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Rochester, NY 14623-4264

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27 March 2008
File No. 70665-012

New York State Department of Environmental Conservation
Region 8
Division of Environmental Remediation
6274 East Avon-Lima Road
Avon, New York 14414-9519

Attention: Mr. Frank Sowers, P.E.

Subject: Soil Vapor Investigation Work Plan
CooperVision, Inc.
Scottsville, New York
(VCA Site #V00175-8)

Ladies & Gentlemen:

Haley & Aldrich is pleased to submit this Soil Vapor Investigation Work Plan for the CooperVision, Inc. Facility in Scottsville, New York. This work is being pursued under a Voluntary Cleanup Agreement (VCA) between CooperVision, Inc, and the New York State Department of Environmental Protection (NYSDEC), which was executed by NYSDEC in May 2001 for the above referenced site ("the Site"). This Work Plan is a follow-up to our meeting with the NYSDEC and the New York State Department of Health (NYSDOH) that occurred in late February 2008. We are seeking review and approval of the Work Plan to allow its implementation coincident with our normal semi-annual monitoring to be completed in April 2008. We'd appreciate NYSDEC and NYSDOH timely review and approval to facilitate implementation.

This Work Plan contains the following:

- A brief site description and recent project history that relates to the work plan activities,
- A work plan for soil vapor investigation.
- Reporting, notification, and scheduling information related to the proposed investigation activities.

Please contact the undersigned with any questions you may have and thank you for the opportunity to continue assisting with this project.

Sincerely yours,
HALEY & ALDRICH OF NEW YORK

Susan L. Boyle
Senior Engineer

Vincent B. Dick
Vice President

cc: Julia M. Kenney; New York State Department of Health
Bernie Hallatt; CooperVision, Inc.
Dennis Snyder; CooperVision, Inc.
Tarun Patel; CooperVision, Inc.
Carol Kaufman; CooperVision, Inc.

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New York State Department of Environmental Conservation
Division of Environmental Remediation, Region 8
6274 East Avon-Lima Road, Avon, New York 14414-9519
Phone: (585) 226-2466 • **FAX:** (585) 226-8696
Website: www.dec.ny.gov

Alexander B. Grannis
Commissioner

April 22, 2008

Mr. Christopher H. Marraro, Esq.
Howrey, LLP
1299 Pennsylvania Avenue, NW
Washington, DC 20004-2402

Dear Mr. Marraro:

Re: CooperVision Site #V00175-8
Soil Vapor Investigation Work Plan; March 27, 2008
Village of Scottsville, Monroe County

The New York State Department of Environmental Conservation (NYSDEC) has completed its review of the Soil Vapor Investigation Work Plan (the Work Plan) dated March 27, 2008 prepared by Haley & Aldrich of New York (H&A) for the CooperVision facility located in the Village of Scottsville, Monroe County. Based upon the information and representations given in the Work Plan, the Work Plan is hereby approved as modified below:

1. Section 1.1: The phrase "likely resulting from activities by a former owner that occupied the property and used it for manufacturing beginning in the mid-1970s" is deleted.

2. Section 1.3 and Section 2.1: Based on the results from locations SV-3 through SV-7, step-out sampling may be necessary to confirm the modeled extent of the plume (i.e., non-detect for volatile organic compounds). Should the step-out sample results indicate that the soil vapor plume extends beyond the modeled extent (or if the modeled extent is beyond off-site structures), then additional samples to evaluate the potential for soil vapor intrusion may include structure sampling in off-site structures.

3. Section 2.2.2: Chloroethane and vinyl chloride are added to the target compound list.

4. Section 2.2.2: The minimum reporting limit for each compound will be 1 microgram per cubic meter.

5. Section 2.2.2: The soil vapor and ambient air results will be reported in units of micrograms per cubic meter.

6. Section 2.2.2: The analytical results obtained from confirmation sample locations indicating that the soil vapor plume is fully delineated shall be validated with an ASP-B format data package and a Data Usability Summary Report that will be submitted with the confirmatory sampling results.

7. Section 2.2.2: The sample duration for each canister will be a minimum of two hours (not one hour).

8. Section 2.2.2: A soil probe construction log will be completed for each soil vapor sample location and included in the report.

9. Section 2.2.2: Field logs will be completed and included in the report. Field logs will include the information specified in the October 2006 Soil Vapor Intrusion Guidance (see page 21) as well as results from the tracer gas tests, a summary of PID readings collected during implementation of the Community Air Monitoring Program, and any other significant observations.

10. Section 2.2.2: Soil vapor sample point locations will be selected in the field and approved by the NYSDEC site representative. The sample locations will be biased toward potential receptors and preferential pathways (e.g., underground utilities as identified by the utility stakeout) and sample depths from one of the intervals will be representative of the lowest level (e.g., basement) in the closest off-site structure, to the extent possible.

11. Section 2.2.2: Prior to sending the samples to the laboratory, field staff will confirm that a negative pressure remains in each canister. Initial and final vacuum readings will be documented and included in the report.

12. Section 2.2.3: In the event that the soil vapor samples are collected over multiple days, an ambient air sample will be collected each day.

13. Section 2.3 and Section 3.1: The confirmatory and step-out soil vapor samples will be collected following the same procedures as the initial soil vapor samples, including use of tracer gas, collection of an ambient air sample, sample volume and collection periods, compound list for analysis, minimum reporting limits, field documentation, and use of the Health and Safety Plan and Community Air Monitoring Plan. As previously discussed, the analytical results obtained from confirmation sample locations indicating that the soil vapor plume is fully delineated shall be validated with an ASP-B format data package and a Data Usability Summary Report.

14. Section 3.2: Consider including locations MW-2, MW-501, SV-1 and SV-2 in the confirmatory re-sampling program in order to evaluate the temporal variability of the attenuation factor.

15. Section 3.2: NYSDEC does not object to CooperVision collecting the proposed data to calculate the site specific attenuation factor. Once the attenuation factor has been developed, NYSDEC and the New York State Department of Health will review the results and determine if the attenuation factor approach can be used to determine a maximum allowable groundwater concentration that would be protective of human health and the environment, for particular use during groundwater monitoring via the Site Management Plan.

16. Section 5: The Community Air Monitoring Plan included in the February 2001 CooperVision VCA Remediation Work Plan will be followed during all ground intrusive activities, including soil probe construction.

17. The schedule will be as specified below. These dates represent an assumed "worst case" and CooperVision is encouraged to complete tasks ahead of schedule where feasible. This schedule was developed so that soil vapor intrusion sampling of off-site structures could be completed in the 2008/2009 heating season, if necessary. This schedule is also meant to address NYSDEC's concerns with soil vapor migration. Other issues, such as additional HRC injections, will be addