1,2-Dibromo-3-	0	8/3/99			8/00	810

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	Chloropropane (DBCP) in Water – Method 504						
AGE-508-20	Chlorinated Pesticide Analysis Method 508	0 1	3/24/94 2/4/99			1/00	057
AGE-515.1-25	Chlorinated Acids Analysis – Method 515.1	0 1	3/29/94 2/4/99			1/00	059
AGE-REI-30	Polychlorinated Biphenyl (PCB) Analysis – REI Method	0 1	3/20/96 2/4/99			2/00	029
AGE-INDREI-40	Polychlorinated Biphenyl (PCB) Analysis – REI Method Individual Aroclor Quantitation	0 1	2/5/96 2/4/99			2/00	031
AGE-608-45	Organochlorine Pesticides & PCBs – Method 608	0 1 2	8/10/92 8/19/98 2/4/99			2/00	039
AGE-8000A-50 AGE-8000A-46	Gas Chromatography – Method 8000A **Revision of SOP # & Date Only**	0 1	4/10/94 10/30/98			2/00	047
AGE-8015DRO-50	Diesel Range Organics – Method 8015B	0 1 2	8/25/98 9/23/99 7/4/00			7/01	230
AGE-8080A-55	Organochlorine Pesticides & PCBs – Method 8080A	0 1	6/22/95 2/4/99			3/00	054
AGE-8081-60	Organochlorine Pesticides & PCBs – Method 8081	0 1 2	5/12/97 8/19/98 2/4/99			3/00	056
AGE-8081A-61	Organochlorine Pesticides – Method 8081A	0 1 2	8/14/98 1/26/99 7/6/00			7/01	228
AGE-8082-63	Analysis of PCBs – Method 8082	0 1	3/2/98 1/26/99			3/00	209
AGE-8100-65	Polynuclear Aromatic Hydrocarbons – Method 8100	0 1	5/7/94 2/4/99			3/00	053
AGE-8150A-75	Chlorinated Herbicides – Method 8150A	0 1	5/5/94 2/4/99			3/00	076
AGE-8151A-77	Chlorinated Herbicides – Method 8151A	0 1	8/19/98 10/8/99			3/00	227
AGE-DRO-80	Diesel Range Organics – DRO Method Diesel Range Organics – API Method	0 1 2	4/20/94 8/25/98 2/5/99			3/00	042
AGE-EXDRO-85	Expanded Diesel Range Organics – DRO Method	0 1	3/20/96 2/9/99			3/00	043
AGE-310/13-90	NYSDOH Method 310-13/14: Petroleum Products in Water	0 1 2	4/11/97 7/20/98 2/9/99			3/00	044
AGE-GCPREV-90	Preventative Maintenance Schedule And Procedures-GC & HPLC	0	2/1/00			2/01	827
AGE-CLP-95	Analytic Method For Gc/Ecd Pesticides And Aroclors By Cipolm03.3	0	9/23/99			1/01	207
AGE-GLASS-100	Glassware Cleaning – GC Department	0 1	4/2/92 2/9/99			4/00	033
AGE-MAINT-103	Maintenance Activities – GC Department	0 1	4/2/92 2/9/99			4/00	191
AGE-CALC-105	Calibration and Quantitation of Multicomponent Pesticides and PCBs	0 1	6/23/95 2/9/99			4/00	035
AGE-PCBID-110	Identification of Polychlorinated Biphenyls as Aroclors	0 1	12/22/97 2/9/99			4/00	032
AGE-INJLOG-115	Analytical Run-Injection Logbooks – GC Department	0 1 2	8/3/92 8/10/98 2/11/99			4/00	036

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AGE-STD-120	Analytical Standards – GC Dept.	0 1	4/13/93 2/11/99			4/00	037
AGE-DATAACQ-130	Data Acquisition System Operation – GC Department	0 1	4/2/92 2/11/99			4/00	034
AGE-DELIV-135	GC Deliverables to GC Data Processing	0 1 2	4/2/92 8/10/98 2/11/99			4/00	038
AGE-FORM-140	3/90 EPA CLP GC Pesticide/Aroclor Data Processing Standard Operating Procedure	0 1	4/13/93 2/11/99			5/00	046
AGE-REVIEW-142	Laboratory Data Review – Gas Chromatography	0 1	4/8/98 2/11/99			5/00	220
AGE-CLP-4.0/4.1/4.2-150	Analytical Methods for GC/ECD Pesticides and Aroclors by CLP OLM 04.0/4.1/4.2	0 1	9/23/99 01/26/00			1/01	812
AGV-601/602-10	Halogenated and Aromatic Volatile Organics (Methods 601-602 Individually or in Series)	0 1 2	4/1/98 2/11/99 2/28/00			2/01	048
AGV-8010A-15	Halogenated Volatile Organics – Method 8010A	0 1 2	12/13/96 2/11/99 2/28/00			2/01	050
AGV-8015-20	Non-Halogenated Volatile Organics; Method 8015	0 1 2	5/30/96 2/11/99 9/28/99			1/00	051
AGV-8015B-21	AGV-8015B/G-21	0	9/29/99			9/00	813
AGV-8020-25	Aromatic Volatile Organic; Method 8020A	01	1/20/97 2/12/99			1/00	052
AGV-8021A-30	Halogenated & Aromatic Volatiles by Gas Chromatography using Electrolytic Conductivity and Photoionization Detectors in Series: Capillary Technique – Method 8021A	0 1 2	8/25/98 2/12/99 3/3/00			3/01	208
AGV-GRO-35	Gasoline Range Organics – GRO Method	0 1	4/20/94 2/12/99			2/00	041
AGV-GCVOAPREV-40	Preventative Maintenance Schedule And Procedures-GC Volatiles	0	2/3/00			2/01	828
AMB-MAN.INT-20	Manual Peak Addition – GC/MS Semivolatile Lab	0 1 2	8/3/92 2/12/99 3/10/00			3/01	013
AMB-INJ.LOG-25	GC/MS Semi-Volatile Injection Logbook	0 1	4/2/92 2/12/99			3/00	014
AMB-FORM-30	Entering Semi-Volatile Headers Into Formaster 3/90	0 1 2	4/2/92 2/12/99 3/13/00			3/01	022
AMB-STREAMER-40	Loading Magnetic Streamer Tapes	0 1 2	4/2/92 2/15/99 3/10/00			3/01	018
AMB-525.2-50	Method 525.1-Determination of Organic Compounds in Drinking Water by Capillary Column Gas Chromatography/Mass Spectrometry	0 1	5/11/94 2/15/99			1/00	064
AMB-625-60	Analytical Method for GC/MS Semivolatiles by EPA– Method 625	0 1	3/18/98 2/15/99			3/01	015
AMB-8270B-65	Analytical Method for GC/MS Semivolatiles by SW846 3rd Ed – Method 8270B	0 1 2	5/24/95 2/15/99 3/8/00			3/01	017
AMB-8270C-66	Analytical Methods for GC/MS Semivolatile Samples by SW846 3rd Edition Method 8270C	0 1 2	8/28/98 2/16/99 3/13/00			3/01	206

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AMB-CLP-70	Analytical Method For GC/MS Semivolatiles By OLMO 3.2 & ASP95-2	0 1 2	1/15/98 2/16/99 9/24/99			1/01	202
AMB-CLP-70	Analytical Method For GC/MS Semivolatiles By OLMO 4.2 & ASP95-2	0	1/26/00			1/01	825
AMB-8270B-(low)-75	Analytical Methods for GC/MS Semivolatile Samples by SW846 3RD Edition Method 8270B (low)	0	9/29/00			9/01	852
AMV-GLASS-10	Syringes, Purge Tubes and Volumetrics – GC/MS Volatile Glassware Cleaning	0 1 2 3	4/2/92 4/10/98 2/17/99 10/28/99			12/00	001
AMV-MAN.INT-15	Manual Integration	0 1 2	1/19/98 2/17/99 10/28/99			12/00	002
AMV-INJ.LOG-20	Analytical Run-Injection Logbook	0 1 2 3	4/2/92 3/9/98 2/17/99 10/28/99			12/00	003
AMV-STD-25	Primary Standards Preparation	0 1 2	3/11/98 2/17/99 10/25/99			12/00	004
AMV-IDENT-35	Identification of Target Compounds – Volatiles	0 1	3/11/98 2/17/99			1/01	006
AMV-STORAGE-40	Data Storage	0 1 2	4/2/92 2/17/99 10/25/99			10/00	007
AMV-5030-42	Method 5030A: Purge and Trap	0 1 2	1/12/98 2/17/99 2/28/00			2/01	200
AMV-5035-43	Method 5035-Closed-System Purge & Trap & Extraction for Volatile Organics in Soil and Waste Samples	0 1 2	3/10/98 2/19/99 2/28/00			2/01	212
AMV-524.2-45	GC/MS Volatile Method 524.2	0 1 2	3/14/94 2/19/99 10/28/99			10/00	009
AMV-624-50	Method 624	0 1 2	6/27/95 2/19/99 10/28/99			12/00	008
AMV-8260A-55	Method 8260	0 1 2	4/8/97 2/19/99 2/28/00			2/01	010
AMV-8260B-56	Analytical Methods for the Analysis of GC/MS Volatile Samples – 8260B	0 1 2 3 4	5/1/98 1/26/99 3/1/00 9/11/00 12/14/00			9/01	221
AMV-CLP-60	Analytical Method for GC/MS Volatiles by CLP OLM3.2 ***In Review***	0 1 2	1/8/98 2/19/99 9/16/99			1/01	203
AMV-CLP-4.2-61	3/90 CLP OLM4.2	0 1	9/16/99 01/27/00			1/01	811
AMV-ASP951-62	Analytical Method for GC/MS Volatiles – ASP95-1 ***In Review***	0 1	1/9/98 2/19/99			2/01	205

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AMV-ASP954-64	Analytical Method for GC/MS Volatiles – ASP95-4	0 1 2 3	1/16/98 2/19/99 9/30/99 2/28/00			2/01	204
AMV-OLC02-70	Analytical Method for GC/MS Volatiles – (OLC02)	0	2/28/00			2/01	829
AMP-GLASS-05	Cleaning Procedure for Metals Glassware	0 1	4/28/97 2/22/99			1/00	066
AMP-BATCH-07	Metals Department Batching Procedure	0 1	5/12/97 2/22/99			1/00	067
AMP-STANDARD-09	Preparation of Standards and Spiking Solution for Metals Digestions	0 1	1/8/98 2/22/99			2/00	807
AMP-3010A-15	Method 3010A – Acid Digestion of Aqueous Samples & Extracts for Total Metals for Analysis by FLAA or ICP Spectroscopy	0 1 2	4/16/97 5/6/98 1/26/99			2/00	070
AMP-3020A-20	Method 3020A – Acid Digestion of Aqueous Samples & Extracts for Analysis by GFAA Spectroscopy	0 1 2	6/25/97 5/6/98 1/26/99			2/00	068
AMP-3031-22	Procedure for Acid Digestion of Oils for Metals Analysis by Atomic Absorption or ICP Spectrometry Using Method 3031	0 1 2	4/2/98 2/22/99 3/15/00			3/01	218
AMP-3050A-25	Acid Digestion of Sediment, Sludges and Soils (Method 3050A)	0 1	6/25/97 2/22/99			2/00	069
AMP-3060A-30	Alkaline Digestion Method 3060A; Hexavalent Chromium in Solid Waste	01	3/18/98 2/22/99			12/00	072
AMP-CrVI-33	- Procedures for Extraction of Hexavalent Chromium in Aqueous Samples - Method 7195 Chromium Hexavalent (Coprecipitation)	0 1 2	8/10/92 1/16/98 2/2/99			2/00	071 071a
AMP-7470/71-35 **ARCHIVED**	Procedure for Mercury Determination in Aqueous and Soil Samples using 7470A & 7471A and 245.1	0 1 2	4/3/98 3/5/99 3/15/00				073
AMP-CLP-38 **ARCHIVED**	Procedure for Mercury Determination in Aqueous & Soil Samples using CLP/ASP Methods	0 1 2	4/3/98 3/5/99 3/15/00				219
AMP-ASP/CLP,W-41	ASP/CLP Methods – Acid Digestion of Aqueous Samples & Extracts for Total Metals for Analysis by ICP Spectroscopy	0 1 2	5/6/98 3/5/99 3/28/00			3/01	223
AMP-ASP/CLP,S-42	Acid Digestion of Soil Samples for Total Metals For Analysis By ICP Spectroscopy (ASP/CLP)	0 1 2	5/6/98 2/11/99 3/28/00			3/01	222
AMP-ICPMS-46	Sample Preparation Procedure for ICP-MS Dissolved and Total Recoverable Metals in Water and Soil	0	3/17/00			3/01	823
AME-7000A-27	Method 7000A – Graphite Furnace Analysis	0 1	4/10/98 1/26/99			2/00	214
AME-6010A-30	Method 6010A Using the Thermo Jarrell Ash 61E Trace	1 2 3 4 5	12/4/96 1/26/99 9/30/99 10/8/99 3/30/00			3/01	080
AME-ICP/CLP-35	Methods ASP-91 and EPA 3/90 Using the Thermo Jarrell Ash 61E Trace	0 1	2/15/97 3/5/99			2/00	082
AME-LIN.RG-37	Establishment of Linear Ranges for ICP Analysis	0 1	8/10/92 3/5/99			2/00	081

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AME-REVIEW-40	Laboratory Data Review	0 1	4/1/98 3/5/99			2/00	215
AME-ICPMS-45	ICP-MS Analysis Method 200.8/6020	0	3/17/00			3/01	824
AME-MERCURY-50	Method # 7470A, 7471A & Mercury Preparation and Analysis	0	8/9/00			8/01	841
AWC-GLASS-01	Cleaning Procedure for Wet Chemistry Glassware	0 1	3/24/98 3/8/99				794
AWC-IC-O5	ION Chromatography; SM: 4110C, 300.0, 9056	0 1 2	9/29/99 3/17/00 10/4/00				815
AWC-O&G-07	Total Recoverable Oil and Grease (Gravimetric, Separatory Funnel Extraction) – Method 9070-413.1	0 1	10/27/97 3/8/99				761
AWC-CYANIDE-10	Total Cyanide 335.2 and 9010A	0 1 2	4/13/97 1/27/99 12/16/99				093
AWC-CHLORIDE-13	Chloride: Methods 325.2 & 9251 Automated Ferricyanide	0 1	6/5/98 1/27/99				226
AWC-405.1-14	Biochemical Oxygen Demand (5 day – Method 405.1) Carbonaceous Biochemical Oxygen Demand (CBOD)	0 1 2 3	10/15/97 3/8/99 11/4/99 12/1/00				798
AWC-TOC-15	Total Organic Carbon: Method 9060/415.1	0 1 2 3	4/1/93 6/15/98 3/8/99 11/15/99				095
AWC-418.1-16	Total Recoverable Petroleum Hydrocarbons (Method 418.1)	0 1	1/31/94 3/8/99				096
AWC-310.1-17	Method 310.1 (Titrimetric, pH 4.5) Alkalinity	0 1 2 3	12/12/96 10/26/98 1/27/99 12/22/99				097
AWC-310.2-18	Alkalinity Method 310.2 (Colorimetric, Automated)	0	3/8/00			3/01	830
AWC-350.1-19	Ammonia Nitrogen Method 350.1 Automated Phenate	0 1	11/17/97 3/8/99				806
AWC-1311-21	Toxicity Characteristic Leaching Procedure (TCLP)	0 1 2	1/27/94 5/6/98 3/8/99				098
AWC-130.2-23	Total Hardness	0 1 2 3	2/9/94 10/26/98 3/8/99 10/10/00				100
AWC-353.2-24	Nitrate+Nitrite Nitrogen, Nitrite Nitrogen and Nitrate Nitrogen Method 353-2 – Automated Cadmium Reduction Method	0 1	6/1/98 1/27/99				225
AWC-pH-26	pH	0 1 2	11/8/94 3/9/99 10/5/00				102
AWC-305.1-27	Acidity	0 1	2/9/94 3/9/99				103
AWC-9095-29	Paint Filter Free Liquids Test	0 1	2/16/94 3/9/99				105
AWC-120.1-32	Specific Conductance	0 1	5/17/94 3/9/99				108
AWC-377.1-33	Sulfite – Method 377.1 (Titration, Iodometric)	0 1	8/19/97 3/9/99				797

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AWC-180.1-34	Turbidity – Method 180.1	0 1	1/20/97 3/9/99				109
AWC-160.1-35	Total Filterable Residue (TDS)	0 1 2	2/28/94 3/9/99 9/11/00			9/01	110
AWC-160.2-36	Total Non-Filterable Residue (TSS)	0 1 2	2/28/94 3/10/99 10/7/00				111
AWC-160.3-37	Total Residue	0 1 2	2/28/94 3/10/99 10/7/00				112
AWC-2540G-38	Method 2540G – Total/Fixed/Volatile Solids	0 1	7/21/97 3/10/99				790
AWC-425.1-39	Methylene Blue Active Substances (MBAS)	0 1	3/28/94 3/10/99				113
AWC-SULFIDE-41	Sulfide	0 1	5/5/94 3/10/99				115
AWC-375.4-42	Sulfate (Turbidimetric)Method 375.4	0 1 2	10/27/97 1/27/99 10/1/99				805
AWC-COD-44	Chemical Oxygen Demand (Colorimetric) – HACH 8000 Method	0 1 2 3 4	7/3/96 5/7/98 3/10/99 4/2/00 4/14/00				117
AWC-351.2-45	Total Kjeldahl Nitrogen – Method 351.2	0 1	8/6/97 3/10/99				800
AWC-1010-46	Method 1010 – Flashpoint	0 1	1/19/98 3/10/99				118
AWC-330.4-47	Total Residual Chlorine – Method 330.4	0 1	7/21/97 3/10/99				788
AWC-9020B-49	Total Organic Halides (TOX) Method 9020	0 1 2	7/21/97 3/10/99 12/22/99				789
AWC-9023-50	Extractable Organic Halides (EOX) Method 9023	0 1	7/21/97 3/10/99				795
AWC-160.5-51	Method 160.5 – Settleable Solids	0 1 2	7/21/97 3/10/99 10/5/00				793
AWC-TOC,D-52	Total Organic Carbon, Direct	0 1	12/22/97 3/10/99				804
AWC-1664-54	Hexane Extractable Materials Method 1664	0	9/29/99				814
AWC – 365.2-55	Method 365.2 – Total and Ortho Phosphorus	0	4/30/99				808
AWC-Iron-56	Total Iron & Ferrous Iron	0	12/15/99				817
AWC-HEXCr-60	Hexavalent Chromium	0	7/14/00			7/01	840
AWC-Phenolics-60	Total Recoverable Phenolics method 420.2/ 9066	0	9/28/00			9/01	832
AWC-9045C-65	Soil and Waste pH	0	6/27/00			6/01	834
AWC-420.2MOD-70	Total Recoverable Phenolics (Modified Method)	0	9/27/00			9/01	836
AWC-COLOR-75	Color Method 110.2	0	10/5/00			10/01	837
AWC-320.1-80	Bromide Method 320.1	0	10/10/00			10/01	844
AWC-345.1-85	Iodide-Method 345.1 (titrametric)	0	10/10/00				845
AWC-370.1-90	Total Silica –Method 370.1	0	10/10/00				846
AWC-1664SPE-95	1664- n-hexane extractable material (hem) and silica gel treated n-hexane extractable material (sgt-hem) by solids phase extraction	0	01/10/01				855

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AWC-SPLP-1312	Synthetic Precipitation Leaching Procedure (SPLP)	0	12/15/99				818
ARP-WARDO-04	Metals Data Transfer to the Ward System	0 1	3/3/93 3/11/99	4/27/98	KG/AMK		083
ARP-WARD1-05	Creating WSL File in CVT	0 1	4/13/93 3/11/99	4/27/98	KG/AMK		085
ARP-WARD2-06	Setting Up the SDG in CLP	0 1	4/13/93 3/11/99	4/28/98	KG/AMK		086
ARP-WARD3-07	Importing Data – General Guidelines	0 1	4/13/93 3/11/99	4/28/98	KG/AMK		087
ARP-WARD4-08	Printing the Report	0 1	4/13/93 3/11/99	4/28/98	KG/AMK		088
ARP-WARDREV-09	Data Review	0 1	4/13/93 3/11/99	4/28/98	KG/AMK		089
ARP-WARDDISK-10	Creation of Disk Deliverables	0 1	4/13/93 3/11/99	4/28/98	KG/AMK		090
ARP-WARDARC-11	Archiving Files	0 1	4/13/93 3/11/99	4/28/98	KG/AMK		091
ARP-ICLPREV-15	Inorganic CLP Data Review	0 1	6/6/95 3/11/99	4/29/98	KG/AMK		092
ARP-ICLPREV-16	Preparation and Review of Inorganic CLP Data Packages	0 1	3/3/93 3/11/99	4/29/98	KG/AMK		161
ARP-OCPRCV-20	Preparation and Review of Organic CLP Data Packages	0 1	9/28/92 3/11/99	4/30/98	KG/AMK		158
ARP-O/CSF-22	USEPA Complete SDG File (CSF)/Case File Purge; DC-2 Form	0 1	11/16/93 3/16/99	4/30/98	KG/AMK		160
ARP-I/CSF-23	USEPA Complete SDG File ILM03.0/Case File Purge	0	3/3/93	4/30/98	KG/AMK		162
ARP-TRANS-50 **ARCHIVED**	Electronic Transfer of GC/MS Data from the INCOS 50 to Formaster	0 1	4/2/92 3/16/99	4/27/98	KG/MTM		019
ARP-CASE-55 **ARCHIVED**	Entering Case Information	0 1	8/3/92 3/16/99	4/27/98	KG/MTM		020
ARP-FORMS-60 **ARCHIVED**	Printing GC/MS 3/90 CLP Forms in Formaster	0 1	4/2/92 3/16/99	4/28/98	KG/MTM		023
ARP-MSVER-65	Verification of Qualitative Analysis by GC/MS Data Processing Analytes	0 1	4/2/92 3/16/99	4/29/98	KG/MTM		024
ARP-VOAVER-70	Verification of Volatile 3/90 Forms 1 through 8	0 1	8/3/92 3/16/99	4/29/98	KG/MTM		025
ARP-SVOAVER-75	Verification of Semi-Volatile 3/90 Forms 1 through 8	0 1	8/3/92 3/19/99	4/29/98	KG/MTM		026
ARP-MSDEL-80	Final Review and Assembly of GC/MS Data Deliverables	0 1	4/13/93 3/19/99	4/30/98	KG/MTM		027
APM-PM-01	Program Management	0 1 2	8/1/95 3/29/99 01/21/00			1/01	193
APM-QUOTE TRACK-10	Tracking & Submitting Responses to Request for Proposal/Quotation	0	1/3/2000			1/01	816
AQA-ETHICS-05	Ethics and Data Integrity	0 1	3/12/97 3/29/99			11/00	141
AQA-TRAIN-10	Laboratory Personnel Training	0 1	8/3/92 03/01/99			11/00	143
AQA-AUDIT-15	Performance and System Audit	0 1	4/3/93 4/1/99			11/00	153
AQA-CHARTS-18	Control Charts	0 1	5/9/95 4/5/99			11/00	155
AQA-MDL-20	The Determination of Method Detection Limits	1 2	1/29/98 3/27/99			12/00	156

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AQA-REC.RET-25	Record Retention	0 1	9/28/92 01/09/01			12/00	172
AQA-DOCCONT-30	Sample Tracking & Document Control	0 1	11/16/93 3/17/99			12/00	159
AQA-CA-35	Preventative and Corrective Action Procedure	0 1	9/13/97 3/17/99			12/00	801
AQA-INTERNAL AUDIT-40	Annual Internal Audit Review	0	1/14/00			1/01	822
AQA-Management Review-45	Management Review	0	2/1/00			2/01	826
AQA-DOCCONT2-50 **ARCHIVED**	Analytical/CLP Document Control	0	4/30/99				809
AQA-SOP-55	Procedure for writing, Reviewing and revising SOP's	0 1	6/28/00 12/11/00			6/01	835
AQA-REANALYSIS-60	Reporting requirements for multiple sample analysis	0	7/10/00			7/01	850
AQA-DQR-65	Data Quality Request	0	1/3/01				853
AFS-COC-01	Chain of Custody Documentation	0 1	3/16/94 3/16/99				194
ASF-SHIP-02	Sample Packaging and Shipment Off-Site	0 1	3/16/94 3/16/99				195
AFS-DECON-03	Equipment Decontamination	0 1	3/16/94 3/16/99				196
AFS-DATACOLL-10	Groundwater Sampling Field Data Collection	0 1	3/16/94 3/16/99				197
AFS-GW-12	Groundwater/Surface Water Sampling	0 1	3/16/94 3/16/99				198
AFS-SOIL-14	Surface and Subsurface Soil/Sediment Sampling	0 1	3/16/94 3/16/99				199
AHS-HSPROG-01	Health and Safety Program	0 1 2 3	8/19/96 4/13/98 2/17/99 6/20/00			6/01	185
AWM-HAZ.MG-01	Hazardous Waste Management	0 1 3 4	11/18/96 5/13/98 2/15/00 4/26/00			4/01	171
AFC-SECURITY-05 **ARCHIVED**	Facility Security	0	7/9/92				140
AFC-HSEKP-10	Facility Housekeeping & Maintenance	0 1	4/17/95 6/19/00			6/01	142
AFC-SECURITY-05	Facility Security	0 1	12/16/99 6/19/00			6/01	819
IS-001-01	Product Lifecycle	2	1/10/99				IS832
IS-002-01	AIMS System Management	1	4/20/00			4/01	IS833
IS-003-01	Workstation Rebooting and Powering off Procedures	2	4/17/00			4/01	IS834
IS-004-01	Logging out and Turning off Computer Equipment	2	4/17/00			4/01	IS835
IS-005-01	Virus Detection and Removal Procedures	2	4/17/00			4/01	IS836
IS-006-01	Data Backup Procedures	2	4/17/00			4/01	IS839
IS-007-01	Equipment Sign out Procedures	2	3/16/00			3/01	IS837
IS-008-01	Disaster Recovery Procedures	2	4/17/00			4/01	IS840
IS-009-01	Unauthorized Computer Configuration Changes	2	3/6/00			3/01	IS838
IS-010-01	Computer User Responsibilities	1	1/28/99			2/01	IS192

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SOP No.	Title	Revision #	Date	Review Date	Reviewed By	Scheduled Review	Word ID#
IS-011-01	Network Security	2	1/15/99			2/01	IS841
AIS-MARRS-12	Marrs Archive Process	0	7/7/00			7/01	IS842

A Bold **SOP No.** means that SOP has been updated in the NELAP format.

APPENDIX E

METHOD INDEX

ORGANIC ANALYSES - METHOD INDEX					
PARAMETER/ SAMPLE TYPE	METHOD	PROTOCOL	HOLDING TIME	CONTAINER & PRESERVATION[1]	LAB LIMIT
GC/MS SEMIVOLATILES					
SVOA - Water	8270B/C	SW846, 3rd Edition	7 Days from Sample Date	(2) 1 Liter Amber Glass/Cool to 4°C 10% $NA_2S_2O_3$	10-15 UG/L
SVOA - Soil	8270B/C	SW846, 3rd Edition	14 Days from Sample Date	(1) 16 oz. Glass/Cool to 4°C	330-1600 ug/kg or 10000-25000 ug/kg
SVOA - Water	625	40 CFR 136	7 Days from Sample Date	(2) 1 Liter Amber Glass/Cool to 4°C[3] 10% $NA_2S_2O_3$	1.6-44 ug/l
SVOA - Water	525.1 525.2	EPA 500 Series	7 Days from Sample Date	(2) 1 Liter Amber Glass/Cool to 4°C 10% $NA_2S_2O_3$	0.19-50 ug/l
SVOA - Water (Endothall)	548.1	EPA 500 Series	7 Days from Sample Date	(2) 1 Liter Amber Glass/Cool to 4°C 10% $NA_2S_2O_3$	5 ug/l
SVOA - Waters	SVOA	OLM01.9 OLM03.1 OLM03.2	5 Days VTSR	(2) 1 Liter Amber Glass/Cool to 4°C 10% $NA_2S_2O_3$	10-25 ug/l
SVOA - Soil	SVOA	OLM01.9 OLM03.1 OLM03.2	10 Days VTSR	(1) 16 oz. Glass/Cool to 4°C	330-800 ug/kg or 10000-25000 ug/kg
SVOA - Water	SVOA	SAMLCO (10/92) OLC02.1 (3/95)	5 Days VTSR	(2) 1 Liter Amber Glass/Cool to 4°C 10% $NA_2S_2O_3$	5-20 ug/l
SVOA - Water	91-2 95-2	ASP 91 ASP95	5 Days VTSR	(2) 1 Liter Amber Glass/Cool to 4°C 10% $NA_2S_2O_3$	10-25 ug/l
SVOA - Soil	91-2 95-2	ASP 91 ASP95	5 Days VTSR 10 Days VTSR	(1) 16 oz. Glass/Cool to 4°C	330-800 ug/kg or 10000-25000 ug/kg
SVOA - Water	91-5 95-5	ASP 91 ASP 95	5 Days VTSR	(2) 1 Liter Amber Glass/Cool to 4°C 10% $NA_2S_2O_3$	5-20 ug/l
SVOA - Water	8270B/C	ASP 91 ASP 95	5 Days VTSR	(2) 1 Liter Amber Glass/Cool to 4°C 10% $NA_2S_2O_3$	10-25 ug/l
SVOA - Soil	8270B/C	ASP 91 ASP 95	5 Days VTSR 10 Days VTSR	(1) 16 oz. Glass/Cool to 4°C	30-800 ug/kg or 10000-25000 ug/kg
SVOA - Water	625	ASP 91 ASP 95	5 Days VTSR	(2) 1 Liter Amber Glass/Cool to 4°C 10% $NA_2S_2O_3$	10-25 ug/l
SVOA - Water	8270B/C	AFCEE QAPP	7 Days from Sample Date	(2) 1 Liter Amber Glass/Cool to 4°C 10% $NA_2S_2O_3$	10-15 ug/l
SVOA - Soil	8270B/C	AFCEE QAPP	14 Days from Sample Date	(1) 16 oz. Glass/Cool to 4°C	330-1600 ug/kg or 10000-25000 ug/kg
GC/MS VOLATILES					
VOA - Water	8240B 8260A/B	SW846, 3rd Edition	14 Days from Sample Date	(2-4) 40 ml Vials/HCl to pH<2, Cool to 4°C	5-10 ug/l or 1-2 ug/l

[1] Addition of $NA_2S_2O_3$ in presence of Free (Total Residual) Chlorine only
[2] pH to be verified in Sample Control
[3] Sample Control to verify that extraction will be completed within 72 hours of collection. If not, Sample Control is to ensure pH range of 5-9 (adjust if necessary)

ORGANIC ANALYSES - METHOD INDEX					
PARAMETER/ SAMPLE TYPE	METHOD	PROTOCOL	HOLDING TIME	CONTAINER & PRESERVATION[1]	LAB LIMIT
VOA - Water	8240B 8260A/B	AFCEE QAPP	14 Days from Sample Date	(2) 40 ml Vials/HCl to pH<2[2], Cool to 4°C 10% $NA_2S_2O_3$	5-10 ug/l or 1-2 ug/l
VOA - Soil	8240B 8260A/B	SW846, 3rd Edition	14 Days from Sample Date	(2) 4 oz. Glass/Cool to 4°C	5-10 ug/kg or 1200 ug/kg
VOA - Soil	8240B 8260A/B	AFCEE QAPP	14 Days from Sample Date	(2) 4 oz. Glass/Cool to 4°C	5-10 ug/kg or 1200 ug/kg
VOA - Water	624	40 CFR 136	14 Days from Sample Date	(2) 40 ml VOA Vials/HCl to pH<2, Cool to 4°C 10% $NA_2S_2O_3$	1.6-400 ug/l
VOA - Water	524.2	EPA 500 Series	14 Days from Sample Date	(4) 40 ml VOA Vials/HCl to pH<2, Cool to 4°C 10% $NA_2S_2O_3$	1-5 ug/l
VOA - Water	VOA	OLM01.9 OLM03.1 OLM03.2	10 Days VTSR	(2) 40 ml VOA Vials/HCl to pH<2, Cool to 4°C 10% $NA_2S_2O_3$	10 ug/l
VOA - Soil	VOA	OLM01.9 OLM03.1 OLM03.2	10 Days VTSR	(2) 4 oz. Glass/Cool to 4°C	10 ug/kg or 1200 ug/l
VOA - Water	VOA	SAMCLO (10/92) OLC02.1 (3/95)	10 Days VTSR	(4) 40 ml VOA Vials/HCl to pH<2, Cool to 4°C 10% $NA_2S_2O_3$	1-5 ug/l
VOA - Water	91-1 95-1	ASP 91 ASP 95	7 Days VTSR 10 Days VTSR	(2) 40 ml VOA Vials/HCl to pH<2, Cool to 4°C 10% $NA_2S_2O_3$	10 ug/l
VOA - Soil	91-1 95-1	ASP 91 ASP 95	7 Days VTSR 10 Days VTSR	(2) 4 oz. Glass/Cool to 4°C	10 ug/kg
VOA - Water	91-4 95-4	ASP 91 ASP 95	7 Days VTSR 10 Days VTSR	(4) 40 ml VOA Vials/HCl to pH<2, Cool to 4°C 10% $NA_2S_2O_3$	1-5 ug/l
VOA - Water	8260A/B	ASP 91 ASP 95	7 Days VTSR 10 Days VTSR	(2-4) 40 ml Vials/HCl to pH<2, Cool to 4°C 10% $NA_2S_2O_3$	10 ug/l or 1-5 ug/l
VOA - Soil	8240A/B	ASP 91 ASP 95	7 Days VTSR 10 Days VTSR	(2) 4 oz. Glass/Cool to 4°C	10 ug/l or 1200 ug/kg
VOA - Water	624	ASP 91 ASP 95	7 Days VTSR 10 Days VTSR	(2) 40 ml VOA Vials/HCl to pH<2, Cool to 4°C 10% $NA_2S_2O_3$	10 ug/l
GC EXTRACTABLES					
Phthalate Esters - Water	8060 8061	SW846, 3rd Edition	7 Days from Sample Date	(1) Liter Amber Glass/Cool to 4°C	2.0 ug/l
Organochlorine Pest/PCB - Water	8080 8081/A 8082	SW846, 3rd Edition	7 Days from Sample Date	(1) Liter Amber Glass/Cool to 4°C	0.05-1.0 ug/l
Organochlorine Pest/PCB - Water	8080 8081/A 8082	AFCEE QAPP	7 Days from Sample Date	(1) Liter Amber Glass/Cool to 4°C pH 5-9[2]	0.05-1.0 ug/l

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ORGANIC ANALYSES - METHOD INDEX					
PARAMETER/ SAMPLE TYPE	**METHOD**	**PROTOCOL**	**HOLDING TIME**	**CONTAINER & PRESERVATION**[1]	**LAB LIMIT**
Organochlorine Pest/PCB - Soil	8080 8081/A 8082	SW846, 3rd Edition	14 Days from Sample Date	(1) 16 oz. Glass/Cool to 4°C	8.0-160 ug/kg
Organochlorine Pest/PCB - Soil	8080 8081/A 8082	AFCEE QAPP	14 Days from Sample Date	(1) 16 oz. Glass/Cool to 4°C	8.0-160 ug/kg
Polynuclear Aromatic Hydrocarbons - Water	8100	SW846, 3rd Edition	7 Days from Sample Date	(1) 1 Liter Amber Glass/Cool to 4°C	10 ug/l
Polynuclear Aromatic Hydrocarbons - Soil	8100	SW846, 3rd Edition	14 Days from Sample Date	(1) 1 Liter Amber Glass/Cool to 4°C	500 ug/kg
Chlorinated Hydrocarbons - Water	8120 8121	SW846, 3rd Edition	7 Days from Sample Date	(1) 1 Liter Amber Glass/Cool to 4°C	0.05-1.0 ug/l
Chlorinated Hydrocarbons - Soil	8120 8121	SW846, 3rd Edition	14 Days from Sample Date	(1) 16 oz. Glass/Cool to 4°C	1.7-40 ug/kg
Organophosphorous Pesticides - Water	8140 8141A	SW846, 3rd Edition	7 Days from Sample Date	(1) 1 Liter Amber Glass/Cool to 4°C pH 5-8[2]	1.0 ug/l
Organophosphorous Pesticides - Water	8140 8141A	AFCEE QAPP	7 Days from Sample Date	(1) 1 Liter Amber Glass/Cool to 4°C pH 5-8[2]	1.0 ug/l
Organophosphorous Pesticides - Soil	8140 8141A	SW846, 3rd Edition	14 Days from Sample Date	(1) 16 oz. Glass/Cool to 4°C	30 ug/kg
Organophosphorous Pesticides - Soil	8140 8141A	AFCEE QAPP	14 Days from Sample Date	(1) 16 oz. Glass/Cool to 4°C	30 ug/kg
Chlorinated Herbicides - Water	8150 8151	SW846, 3rd Edition	7 Days from Sample Date	(1) 1 Liter Amber Glass/Cool to 4°C	0.10 ug/l
Chlorinated Herbicides - Water	8150 8151	AFCEE QAPP	7 Days from Sample Date	(1) 1 Liter Amber Glass/Cool to 4°C pH 5-9[2]	0.10 ug/l
Chlorinated Herbicides - Soil	8150 8151	SW846, 3rd Edition	14 Days from Sample Date	(1) 16 oz. Glass/Cool to 4°C	1.0 ug/kg
Chlorinated Herbicides - Soil	8150 8151	AFCEE QAPP	14 Days from Sample Date	(1) 16 oz. Glass/Cool to 4°C	1.0 ug/kg
Total Petroleum Hydrocarbons (DRO) - Water	8015D	CALDHS	7 Days from Sample Date	(1) 1 Liter Amber Glass/H_2SO_4 to pH<2/Cool to 4°C	0.10 mg/l
Total Petroleum Hydrocarbons (DRO) - Soil	8015D	CALDHS	14 Days from Sample Date	(1) 16 oz. Glass/Cool to 4°C	10 mg/kg
Total Petroleum Hydrocarbons	8015 (Modified)	AFCEE QAPP	14 Days from Sample Date	(1) 1 Liter Amber Glass/Cool to 4°C	0.10 mg/l

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ORGANIC ANALYSES - METHOD INDEX					
PARAMETER/ SAMPLE TYPE	METHOD	PROTOCOL	HOLDING TIME	CONTAINER & PRESERVATION[1]	LAB LIMIT
(DRO) - Water					
Total Petroleum Hydrocarbons (DRO) - Soil	8015 (Modified)	AFCEE QAPP	14 Days from Sample Date	(1) 16 oz. Glass/Cool to 4°C	10 mg/kg
Diesel Range Organics - Water (DRO by API)	8015 (Modified)	API	14 Days from Sample Date	(1) 1 Liter Amber Glass/Cool to 4°C	0.10 mg/l
Diesel Range Organics - Soil (DRO by API)	8015 (Modified)	API	14 Days from Sample Date	(1) 16 oz. Glass/Cool to 4°C	10 mg/kg
Organochlorine Pest/PCB - Water	608	40 CFR 136	7 Days from Sample Date	(1) 1 Liter Amber Glass/Cool to 4°C[3]	0.005-0.065 ug/l
Polynuclear Aromatics - Water	610	40 CFR 136	7 Days from Sample Date	(1) 1 Liter Amber Glass/Cool to 4°C	5.0 ug/l
Nitrogen/Phosphorous Pesticides - Water	507	EPA 500 Series	48 Hours from Sample Date	(1) 1 Liter Amber Glass/ 80 mg Sodium Thiosulfate (if Residual Chlorine present) then 1 ml of 10 mg/ml Mercuric Acid. Cool to 4°C	0.53-20 ug/l
Chlorinated Pesticides - Water	508	EPA 500 Series	7 Days from Sample Date	(1) 1 Liter Amber Glass/ 80 mg Sodium Thiosulfate (if Residual Chlorine present) then 1 ml of 10 mg/ml Mercuric Acid. Cool to 4°C	0.0085-0.80 ug/l
Chlorinated Acids - Water	515.1	EPA 500 Series	14 Days from Sample Date	(1) 1 Liter Amber Glass/ 80 mg Sodium Thiosulfate (if Residual Chlorine present) then 1 ml of 10 mg/ml Mercuric Acid. Cool to 4°C	0.50-1.0 ug/l
Organochlorine Pest/PCB - Water	P/PCB	OLM01.9 OLM03.1 OLM03.2	5 Days VTSR	(1) 1 Liter Amber Glass/Cool to 4°C	0.05-2.0 ug/l
Organochlorine Pest/PCB - Soil	P/PCB	OLM01.9 OLM03.1 OLM03.2	10 Days VTSR	(1) 16 oz. Glass/Cool to 4°C	1.7-170 ug/kg
Organochlorine - Water	P/PCB	SAMLCO (10/92) OLC02.1 (3/95)	5 Days VTSR	(1) 1 Liter Amber Glass/Cool to 4°C	0.01-1.0 ug/l
Organochlorine Pest/PCB - Water	91-3 95-3	ASP 91 ASP 95	5 Days VTSR	(1) 1 Liter Amber Glass/Cool to 4°C	0.05-5.0 ug/l
Organochlorine Pest/PCB - Soil	91-3 95-3	ASP 91 ASP 95	5 Days VTSR 10 Days VTSR	(1) 16 oz. Glass/Cool to 4°C	1.7-170 ug/kg
Organochlorine Pest/PCB - Water	91-6 95-6	ASP 91 ASP 95	5 Days VTSR	(1) 1 Liter Amber Glass/Cool to 4°C	0.01-1.0 ug/l
Organochlorine Pest/PCB - Water	8080 8081/A	ASP 91 ASP 95	5 Days VTSR	(1) 1 Liter Amber Glass/Cool to 4°C	0.05-5.0 ug/l

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ORGANIC ANALYSES - METHOD INDEX					
PARAMETER/ SAMPLE TYPE	METHOD	PROTOCOL	HOLDING TIME	CONTAINER & PRESERVATION[1]	LAB LIMIT
	8082				
Organochlorine Pest/PCB - Soil/#111-02-20	8080 8081/A 8082	ASP 91 ASP 95	5 Days VTSR 10 Days VTSR	(1) 16 oz. Glass/Cool to 4°C	8.0-160 ug/kg
Organochlorine Pest/PCB - Water	608	ASP 91 ASP 95	5 Days VTSR	(1) 1 Liter Amber Glass/Cool to 4°C	0.05-1.0 ug/l
Petroleum Products - Water	310-13	NYSDOH	7 Days from Sample Date	(1) 1 Liter Amber Glass/Cool to 4°C	0.5 ug/l
Petroleum Products - Soil	310-13	NYSDOH	14 Days from Sample Date	(1) 16 oz. Glass/Cool to 4°C	170 ug/kg
Petroleum Products; Fingerprinting - Water	310-14	NYSDOH	7 Days from Sample Date	(1) 1 Liter Amber Glass/Cool to 4°C	5-10 mg/kg
Petroleum Products; Fingerprinting - Soil	310-14	NYSDOH	14 Days from Sample Date	(1) 16 oz. Glass/Cool to 4°C	170 ug/kg
PCBs Transformer Fluids & Waste Oil - Oil	600481045	EPA 600 Series	14 Days from Sample Date	(1) 4 oz. Widemouth Glass/Cool to 4°C	5-10 mg/kg
Halogenated Organic Scan (ECD) - Water	HOSE	RECRA	14 Days from Sample Date	(1) 1 Liter Amber Glass/Cool to 4°C	0.5 ug/l
GC VOLATILES					
Purgeable Halocarbons - Water	8010A/B	SW846, 3rd Edition	14 Days from Sample Date	(2) 40 ml VOA Vials/HCl to pH<2, Cool to 4°C 10% $NA_2S_2O_3$	0.2-1.0 ug/l
Purgeable Halocarbons - Water	8010B	AFCEE QAPP	14 Days from Sample Date	(2) 40 ml VOA Vials/HCl to pH<2, Cool to 4°C 10% $NA_2S_2O_3$	0.2-1.0 ug/l
Purgeable Halocarbons - Soil	8010A	SW846, 3rd Edition	14 Days from Sample Date	(1) 4 oz. Widemouth Glass/Cool to 4°C	1.5-5.0 ug/kg
Purgeable Halocarbons - Soil	8010B	AFCEE QAPP	14 Days from Sample Date	(1) 4 oz. Widemouth Glass/Cool to 4°C	1.5-5.0 ug/kg
Non-Halogenated Volatile Organics (Direct injection) - Water	8015A/B	SW846, 3rd Edition	14 Days from Sample Date	(2) 40 ml VOA Vials/Cool to 4°C	1,000 ug/l
Non-Halogenated Volatile Organics (Direct injection) - Soil	8015A/B	SW846, 3rd Edition	14 Days from Sample Date	(2) 4 oz. Widemouth Glass/Cool to 4°C	400 ug/kg
Purgeable Aromatics - Water	8020A	SW846, 3rd Edition	14 Days from Sample Date	(2) 40 ml VOA Vials/HCl to pH<2, Cool to 4°C 10% $NA_2S_2O_3$	0.2-0.4 ug/l

[1] Addition of $NA_2S_2O_3$ in presence of Free (Total Residual) Chlorine only
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[3] Sample Control to verify that extraction will be completed within 72 hours of collection. If not, Sample Control is to ensure pH range of 5-9 (adjust if necessary)

ORGANIC ANALYSES - METHOD INDEX					
PARAMETER/ SAMPLE TYPE	METHOD	PROTOCOL	HOLDING TIME	CONTAINER & PRESERVATION[1]	LAB LIMIT
Purgeable Aromatics - Water	8020A	AFCEE QAPP	14 Days from Sample Date	(2) 40 ml VOA Vials/HCl to pH<2, Cool to 4°C 10% $NA_2S_2O_3$	0.2-0.4 ug/l
Purgeable Aromatics - Soil	8020A	SW846, 3rd Edition	14 Days from Sample Date	(2) 4 oz. Widemouth Glass/Cool to 4°C	1.0-2.0 ug/kg
Purgeable Volatiles - Water	8021A/B	SW846, 3rd Edition	14 Days from Sample Date	(2) 40 ml VOA Vials/HCl to pH<2, Cool to 4°C 10% $NA_2S_2O_3$	0.2-5.0 ug/l
Purgeable Volatiles - Water	8021A/B	AFCEE QAPP	14 Days from Sample Date	(2) 40 ml VOA Vials/HCl to pH<2, Cool to 4°C 10% $NA_2S_2O_3$	0.2-5.0 ug/l
Halogenated Volatiles - Water	8021A/B	AFCEE QAPP	14 Days from Sample Date	(2) 40 ml VOA Vials/HCl to pH<2, Cool to 4°C 10% $NA_2S_2O_3$	0.2-5.0 ug/l
Purgeable Volatiles - Soil	8021A	SW846, 3rd Edition	14 Days from Sample Date	(2) 4 oz. Widemouth Glass/Cool to 4°C	1.0-5.0 ug/kg
Total Petroleum Hydrocarbons - Water	8015G	CALDS	14 Days from Sample Date	(2) 40 ml VOA Vials/HCl to pH<2, Cool to 4°C	500 ug/l
Total Petroleum Hydrocarbons - Soil	8015G	CALDS	14 Days from Sample Date	(2) 4 oz. Widemouth Glass/Cool to 4°C	10,000 ug/kg
Gasoline Range Organics - Water	8015 (Modified)	AFCEE QAPP	14 Days from Sample Date	(2) 40 ml VOA vials/HCL to pH<2	100 ug/l
Gasoline Range Organics - Soil	8015 (Modified)	AFCEE QAPP	14 Days from Sample Date	(1) 4 oz. Widemouth Glass/Cool to 4°C	5000 ug/kg
Gasoline Range Organics - Water (GRO by API)	8015 (Modified)	API	14 Days from Sample Date	(2) 40 ml VOA vials/HCL to pH<2	100 ug/l
Gasoline Range Organics - Soil (GRO by API)	8015 (Modified)	API	14 Days from Sample Date	(1) 4 oz. Widemouth Glass/Cool to 4°C	5000 ug/kg
Purgeable Halocarbons - Water	601	40 CFR 136	14 Days from Sample Date	(2) 40 ml VOA Vials/HCl to pH<2, Cool to 4°C 10% $NA_2S_2O_3$	0.2-1.0 ug/l
Purgeable Aromatics - Water*	602	40 CFR 136	14 Days from Sample Date	(2) 40 ml VOA Vials/HCl to pH<2, Cool to 4°C 10% $NA_2S_2O_3$	0.2-0.4 ug/l
Purgeable Volatiles - Water	502.2	EPA 500 Series	14 Days from Sample Date	(2) 40 ml VOA Vials/HCl to pH<2, Cool to 4°C 10% $NA_2S_2O_3$	0.2-1.0 ug/l
Volatiles (Direct Injection) - Water (1,2 DBE & 1,2 DB-3-CP8010P)	504	EPA 500 Series	28 Days from Sample Date	(2) 40 ml VOA Vials/ 3 mg Sodium Thiosulfate (if Residual Chlorine is present) HCl to pH<2, Cool to 4°C	0.04 ug/l

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ORGANIC ANALYSES - METHOD INDEX					
PARAMETER/ SAMPLE TYPE	METHOD	PROTOCOL	HOLDING TIME	CONTAINER & PRESERVATION[1]	LAB LIMIT
Purgeable Halocarbons - Water	8010A/B	ASP 91 ASP 95	7 Days VTSR 10 Days VTSR	(2) 40 ml VOA Vials/HCl to pH<2, Cool to 4°C 10% $NA_2S_2O_3$	0.2-1.0 ug/l
Purgeable Halocarbons - Soil	8010A/B	ASP 91 ASP 95	7 Days VTSR 10 Days VTSR	(2) 4 oz. Widemouth Glass/Cool to 4°C	1.0-5.0 ug/kg
Purgeable Aromatics - Water	8020A	ASP 91 ASP 95	7 Days VTSR 10 Days VTSR	(2) 40 ml VOA Vials/HCl to pH<2, Cool to 4°C 10% $NA_2S_2O_3$	0.2-0.4 ug/l
Purgeable Aromatics - Soil	8020A	ASP 91 ASP 95	7 Days VTSR 10 Days VTSR	(2) 4 oz. Widemouth Glass/Cool to 4°C	1.0-2.0 ug/l
Purgeable Halocarbons - Water	601	ASP 91 ASP 95	7 Days VTSR 10 Days VTSR	(2) 40 ml VOA Vials/HCl to pH<2, Cool to 4°C	0.2-1.0 ug/l
Purgeable Aromatics - Water	602	ASP 91 ASP 95	7 Days VTSR 10 Days VTSR	(2) 4 oz. Widemouth Glass/Cool to 4°C	0.2-0.4 ug/l
Volatile Halogenated Organic Scan - Water	VHOS	RECRA	7 Days from Sample Date	(2) 40 ml VOA Vials/Cool to 4_oC	5.0 ug/l
Organic Extraction and Sample Preparation - Water and Soil	3500A/B	SW846, 3rd Edition ASP 91 ASP 95	N/A	N/A	N/A
Seperatory Funnel Liquid-Liquid Extraction - Water	3510B/C	SW846, 3rd Edition ASP 91 ASP 95	N/A	N/A	N/A
Continuous Liquid-Liquid Extraction - Water	3520B/C	SW846, 3rd Edition ASP 91 ASP 95	N/A	N/A	N/A
Soxhlet Extraction - Soil	3540B/C	SW846, 3rd Edition ASP 91 ASP 95	N/A	N/A	N/A
Ultrasonic Extraction - Soil	3550A/B	SW846, 3rd Edition ASP 91 ASP 95	N/A	N/A	N/A
Waste Dilution - Waste	3580A	SW846, 3rd Edition ASP 91 ASP 95	N/A	N/A	N/A
Cleanup - Water & Soil	3600B/C	SW846, 3rd Edition ASP 91 ASP 95	N/A	N/A	N/A
Florisil Column Cleanup (Micro) Water & Soil	3620A/B	SW846, 3rd Edition ASP 91 ASP 95	N/A	N/A	N/A
Gel Permeation Cleanup -	3640A	SW846, 3rd Edition	N/A	N/A	N/A

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ORGANIC ANALYSES - METHOD INDEX					
PARAMETER/ SAMPLE TYPE	METHOD	PROTOCOL	HOLDING TIME	CONTAINER & PRESERVATION[1]	LAB LIMIT
Soil		ASP 91 ASP 95			
Sulfur Cleanup - Water & Soil	3660A/B	SW846, 3rd Edition ASP 91 ASP 95	N/A	N/A	N/A
Purge and Trap - Water & Soil	5030A	SW846, 3rd Edition ASP 91 ASP 95	N/A	N/A	N/A
Closed System Purge and Trap - Water	5035	SW846, 3rd Edition ASP 95	N/A	Low: (2) 40 ml tared vials containing 1 g Sodium bisulfate, 5 ml H_2O and stir rod High: (2) 40 ml tared vials with 10 ml Methanol	NA

* Please note: For environmental analyses\water, SPDES, according to New York State ELAP, Purgeable Aromatics (Methods 602 & 624) can be non-preserved with a holding time of 7 days from sample date. This only applies to New York State water samples - SPDES. For environmental analyses/water - NPDES, according to USEPA Region I, Purgeable Aromatics (Methods 602 and 624) can be run preserved with a holding time of 7 days from sample date. This only applies to EPA Region I - NPDES. It is recommended by Recra that all VOA samples can be preserved in the field according to the proper techniques as specified by the particular method.

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SEVERN TRENT LABORATORIES, INC. - BUFFALO FACILITY
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AMHERST, NEW YORK 14228-2298

WET CHEMISTRY ANALYSES - METHOD INDEX					
PARAMETER/ SAMPLE TYPE/SOP #	METHOD	PROTOCOL	HOLDING TIME	CONTAINER & PRESERVATION[1]	LAB LIMIT
Acidity, Titrimetric - Water	305.1	40 CFR 136	14 Days from Sample date	(1) 4 oz. Plastic with zero headspace/ Cool to 4°C	5.0 mg/l
Acidity, Titrimetric - Water	305.1	ASP 91 ASP 95	12 Days VTSR	(1) 4 oz. Plastic with zero headspace/ Cool to 4°C	5.0 mg/l
Alkalinity, Total (Titrimetric) - Water	310.1	40 CFR 136/AFCEE QAPP	14 Days from Sample Date	(1) 4 oz. Plastic with zero headspace/ Cool to 4°C	5.0 mg/l
	403	SM 18th Edition			
Alkalinity, Total (Titrimetric) - Water	310.1	ASP 91 ASP 95	12 Days VTSR	(1) 4 oz. Plastic with zero headspace/ Cool to 4°C	5.0 mg/l
Alkalinity, Bicarbonate - Water	403	SM 18th Edition	14 Days from Sample Date	(1) 4 oz. Plastic with zero headspace/ Cool to 4°C	5.0 mg/l
Alkalinity, Carbonate - Water	403	SM 18th Edition	14 Days from Sample Date	(1) 4 oz. Plastic with zero headspace/ Cool to 4°C	5.0 mg/l
Ash Content - Water	D-482-80	ASTM	N/A	(1) 4 oz. Plastic/Cool to 4°C	0.01%
Ash Content - Soil	D-482-80	ASTM	N/A	(1) 4 oz. Glass Widemouth/Cool to 4°C	0.01%
Biochemical Oxygen Demand (BOD 5) - Water	405.1	40 CFR 136	48 Hours from Sample Date	(1) 1 Liter Plastic/Cool to 4°C	2.0 mg/l
Biochemical Oxygen Demand (BOD 5) - Water	405.1	ASP 91 ASP 95	24 Hours VTSR	(1) 1 Liter Plastic/Cool to 4°C	2.0 mg/l
Carbonaceous Biochemical Oxygen Demand - Water	405.1	40 CFR 136	48 Hours from Sample Date	(1) 1 Liter Plastic/Cool to 4°C	2.0 mg/l
Carbonaceous Biochemical Oxygen Demand - Water	405.1	ASP 91 ASP 95	24 Hours VTSR	(1) 1 Liter Plastic/Cool to 4°C	2.0 mg/l
Bromide (Titrimetric) - Water	320.1	40 CFR 136	28 Days from Sample Date	(1) 16 oz. Plastic/Cool to 4°C	0.2 mg/l
Bromide (Titrimetric) - Water	320.1	ASP 91 ASP 95	26 Days VTSR	(1) 16 oz. Plastic/Cool to 4°C	0.2 mg/l
Chemical Oxygen Demand - COD	410.4	40 CFR 136	28 Days from Sample Date	(1) 4 oz. Plastic/Sulfuric to pH<2, Cool to 4°C	5.0 mg/l

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WET CHEMISTRY ANALYSES - METHOD INDEX					
PARAMETER/ SAMPLE TYPE/SOP #	METHOD	PROTOCOL	HOLDING TIME	CONTAINER & PRESERVATION[1]	LAB LIMIT
Chemical Oxygen Demand - COD	410.4	ASP 91 ASP 95	26 Days VTSR	(1) 4 oz. Plastic/Sulfuric to pH<2, Cool to 4°C	5.0 mg/l
Chloride (Colorimetric, Ferricyanide AAII Automated) - Water	325.2	40 CFR 136	28 Days from Sample Date	(1) 4 oz. Plastic/Cool to 4°C	1.0 mg/l
	9251	SW846, 3rd Edition			
Chlorine, Total Residual - Water	330.4	40 CFR 136	24 Hours from Sample Date	(1) 8 oz. Plastic/Cool to 4°C	1.0 mg/l
Chlorine Demand - Water	2350B	Standard Methods, 18th Edition	24 Hours Sample Date	(1) 8 oz. Plastic/Cool to 4°C	0.02 mgcl/l
Chlorine, Total Organic - Water	D-808-81	ASTM	N/A	(1) 4 oz. Plastic/Cool to 4°C	0.1 mg/l
Chlorine, Total Organic - Soil	D-808-81	ASTM	N/A	(1) 4 oz. Widemouth Glass/ Cool to 4°C	0.1 mg/kg
Chlorine, Percent - Water	D-1253-87	ASTM	N/A	(1) 4 oz. Plastic/Cool to 4°C	0.01%
Chlorine, Percent - Soil	D-1253-87	ASTM	N/A	(1) 4 oz. Widemouth Glass/Cool to 4°C	0.01%
Color (Colorimetric, Platinum, Cobalt) - Water	110.2	40 CFR 136	48 Hours from Sample Date	(1) 16 oz. Widemouth Glass/Cool to 4°C	0 C.U.
Color (Colorimetric, Platinum, Cobalt) - Water	110.2	ASP 91 ASP 95	24 Hours VTSR	(1) 16 oz. Widemouth Glass/Cool to 4_{o}C	0 C.U.
Combustion, Heat of (Bomb) - Water	D-240-76	ASTM	N/A	(1) 4 oz. Plastic	50 BTU/Gal.
Combustion, Heat of (Bomb) - Soil	D-240-76	ASTM	N/A	(1) 4 oz. Glass	429 BTU/lb.
Conductance, Specific (25°C) - Water	120.1	CFR 136	28 Days from Sample Date	(1) 4 oz. Plastic/Cool to 4°C	1.0 UMHOS/CM
	9050A	SW846, 3rd Edition			
Conductance, Specific (25°C) - Water	120.1	ASP 91	26 Days VTSR	(1) 4 oz. Plastic/Cool to 4°C	1.0 UMHOS/CM
	9050A	ASP 95			
Conductance	9050A	AFCEE QAPP	Analyze Immediately	(1) 4 oz. Plastic	1.0 μmhos/cm
Cyanide, Amenable - Water	335.1	40 CFR 136	14 Days from Sample Date	(1) 16 oz. Plastic/Sodium Hydroxide to pH>12, Cool to 4°C, 0.6 g Ascorbic Acid	0.01 mg/l
	9010A/B 9014	SW846, 3rd Edition/AFCEE			

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WET CHEMISTRY ANALYSES - METHOD INDEX					
PARAMETER/ SAMPLE TYPE/SOP #	METHOD	PROTOCOL	HOLDING TIME	CONTAINER & PRESERVATION[1]	LAB LIMIT
		QAPP			
Cyanide, Amenable - Water	335.1 9010A/B 9014	ASP 91 ASP 95	12 Days VTSR	(1) 16 oz. Plastic/Sodium Hydroxide to pH>12, Cool to 4°C	0.01 mg/l
Cyanide, Total - Water	335.2	40 CFR 136	14 Days from Sample Date	(1) 16 oz. Plastic/Sodium Hydroxide to pH>12, Cool to 4°C, 0.6g Ascorbic Acid	0.01 mg/l
	9010 9010A 9014	SW846, 3rd Edition/AFCEE QAPP			
Cyanide, Total - Water	CLP-WC	ASP 91 ASP 95 OLM04.0	12 Days VTSR	(1) 16 oz. Plastic/Sodium Hydroxide to pH>12, Cool to 4°C	0.01 mg/l
Cyanide, Total - Soil	9013 9010 9010A 9014	SW846, 3rd Edition AFCEE QAPP	14 Days from Sample Date	(1) 4 oz. Glass/Cool to 4°C	1.0 mg/kg
Cyanide, Total - Soil	CLP-WC	ASP 91 ASP 95 OLM04.0	12 Days VTSR	(1) 4 oz. Glass/Cool to 4°C	1.0 mg/kg
Density - Water	D-1298-80	ASTM	N/A	(1) 4 oz. Plastic	NA
Dissolved Oxygen - Water	360.1	40 CFR 136	24 Hours from Sample Date	(1) 4 oz. Plastic/Cool to 4°C	1.0 mg/l
Dissolved Oxygen	360.1	AFCEE QAPP	Analyze Immediately	N/A	N/A
Dry Weight - Soil	D2216-19	ASTM	N/A	(1) 4 oz. Glass/Cool to 4°C	0.1%
EP Toxicity Extraction Procedure (Pesticides, Herbicides & Metals) - Soil	1310	SW846, 3rd Edition	14 Days from Sample Date	(1) 32 oz. Glass/Cool to 4°C	N/A
Ferrous Iron - Water	3500D	SM18	24 Hours from Sample Date	(1) 8 oz. Plastic/Cool to 4°C	0.1 mg/l
Flashpoint - Water	1010	SW846, 3rd Edition ASP 91 ASP 95	N/A	(1) 4 oz. Glass	NA
Flashpoint - Soil	1010	SW846, 3rd Edition ASP 91	N/A	(1) 4 oz. Glass	NA

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WET CHEMISTRY ANALYSES - METHOD INDEX					
PARAMETER/ SAMPLE TYPE/SOP #	METHOD	PROTOCOL	HOLDING TIME	CONTAINER & PRESERVATION[1]	LAB LIMIT
		ASP 95			
Fluoride - Water	340.2	40 CFR 136	28 Days from Sample Date	(1) 4 oz. Plastic/Cool to 4°C	0.1 mg/l
Fluoride - Water	340.2	ASP 91 ASP 95	26 Days VTSR	(1) 4 oz. Plastic/Cool to 4°C	0.1 mg/l
Gravity, Specific - Water	D-1429-87	ASTM	N/A	(1) 4 oz. Plastic	NA
Hardness, Total as $CaCO_3$ - Water	130.2	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric Acid to pH<2	1.0 mg/l
		ASP 91 ASP 95			
Initial Characterization - Burn Test- Water	D4982-89	ASTM	7 Days from Sample Date	(1) 4 oz. Plastic	N/A
Initial Characterization - Color - Water	D4979-89	ASTM	7 Days from Sample Date	(1) 4 oz. Glass	N/A
Initial Characterization - Cyanide Spot - Water	D5049-90	ASTM	7 Days from Sample Date	(1) 4 oz. Plastic	N/A
Initial Characterization Relative Density - Water	D5057-90	ASTM	7 Days from Sample Date	(1) 4 oz. Plastic	N/A
Initial Characterization - Halogenated - Water	Recra		7 Days from Sample Date	(1) 4 oz. Glass	N/A
Initial Characterization - Phased Layering - Water	D4979-89	ASTM	7 Days from Sample Date	(1) 4 oz. Plastic	N/A
Initial Characterization - Miscibility - Water	D5058-90	ASTM	7 Days from Sample Date	(1) 4 oz. Plastic	N/A
Initial Characterization - Odor - Water	D4979-89	ASTM	7 Days from Sample Date	(1) 4 oz. Glass	N/A
Initial Characterization - Oxidizer Spot Test - Water	D4881-89	ASTM	7 Days from Sample Date	(1) 4 oz. Plastic	N/A
Initial Characterization - pH - Water	D4980-89	ASTM	7 Days from Sample Date	(1) 4 oz. Plastic	N/A
Initial Characterization - Physical State - Water	D4979-89	ASTM	7 Days from Sample Date	(1) 4 oz. Plastic	N/A
Initial Characterization - Reactivity - Water	D5058-90	ASTM	7 Days from Sample Date	(1) 4 oz. Plastic	N/A
Initial Characterization - Reduction Spot Test - Water	Recra		7 Days from Sample Date	(1) 4 oz. Glass	N/A
Initial Characterization - Sulfide Spot Test - Water	D4978-89	ASTM	7 Days from Sample Date	(1) 4 oz. Plastic	N/A

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WET CHEMISTRY ANALYSES - METHOD INDEX					
PARAMETER/ SAMPLE TYPE/SOP #	METHOD	PROTOCOL	HOLDING TIME	CONTAINER & PRESERVATION[1]	LAB LIMIT
Initial Characterization - Turbidity - Water	Recra		7 Days from Sample Date	(1) 4 oz. Plastic	N/A
Initial Characterization - Viscosity - Water	D4978-89	ASTM	7 Days from Sample Date	(1) 4 oz. Plastic	N/A
Methylene Blue Active Substances - Surfactants (Colorimetric) - Water	425.1	40CFR136	48 Hours from Sample Date	(1) 16 oz. Plastic/Cool to 4°C	0.03 mg/l
Methylene Blue Active Substances (Colorimetric) - Water	425.1	ASP 91 ASP 95	24 Hours VTSR	(1) 16 oz. Plastic/Cool to 4°C	0.03 mg/l
Moisture Content, Total - Soil	D2216-90	ASTM	N/A	(1) 4 oz. Glass/Cool to 4°C	0.1%
Nitrate - Water	353.2	40 CFR 136	48 Hours from Sample Date	(1) 4 oz. Plastic/Cool to 4°C	0.1 mg/l
Nitrate (Automated Cadmium Reduction) - Water	353.2	ASP 91 ASP 95	26 Days VTSR	(1) 4 oz. Plastic/Sulfuric Acid to pH<2	0.1 mg/l
Nitrate-Nitrite - Water	353.2	40 CFR 136	28 Days from Sample Date	(1) 4 oz. Plastic/Sulfuric Acid to pH<2, Cool to 4°C	0.1 mg/l
Nitrate-Nitrite - Water	353.2	ASP 91 ASP 95	26 Days VTSR	(1) 4 oz. Plastic/Sulfuric Acid to pH<2, Cool to 4°C	0.1 mg/l
Nitrogen-Nitrate Nitrite	353.1 (353.2)	AFCEE QAPP	28 Days from Sample Date	(1) 4 oz. Plastic/Sulfuric Acid to pH<2, Cool to 4°C	0.1 mg/l
Nitrogen, Ammonia - Water	350.1	40 CFR 136	28 Days from Sample Date	(1) 4 oz. Plastic/Sulfuric Acid to pH<2, Cool to 4°C	0.05 mg/l
Nitrogen, Ammonia - Water	350.1	ASP 91 ASP 95	26 Days VTSR	(1) 4 oz. Plastic/Sulfuric Acid to pH<2, Cool to 4°C	0.05 mg/l
Nitrogen, Total Kjeldahl - Water	351.2	40 CFR 136	28 Days from Sample Date	(1) 4 oz. Plastic/Sulfuric Acid to pH<2, Cool to 4°C	0.1 mg/l
Nitrogen, Total Kjeldahl - Water	351.2	ASP 91 ASP 95	26 Days VTSR	(1) 4 oz. Plastic/Sulfuric Acid to pH<2, Cool to 4°C	0.1 mg/l
Odor - Water	140.1	40 CFR 136 ASP 91 ASP 95	24 Hours from Sample Date	(1) 16 oz. Glass/Cool to 4°C	0 T.O.N.
Oil and Grease, Total Recoverable - Water	413.1	40 CFR 136	28 Days from Sample Date	(1) 1 Liter Glass/Sulfuric Acid to pH<2, Cool to 4°C	5.0 mg/l
Oil and Grease, Total Recoverable - Water	413.1	ASP 91 ASP 95	26 Days VTSR	(1) 1 Liter Glass/Sulfuric Acid to pH<2, Cool to 4°C	5.0 mg/l
Oil and Grease, Total Recoverable - Water	9070	SW846, 3rd Edition	28 Days from Sample Date	(1) 1 Liter Glass/Sulfuric Acid to pH<2, Cool to 4°C	5.0 mg/l

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WET CHEMISTRY ANALYSES - METHOD INDEX					
PARAMETER/ SAMPLE TYPE/SOP #	METHOD	PROTOCOL	HOLDING TIME	CONTAINER & PRESERVATION[1]	LAB LIMIT
Oil and Grease, Total Recoverable - Water	9070	ASP 91 ASP 95	26 Days VTSR	(1) 1 Liter Glass/Sulfuric Acid to pH<2, Cool to 4°C	5.0 mg/l
Oil and Grease, Total Recoverable - Soil	9071/9070	SW846, 3rd Edition	28 Days from Sample Date	(1) 4 oz. Glass/Cool to 4°C	350 mg/kg
Oil and Grease, Total Recoverable - Soil	9071/9070	ASP 91 ASP 95	26 Days VTSR	(1) 4 oz. Glass/Cool to 4°C	350 mg/kg
Organic Carbon, Total - Water	415.1	40 CFR 136	28 Days from Sample Date	(1) 4 oz. Plastic/Sulfuric Acid to pH<2, Cool to 4°C	1.0 mg/l
	9060	SW846, 3rd Edition/AFCEE QAPP			
Organic Carbon, Total - Water	415.1	ASP 91 ASP 95	26 Days VTSR	(1) 4 oz. Plastic/Sulfuric Acid to pH<2, Cool to 4°C	1.0 mg/l
	9060				
Organic Nitrogen, Total - Water	TKN-NH_3	40 CFR 136	28 Days from Sample Date	(1) 8 oz. Plastic/Sulfuric Acid to pH<2, Cool to 4°C	0.1 mg/l
Oxidizer Spot Test - Soil	Sect 7.1	SW846, 3rd Edition	N/A	(1) 4 oz. Glass	Pass/Fail
Paint Filter Test - Soil	9095/A	SW846, 3rd Edition	N/A	(1) 4 oz. Glass	Pass/Fail
Petroleum Hydrocarbons, Total Recoverable - Water	418.1	40 CFR 136	28 Days from Sample Date	(1) 1 Liter Glass/Sulfuric Acid to pH<2, Cool to 4°C	0.25 mg/l
Petroleum Hydrocarbons, Total Recoverable - Water	418.1	ASP 91 ASP 95	26 Days VTSR	(1) 1 Liter Glass/Sulfuric Acid to pH<2, Cool to 4°C	0.25 mg/l
Petroleum Hydrocarbons, Total Recoverable - Soil	418.1	40 CFR 136	28 Days from Sample Date	(1) 4 oz. Glass/Cool to 4°C	12.5 mg/kg
Petroleum Hydrocarbons, Total Recoverable - Soil	418.1	ASP 91 ASP 95	26 Days VTSR	(1) 4 oz. Glass/Cool to 4°C	12.5 mg/kg
pH - Water	150.1	40 CFR 136	24 Hours from Sample Date	(1) 4 oz. Plastic/Cool to 4°C	NA
	9040A/B	SW846, 3rd Edition			
pH - Water	150.1	ASP 91 ASP 95	24 Hours VTSR	(1) 4 oz. Plastic/Cool to 4°C	NA
	9040A/B				
pH - Soil	9045B/C	SW846, 3rd Edition	14 Days from Sample Date	(1) 4 oz. Glass/Cool to 4°C	NA
pH - Soil	9045B/C	ASP 91	14 Days VTSR	(1) 4 oz. Glass/Cool to 4°C	NA

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WET CHEMISTRY ANALYSES - METHOD INDEX					
PARAMETER/ SAMPLE TYPE/SOP #	METHOD	PROTOCOL	HOLDING TIME	CONTAINER & PRESERVATION[1]	LAB LIMIT
		ASP 95			
pH - Hydrogen Ion Water/Soil	9040A/B 9045B/C	AFCEE QAPP	Analyze immediately	N/A	N/A
Phenolics, Total Recoverable - Water	420.2 9066	ASP 91 ASP 95	26 Days VTSR	(1) 40 ml VOA Vial/Sulfuric Acid to pH<2, Cool to 4°C	0.005 mg/l
Phosphate, Ortho - Water	365.2	40 CFR 136	28 Days from Sample Date	(1) 16 oz. Glass/Sulfuric Acid to pH<2, Cool to 4°C	0.01 mg P/l
Phosphorous - Water	365.2	40 CFR 136	28 Days from Sample Date	(1) 4 oz. Plastic/Sulfuric Acid to pH<2, Cool to 4°C	0.01 mg P/l
Phosphorous - Water	365.2	ASP 91 ASP 95	26 Days VTSR	(1) 4 oz. Plastic/Sulfuric Acid to pH<2, Cool to 4°C	0.01 mg P/l
Reactivity, Hydrogen Cyanide Released from Waste - Water	Sect 7.3	SW846, 3rd Edition	N/A	(1) 4 oz. Plastic	10 mg/l
Reactivity, Hydrogen Cyanide Released from Waste - Soil	Sect 7.3	SW846, 3rd Edition	N/A	(1) 4 oz. Glass	10 mg/kg
Reactivity, Hydrogen Sulfide Released from Waste - Water	Sect 7.3	SW846, 3rd Edition	N/A	(1) 4 oz. Plastic	10 mg/l
Reactivity, Hydrogen Sulfide Released from Waste - Water	Sect 7.3	SW846, 3rd Edition	N/A	(1) 4 oz. Plastic	10 mg/kg
Redox Potential - Water	D-1498-76	ASTM	N/A	(1) 4 oz. Plastic	NA
Residue, Filterable; TDS - Water	160.1	40 CFR 136/AFCEE QAPP	48 Hours from Sample Date	(1) 16 oz. Plastic/Cool to 4°C	10 mg/l
Residue, Filterable; TDS - Water	160.1	ASP 91 ASP 95	24 Hours VTSR	(1) 16 oz. Plastic/Cool to 4°C	10 mg/l
Residue, Non-Filterable; TSS - Water	160.2	40 CFR 136/AFCEE QAPP	7 Days from Sample Date	(1) 1 Liter Plastic/Cool to 4°C	4.0 mg/l
Residue, Non-Filterable; TSS - Water	160.2	ASP 91 ASP 95	5 Days VTSR	(1) 1 Liter Plastic/Cool to 4°C	4.0 mg/l
Residue, Settleable - Water	160.5	40 CFR 136	48 Hours from Sample Date	(1) 1 Liter Plastic/Cool to 4°C	0.1 ml/l/hr
Residue, Settleable - Water	160.5	ASP 91 ASP 95	24 Hours VTSR	(1) 1 Liter Plastic/Cool to 4°C	0.1 ml/l/hr
Residue, Total	160.3	40 CFR 136	7 Days from Sample Date	(1) 4 oz. Plastic/Cool to 4°C	10 mg/l
Residue, Total (Gravimetric,	160.3	ASP 91	5 Days VTSR	(1) 4 oz. Plastic/Cool to 4°C	10 mg/l

[1] Addition of $NA_2S_2O_3$ in presence of Free (Total Residual) Chlorine only
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WET CHEMISTRY ANALYSES - METHOD INDEX					
PARAMETER/ SAMPLE TYPE/SOP #	METHOD	PROTOCOL	HOLDING TIME	CONTAINER & PRESERVATION[1]	LAB LIMIT
103-105°C)		ASP 95			
Residue, Volatile - Water	160.4	40 CFR 136	7 Days from Sample Date	(1) 4 oz. Plastic/Cool to 4°C	1.0 mg/l
Shake Extraction of Solid Waste with Water - Soil	D3987-85	ASTM	14 Days from Sample Date	(1) 16 oz. Glass/Cool to 4°C	N/A
Solids, Fixed - Soil	2540G	SM18	N/A	(1) 4 oz. Glass/Cool to 4°C	0.02%
Solids, Total - Soil	2540G	SM18	N/A	(1) 4 oz. Glass/Cool to 4°C	0.02%
Solids, Volatile - Soil	2540G	SM18	N/A	(1) 4 oz. Glass/Cool to 4°C	0.02%
Sulfate - Water	375.4	40 CFR 136	28 Days from Sample Date	(1) 8 oz. Plastic/Cool to 4°C	1.0 mg/l
	9038	SW846, 3rd Edition			
Sulfate - Water	375.4 9038	ASP 91	26 Days VTSR	(1) 8 oz. Plastic/Cool to 4°C	1.0 mg/l
Sulfide - Water	376.2	40 CFR 136	7 Days from Sample Date	(1) 16 oz. Plastic/Sodium Hydroxide to pH>9, 20 drops of Zinc Acetate/ Cool to 4°C	1.0 mg/l
	9030A/B 9034	SW846, 3rd Edition			
Sulfide - Water	376.1 9030A/B 9034	ASP 91 ASP 95	5 Days from VTSR	(1) 16 oz. Plastic/Sodium Hydroxide to pH>9, 20 drops of Zinc Acetate/ Cool to 4°C	1.0 mg/l
Sulfite - Water	377.1	40 CFR 136	24 Hours from Sample Date	(1) 4 oz. Plastic/Cool to 4°C	2.0 mg/l
Sulfur, Percent - Water	D-4239-85	ASTM	N/A	(1) 4 oz. Plastic	0.1%
Sulfur, Percent - Soil	D-4239-85	ASTM	N/A	(1) 4 oz. Glass	0.1%
Synthetic Leaching Procedure - SPLP (VOA) - Water	1312	SW846, 3rd Edition	7 Days from Sample Date	(4) 40 ml VOA Vials/Cool to 4°C	N/A
Synthetic Leaching Procedure - SPLP (SVOA, Metals) - Water	1312	SW846, 3rd Edition	14 Days from Sample Date	(5) 1 Liter Amber Glass/Cool to 4°C	N/A
Synthetic Leaching Procedure - SPLP (VOA) - Soil	1312	SW846, 3rd Edition	7 Days form Sample Date	(2) 4 oz. Glass/Cool to 4°C	N/A
Synthetic Leaching Procedure - SPLP (SVOA, Pest, Herb, Metals) - Soil	1312	SW846, 3rd Edition	14 Days from Sample Date	(1) 32 oz. Glass/Cool to 4°C	N/A

[1] Addition of $NA_2S_2O_3$ in presence of Free (Total Residual) Chlorine only
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WET CHEMISTRY ANALYSES - METHOD INDEX					
PARAMETER/ SAMPLE TYPE/SOP #	METHOD	PROTOCOL	HOLDING TIME	CONTAINER & PRESERVATION[1]	LAB LIMIT
TCLP Extraction Procedure (VOA, SVOA, Pest, Herb, Metals) - Water	1311	SW846, 3rd Edition	14 Days from Sample Date	(4) 40 ml VOA Vials & (5) 1 Liter Amber Glass/Cool to 4°C	N/A
TCLP Extraction Procedure (VOA) - Water	1311	ASP 91 ASP 95	7 Days VTSR	(2) 40 ml VOA Vials/Cool to 4°C	N/A
TCLP Extraction Procedure (SVOA, Pest, Herb, Metals) - Water	1311	ASP 91 ASP 95	5 Days VTSR	(5) 1 Liter Amber Glass/Cool to 4°C	N/A
TCLP Extraction Procedure (VOA, SVOA, Pest, Herb, Metals) - Soil	1311	SW846, 3rd Edition	14 Days from Sample Date	(1) 32 oz. Glass & (2) 4 oz. Glass/Cool to 4°C	N/A
TCLP Extraction Procedure (VOA) - Soil	1311	ASP 91 ASP 95	7 Days VTSR	(2) 4 oz. Glass/Cool to 4°C	N/A
TCLP Extraction Procedure (SVOA, Pest, Herb, Metals) - Soil	1311	ASP 91 ASP 95	5 Days VTSR	(1) 32 oz. Glass/Cool to 4°C	N/A
Turbidity - Water	180.1	40 CFR 136/AFCEE QAPP	48 Hours from Sample Date	(1) 8 oz. Plastic/Cool to 4°C	1.0 N.T.U.
Turbidity (Nephelometric) - Water	180.1	ASP 91 ASP 95	24 Hours VTSR	(1) 8 oz. Plastic/Cool to 4°C	1.0 N.T.U.
Temperature	170.1	AFCEE QAPP	Analyze Immediately	N/A	N/A
Viscosity - Water	D2983-25	ASTM	N/A	(1) 4 oz. Glass	0 Centipo

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SEVERN TRENT LABORATORIES, INC. - BUFFALO FACILITY
10 HAZELWOOD DRIVE
AMHERST, NEW YORK 14228-2298

METALS ANALYSES - METHOD INDEX

PARAMETER/ SAMPLE TYPE/SOP #	METHOD	PROTOCOL	HOLDING TIME	CONTAINER & PRESERVATION	LAB LIMIT
Aluminum, Total - Water (ICP)	200.7	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.045 ppm
	6010A/B	SW846, 3rd Edition AFCEE QAPP			
Aluminum, Total - Water (FLAA)	202.1	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.6 ppm
	7020	SW846, 3rd Edition/AFCEE QAPP			
Aluminum, Total - Water (CLP)	CLP-M	ASP 91 ASP 95	6 Months from Sample Receipt	(1) 4 oz. Plastic/Nitric to pH<2	0.2 ppm
		ILMO4.1			
		ILMO2.0			
Aluminum, Soluble - Water (ICP)	200.7	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Filter on Site with .45um membrane, Nitric to pH<2	0.045 ppm
	6010A/B	SW846, 3rd Edition/AFCEE QAPP			
Aluminum, Soluble - Water (FLAA)	202.2	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Filter with .45um membrane, Nitric to pH<2	0.6 ppm
	7020	SW846, 3rd Edition/AFCEE QAPP			
Aluminum, Soluble - Water (CLP)	CLP-M	ASP 91 ASP 95	6 Months from Sample Receipt	(1) 4 oz. Plastic/Filter with .45um membrane, Nitric to pH<2	0.2 ppm
		ILMO4.1			
		ILMO2.0			
Aluminum, Total - Soil (ICP)	6010A/B	SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	3 ppm
Aluminum, Total - Soil (FLAA)	7020	SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	60 ppm
Aluminum, Total - Soil (CLP)	CLP-M	ASP 91	6 Months from Sample		

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METALS ANALYSES - METHOD INDEX					
PARAMETER/ SAMPLE TYPE/SOP #	METHOD	PROTOCOL	HOLDING TIME	CONTAINER & PRESERVATION	LAB LIMIT
			Receipt	(1) 4 oz. Glass/Cool to 4°C	40 ppm
		ILMO4.1			
		ILMO2.0			
Antimony, Total - Water (ICP)	200.7	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.0075 ppm
	6010A/B	SW846, 3rd Edition/AFCEE QAPP			
Antimony, Total - Water (GFAA)	204.2	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.009 ppm
	7041	SW846, 3rd Edition/AFCEE QAPP			
Antimony, Total - Water (CLP)	CLP-M	ASP 91 ASP 95	6 Months from Sample Receipt	(1) 4 oz. Plastic/Nitric to pH<2	0.06 ppm
		ILMO4.1			
		ILMO2.0			
Antimony, Soluble - Water (ICP)	200.7	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Filter with .45um membrane, Nitric to pH<2	0.0075 ppm
	6010A/B	SW846, 3rd Edition/AFCEE QAPP			
Antimony, Soluble - Water (GFAA)	204.2	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Filter with .45um membrane, Nitric to pH<2	0.009 ppm
	7041	SW846, 3rd Edition/AFCEE QAPP			
Antimony, Soluble - Water (CLP)	CLP-M	ASP 91	6 Months from Sample Receipt	(1) 4 oz. Plastic/Filter with .45um membrane, Nitric to pH<2	0.06 ppm
		ILMO4.1			
		ILMO2.0			
Antimony, Total - Soil (ICP)	6010A/B	SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	0.8 ppm
Antimony, Total - Soil (GFAA)	7041	SW846, 3rd Edition/AFCEE QAPp	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	0.9 ppm

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METALS ANALYSES - METHOD INDEX					
PARAMETER/ SAMPLE TYPE/SOP #	METHOD	PROTOCOL	HOLDING TIME	CONTAINER & PRESERVATION	LAB LIMIT
Arsenic, Total - Water (ICP)	200.7	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.007 ppm
	6010A/B	SW846, 3rd Edition/AFCEE QAPP			
Arsenic, Total - Water (GFAA)	206.2	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.01 ppm
	7060/A	SW846, 3rd Edition/AFCEE QAPP			
Arsenic, Total - Water (CLP)	CLP-M	ASP 91 ASP 95	6 Months from Sample Receipt	(1) 4 oz. Plastic/Nitric to pH<2	0.01 ppm
		ILMO4.1			
		ILMO2.0			
Arsenic, Total - Soil (ICP)	6010A/B	SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°	0.08 ppm
Arsenic, Total - Soil (GFAA)	7060/A	SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	1 ppm
Arsenic, Total - Soil (CLP)	CLP-M	ASP 91 ASP 95	6 Months from Sample Receipt	(1) 4 oz. Glass/Cool to 4°C	2.0 ppm
		ILMO4.1			
		ILMO2.0			
Barium, Total - Water (ICP)	200.7	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.7 ppm
	6010A/B	SW846, 3rd Edition/AFCEE QAPP			
Barium, Total - Water (FLAA)	208.1	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.6 ppm
	7080/A	SW846, 3rd Edition/AFCEE QAPP			
Barium, Total - Water (CLP)	CLP-M	ASP 91 ASP 95	6 Months from Sample Receipt	(1) 8 oz. Plastic/Filter with 45um membrane, Nitric to pH<2	0.20 ppm
		ILMO4.1			

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METALS ANALYSES - METHOD INDEX					
PARAMETER/ SAMPLE TYPE/SOP #	**METHOD**	**PROTOCOL**	**HOLDING TIME**	**CONTAINER & PRESERVATION**	**LAB LIMIT**
		ILMO2.0			
Barium, Total - Soil (ICP)	6010A/B	SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	AR = 6 ppm TR = 0.5 ppm
Barium, Total - Soil (FLAA)	7080/A	SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	60 ppm
Barium, Total - Soil (CLP)	CLP-M	ASP 91 ASP 95	6 Months from Sample Receipt	(1) 4 oz. Glass/Cool to 4°C	40 ppm
		ILMO4.1			
		ILMO2.0			
Beryllium, Total - Water (ICP)	200.7	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.1 ppm
	6010A/B	SW846, 3rd Edition/AFCEE QAPP			
Beryllium, Total - Water (FLAA)	210.1	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.02 ppm
	7090	SW846, 3rd Edition/AFCEE QAPP			
Beryllium, Total - Water (GFAA)	210.2	40 CFR 136	6 Months from Sample Date	91) 4 oz. Plastic/Nitric to pH<2	0.0009 ppm
	7091	SW846, 3rd Edition/AFCEE QAPP			
Beryllium, Total - Water (CLP)	CLP-M	ASP 91 ASP 95	6 Months from Sample Receipt	(1) 8 oz. Plastic/Nitric to pH<2	0.005 ppm
		ILMO4.1			
		ILMO2.0			
Beryllium, Total - Soil (ICP)	6010A/B	SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	0.001 ppm
Beryllium, Total - Soil (FLAA)	7090	SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	2 ppm
Beryllium, Total - Soil (GFAA)	7091	SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	0.09 ppm

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METALS ANALYSES - METHOD INDEX					
PARAMETER/ SAMPLE TYPE/SOP #	**METHOD**	**PROTOCOL**	**HOLDING TIME**	**CONTAINER & PRESERVATION**	**LAB LIMIT**
Beryllium, Total - Soil (CLP)	CLP-M	ASP 91 ASP 91	6 Months from Sample Receipt	(1) 4 oz. Glass/Cool to 4°C	1.0 ppm
Boron, Total - Water (CLP)	200.7	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.02 ppm
	6010A/B	SW846, 3rd Edition/AFCEE QAPP			
Boron, Total - Soil (ICP)	6010A/B	SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	0.35 ppm
Cadmium, Total - Water (ICP)	200.7	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Filter with .45 um membrane, Nitric to pH<2	0.001 ppm
	6010A/B	SW846, 3rd Edition/AFCEE QAPP			
Cadmium, Total - Water (FLAA)	213.1	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.03 ppm
	7130	SW846, 3rd Edition/AFCEE QAPP			
Cadmium, Total - Water (GFAA)	213.2	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.001 ppm
	7131/A	SW846, 3rd Edition/AFCEE QAPP			
Cadmium, Total - Water (CLP)	CLP-M	ASP 91 ASP 95	6 Months from Sample Receipt	(1) 8 oz. Plastic/Nitric to pH<2	0.005 ppm
		ILMO4.1			
		ILMO2.0			
Cadmium, Total - Soil (ICP)	6010A/B	SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	0.07 ppm
Cadmium, Total - Soil (FLAA)	7130	SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	3 ppm
Cadmium, Total - Soil (GFAA)	7131/A	SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	0.1 ppm

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METALS ANALYSES - METHOD INDEX					
PARAMETER/ SAMPLE TYPE/SOP #	METHOD	PROTOCOL	HOLDING TIME	CONTAINER & PRESERVATION	LAB LIMIT
Cadmium, Total - Soil (CLP)	CLP-M	ASP 91 ASP 95	6 Months from Sample Receipt	(1) 4 oz. Glass/Cool to 4°C	1.0 ppm
		ILMO4.1			
		ILMO2.0			
Calcium, Total - Water (ICP)	200.7	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.015 ppm
	6010A/B	SW846, 3rd Edition/AFCEE QAPP			
Calcium, Total - Water (FLAA)	215.1	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.3 ppm
	7140	SW846, 3rd Edition/AFCEE QAPP			
Calcium, Total - Water (CLP)	CLP-M	ASP 91 ASP 95	6 Months from Sample Receipt	(1) 8 oz. Plastic/Nitric to pH<2	5.0 ppm
		ILMO4.1			
		ILMO2.0			
Calcium, Total - Soil (ICP)	6010A/B	SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	1.5 ppm
Calcium, Total - Soil (FLAA)	7140	SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	30 ppm
Calcium, Total - Soil (CLP)	CLP-M	ASP 91 ASP 95	6 Months Sample from Receipt	(1) 4 oz. Glass/Cool to 4°C	1000 ppm
		ILMO4.1			
		ILMO2.0			
Chromium, Total - Water (ICP)	200.7	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.0035 ppm
	6010A/B	SW846, 3rd Edition/AFCEE QAPP			
Chromium, Total - Water (FLAA)	215.1	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.03 ppm
	7140	SW846, 3rd Edition/AFCEE QAPP			
Chromium, Total - Water (GFAA)	218.2	40 CFR 136	6 Months Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.0005 ppm
	7191	SW846, 3rd Edition/AFCEE QAPP			
Chromium, Total - Water (CLP)	CLP-M	ASP 91 ASP 95	6 Months from Sample Receipt	(1) 8 oz. Plastic/Nitric to pH<2	0.01 ppm

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METALS ANALYSES - METHOD INDEX					
PARAMETER/ SAMPLE TYPE/SOP #	METHOD	PROTOCOL	HOLDING TIME	CONTAINER & PRESERVATION	LAB LIMIT
		ILMO4.1 ILMO2.0			
Chromium, Total - Soil (ICP)	6010A/B	SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	0.35 ppm
Chromium, Total - Soil (FLAA)	7190	SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	3 ppm
Chromium, Total - Soil (GFAA)	7191	SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	0.05 ppm
Chromium, Total - Soil (CLP)	CLP-M	ASP 91 ASP 95 ILMO4.1 ILMO2.0	6 Months from Sample Receipt	(1) 4 oz. Glass/Cool to 4°C	2.0 ppm
Chromium, Hexavalent - Water (ICP/FLAA)	218.4 7195	40 CFR 136 SW846, 3rd Edition/AFCEE QAPP	24 Hours from Sample Date	(1) 4 oz. Plastic/Cool to 4°C	PE(FL)= 0.004 ppm
Chromium, Hexavalent - Soil (ICP/FLAA)	7195	SW846, 3rd Edition/AFCEE QAPP	24 Hours from Sample Date	(1) 4 oz. Glass/Cool to 4°C	PE(FL)= 0.4 ppm
Chromium, Hexavalent - Water	7196A	AFCEE QAPP	24 Hours from Sample Date	(1) 4 oz. Glass/Cool to 4°C	1.0 ppm
Chromium, Hexavalent - Soil	7196A	AFCEE QAPP	24 Hours from Sample Date	(1) 4 oz. Glass/Cool to 4°C	1.0 ppm
Cobalt, Total - Water (ICP)	200.7 6010A/B	40 CFR 136 SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Plastic/Cool to 4°C	0.002 ppm
Cobalt, Total - Water (FLAA)	219.1 7200	40 CFR 136 SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.2 ppm
Cobalt, Total - Water (CLP)	CLP-M	ASP 91 ASP 95 ILMO4.1 ILMO2.0	6 Months from Sample Receipt	(1) 8 oz. Plastic/Nitric to pH<2	0.05 ppm
Cobalt, Total - Soil (ICP)	6010A/B	SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	0.2 ppm
Cobalt, Total - Soil (FLAA)	7200	SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	20 ppm
Cobalt, Total - Soil (CLP)	CLP-M	ASP 91 ASP 95 ILMO4.1 ILMO2.0	6 Months from Sample Receipt	(1) 4 oz. Glass/Cool to 4°C	10 ppm

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[2] pH to be verified in Sample Control
[3] Sample Control to verify that extraction will be completed within 72 hours of collection. If not, Sample Control is to ensure pH range of 5-9 (adjust if necessary)

METALS ANALYSES - METHOD INDEX					
PARAMETER/ SAMPLE TYPE/SOP #	METHOD	PROTOCOL	HOLDING TIME	CONTAINER & PRESERVATION	LAB LIMIT
Copper, Total - Water (ICP)	200.7	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	
	6010A/B	SW846, 3rd Edition/AFCEE QAPP			0.0035 ppm
Copper, Total - Water (FLAA)	220.1	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.03 ppm
	7210	SW846, 3rd Edition/AFCEE QAPP			
Copper, Total - Water (CLP)	CLP-M	ASP 91 ASP 95	6 Months from Sample Receipt	(1) 4 oz. Plastic/Nitric to pH<2	0.025 ppm
		ILMO4.1			
		ILMO2.0			
Copper, Total - Soil (ICP)	6010A/B	SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	0.35 ppm
Copper, Total - Soil (FLAA)	7210	SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	3 ppm
Copper, Total - Soil (CLP)	CLP-M	ASP 91 ASP 95	6 Months from Sample Receipt	(1) 4 oz. Glass/Cool to 4°C	5 ppm
		ILMO4.1			
		ILMO2.0			
Iron, Total - Water (ICP)	200.7	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.045 ppm
	6010A/B	SW846, 3rd Edition/AFCEE QAPP			
Iron, Total - Water (FLAA)	236.1	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.2 ppm
	7380	SW846, 3rd Edition/AFCEE QAPP			
Iron, Total - Water (CLP)	CLP-M	ASP 91 ASP 95	6 Months from Sample Receipt	(1) 8 oz. Plastic/Nitric to pH<2	0.10 ppm
		ILMO4.1			
		ILMO2.0			
Iron, Total - Soil (ICP)	200.7	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	4.0 ppm
	6010A/B	SW846, 3rd Edition/AFCEE QAPP			
Iron, Total - Soil (FLAA)	236.1	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Glass/Nitric to pH<2	20 ppm
	7380	SW846, 3rd Edition/AFCEE QAPP			
Iron, Total - Soil (CLP)	CLP-M	ASP 91 ASP 95	6 Months from Sample Receipt	(1) 4 oz. Glass/Nitric to pH<2	20 ppm
		ILMO4.1			
		ILMO2.0			

[1] Addition of $NA_2S_2O_3$ in presence of Free (Total Residual) Chlorine only
[2] pH to be verified in Sample Control
[3] Sample Control to verify that extraction will be completed within 72 hours of collection. If not, Sample Control is to ensure pH range of 5-9 (adjust if necessary)

METALS ANALYSES - METHOD INDEX					
PARAMETER/ SAMPLE TYPE/SOP #	METHOD	PROTOCOL	HOLDING TIME	CONTAINER & PRESERVATION	LAB LIMIT
Lead, Total - Water (ICP)	200.7	40 CFR 136	6 Months from Sample Date	(1) 8 oz. Plastic/Nitric to pH<2	0.0035 ppm
	6010A/B	SW846, 3rd Edition/AFCEE QAPP			
Lead, Total - Water (FLAA)	239.1	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.3 ppm
	7420	SW846, 3rd Edition/AFCEE QAPP			
Lead, Total - Water (GFAA)	239.2	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.006 ppm
	7421	SW846, 3rd Edition/AFCEE QAPP			
Lead, Total - Water (CLP)	CLP-M	ASP 91 ASP 95	6 Months from Sample Receipt	(1) 8 oz. Plastic/Nitric to pH<2	0.003 ppm
		ILMO4.1			
		ILMO2.0			
Lead, Total - Soil (ICP)	6010A/B	SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	0.35 ppm
Lead, Total - Soil (FLAA)	7420	SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	30 ppm
Lead, Total - Soil (GFAA)	7421	SW846, 3rd Edition/AFCEE QAPP	6 Months form Sample Date	(1) 4 oz. Glass/Cool to 4°C	0.6 ppm
Lead, Total - Soil (CLP)	CLP-M	ASP 91 ASP 95	6 Months from Sample Receipt	(1) 4 oz. Glass/Cool to 4°C	0.60 ppm
		ILMO4.1			
		ILMO2.0			
Lithium, Total - Water (FLAA)	7780	SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.02 ppm
Lithium, Total - Soil (FLAA)	7780	SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	2 ppm
Magnesium, Total - Water (ICP)	200.7	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.02 ppm
	6010A/B	SW846, 3rd Edition/AFCEE QAPP			
Magnesium, Total - Water (FLAA)	242.1	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.1 ppm
	7450	SW846, 3rd Edition/AFCEE QAPP			
Magnesium, Total - Water (CLP)	CLP-M	ASP 91 ASP 95	6 Months from Sample Receipt	(1) 8 oz. Plastic/Nitric to pH<2	5.0 ppm
		ILMO4.1			

[1] Addition of $NA_2S_2O_3$ in presence of Free (Total Residual) Chlorine only
[2] pH to be verified in Sample Control
[3] Sample Control to verify that extraction will be completed within 72 hours of collection. If not, Sample Control is to ensure pH range of 5-9 (adjust if necessary)

METALS ANALYSES - METHOD INDEX					
PARAMETER/ SAMPLE TYPE/SOP #	**METHOD**	**PROTOCOL**	**HOLDING TIME**	**CONTAINER & PRESERVATION**	**LAB LIMIT**
		ILMO2.0			
Magnesium, Total - Soil (ICP)	6010A/B	SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	1.5 ppm
Magnesium, Total - Soil (FLAA)	7450	SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	10 ppm
Magnesium, Total - Soil (CLP)	CLP-M	ASP 91 ASP 95	6 Months from Sample Receipt	(1) 4 oz. Glass/Cool to 4°C	1000 ppm
		ILMO4.1			
		ILMO2.0			
Manganese, Total - Water (ICP)	200.7	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.0015 ppm
	6010A/B	SW846, 3rd Edition/AFCEE QAPP			
Manganese, Total - Water (FLAA)	243.1	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.03 ppm
	7460	SW846, 3rd Edition/AFCEE QAPP			
Manganese, Total - Water (CLP)	CLP-M	ASP 91 ASP 95	6 Months from Sample Receipt	(1) 8 oz. Plastic/Nitric to pH<2	0.015 ppm
		ILMO4.1			
		ILMO2.0			
Manganese, Total - Soil (ICP)	6010A/B	SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	0.15 ppm
Manganese, Total - Soil (FLAA)	7460	SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	3 ppm
Manganese, Total - Soil (CLP)	CLP-M	ASP 91 ASP 95	6 Months from Sample Receipt	(1) 4 oz. Glass/Cool to 4°C	3.0 ppm
		ILMO4.1			
		ILMO2.0			
Mercury, Total - Water (CV)	245.1	40 CFR 136	28 Days from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.0004 ppm
	7470A	SW846, 3rd Edition/AFCEE QAPP			
Mercury, Total - Water (CLP)	CLP-M	ASP 91 ASP 95	26 Days from Sample Receipt	(1) 8 oz. Plastic/Nitric to pH<2	0.0002 ppm
		ILMO4.1			
		ILMO2.0			
Mercury, Total - Drinking Water (CV)	245.1	40 CFR 136	26 Days from Sample Date	(1) 4 oz. Glass/Cool to 4°C	0.0004 ppm
			14 Days from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	
Mercury, Total - Soil (CV)	7471A	SW846, 3rd Edition/AFCEE QAPP	28 Days from Sample Receipt	(1) 4 oz. Glass/Cool to 4°C	0.1 ppm
Mercury, Total - Soil (CLP)	CLP-M	ASP 91	26 Days from Sample	(1) 4 oz. Glass/Cool to 4°C	0.1 ppm

[1] Addition of $NA_2S_2O_3$ in presence of Free (Total Residual) Chlorine only
[2] pH to be verified in Sample Control
[3] Sample Control to verify that extraction will be completed within 72 hours of collection. If not, Sample Control is to ensure pH range of 5-9 (adjust if necessary)

METALS ANALYSES - METHOD INDEX					
PARAMETER/ SAMPLE TYPE/SOP #	METHOD	PROTOCOL	HOLDING TIME	CONTAINER & PRESERVATION	LAB LIMIT
		ASP 95 ILMO4.1 ILMO2.0	Receipt		
Molybdenum, Total - Water (FLAA)	246.1	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Filter with .45 um membrane, Nitric to pH<2	0.2 ppm
	7480	SW846, 3rd Edition/AFCEE QAPP			
Molybdenum, Total - Soil (FLAA)	7480	SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	20 ppm
Nickel, Total - Water (ICP)	200.7	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.005 ppm
	6010A/B	SW846, 3rd Edition/AFCEE QAPP			
Nickel, Total - Water (FLAA)	249.1	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.2 ppm
	7520	SW846, 3rd Edition/AFCEE QAPP			
Nickel, Total - Water (GFAA)	249.2	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.003 ppm
Nickel, Total - Water (CLP)	CLP-M	ASP 91 ASP 95 ILMO4.1 ILMO2.0	6 Months from Sample Receipt	(1) 8 oz. Plastic/Filter with .45 um membrane, Nitric to pH<2	0.04 ppm
Nickel, Total - Soil (ICP)	6010A/B	SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	0.5 ppm
Nickel, Total - Soil (FLAA)	7520	SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	20 ppm
Nickel, Total - Soil (CLP)	CLP-M	ASP 91 ASP 95 ILMO4.1 ILMO2.0	6 Months from Sample Receipt	(1) 4 oz. Glass/Cool to 4°C	8.0 ppm
Potassium, Total - Water (ICP)	200.7	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.3 ppm
	6010A/B	SW846, 3rd Edition/AFCEE QAPP			
Potassium, Total - Water (FLAA)	258.1	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.9 ppm
	7610	SW846, 3rd Edition/AFCEE QAPP			
Potassium, Total - Water (CLP)	CLP-M	ASP 91 ASP 95 ILMO4.1 ILMO2.0	6 Months from Sample Receipt	(1) 8 oz. Plastic/Nitric to pH<2	5.0 ppm
Potassium, Total - Soil (ICP)	6010A/B	SW846, 3rd	6 Months from Sample	(1) 4 oz. Glass/Cool to 4°C	30 ppm

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[2] pH to be verified in Sample Control
[3] Sample Control to verify that extraction will be completed within 72 hours of collection. If not, Sample Control is to ensure pH range of 5-9 (adjust if necessary)

METALS ANALYSES - METHOD INDEX					
PARAMETER/ SAMPLE TYPE/SOP #	**METHOD**	**PROTOCOL**	**HOLDING TIME**	**CONTAINER & PRESERVATION**	**LAB LIMIT**
		Edition/AFCEE QAPP	Date		
Potassium, Total - Soil (FLAA)	7610	SW846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	90 ppm
Potassium, Total - Soil (CLP)	CLP-M	ASP 91 ASP 95	6 Months from Sample Receipt	(1) 4 oz. Glass/Cool to 4°C	1000 ppm
		ILMO4.1			
		ILMO2.0			
Selenium, Total - Water (ICP)	200.7	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.01 ppm
	6010A/B	SW846, 3rd Edition/AFCEE QAPP			
Selenium, Total - Water (GFAA)	270.2	40CFR136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH <2	0.01 ppm
	7740	SW-846, 3rd Edition/AFCEE QAPP			
Selenium, Total - Soil (ICP)	6010A/B	SW-846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool 4°C	0.65 ppm
Selenium, Total - Soil (GFAA)	7740	SW-846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool 4°C	1 ppm
Selenium, Total - Soil (CLP)	CLP-M	ASP 91 ASP 95	6 Months Sample from Receipt	(1) 4 oz. Glass/Cool to 4°C	1.0 ppm
		ILM04.1			
		ILM02-0			
Silver, Total - Water (ICP)	200.7	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH <2	0.0045 ppm
	6010A/B	SW-846, 3rd Edition/AFCEE QAPP			
Silver, Total - Water (GFAA)	272.2	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH <2	0.0006 ppm
Silver, Total - Water (CLP)	CLP-M	ASP 91 ASP 95	6 Months from Sample Date	(1) 8 oz. Plastic/Nitric to pH <2	0.01 ppm
		ILMO4.1			
		ILM02.0			
Silver, Total - Soil (ICP)	6010A/B	SW-846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	0.45 ppm
Silver, Total - Soil (CLP)	CLP-M	ASP 91 ASP 95	6 Months Sample from Receipt	(1) 4 oz. Glass/Cool to 4°C	2 ppm
		ILMO4.1			
		ILMO2.0			
Sodium, Total - Water (ICP)	200.7	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH <2	1.5 ppm
	6010A/B	SW-846, 3rd Edition/AFCEE QAPP			

[1] Addition of $NA_2S_2O_3$ in presence of Free (Total Residual) Chlorine only
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[3] Sample Control to verify that extraction will be completed within 72 hours of collection. If not, Sample Control is to ensure pH range of 5-9 (adjust if necessary)

METALS ANALYSES - METHOD INDEX					
PARAMETER/ SAMPLE TYPE/SOP #	METHOD	PROTOCOL	HOLDING TIME	CONTAINER & PRESERVATION	LAB LIMIT
Sodium, Total - Water (FLAA)	273.1	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH <2	6 ppm
	7770	SW-846, 3rd Edition/AFCEE QAPP			
Sodium, Total - Water (CLP)	CLP-M	ASP 91 ASP 95	6 Months from Sample Receipt	(1) 8 oz. Plastic/Nitric to pH <2	5 ppm
		ILMO4.1			
		ILMO2.0			
Sodium, Total - Soil (ICP)	6010A/B	SW-846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	150 ppm
Sodium, Total - Soil (FLAA)	7770	SW-846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	600 ppm
Sodium, Total - Soil (CLP)	CLP-M	ASP 91 ASP 95	6 Months Sample from Receipt	(1) 4 oz. Glass/Cool to 4°C	1000 ppm
		ILMO4.1			
		ILMO2.0			
Strontium, Total - Water (FLAA)	7780	SW-846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH <2	0.06 ppm
Strontium, Total - Soil (FLAA)	7780	SW-846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz Glass/Cool to 4°C	6 ppm
Thallium, Total - Water (ICP)	200.7	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH<2	0.0085 ppm
	6010A/B	SW-846, 3rd Edition/AFCEE QAPP			
Thallium, Total - Water (GFAA)	279.2	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastric/Nitric to pH <2	0.01 ppm
	7841	SW-846, 3rd Edition/AFCEE QAPP			
Thallium, Total - Water (CLP)	CLP-M	ASP 91 ASP 95	6 Months from Sample Receipt	(1) 8 oz. Plastic/Nitric to pH <2	0.01 ppm
		ILMO4.1			
		ILMO2.0			
Thallium, Total - Soil (ICP)	6010A/B	SW-846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	0.85 ppm
Thallium, Total - Soil (GFAA)	7841	SW-846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(4 oz. Glass/Cool to 4°C	1.0 ppm
Thallium, Total - Soil (CLP)	CLP-M	ASP 91 ASP 95	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	2 ppm
		ILMO4.1			
		ILMO2.0			
Tin, Total - Water (FLAA)	282.1	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH <2	3 ppm

[1] Addition of $NA_2S_2O_3$ in presence of Free (Total Residual) Chlorine only
[2] pH to be verified in Sample Control
[3] Sample Control to verify that extraction will be completed within 72 hours of collection. If not, Sample Control is to ensure pH range of 5-9 (adjust if necessary)

METALS ANALYSES - METHOD INDEX					
PARAMETER/ SAMPLE TYPE/SOP #	METHOD	PROTOCOL	HOLDING TIME	CONTAINER & PRESERVATION	LAB LIMIT
	7870	SW-846, 3rd Edition/AFCEE QAPP			
Tin, Total - Soil (FLAA)	7870	SW-846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. glass/Cool to 4°C	300 ppm
Titanium, Total - Water (FLAA)	283.1	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH 2	2 ppm
Vanadium, Total - Water (ICP)	200.7	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH <2	0.0025 ppm
	6010A/B	SW-846, 3rd Edition/AFCEE QAPP			
Vanadium, Total - Water (FLAA)	286.1	40 CFR 163	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH <2	0.3 ppm
	7910	SW-846, 3rd Edition/AFCEE QAPP			
Vanadium, Total - Water (CLP)	CLP-M	ASP 91 ASP 95	6 Months from Sample Date	(1) 8 oz. Plastic/Nitric to pH <2	0.05 ppm
		ILMO4.1			
		ILMO2.0			
Vanadium, Total - Soil (ICP)	6010A/B	SW-846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	0.25 ppm
Vanadium, Total - Soil (FLAA)	7910	SW-846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	30 ppm
Vanadium, Total - Soil (CLP)	CLP-M	ASP 91 ASP 95	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	10 ppm
		ILMO4.1			
		ILMO2.0			
Zinc, Total - Water (ICP)	200.7	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic Nitric to pH <2	0.0025 ppm
	6010A/B	SW-846, 3rd Edition/AFCEE QAPP			
Zinc, Total - Water (FLAA)	289.1	40 CFR 136	6 Months from Sample Date	(1) 4 oz. Plastic/Nitric to pH <2	0.03 ppm
	795.0	SW-846, 3rd Edition/AFCEE QAPP			
Zinc, Total - Water (CLP)	CLP-M	ASP 91 ASP 95	6 Months from Sample Receipt	(1) 8 oz. Plastic/Nitric to pH <2	0.02 ppm
		ILMO4.0			
		ILMO2.0			
Zinc, Total - Soil (ICP)	6010A/B	SW-846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	0.35 ppm
Zinc, Total - Soil (FLAA)	7950	SW-846, 3rd Edition/AFCEE QAPP	6 Months from Sample Date	(1) 4 oz. Glass/Cool to 4°C	3 ppm

[1] Addition of $NA_2S_2O_3$ in presence of Free (Total Residual) Chlorine only
[2] pH to be verified in Sample Control
[3] Sample Control to verify that extraction will be completed within 72 hours of collection. If not, Sample Control is to ensure pH range of 5-9 (adjust if necessary)

METALS ANALYSES - METHOD INDEX					
PARAMETER/ SAMPLE TYPE/SOP #	METHOD	PROTOCOL	HOLDING TIME	CONTAINER & PRESERVATION	LAB LIMIT
Zinc, Total - Soil (CLP)	CLP-M	ASP 91 ASP 95 ILMO4.1 ILMO2.0	6 Months from Sample Receipt	(1) 4 oz. Glass/Cool to 4°C	4 ppm

ICP = Inductively Coupled Argon Plasma Emission Spectrometer
FLAA = Flame Atomic Absorption
GFAA = Graphite Furnace Atomic Absorption

[1] Addition of $NA_2S_2O_3$ in presence of Free (Total Residual) Chlorine only
[2] pH to be verified in Sample Control
[3] Sample Control to verify that extraction will be completed within 72 hours of collection. If not, Sample Control is to ensure pH range of 5-9 (adjust if necessary)

Appendix D

APPENDIX D

HEALTH AND SAFETY PLAN
FOR
INVESTIGATION WORK PLAN
WARD STREET SITE
SITE#: V00271-8
ROCHESTER, NEW YORK

JUNE 2001

Prepared for:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
6274 EAST AVON-LIMA ROAD
AVON, NEW YORK 14414

Prepared on Behalf of:

GERMANOW-SIMON CORPORATION
408 ST. PAUL STREET
ROCHESTER, NEW YORK 14601-0144

Prepared by:

THE SEAR-BROWN GROUP, INC.
85 METRO PARK
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Appendix A - MATERIAL SAFETY DATA SHEETS
Appendix B - ON-SITE SAFETY MEETING FORMS

1.0 INTRODUCTION

The following Health and Safety Plan (HASP) describes personal safety protection standards and procedures to be followed during planned Voluntary Investigation activities at the Ward Street Site located in the City of Rochester, Monroe County, New York (Figure 1). This work will include drilling activities and associated soil and groundwater sampling.

This HASP establishes mandatory safety procedures and personal protection standards pursuant to the Occupational Safety and Health Administration (OSHA) regulations 29 Code of Federal Regulations (CFR) 1910.120. The HASP applies to all Sear-Brown personnel conducting any site work, as defined in 29 CFR 1910.120(a). All personnel involved in the mentioned activities must familiarize themselves with this HASP, comply with its requirements and have completed the required health and safety training and medical surveillance program participation pursuant to 29 CFR 1910.120 prior to beginning any work on site.

THIS HASP IS FOR THE EXPRESSED USE OF SEAR-BROWN GROUP EMPLOYEES. ALL OTHER CONTRACTORS TO BE WORKING IN THE EXCLUSION AREAS ARE REQUIRED BY LAW TO DEVELOP THEIR OWN HASP, AS WELL TO MEET ALL PERTINENT ASPECTS OF OSHA REGULATIONS. SEAR-BROWN GROUP RESERVES THE RIGHT TO STOP ANY SITE WORK WHICH IS DEEMED TO POSE A HEALTH AND SAFETY THREAT TO ITS STAFF.

1.1 Background

Germanow-Simon currently occupies the Site and employs approximately 140 individuals at the manufacturing facility which produces bimetal thermometers, plastic optics, and gauge and watch crystals. Germanow-Simon has been working for sometime with the City of Rochester to pursue expansion and modernization of its facility. These plans will ensure that all of the existing jobs will be retained in this urban Economic Development Zone and will result in an additional 20 jobs over the next seven years.

The Site contains three major buildings that have been designated Buildings A, B and C (Figure 2). The expansion plans involve enlargement of the north side of Building C, abandonment of Cork Street, connection of the rear portion of Building A with Building C across Cork Street, and demolition of the front half of Building A. Review of historic information has identified a former dry cleaning establishment once operated by the Lilac Laundry Inc. and a former gasoline station which was also once occupied by S. Dinaburg, a distributor of dry cleaning and industrial solvents, relative to the Site.

1.2 Site-Specific Chemicals of Concern

Tetrachloroethene (PCE), trichloroethene (TCE) and cis-1,2 dichloroethene (cis 1,2 DCE) are the primary volatile organic compounds of concern that are present, or are potentially present, in the soil and groundwater at the Ward Street Site. Material Safety Data Sheets (MSDSs) for PCE and TCE are presented in Appendix A. The air monitoring action levels will be based on one-half of the current Threshold Limit Valve (TLV) or Permissible Exposure Limit (PEL) for PCE with a margin of safety built into the action levels to account for the non-specificity of the field monitoring instruments. Exposure limits for less hazardous compounds will be satisfied by meeting the more stringent exposure limits for PCE. Table 1 summarizes health and safety data for PCE and TCE, which are the two compounds of primary concern.

Table 1
Health and Safety Data for Major Contaminants of Concern

Compound	PEL/TWA	Physical Description	Odor Threshold	Route of Exposure	Target Organs
Tetrachloroethene (PCE)	25 ppm	Colorless liquid with a mild chloroform-like odor.	4.68-50 ppm	inhalation ingestion dermal contact	Liver, Kidneys, eyes, upper respiratory, central nervous system.
Trichloroethylene (TCE)	50 ppm	Colorless liquid with a chloroform-like odor.	21.4-400 ppm	inhalation ingestion dermal contact	Respiratory system, heart, liver, kidneys, central nervous system, skin.

Notes:
PEL - permissible exposure limits
TWA - time weighted average, 8-hour workday
ppm - parts per million, in air

2.0 SEAR-BROWN PERSONNEL ORGANIZATION

The following Sear-Brown personnel will be involved in operations at the Ward Street Site:

2.1 Project Manager

Mr. Michael Storonsky, Associate, is the Project Manager. Mr. Storonsky is responsible for ensuring that all Sear-Brown procedures and methods are carried out, and that all Sear-Brown personnel abide by the provisions of this Health and Safety Plan.

2.2 Site Safety Officer/Field Team Leader

Peter Smith will serve as the field team leader and Site Safety Officer during this project. Mr. Smith will report directly to the Project Manager and will be responsible for the implementation of this HASP as well as daily calibration of Sear-Brown Group's safety monitoring instruments. Mr. Smith will keep a log book of all calibration data and instrument readings for the Site.

2.3 Health and Safety Coordinator

Mr. David Gnage will be the Health and Safety Coordinator. Mr. Gnage will be responsible for overall coordination of Health and Safety issues on the project.

2.4 Daily Meetings

All Sear-Brown personnel and contractors working within the exclusion zone will be required to read this document and sign off on the daily safety meeting form presented in Appendix B.

3.0 MEDICAL SURVEILLANCE REQUIREMENTS

3.1 Introduction

A. Hazardous waste site workers can often experience high levels of physical and chemical stress. Their daily tasks may expose them to toxic chemicals, physical hazards, biologic hazards, or radiation. They may develop heat stress while wearing protective equipment or working under temperature extremes, or face life-threatening emergencies such as explosions and fires. Therefore, a medical program is essential to: assess and monitor worker's health and fitness both prior to employment and during the course of the work; provide emergency and other treatment as needed; and keep accurate records for future reference. In addition, OSHA requires a medical evaluation for employees that may be required to work on hazardous waste sites and/or wear a respirator (29 CFR Part 1910.120 and 1910.134), and certain OSHA standards include specific medical surveillance requirements (e.g., 29 CFR Part 1926.62, Part 1910.95 and Parts 1910.1001 through 1910.1045).

3.2 Medical Examinations

A. All Sear-Brown personnel working in areas of the site where site-related contaminants may be present shall have been examined by a licensed physician as prescribed in 29 CFR Part 1910.120, and determined to be medically fit to perform their duties for work conditions which require respirators. Employees will be provided with medical examinations as outlined below:

- Pre-job physical examination
- Annually thereafter if contract duration exceeds 1 year;
- Termination of employment;
- Upon reassignment in accordance with CFR 29 Part 1910.120(e)(3)(i)(C);
- If the employee develops signs or symptoms of illness related to workplace exposures;
- If the physician determines examinations need to be conducted more often than once a year; and
- When an employee develops a lost time injury or illness during the Contract period.

B. Examinations will be performed by, or under the supervision of a licensed physician, preferably one knowledgeable in occupational medicine, and will be provided without cost to the employee, without loss of pay and at a reasonable time and place. Medical surveillance protocols and examination and test results shall be reviewed by the Occupational Physician.

4.0 ON-SITE HAZARDS

4.1 Chemical Hazards

The primary potential chemical hazards on-site are expected to be exposure to the chlorinated compounds detailed in Table 2. Material safety data sheets for the anticipated chemicals are presented in Appendix A.

The soil and groundwater contaminants are volatile, therefore, any activity at the site which causes physical disturbance of the soil can potentially allow the release of contaminants into the air. Such an occurrence may be recognized by noticeable chemical odors. Field personnel should be aware of the odor threshold for these chemicals and their relation to the action levels and Permissible Exposure Limits.

Common symptoms of overexposure to chlorinated VOCs are dizziness, headache, drowsiness, irritated eyes, nose and throat, nausea, vomiting, vertigo, loss of coordination, fatigue, tremors, visual disturbances, and abdominal pains. To prevent exposure to these chemicals, dermal contact will be minimized by using disposable surgical gloves with work gloves (as appropriate) when handling soil, groundwater equipment or samples. Real time, breathing zone levels of total VOCs will be monitored using a portable photoionization detector (PID). If ambient levels exceed action levels, all site activities will be performed using level C personal protection until ambient concentrations dissipate. Where levels exceed 50 ppm, work will cease and the project manager will be notified immediately. Intrusive work may also be halted where required by action levels detailed in the Community Air Monitoring Plan (CAMP), Appendix E of the Work Plan.

In addition, depending on seasonal conditions, disturbance of the site soils may cause the particulate contaminants to become airborne as dust. Therefore, particulates will be monitored as discussed in Section 6.1 and dust-suppression methods used where appropriate as discussed in Section 6.2, or in the CAMP.

Finally, aeration of the groundwater may cause volatilization of chemicals into the air, particularly PCE and TCE. Table 2 summarizes first aid instructions for exposure pathways for the compounds of concern.

Table 2
Exposure Pathways and First Aid Response for Contaminants of Concern

Substance	Exposure Pathways	First-Aid Instructions
TCE and PCE	Eye	irrigate immediately, hospital
	Dermal	soap wash promptly
	Inhalation	respiratory support, first aid
	Ingestion	medical attention immediately

4.2 *Physical Hazards*

Hazards typically encountered at construction sites with drilling activities will be a concern at this site. These hazards include slippery ground surfaces, holes, and operation of heavy machinery and equipment. Field team members will wear the basic safety apparel such as steel-toed shoes, hard hat and safety glasses during all activities.

Under no circumstances will Sear-Brown personnel approach the borehole during active drilling operation. All field personnel working around the rig will be shown the location and operation of kill switches, which are to be tested daily.

Multi-purpose fire extinguishers, functional and within annual inspection period, will be staged and readily accessible for use.

The use of electrical equipment in any established exclusion zones will be limited to areas verified as containing non-explosive atmospheres (<10% LEL) prior to operation, unless the equipment has been previously demonstrated or designed to be FM or UL rated as intrinsically safe. Care will be taken to avoid an ignition source while working in the presence of vapors.

The driller shall make all necessary contacts with utilities and/or underground utility locator hotlines prior to drilling, and shall meet OSHA requirements for distances between the drilling rig and overhead utilities. No drilling work will be carried out where the drill rig chassis has not been stabilized and the rig is not to be moved between locations with its boom in a vertical position.

4.2.1 Noise

The use of heavy machinery/equipment and operation may result in noise exposures, which require hearing protection. Exposure to noise can result in temporary hearing losses, interference with speech communication, interference with complicated tasks or permanent hearing loss due to repeated exposure to noise.

During the investigative activities, all Sear-Brown field team members will use hearing protection when sound levels are in excess of 90 dB TWA. All aspects of the Sear-Brown Hearing Conservation Program (HCP) will apply when noise levels are in excess of 85 dB TWA. Drill rig operation does not typically result in noise exposures requiring an HCP.

4.2.2 Heat Stress Exposure

This project is anticipated to be started during the winter season. Although unlikely during the winter season, heat is a potential threat to the health and safety of site personnel. The Site Safety Officer under the direction of the Project Manager will determine the schedule of work and rest. These schedules will be employed as necessary so that personnel do not suffer adverse effects from heat. Table 3 summarizes exposure symptoms and first aid instructions for heat stress. Non-caffeinated, thirst replenishment liquids will be available on-site. Cold stress protocols will be implemented as an Addendum to this document where seasonal conditions warrant.

Table 3
Exposure Symptoms and First Aid for Heat Exposure

Hazard	Exposure Symptoms	First-Aid Instructions
Heat Stress	Fatigue, sweating, irritability	rest; take fluids
	Dizziness, disorientation, perspiration ceases, loss of consciousness	remove from hot area, activate 911, administer first aid, no fluids to be administered to unconscious victim.

4.2.3 Roadway Hazards

Drilling and utility installation activities are planned to take place near active roadways adjacent to the site. Where such work zones are established, personnel shall assure that protective measures including signage, cones, and shielding through use of vehicles parked at workmen perimeter, are in place. All contractors shall be responsible for meeting signage requirements of DOT. Fluorescent safety vests shall be worn by all personnel during activities in or adjacent to roadways.

4.2.4 *Electrical Work*

Site work involving electrical installation or energized equipment must be performed by a qualified electrician. All electrical work will be performed in accordance with the OSHA electrical safety requirements found in 29 CFR 1926.400 through 1926.449. Workers are not permitted to work near electrical power circuits unless the worker is protected against electric shock by de-energizing and grounding the circuit or by guarding or barricading the circuit and providing proper personal protective equipment. All electrical installations must comply with NEC regulations. All electrical wiring and equipment used must be listed by a nationally recognized testing laboratory.

All electrical circuits and equipment must be grounded in accordance with the NEC regulations. The path to ground from circuits, equipment, and enclosures will be permanent and continuous. Ground fault circuit interrupters (GFCIs) are required on all 120-volt, single phase, 15- and 20-amp outlets in work areas that are not part of the permanent wiring of the building or structure. A GFCI is required when using an extension cord. GFCIs must be tested regularly with a GFCI tester.

Heavy-duty extension cords will be used; flat-type extension cords are not allowed. All extension cords must be the three-wire type, and designed for hard/extra hard usage. Electrical wire or cords passing through work areas must be protected from water and damage. Worn, frayed, or damaged cords and cables will not be used. Walkways and work spaces will be kept clear of cords and cables to prevent a tripping hazard. Extension cords and cables may not be secured with staples, hung from nails, or otherwise temporarily secured. Cords or cables passing through holes in covers, outlet boxes, etc., will be protected by bushings or fittings.

All lamps used in temporary lighting will be protected from accidental contact and breakage. Metal shell and paper-lined lamp holders are not permitted. Fixtures, lamp holders, lamps, receptacles, etc. are not permitted to have live parts. Workers must not have wet hands while plugging/unplugging energized equipment. Plugs and receptacles will be kept out of water (unless they are approved for submersion).

4.2.5 *Lock-Out/Tag-Out*

Before a worker sets up, services, or repairs a system where unexpected energizing (or release of stored energy) could occur and cause injury or electrocution, the circuits energizing the parts must be locked-out and tagged. Only authorized personnel will perform lock-out/tag-out procedures. All workers affected by the lock-out/tag-out will be notified prior to, and upon completion of, the lock-out/tag-out procedure.

Lock-out/tag-out devices must be capable of withstanding the environment to which they are exposed. Locks will be attached in such a way as to prevent other personnel from operating the equipment, circuit, or control, or from removing the lock unless they resort to excessive force. Tags will identify the worker who attached the device, and contain information, which warns against the hazardous condition that will result from the system's unauthorized start-up. Tags must be legible and understood by all affected workers and incidental personnel. The procedures for attaching and removing lock-out/tag-out devices include the steps outlined in the following table.

If maintenance work is required, the electrical supply to the equipment must be disconnected. Turning off the MAIN breaker using the disconnect switch will disconnect all power to the system. Once the disconnect switch has been turned off, the switch will be locked-out using the steps outlined below.

STEP	LOCK-OUT/TAG-OUT PROCEDURES
1	Disconnect the circuits and/or equipment to be worked on from all electrical energy sources.
2	Ensure that the system is completely isolated so that it cannot be operated at that shut-off point or at any other location.
3	Release stored electrical energy.
4	Block or relieve stored non-electrical energy.
5	Place a lock on each shut-off or disconnect point necessary to isolate all potential energy sources. Place the lock in such a manner that it will maintain the shut-off/disconnect in the off position.
6	Place a tag on each shut-off or disconnect point. The tag must contain a statement prohibiting the unauthorized re-start or re-connect of the energy source and the removal of the tag, and the identity of the individual performing the tag and lock-out.
7	Workers who will be working on the system must place their own lock and tag on each lock-out point.
8	A qualified person must verify the system cannot be re-started or re-connected, and de-energization of the system has been accomplished.

Once the service or repairs have been made on the system:	
1	A qualified person will conduct an inspection of the work area, to verify that all tools, jumpers, shorts, grounds, etc., have been removed so that the system can then be safely re-energized.
2	All workers stand clear of the system.
3	Each lock and tag will be removed by the worker who attached it. If the worker has left the site, then the lock and tag may be removed by a qualified person under the following circumstances:
	a. The qualified person ensures the worker who placed the lock and tag has left the site; and
	b. The qualified person ensures the worker is aware the lock and tag has been removed before the worker resumes work on-site.

4.2.6 Ladders

One-third of worker deaths in construction result from falls. Many falls occur because ladders are not placed or used safely. Ladder use will comply with OSHA 1926.1053 through 1926.1060, including the following safety requirements.

STEP	PROPER LADDER USE PROCEDURE
1	Choose the right ladder for the task--the proper type and size, with a sufficient rating for the task.
2	Check the condition of the ladder before climbing. • Do not use a ladder with broken, loose, or cracked rails or rungs. • Do not use a ladder with oil, grease, or dirt on its rungs. • The ladder should have safety feet.
3	Place the ladder on firm footing, with a four-to-one pitch.
4	Support the ladder by: • Tying it off; • Using ladder outrigger stabilizers; or • Have another worker hold the ladder at the bottom. If another worker holds the ladder, they must: • Wear a hard hat; • Hold the ladder with both hands; • Brace the ladder with their feet; and • Not look up.

5	Keep the areas around the top and bottom of the ladder clear.
6	Extend the top of the ladder at least 36 inches (3 feet) above the landing.
7	Climb the ladder carefully - facing it - and use both hands. • Use a tool belt and hand-line to carry material to the top or bottom of the ladder. • Wear shoes in good repair with clean soles.
8	Inspect the ladder every day, prior to use, for the following problems: • Rail or rung damage • Broken feet • Rope or pulley damage • Rung lock defects or damage • Excessive dirt, oil, or grease If the ladder fails inspection, it must be removed from service and tagged with a "Do Not Use" sign.

Ladders with non-conductive side rails must be used when working near electrical conductors, equipment, or other sources. Ladders will not be used horizontally for platforms, runways, or scaffolds.

4.2.7 *Hand and Power Tools*

All hand and power tools will be maintained in a safe condition and in good repair. Hand and power tools will be used in accordance with 29 CFR 1926, Subpart I (1926.300 through 1926.307). Neither Sear-Brown or its subcontractors will issue unsafe tools, and workers are not permitted to bring unsafe tools on-site. All tools will be used, inspected, and maintained in accordance with the manufacturer's instructions. Throwing tools or dropping tools to lower levels is prohibited. Hand and power tools will be inspected, tested, and determined to be in safe operating condition prior to each use. Periodic safety inspections of all tools will be conducted to assure that the tools are in good condition, all guards are in place, and the tools are being properly maintained. Any tool that fails an inspection will be immediately removed from service and tagged with a "Do Not Use" sign.

Workers using hand and power tools, who are exposed to falling, flying, abrasive, or splashing hazards will be required to wear personal protective equipment (PPE). Eye protection must always be worn when working on-site. Additional eye and face protection, such as safety goggles or face shields, may also be required when working with specific hand and power tools. Workers, when on-site, will wear hard hats. Additional hearing protection may be required when working with certain power tools. Workers using tools, which may subject their hands to an injury, such as cuts, abrasions, punctures, or burns, will wear protective gloves. Loose or frayed clothing, dangling jewelry, or loose long hair will not be worn when working with power tools.

Electric power-operated tools will be double insulated or grounded, and equipped with an on/off switch. Guards must be provided to protect the operator and other nearby workers from hazards such as in-going nip points, rotating parts, flying chips, and sparks. All reciprocating, rotating and moving parts of tools will be guarded if contact is possible. Removing machine guards is prohibited.

Abrasive wheels will only be used on equipment provided with safety guards. Safety guards must be strong enough to withstand the effect of a bursting wheel. Abrasive wheels will not be operated in excess of their rated speed. Work or tool rests will not be adjusted while the wheel is in motion. All abrasive wheels will be closely inspected and ring tested before each use, and any cracked or damaged wheels will be removed immediately and destroyed.

Circular saws must be equipped with guards that completely enclose the cutting edges and have anti-kickback devices. All planer and joiner blades must be fully guarded. The use of cracked, bent, or otherwise defective parts is prohibited. Chain saws must have an automatic chain brake or kickback device. The worker operating the chain saw will hold it with both hands during cutting operations. A chain saw must never be used to cut above the operator's shoulder height. Chain saws will not be re-fueled while running or hot. Power saws will not be left unattended.

Only qualified workers will operate pneumatic tools, powder-actuated tools, and abrasive blasting tools.

4.2.8 Manual Lifting

Back injuries are among the leading occupational injuries reported by industrial workers. Back injuries such as pulls and disc impairments can be reduced by using proper manual lifting techniques. Leg muscles are stronger than back muscles, so workers should lift with their legs and not with their back. Proper manual lifting techniques include the following steps:

STEP	PROPER MANUAL LIFTING PROCEDURE
1	Plan the lift before lifting the load. Take into consideration the weight, size, and shape of the load.
2	Preview the intended path of travel and the destination to ensure there are no tripping hazards along the path.
3	Wear heavy-duty work gloves to protect hands and fingers from rough edges, sharp corners, and metal straps. Also, keep hands away from potential pinch points between the load and other objects.
4	Get the load close to your ankles, and spread your feet apart. Keep your back straight and do not bend your back too far; instead bend at your knees.
5	Feel the weight; test it.
6	Lift the load smoothly, and let your legs do the lifting. If you must pivot, do not swing just the load; instead, move your feet and body with the load.

If the load is too heavy, then do not lift it alone. Lifting is always easier when performed with another person. Assistance should always be used when it is available.

4.2.9 Weather-Related Hazards

Weather-related hazards include the potential for heat or cold stress, electrical storms, treacherous weather-related working conditions, or limited visibility. These hazards correlate with the season in which site activities occur. Outside work will be suspended during electrical storms. In the event of other adverse weather conditions, the Site Safety Officer will determine if work can continue without endangering the health and safety of site personnel.

5.0 SITE WORK ZONES

The following work zones will be physically delineated by Sear-Brown during the investigation activities.

5.1 Control Zones

Control boundaries will be established within the areas of site activities. Examples of boundary zones include the exclusion and decontamination zone. All boundaries will be dynamic, and will be determined by the planned activities for the day. The Field Team Leader will record the names of any visitors to the site.

5.2 Exclusion Zone

The controlled portion of the site will be delineated to identify the exclusion zone, wherein a higher level of personal protective equipment may be required for entry during intrusive activities. The limits of the exclusion zone will be designated at each work location appropriately. A decontamination zone will be located immediately outside the entrance to the exclusion zone. All personnel leaving the exclusion zone will be required to adhere to proper decontamination procedures.

A "super exclusion" zone will be established around the borehole which will not be entered by Sear-Brown personnel at any time during any active drilling, slambar, cathead, silica sand dumping, or other related activities. The drilling contractor will be directed to stop such activity when Sear-Brown site team members have a need to enter this zone.

5.3 Decontamination Zone

The decontamination zone will be located immediately outside the entrance to the exclusion zone on its apparent upwind side, if feasible, and will be delineated with caution tape and traffic cones. This zone will contain the necessary decontamination materials for personnel decontamination. Decontamination procedures are outlined in Section 8.0 of this plan.

6.0 SITE MONITORING/ACTION LEVELS

6.1 Site Monitoring

Field activities associated with the drilling and sampling may create potentially hazardous conditions due to the migration of contaminants into the breathing zone. These substances may be in the form of mists, vapors, dusts, or fumes that can enter the body through ingestion, inhalation, absorption, and direct dermal contact. Monitoring for VOCs will be performed to ensure appropriate personal protective measures are employed during site activities.

A separate Community Air Monitoring Plan (CAMP) has also been developed (Appendix E) to protect the surrounding neighborhood.

Although the concentrations of anticipated contaminants in soil/groundwater should not present an explosive hazard, explosive environments or conditions may be encountered unexpectedly during the course of this project. Monitoring for explosivity in the atmosphere will be routinely conducted during site activities as a precautionary measure to ensure site personnel are not subjected to any dangerous conditions.

The following describes the conditions that will be monitored for during the investigation activities. All calibrations, etc., done on instruments, as well as background and site readings will be logged.

Organic Vapor Concentrations - Organic vapors will be monitored continuously in the breathing zone in the work area with an HNu portable photoionization detector (PID) with a 10.2 eV lamp. The instrument will be calibrated daily. HNu readings will be used as the criteria for upgrading or downgrading protective equipment and for implementing additional precautions or procedures.

Split spoons or other soil sampling devices will be monitored using the HNu at the time they are opened, with appropriate PPE to be used where soils exhibit measurable volatile organic compound levels.

Explosivity - Explosivity will be monitored continuously during active drilling operations. Measurements obtained from this monitoring instrument will also be used as criteria for implementation of work stoppage or site evacuation. A combination combustible gas/oxygen (CGO_2) instrument, calibrated per manufacturer's recommendations, will be used.

Particulates - Should subsurface conditions be observed to be dry, Sear-Brown will perform particulate monitoring with a MIE PDM-3 Miniram aerosol monitor, within the work area to monitor personal exposures to particulates and to compare work area readings with downwind and upwind readings. The first readings of the day will be obtained prior to the commencement of work to obtain a daily background reading, and the instrument will be zeroed daily and calibrated to manufacturer's specifications. Readings will be recorded every 30 minutes thereafter. If the work area particulate levels exceed the background levels by more than 0.15 mg/m^3, the Contractor will be instructed to implement dust suppression measures. Moist soil conditions are expected during this drilling work which should reduce the need for particulate monitoring.

6.2 Action Levels

During the course of any activity, as long as HNu readings in the breathing zone are less than 5 ppm above background, Level D protection will be considered adequate. Level C protection will be required when VOC concentrations in ambient air in the work zone exceed 5 ppm total VOCs above background but remain below 50 ppm total VOCs.

If concentrations in the work zone exceed 50 ppm for a period of 5 minutes or longer, work will immediately be terminated by the Site Safety Officer. Options to allow continued drilling would then be discussed amongst all parties. Supplied-air respiratory protection is generally required for drilling to resume under these conditions. If Level B protection is not used, work may resume in Level C once monitoring concentrations have decreased below 50 ppm and conditions outlined in the CAMP are met.

If the monitoring of fugitive particulate levels within the work area exceeds 0.15 mg/m^3 above background, then the drilling Contractor will be directed to implement fugitive dust control measures which may include use of engineering controls such as water spray at the borehole.

7.0 PERSONAL PROTECTIVE EQUIPMENT

Based on an evaluation of the hazards at the site, personal protective equipment (PPE) will be required for all personnel and visitors entering the drilling exclusion zone(s). It is anticipated that all Sear-Brown oversight work will be performed in Level D. All contractors will be responsible for selection and implementation of PPE for their personnel.

7.1 Protective Clothing/Respiratory Protection:

Protective equipment for each level of protection is as follows:

If HNu readings are above 50 ppm, requiring an upgrade to Level B, site work will be halted pending review of conditions and options by Sear-Brown and other parties.

When HNu readings range between 5 and 50 ppm, upgrade to Level C:

<u>Level C</u>

- Full face, air purifying respirator with organic/HEPA cartridge;
- Disposable chemical resistant one-piece suit (Tyvek or Saranex, as appropriate);
- Inner and outer chemical resistant gloves;
- Hard hat;
- Steel-toed boots; and
- Disposable booties.

When HNu readings range between background and 5 ppm use Level D:

<u>Level D</u>

- Safety glasses;
- Steel-toed boots;
- Protective cotton, latex or leather gloves depending on site duties;
- Hard hat; and
- Tyvek coverall (optional).

8.0 DECONTAMINATION

8.1 Personnel Decontamination

For complete decontamination, all personnel will observe the following procedures upon leaving the exclusion zone:

1. Remove outer boots and outer gloves and place in disposal drum.

2. If using a respirator, remove respirator, dispose of cartridges if necessary, and set aside for later cleaning.

3. Remove disposable chemical resistant suits and dispose of in drum.

4. Remove and dispose of inner gloves.

Decontamination solutions shall be supplied at the decontamination zone. The wash solution will consist of water and detergent such as Alconox or trisodium phosphate (TSP), and the rinse solution will consist of clean water.

Contaminated wash solutions shall be collected in drums for disposal. All other disposable health and safety equipment will be decontaminated and disposed of as non-hazardous waste.

8.2 Equipment Decontamination

If equipment is used during field activities, it will be properly washed or steam-cleaned prior to exiting the decontamination zone. Pre- or post-use rinsing using solvents will be done wearing appropriate PPE.

Monitoring instruments will be either wrapped in polysheeting or carried by personnel not involved in handling contaminated materials, to reduce the need for decontamination. All instruments will be wet-wiped prior to removal from the work zone.

9.0 EMERGENCY PROCEDURES

The Site Safety Officer will coordinate emergency procedures and will be responsible for initiating emergency response activities. Emergency communications at the site will be conducted verbally and by means of an air horn. All personnel will be informed of the location of the cellular telephone and horn. Three blasts on the air horn will be used to signal distress.

9.1 List of Emergency Contacts

Ambulance: 911
Hospital: Strong Memorial Hospital, (716) 275-4551
Fire Department: 911
Police: 911
Poison Control Center: (716) 275- 3232
Utility Emergency: 911 or 546-1100

9.2 Directions to Hospital

A map presenting directions to the hospital is included in the back of the document (Figure 3). The route shall be reviewed at the initial site safety meeting on site.

9.3 Accident Investigation and Reporting

A. All accidents requiring first aid, which occur incidental to activities onsite, will be investigated. The investigation format will be as follows:

- interviews with witnesses,
- pictures, if applicable, and
- necessary actions to alleviate the problem.

B. In the event that an accident or some other incident such as an explosion or exposure to toxic chemicals occurs during the course of the project, the Project Health and Safety Officer will be telephoned as soon as possible and receive a written notification within 24 hours. The report will include the following items:

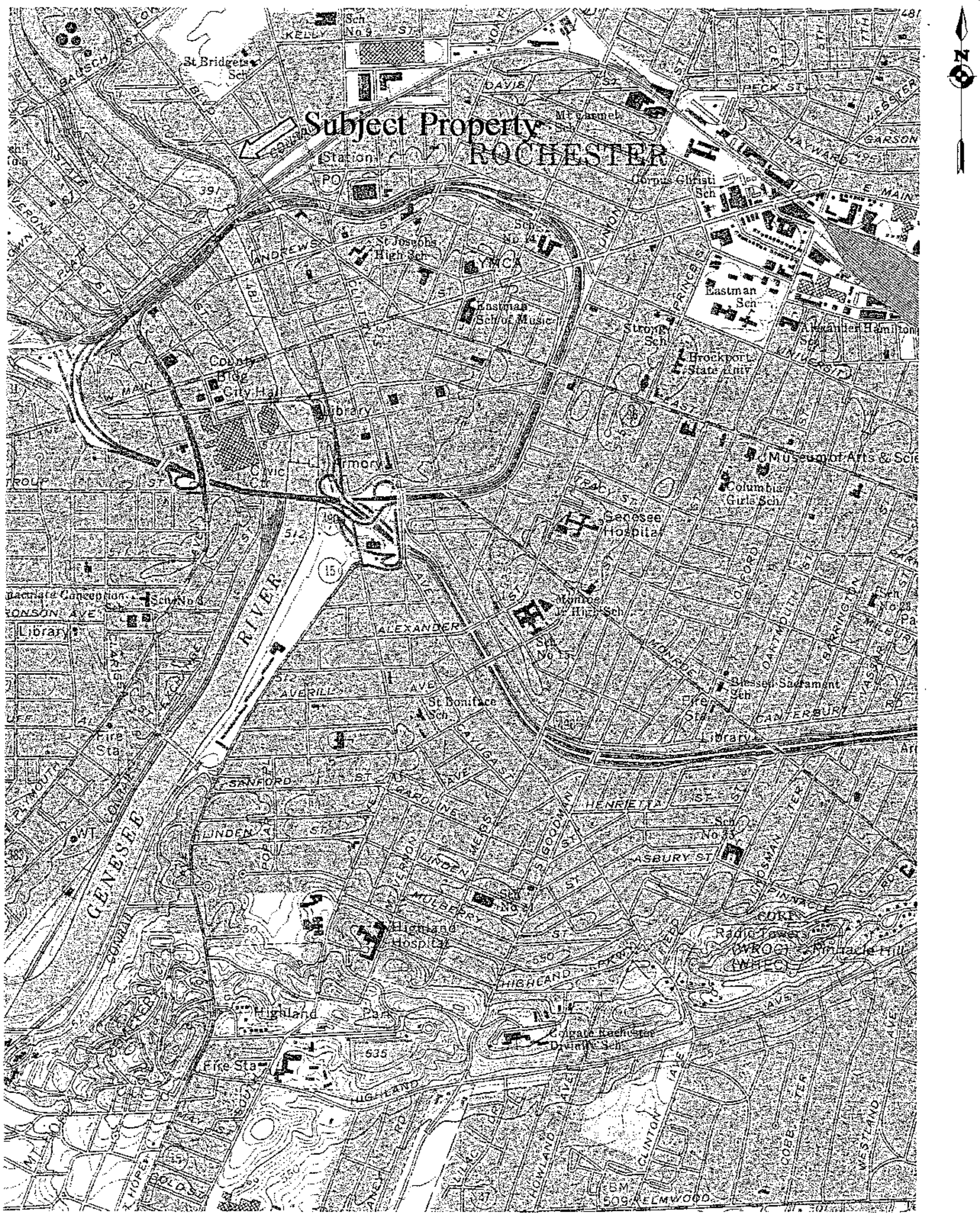
- Name of injured;
- Name and title of person(s) reporting;
- Date and time of accident/incident;
- Location of accident/incident, building number, facility name;
- Brief summary of accident/incident giving pertinent details including type of operation ongoing at the time of the accident/incident;
- Cause of accident/incident;

- Casualties (fatalities, disabling injuries), hospitalizations;
- Details of any existing chemical hazard or contamination;
- Estimated property damage, if applicable;
- Nature of damage; effect on contract schedule;
- Action taken to insure safety and security; and
- Other damage or injuries sustained (public or private).

Where reportable injuries, hospitalizations or fatalities occur amongst Sear-Brown personnel, the necessary document required by OSHA will be submitted within timeframes allowed by law.

The accident report form is illustrated in Table 4.

FIGURES



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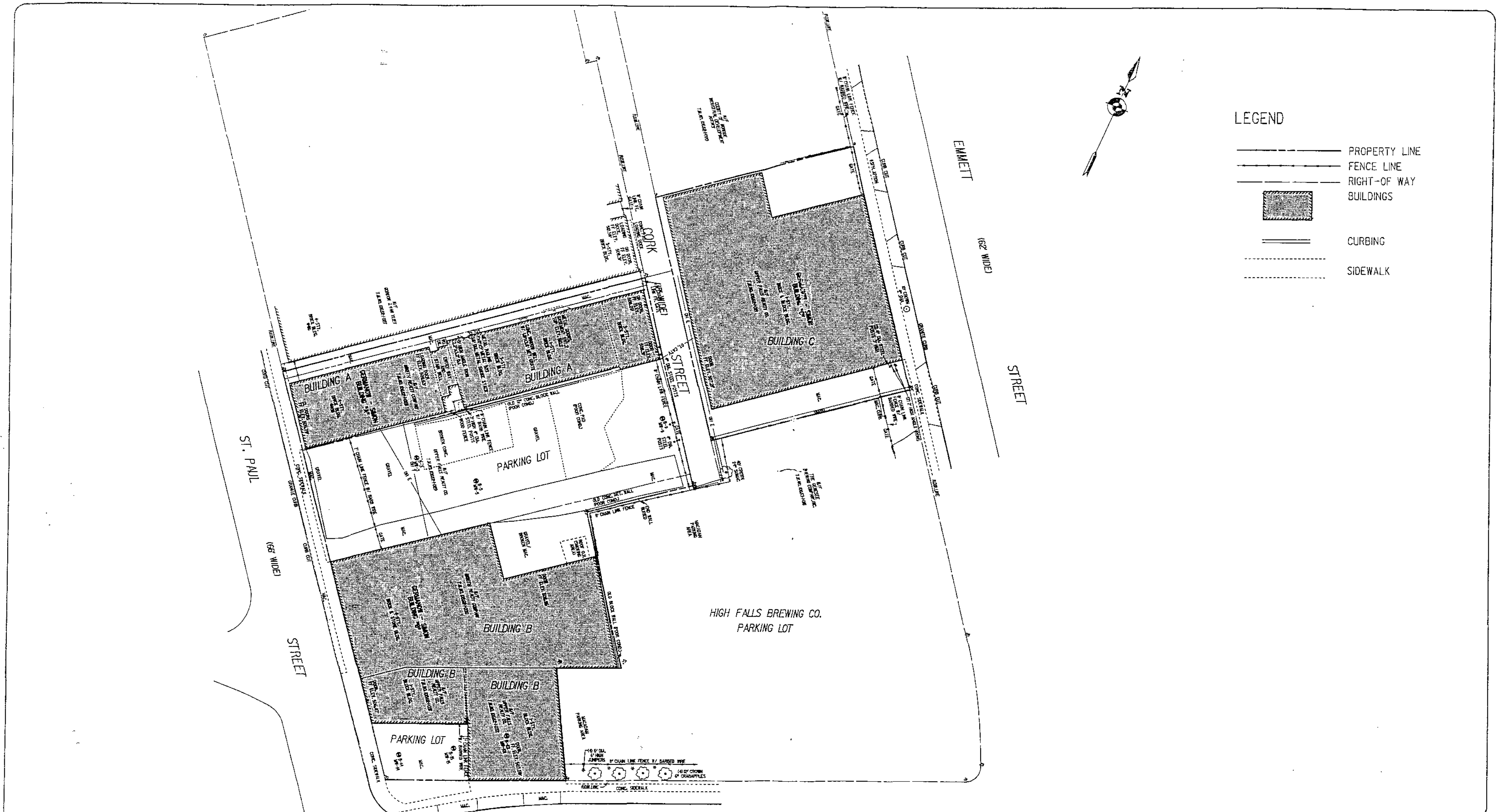
PROJECT: Ward Street Site
Rochester , NY

TITLE OF DRAWING: SITE LOCATION

PROJECT NO. 14052.01

DRAWING NO. Fig. 1



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DRAWING ALTERATION

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT, PROFESSIONAL ENGINEER, LANDSCAPE ARCHITECT, OR LAND SURVEYOR TO ALTER ANY ITEM ON THIS DOCUMENT IN ANY WAY.

ANY LICENSEE WHO ALTERS THIS DOCUMENT IS REQUIRED BY LAW TO AFFIX HIS OR HER SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS OR HER SIGNATURE AND SPECIFIC DESCRIPTION OF THE ALTERATIONS.

PROJECT ENGINEER/ARCHITECT

PROJECT MANAGER
M. STORONSKY

DRAWN BY

SCALE
1" = 60'

FIRST ISSUE DATE

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PROJECT
INVESTIGATION WORK PLAN
WARD STREET SITE
ROCHESTER, NEW YORK

TITLE OF DRAWING
SITE PLAN

PROJECT NO.
14052.01

DRAWING NO.
FIG. 2

PROJECT ENGINEER/ARCHITECT

PROJECT MANAGER
M. Storonsky

DRAWN BY
A. Less

SCALE
N.T.S.

FIRST ISSUE DATE

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PROJECT
Ward Street Site
Rochester , NY

TITLE OF DRAWING
Hospital Route

PROJECT NO.
14052.01

DRAWING NO.
Fig. 3

APPENDIX A
MATERIAL SAFETY DATA SHEETS

M A T E R I A L S A F E T Y D A T A S H E E T TETRACHLOROETHYLENE

SECTION I - Product Identification

PRODUCT NAME: TETRACHLOROETHYLENE FORMULA: CL2C:CCL2 FORMULA WT: 165.83 CAS NO.: 00127-18-4 NIOSH/RTECS NO.: KX3850000 COMMON SYNONYMS: PERCHLOROETHYLENE; ETHYLENE TETRACHLORIDE; CARBON BICHLORIDE; CARBON DICHLORIDE PRODUCT CODES: 9218,9453,9465,5380

Precautionary Labeling

BAKER SAF-T-DATA(TM) SYSTEM HEALTH - 2 FLAMMABILITY - 0 REACTIVITY - 0 CONTACT - 3 (LIFE) LABORATORY PROTECTIVE EQUIPMENT GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES PRECAUTIONARY LABEL STATEMENTS DANGER EXCEPTIONAL CONTACT HAZARD - READ MATERIAL SAFETY DATA SHEET HARMFUL IF INHALED OR ABSORBED THROUGH SKIN NOTE: THIS MATERIAL OR ITS VAPORS IN CONTACT WITH FLAMES OR HOT GLOWING SURFACES MAY FORM CORROSIVE ACID FUMES. DO NOT GET IN EYES, ON SKIN, ON CLOTHING. AVOID BREATHING VAPOR. KEEP IN TIGHTLY CLOSED CONTAINER. USE WITH ADEQUATE VENTILATION. WASH THOROUGHLY AFTER HANDLING.

SECTION II - Hazardous Components

COMPONENT % CAS NO. TETRACHLOROETHYLENE 90-100 127-18-4

SECTION III - Physical Data

BOILING POINT: 121 C (250 F) VAPOR PRESSURE(MM HG): 13 MELTING POINT: -22 C (-8 F) VAPOR DENSITY(AIR=1): 5.83 SPECIFIC GRAVITY: 1.62 EVAPORATION RATE: 2.80 (H2O=1) (BUTYL ACETATE=1) SOLUBILITY(H2O): NEGLIGIBLE (LESS THAN 0.1 %) % VOLATILES BY VOLUME: 100 APPEARANCE & ODOR: COLORLESS LIQUID WITH ETHER OR CHLOROFORM ODOR.

SECTION IV - Fire and Explosion Hazard Data

FLASH POINT: N/A NFPA 704M RATING: 2-0-0 FIRE EXTINGUISHING MEDIA USE EXTINGUISHING MEDIA APPROPRIATE FOR SURROUNDING FIRE. SPECIAL FIRE-FIGHTING PROCEDURES FIREFIGHTERS SHOULD WEAR PROPER PROTECTIVE EQUIPMENT AND SELF-CONTAINED (POSITIVE PRESSURE IF AVAILABLE) BREATHING APPARATUS WITH FULL FACEPIECE. MOVE EXPOSED CONTAINERS FROM FIRE AREA IF IT CAN BE DONE WITHOUT RISK. USE WATER TO KEEP FIRE-EXPOSED CONTAINERS COOL. UNUSUAL FIRE & EXPLOSION HAZARDS CLOSED CONTAINERS EXPOSED TO HEAT MAY EXPLODE. TOXIC GASES PRODUCED HYDROGEN CHLORIDE

SECTION V - Health Hazard Data

THRESHOLD LIMIT VALUE (TLV/TWA): 335 MG/M3 (50 PPM) SHORT-TERM EXPOSURE LIMIT (STEL): 1340 MG/M3 (200 PPM) TOXICITY: LD50 (ORAL-RAT)(MG/KG) - 8850 LD50 (IPR-MOUSE)(MG/KG) - 4700 EFFECTS OF OVEREXPOSURE LIQUID MAY CAUSE DERMATITIS. CONTACT WITH SKIN OR EYES MAY CAUSE SEVERE IRRITATION OR BURNS. INGESTION MAY CAUSE NAUSEA AND VOMITING. INHALATION OF VAPORS MAY CAUSE COUGHING, CHEST PAINS, DIFFICULTY BREATHING OR UNCONSCIOUSNESS. EMERGENCY AND FIRST AID PROCEDURES IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. FLUSH SKIN WITH

WATER.

SECTION VI - Reactivity Data

STABILITY: STABLE HAZARDOUS POLYMERIZATION: WILL NOT OCCUR CONDITIONS TO AVOID: HEAT, SOURCES OF IGNITION, FLAME INCOMPATIBLES: STRONG OXIDIZING AGENTS DECOMPOSITION PRODUCTS: HYDROGEN CHLORIDE

SECTION VII - Spill and Disposal Procedures

STEPS TO BE TAKEN IN THE EVENT OF A SPILL OR DISCHARGE WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING. STOP LEAK IF YOU CAN DO SO WITHOUT RISK. USE WATER SPRAY TO REDUCE VAPORS TAKE UP WITH SAND OR OTHER NON-COMBUSTIBLE ABSORBENT MATERIAL AND PLACE INTO CONTAINER FOR LATER DISPOSAL. FLUSH SPILL AREA WITH WATER. DISPOSAL PROCEDURE DISPOSE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL ENVIRONMENTAL REGULATIONS. EPA HAZARDOUS WASTE NUMBER: U210 (TOXIC WASTE)

SECTION VIII - Protective Equipment

VENTILATION: USE GENERAL OR LOCAL EXHAUST VENTILATION TO MEET TLV REQUIREMENTS. RESPIRATORY PROTECTION: RESPIRATORY PROTECTION REQUIRED IF AIRBORNE CONCENTRATION EXCEEDS TLV. AT CONCENTRATIONS UP TO 500 PPM, A CHEMICAL CARTRIDGE RESPIRATOR WITH ORGANIC VAPOR CARTRIDGE IS RECOMMENDED. ABOVE THIS LEVEL, A SELF-CONTAINED BREATHING APPARATUS IS RECOMMENDED. EYE/SKIN PROTECTION: SAFETY GOGGLES AND FACE SHIELD, UNIFORM, PROTECTIVE SUIT, PROPER GLOVES ARE RECOMMENDED.

SECTION IX - Storage and Handling Precautions

SAF-T-DATA(TM) STORAGE COLOR CODE: BLUE SPECIAL PRECAUTIONS KEEP CONTAINER TIGHTLY CLOSED. STORE IN SECURE POISON AREA.

SECTION X - Transportation Data and Additional Information

DOMESTIC (D.O.T.) PROPER SHIPPING NAME TETRACHLOROETHYLENE (AIR ONLY) HAZARD CLASS ORM-A UN/NA UN1897 LABELS NONE INTERNATIONAL (I.M.O.) PROPER SHIPPING NAME TETRACHLOROETHYLENE HAZARD CLASS 6.1 UN/NA UN1897 LABELS HARMFUL - STOW AWAY FROM FOOD STUFFS

-- (TM) and (R) : Registered Trademarks N/A = Not Applicable OR Not Available The information published in this Material Safety Data Sheet has been compiled from our experience and data presented in various technical publications. It is the user's responsibility to determine the suitability of this information for adoption of necessary safety precautions. We reserve the right to revise Material Safety Data Sheets periodically as new information becomes available.

M A T E R I A L S A F E T Y D A T A S H E E T TRICHLOROETHYLENE

SECTION I - Product Identification

PRODUCT NAME: TRICHLOROETHYLENE FORMULA: C2HCL3 FORMULA WT: 131.40 CAS NO.: 00079-01-6 NIOSH/RTECS NO.: KX4550000 COMMON SYNONYMS: TRICHLOROETHENE; ETHINYL TRICHLORIDE; ACETYLENE TRICHLORIDE TCE PRODUCT CODES: 5376,9458,9454,9455,9464,9473

Precautionary Labeling

BAKER SAF-T-DATA(TM) SYSTEM HEALTH - 3 (CANCER CAUSING) FLAMMABILITY - 1 REACTIVITY - 1 CONTACT - 1 LABORATORY PROTECTIVE EQUIPMENT GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES PRECAUTIONARY LABEL STATEMENTS WARNING HARMFUL IF SWALLOWED OR INHALED CAUSES IRRITATION NOTE: THIS MATERIAL OR ITS VAPORS IN CONTACT WITH FLAMES OR HOT GLOWING SURFACES MAY FORM CORROSIVE ACID FUMES. NOTE: REPORTED AS CAUSING CANCER IN LABORATORY ANIMALS. EXERCISE DUE CARE. AVOID CONTACT WITH EYES, SKIN, CLOTHING. AVOID BREATHING VAPOR. KEEP IN TIGHTLY CLOSED CONTAINER. USE WITH ADEQUATE VENTILATION. WASH THOROUGHLY AFTER HANDLING.

SECTION II - Hazardous Components

COMPONENT % CAS NO. TRICHLOROETHYLENE 90-100 79-01-6

SECTION III - Physical Data

BOILING POINT: 86 C (187 F) VAPOR PRESSURE(MM HG): 58 MELTING POINT: -73 C (-99 F) VAPOR DENSITY(AIR=1): 4.53 SPECIFIC GRAVITY: 1.47 EVAPORATION RATE: N/A (H2O=1) (BUTYL ACETATE=1) SOLUBILITY(H2O): NEGLIGIBLE (LESS THAN 0.1 %) % VOLATILES BY VOLUME: 100 APPEARANCE & ODOR: LIQUID WITH CHLOROFORM ODOR.

SECTION IV - Fire and Explosion Hazard Data

FLASH POINT: N/A NFPA 704M RATING: 1-1-0 FLAMMABLE LIMITS: UPPER - 10.5 % LOWER - 8 % FIRE EXTINGUISHING MEDIA USE EXTINGUISHING MEDIA APPROPRIATE FOR SURROUNDING FIRE. SPECIAL FIRE-FIGHTING PROCEDURES FIREFIGHTERS SHOULD WEAR PROPER PROTECTIVE EQUIPMENT AND SELF-CONTAINED (POSITIVE PRESSURE IF AVAILABLE) BREATHING APPARATUS WITH FULL FACEPIECE. MOVE EXPOSED CONTAINERS FROM FIRE AREA IF IT CAN BE DONE WITHOUT RISK. USE WATER TO KEEP FIRE-EXPOSED CONTAINERS COOL. UNUSUAL FIRE & EXPLOSION HAZARDS CLOSED CONTAINERS EXPOSED TO HEAT MAY EXPLODE. TOXIC GASES PRODUCED HYDROGEN CHLORIDE

SECTION V - Health Hazard Data

SOME EXPERIMENTS WITH TEST ANIMALS INDICATED THAT THIS SUBSTANCE MAY BE ANTICIPATED TO BE A CARCINOGEN. THRESHOLD LIMIT VALUE (TLV/TWA): 270 MG/M3 (50 PPM) SHORT-TERM EXPOSURE LIMIT (STEL): 1080 MG/M3 (200 PPM) TOXICITY: LD50 (ORAL-RAT)(MG/KG) - 4920 LD50 (IPR-MOUSE)(MG/KG) - 3000 EFFECTS OF OVEREXPOSURE INHALATION OF VAPORS MAY CAUSE NAUSEA, VOMITING, HEADACHE, OR LOSS OF CONSCIOUSNESS. INGESTION MAY CAUSE NAUSEA, VOMITING AND LOSS OF CONSCIOUSNESS. EMERGENCY AND FIRST AID PROCEDURES CALL A PHYSICIAN. IF SWALLOWED, IF CONSCIOUS, IMMEDIATELY

INDUCE VOMITING. IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. FLUSH SKIN WITH WATER.

SECTION VI - Reactivity Data

STABILITY: STABLE HAZARDOUS POLYMERIZATION: WILL NOT OCCUR CONDITIONS TO AVOID: HEAT, LIGHT, SOURCES OF IGNITION, FLAME INCOMPATIBLES: CHEMICALLY ACTIVE METALS, STRONG BASES DECOMPOSITION PRODUCTS: HYDROGEN CHLORIDE

SECTION VII - Spill and Disposal Procedures

STEPS TO BE TAKEN IN THE EVENT OF A SPILL OR DISCHARGE WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING. STOP LEAK IF YOU CAN DO SO WITHOUT RISK. USE WATER SPRAY TO REDUCE VAPORS TAKE UP WITH SAND OR OTHER NON-COMBUSTIBLE ABSORBENT MATERIAL AND PLACE INTO CONTAINER FOR LATER DISPOSAL. FLUSH SPILL AREA WITH WATER. DISPOSAL PROCEDURE DISPOSE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL ENVIRONMENTAL REGULATIONS. EPA HAZARDOUS WASTE NUMBER: U228 (TOXIC WASTE)

SECTION VIII - Protective Equipment

VENTILATION: USE GENERAL OR LOCAL EXHAUST VENTILATION TO MEET TLV REQUIREMENTS. RESPIRATORY PROTECTION: RESPIRATORY PROTECTION REQUIRED IF AIRBORNE CONCENTRATION EXCEEDS TLV. AT CONCENTRATIONS UP TO 1000 PPM, A CHEMICAL CARTRIDGE RESPIRATOR WITH ORGANIC VAPOR CARTRIDGE IS RECOMMENDED. ABOVE THIS LEVEL, A SELF-CONTAINED BREATHING APPARATUS IS RECOMMENDED. EYE/SKIN PROTECTION: SAFETY GOGGLES AND FACE SHIELD, UNIFORM, PROTECTIVE SUIT, NEOPRENE GLOVES ARE RECOMMENDED.

SECTION IX - Storage and Handling Precautions

SAF-T-DATA(TM) STORAGE COLOR CODE: BLUE SPECIAL PRECAUTIONS KEEP CONTAINER TIGHTLY CLOSED. STORE IN SECURE POISON AREA.

SECTION X - Transportation Data and Additional Information

DOMESTIC (D.O.T.) PROPER SHIPPING NAME TRICHLOROETHYLENE (AIR ONLY) HAZARD CLASS ORM-A UN/NA UN1710 LABELS NONE REPORTABLE QUANTITY 1000 LBS. INTERNATIONAL (I.M.O.) PROPER SHIPPING NAME TRICHLOROETHYLENE HAZARD CLASS 6.1 UN/NA UN1710 LABELS HARMFUL - STOW AWAY FROM FOOD STUFFS -- (TM) and (R) : Registered Trademarks N/A = Not Applicable OR Not Available The information published in this Material Safety Data Sheet has been compiled from our experience and data presented in various technical publications. It is the user's responsibility to determine the suitability of this information for adoption of necessary safety precautions. We reserve the right to revise Material Safety Data Sheets periodically as new information becomes available.

APPENDIX B
ON-SITE SAFETY MEETING FORMS

ON-SITE SAFETY MEETING

Project: Ward Street Site ____
Date: _______________ Time: _______________ Job No.: ___________
Address: ____

____

Scope of Work: ____

____

____

Weather Temp: ________________ Wind direction/speed: _________
Sky Conditions: ______________________ Humidity: ____________________
Weather Conditions affecting work: _________________________________

____

Safety Topics Discussed

Protective Clothing/Equipment: ______________________________________

____

____

Chemical Hazards: ____

____

Physical Hazardous: ____

____

Personnel/Equipment Decontamination: _______________________________

____

Personnel/Job Functions: ____

____

____

Emergency Procedures: ____

____

____

Special Equipment: ____

____

Other: ____

____

Emergency Phone Numbers/Addresses

Ambulance: 911
Hospital: Genesee Hospital 716-922-6000
Police: 911
Fire Department: 911

On-Site Safety Meeting
ATTENDEES

Name Printed	Signature	Job Function
____________	____________	____________
____________	____________	____________
____________	____________	____________
____________	____________	____________

Meeting Conducted By: ____________ ____________
Name Printed Signature

Site Safety Officer ____________ ____________
Team Leader ____________ ____________

Appendix E

APPENDIX E

COMMUNITY AIR MONITORING PLAN
FOR
INVESTIGATION WORK PLAN
WARD STREET SITE
SITE #:V00271-8
ROCHESTER, NEW YORK

JUNE 2001

Prepared for:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
6274 EAST AVON-LIMA ROAD
AVON, NEW YORK 14414

Prepared on Behalf of:

GERMANOW-SIMON CORPORATION
408 ST. PAUL STREET
ROCHESTER, NEW YORK 14601-0144

Prepared by:

THE SEAR-BROWN GROUP, INC.
85 METRO PARK
ROCHESTER, NEW YORK 14623

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Figures

Figure 1 - Site Location Map

1.0 Introduction

This Community Air Monitoring Plan (CAMP) has been prepared by The Sear-Brown Group (Sear-Brown) on behalf of the Germanow-Simon Corporation, to address potential volatile organic compound (VOC) and particulate air quality issues during intrusive Voluntary Investigation activities planned at the Ward Street Site located in the City of Rochester, Monroe County, N.Y (Figure 1).

The activities planned during the portion of the project covered by this CAMP include drilling activities. Tetrachloroethene (PCE), trichloroethene (TCE) and cis-1,2 dichloroethene (cis 1,2 DCE) are the primary volatile organic compounds of concern that are present, or are potentially present, in the soil and groundwater at the Ward Street Site. Volatilization of these compounds through disturbance of soils and/or groundwater could result in releases to the ambient air creating possible nuisance or exposure risks to the neighborhood. This CAMP details real-time monitoring activities to be carried out during soil boring and monitoring well installations, to minimize the potential for neighborhood exposure to airborne hazards resulting from fugitive emissions during the drilling work.

Pursuant to DEC Division of Hazardous Waste Remediation Technical and Administrative Guidance Memorandum - Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites, (HWR-89-4031), this CAMP addresses the methods that will be implemented to monitor particulate (dust) levels at the perimeter of, and within the work area. In the event elevated particulate levels are encountered, this CAMP identifies the steps that will be taken to rectify the elevated particulate levels.

Air monitoring and response actions for VOCs are also included in this CAMP. VOC monitoring of the work sites will also be conducted as part of the Health and Safety Plan (HASP) that will be implemented during field work by Sear-Brown.

2.0 Methodology

The intrusive investigation activities at the site will consist of drilling. The following programs will be implemented to monitor and, if necessary, control the potential migration of fugitive dust and/or VOCs on the property.

2.1 Perimeter Monitoring

For each day of intrusive field work, a wind sock or flag will be used to monitor wind direction in the area of the work zone. Based upon the daily wind direction, two temporary particulate monitoring points will be identified, one upwind and one downwind of the work area, at the perimeter of the site or drilling location.

Real-time particulate monitoring will be carried out using an MIE PDM-3 MiniRam aerosol monitor, or its equivalent, capable of providing the measurement of airborne particulate matter. VOC monitoring will be done with an HNu Photoionization Detector (PID) fitted with an 10.2 eV lamp. Rainy, damp conditions may eliminate the need for particulate monitoring, as well as reduce the usefulness of the PID.

Prior to the commencement of drilling each day, background measurements of particulate and VOC concentrations will be logged at the up- and downwind locations with the drill rig engine and any other gas/diesel engines operating on site.

Thereafter, readings will be continuous and measurements will be recorded every 30 minutes. These readings will be used to observed the difference between upwind and downwind particulate and VOC levels. If at any time, the difference between the upwind and downwind particulate levels exceed 100 micrograms/cubic meter for particulates or VOC levels downwind exceed upwind levels (adjusted for engine exhaust) by 5 ppm, then work will be temporarily halted and the Contractor will implement dust suppression techniques or any other means necessary to control VOCs, similar to those discussed in Section 2.3.

2.2 Work Area Monitoring

In addition to perimeter monitoring, monitoring for VOCs, particulates and explosivity will be carried out continuously within the work area to monitor personal exposures and to compare work area readings with downwind and upwind readings. The first readings of the day will be obtained prior to the commencement of work to obtain daily background readings. Readings will logged along with the perimeter measurements. Specific monitoring and procedures to be used in the exclusion (work) zone can be found in the Health and Safety Plan (HASP) prepared for the activities at this site.

2.3 Fugitive Dust Control

If the monitoring described in Sections 2.1 or 2.2 result in fugitive particulate levels exceeding 100 micrograms/cubic meter above background, then the drilling Contractor will implement fugitive dust control measures which may include one or more of the following:

- using a water spray at the borehole;
- establishing wind shielding around the borehole;
- slowing down the drilling speed; and/or
- stopping the drilling activities.

2.4 Minor Vapor Emission Response Plan

If the ambient air concentration of organic vapors exceeds 5 ppm above background at the perimeter of the work area, activities will be halted and monitoring continued. If the organic vapor level decreases below 5 ppm above background, work activities can resume, with emphasis given to observing spikes in levels. If the organic vapor levels are greater than 5 ppm over background but less than 25 ppm over background at the perimeter of the work area, activities can resume provided:

- the organic vapor level 200 ft. downwind of the work area or half the distance to the nearest residential or commercial structure, whichever is less, is below 5 ppm over background. (The location of structures in the subject neighborhood may not allow the 200 ft. buffer zone to be used).

If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown. When work shutdown occurs, downwind air monitoring as directed by the Safety Officer will be implemented to evaluate if the vapor emission levels exceed those specified in Section 2.5, Major Vapor Emission Response Plan.

2.5 Major Vapor Emission Response Plan

If total organic vapor levels greater than 5 ppm over background are identified 200 feet downwind from the work area or half the distance to the nearest residential or commercial structure, which ever is less, all work activities must be halted.

If, following the cessation of the work activities, or as the result of an emergency, organic vapor levels greater than 5 ppm above background persist 200 feet downwind or half the distance to the nearest residential or commercial structure, then the air quality must be monitored within 20 feet of the perimeter of the nearest residential or commercial structure (20 foot zone).

If efforts to abate the emission source area are unsuccessful and if the organic vapors levels continue to persist at or near 5 ppm above background for more than 30 minutes in the 20 foot zone, then the Major Vapor Emission Response Plan shall automatically be placed into effect.

The Major Vapor Emission Response Plan shall also be immediately placed into effect if organic vapor levels are greater than 10 ppm above background at the 20 foot zone.

Upon activation, the following activities will be undertaken:

1. All Emergency Response Contacts as listed in the Health and Safety Plan will go into effect.

2. The local police authorities will immediately be contacted by the Safety Officer and advised of the situation. Evacuation or neighborhood notification plans can be discussed at that time.

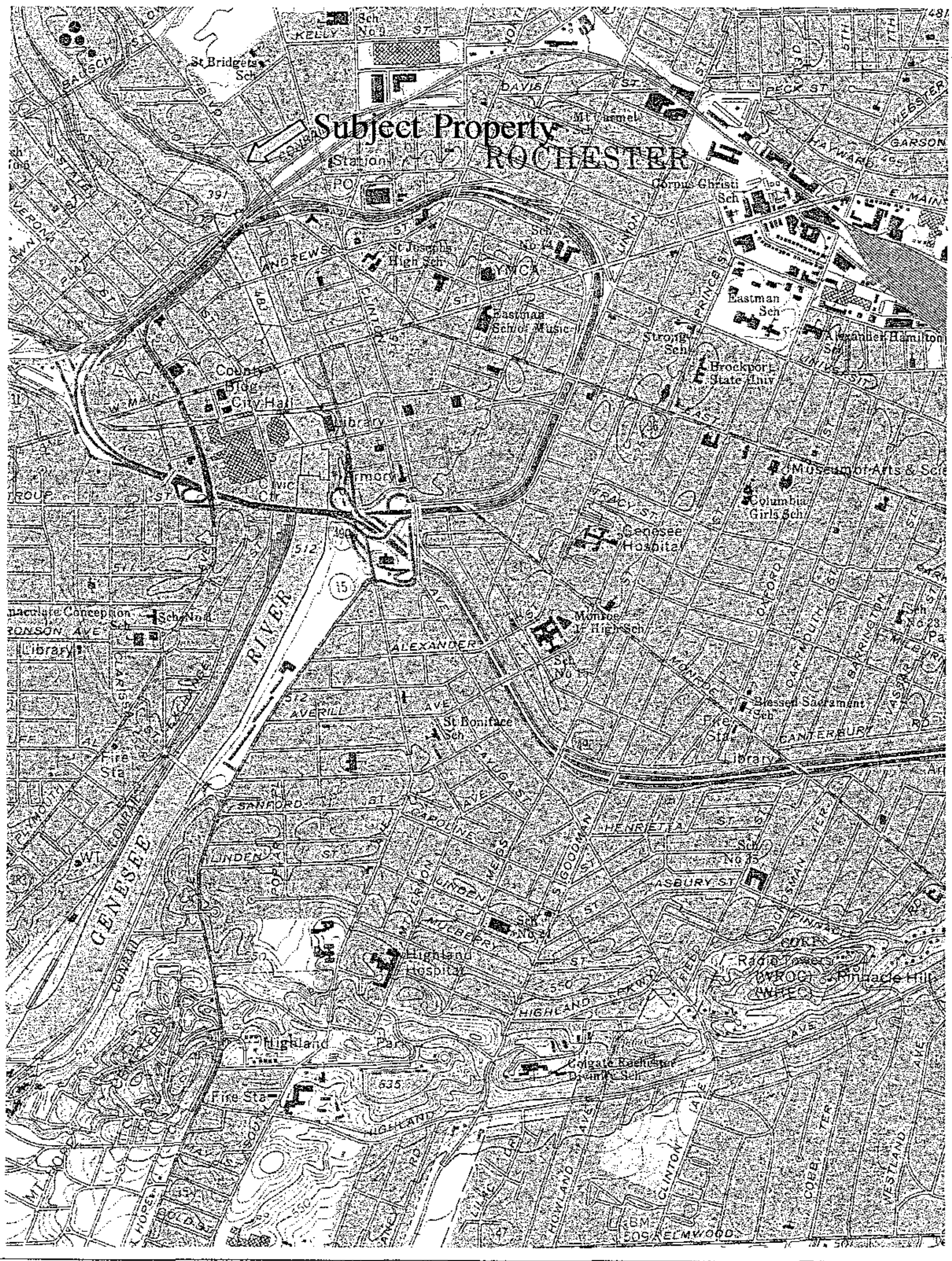
3. Air monitoring will be conducted at 30 minutes intervals within the 20 foot zone. If two successive readings below action levels are measured, air monitoring may be halted or modified by the Safety Officer.

3.0 Record Keeping and Quality Control

For the duration of the field activities, a monitoring log book will be kept to record calibration, operational notes and monitoring readings. The results of the Community Air Monitoring Program will be incorporated by Sear-Brown into the required reports pursuant to the terms and conditions of the Voluntary Agreement.

Instrumentation will be calibrated and/or operationally checked, either daily or at intervals recommended by the manufacturer. Only approved calibration gases will be used. All operators will have been trained in the proper use, maintenance, limitation, and interpretation of results of the monitoring equipment.

FIGURES



PROJECT ENGINEER/ARCHITECT

PROJECT MANAGER
M. Storonsky

DRAWN BY
C. Shea

SCALE
N.T.S.

FIRST ISSUE DATE

SEAR·BROWN
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Rochester, N.Y. 14623-2674
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PROJECT
Ward Street Site
Rochester , NY

TITLE OF DRAWING
SITE LOCATION

PROJECT NO.
14052.01

DRAWING NO.
Fig. 1

Appendix F

APPENDIX F

EMFLUX SOIL GAS COLLECTOR INSTALLATION AND RETRIEVAL INSTRUCTIONS FOR WARD STREET SITE ROCHESTER, NEW YORK

JUNE 2001

Prepared for:

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
6274 EAST AVON-LIMA ROAD
AVON, NEW YORK 14414-9519

Prepared on Behalf of:

GERMANOW-SIMON
408 ST. PAUL STREET
ROCHESTER, NEW YORK 14601-0144

Prepared by:

THE SEAR-BROWN GROUP, INC.
85 METRO PARK
ROCHESTER, NEW YORK 14623

STANDARD EMFLUX FIELD PROCEDURES

EMFLUX Soil-Gas Detection System

FIELD KIT GUIDE
for
EMFLUX SOIL-GAS INVESTIGATION

[PLEASE READ ENTIRE GUIDE BEFORE STARTING SURVEY]

I. General Information

A. **BEACON** is furnishing this Kit to **Environmental Company, Inc. (ECI)** specifically for use on the client property. To obtain optimum results it is critically important that the sampling devices be deployed in accordance with the specific timing parameters determined by the EMFLUX predictive model. If deployment of the devices is delayed, please contact us as soon as possible. **BEACON's** phone number is (800) 878-5510. [**Note**: To meet personal or work schedules. the collectors may be deployed days prior to and retrieved days following the specified dates.]

B. It is also essential that, prior to returning the Kit to **BEACON**, **ECI** seal the EMFLUX sorbent cartridges in the Sampler Vials provided and return the vials and holders sealed in the inner and outer plastic component bags.

C. Before going to the field please inventory the contents of the Kit, checking them against the enclosed list to verify item counts and to become familiar with all components. (Because the components are thoroughly cleaned prior to shipment, the inventory should be conducted without opening the plastic bags.) Note that Trip Blanks are to remain sealed throughout the Survey.

D. **BEACON** requests that **ECI** sign and date the enclosed Chain-of-Custody Form immediately upon receipt of the Kit, fill out the Field Deployment Report during the course of the survey, and, after signing the release section of the Chain-of-Custody Form, return both documents to the company, together with a scaled Site Map showing precise sample locations.

E. Upon completion of the Survey, please pack the Collectors, equipment, and requisite documentation in the Field Kit. Affix the provided custody seal, complete the provided FedEx airbill, and ship the Field Kit to the following address:

BEACON Environmental Services, Inc.
Attn: Sample Receiving
19 Newport Drive, Ste. 102
Forest Hill, MD 21050
410-838-8780

NOTE: DO NOT PACK IN THE KIT SYTRENE PEANUTS OR OTHER MATERIALS WHICH COULD CONTAMINATE THE SAMPLES.

II. Contents

A. This EMFLUX Field Kit contains the components needed for a 100-point soil-gas survey, plus sufficient additional cartridges for four trip blanks (labeled Trip-1 through Trip-4, not to be opened), and six extra unnumbered sample for use in the event of breakage or accidental contamination. In addition, six extra transport vials are provided in case a Sampler Vial breaks during retrieval. Assuming that instructions are followed, due care is exercised in QA/QC procedures, and timing schedules are observed, the Kit provides users with an extremely accurate and reliable soil-gas system. Do not open bags until deployment.

Code/Item		Quantity
(1)	EMFLUX SAMPLE CARTRIDGES	110
(2)	EXTRA TRANSPORT VIALS	6
(3)	SAMPLING CAPS (in container)	103
(4)	CAP STORAGE CONTAINERS	3
(5)	TAPPING DOWELS	3
(6)	STAKES	3
(7)	8" LENGTHS OF COPPER PIPE	50
(8)	WIRE CUTTERS	3
(9)	GAUZE CLOTHS	103
(10)	COPPER PIPE CUTTER	4

B. In addition to the materials found in the kit, field teams will need:

- HAMMER
- PLIERS and TROWEL (to assist in retrieving Collectors)
- BALL-POINT PEN
- PIN FLAGS, WOODEN STAKES, or OTHER LOCATION MARKERS

C. Additional materials necessary only for deployment through asphalt, concrete, or, when necessary, gravel.

- ELECTRIC ROTARY HAMMER DRILL WITH 1"- to 1 1/2"-DIAMETER BIT
- ROLL OF ALUMINUM FOIL
- CONCRETE MORTAR MIX and ASSOCIATED EQUIPMENT (for temporary patching of the sample holes)
- CHISEL or SCREWDRIVER (to remove the temporary patch)
- ASPHALT COLD PATCH or CEMENT (for final repair of the sample holes)

III. INSTRUCTIONS

A. GENERAL:

Deployment and retrieval of EMFLUX Collectors requires only one person. Separate step-by-step procedures are detailed below for sampling through vegetation or bare soils and for sampling in areas covered by asphalt, concrete, or gravel. For ease during deployment and retrieval, remove the outer plastic bags surrounding the Collectors; however, rebag the Collectors between deployment and retrieval and before shipping the samples. Keep exposure of sample cartridges to ambient air to a minimum.

Note: Do not deploy collectors within 10 feet of a monitoring well, penetrometer, hydropunch shaft, or other intrusive sampling apparatus that potentially creates a preferential pathway for gases

REMEMBER:

THE TRIP BLANKS ARE NOT TO BE OPENED.

B. COLLECTOR DEPLOYMENT:

Vegetation or Bare Soils:

1. At each survey point, clear vegetation as necessary and, using a hammer and the pointed metal stake provided in the Field Kit, create a hole approximately four inches deep.

2. Remove one of the Collectors (a glass vial containing **two hydrophobic adsorbent cartridges**) and unwind the retrieval wire wrapped around it. Holding the capped end of the Collector in one hand, pull the wire tight (to straighten it) with the other hand. Remove the solid cap on the Sampler Vial and replace it with a Sampling Cap (a one-hole cap with a screen meshing insert). Place the solid cap in the Field Kit.

3. Remove the metal stake from the hole in the ground and insert the Collector with the capped-end pointing down. Push the Collector completely into the hole (twisting clockwise to prevent the Sampling Cap from coming off) until it is buried approximately ¼" below the ground surface. Cover the Collector with soil or sand (see **attached figure**). Place the solid cap in the Cap Storage Container. Using the wire cutters, cut any unnecessary wire sticking out above the ground. [**Note:** The wire is useful in locating the Collector.]

4. Close the Field Kit, and on the Field Deployment Report record: (a) sample-point number; (b) date and time of emplacement (to nearest minute); and (c) other information deemed relevant (*e.g.*, unusual weather or ground conditions). Be sure to mark the sample location and take detailed notes (*i.e.*, compass bearings and distances from fixed reference points).

5. Move to next location.

Concrete, Asphalt, or Gravel Covered Areas:

1. At each survey point, drill a 1"- to 1 1/2"-diameter hole through the asphalt/concrete/gravel to bare soil using a rotary hammer drill or comparable equipment. **Note**: It is often more efficient to drill all sample-point holes before beginning collector deployment.

2. When the hole through concrete/asphalt/gravel has been completed, take an 8-inch length of 3/4-inch-inside-diameter copper pipe and lower it into the sample hole, being careful not to touch the inside of the pipe. Any portion of pipe above grade is cut flush with ground surface, using the copper pipe cutter. With the tapping dowel and a hammer, push or tap the pipe into the base of the drilled hole, creating a snug fit.

3. Remove one of the Collectors (a glass vial containing **two hydrophobic adsorbent cartridges**) and unwind the retrieval wire wrapped around it. Holding the capped end of the Collector in one hand, pull the wire tight (to straighten it) with the other hand. Remove the solid cap on the Sampler Vial and replace it with a Sampling Cap (a one-hole cap with a screen meshing insert). Place the solid cap in the Field Kit.

4. Lower the Collector, open-end down, into the copper pipe and bend the end of the wire so that is rests just below the top of the pipe. Plug the top of the hole with a wad of aluminum foil and using the tapping dowel push down the aluminum foil so it forms a seal on the copper pipe. Cover the hole to grade with a 1/4" thick concrete patch. [**Note**: A 1/4" thick patch is all that is required. If it is thicker it will be more difficult to remove during retrieval.] If sampling through gravel, cover the aluminum foil with local soil or sand; however, clearly mark the sample location. Next, place the solid cap in the Cap Storage Container.

5. Close the Field Kit, and on the Field Deployment Report record: (a) sample-point number; (b) date and time of emplacement (to nearest minute); (c) type of surfacing and approximate thickness; and (d) other information deemed relevant (e.g., unusual weather or ground conditions).

6. Move to next location.

C. COLLECTOR RETRIEVAL:

Vegetation or Bare Soils:

1. At each sample point open the Field Kit within easy reach. Remove a square of guaze cloth and place it on the open Kit. Remove a solid cap from the Cap Storage Container and place it on the Kit, also.

2. Using pliers (and a trowel, if necessary), retrieve the Collector from its hole by first pulling on the retrieval wire, then by twisting the Vial clockwise (to prevent the Sampling Cap from coming off).

3. Holding the Collector upright, clean the sides of the vial with the gauze cloth (especially close to the Sampling Cap). Remove the Sampling Cap, cut the wire from the vial with the wire cutters, and clean the vial threads completely.

4. Firmly screw the solid cap on the Sampler Vial and clean the vial completely with the gauze cloth. With a ball-point pen record the sample number, corresponding to the sample location, on the label on the cap.

5. On the Field Deployment Report, record: (a) date and time of retrieval (to nearest minute); and (b) any other information deemed relevant.

6. Return the sampling cap to the Sampling Cap container. Fill the sampling hole with soil, sand, or other suitable material.

7. After all samples have been retrieved, verify that the bags containing Collectors have been properly sealed and place them and the provided equipment in the Field Kit. Stow the remaining components in the lower compartment of the Field Kit.

   Note: It is not necessary to return the gauze pads with the Field Kit, but return *all* the other materials and equipment (tools, containers, sampling caps, *etc.*).

Asphalt, Concrete, or Gravel:

1. At each sample point covered by gravel, clear away the soil or sand to expose the aluminum-foil-capped copper pipe. For those locations covered by asphalt or concrete, use a chisel and hammer to remove the concrete patch to expose the aluminum foil.

2. Next, open the Field Kit and place it and the wire cutters within easy reach. Remove a square of gauze cloth from its box and place it on the open Kit. Remove a solid cap from the Cap Storage Container and place it on the Kit, also.

3. Remove the aluminum-foil cap and retrieve the Collector from the pipe. Holding the Collector upright, clean the sides of the vial with the gauze cloth (especially close to the Sampling Cap). Remove the Sampling Cap, cut the wire from the vial with the wire cutters, and clean the vial threads completely.

4. Firmly screw the solid cap on the Sampler Vial and clean the vial completely with the gauze cloth. With a ball-point pen record the sample number, corresponding to the sample location, on the label on the cap.

5. On the Field Deployment Report, record: (a) date and time of retrieval (to nearest minute); and (b) any other information deemed relevant.

6. Return the sampling cap to the Sampling Cap container. Retrieve the pipe from the hole and stow materials in the Field Kit. Move to next location.

7. After all samples have been retrieved, verify that the solid caps are screwed tightly onto the Sampler Vials, rebag the Collectors, and place them in the Field Kit. Stow the remaining components (including tools) in the Field Kit.

   Note: It is not necessary to return the copper pipes or the gauze pads with the Field Kit, but return *all* the other materials and equipment (tools, containers, sampling caps, *etc.*).

8. Fill sampling holes to grade with an asphalt cold patch or cement.

IV. Forms

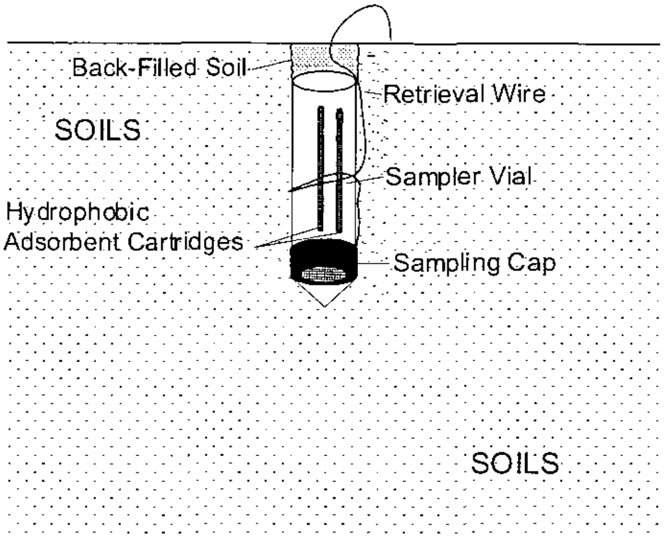
The Field Kit also contains a Chain-of-Custody Form and a Field Deployment Report.

A. The Chain-of-Custody Form is to be completed in accordance with Section I.

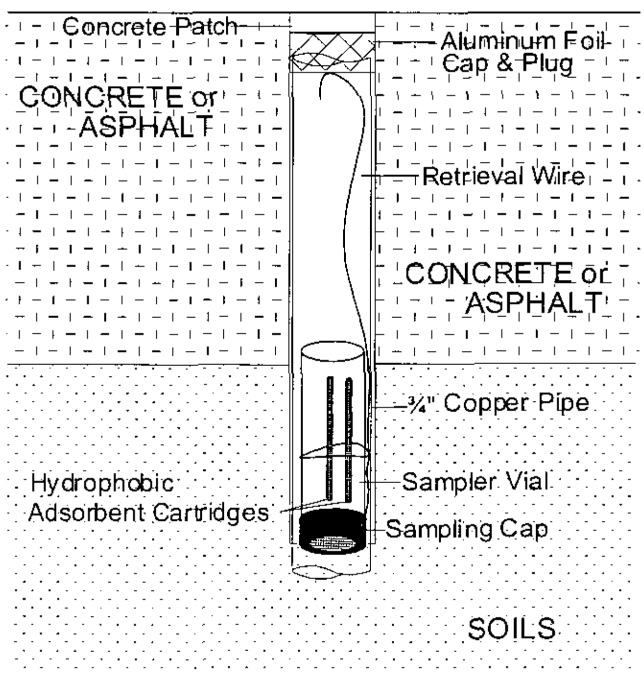
B. The Field Deployment Report is to be filled out as indicated in Section III.

EMFLUX® COLLECTOR

DEPLOYMENT IN SOILS



DEPLOYMENT THROUGH CONCRETE OR ASPHALT



1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

WSFDBAMS

Lab Name: STL Buffalo Contract:

Lab Code: RECNY Case No.: 0455 SAS No.: SDG No.: 012100

Matrix: (soil/water) SOIL Lab Sample ID: A0045501MS

Sample wt/vol: 30.8 (g/mL) G Lab File ID:

% Moisture: 4 decanted: (Y/N) N Date Received: 01/21/00

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/25/00

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 02/02/00

Injection Volume: 1.00 (uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 6.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	86	U
319-85-7	beta-BHC	86	U
319-86-8	delta-BHC	86	U
58-89-9	gamma-BHC (Lindane)	19	J
76-44-8	Heptachlor	23	JP
309-00-2	Aldrin	4.6	JP
1024-57-3	Heptachlor epoxide	86	U
959-98-8	Endosulfan I	86	U
60-57-1	Dieldrin	28	JP
72-55-9	4,4'-DDE	170	U
72-20-8	Endrin	30	JP
33213-65-9	Endosulfan II	170	U
72-54-8	4,4'-DDD	170	U
1031-07-8	Endosulfan sulfate	170	U
50-29-3	4,4'-DDT	120	JP
72-43-5	Methoxychlor	860	U
53494-70-5	Endrin ketone	170	U
7421-93-4	Endrin aldehyde	170	U
5103-71-9	alpha-Chlordane	86	U
5103-74-2	gamma-Chlordane	86	U
8001-35-2	Toxaphene	8600	U
12674-11-2	Aroclor-1016	1700	U
11104-28-2	Aroclor-1221	3400	U
11141-16-5	Aroclor-1232	1700	U
53469-21-9	Aroclor-1242	1700	U
12672-29-6	Aroclor-1248	1700	U
11097-69-1	Aroclor-1254	3100	P
11096-82-5	Aroclor-1260	1700	U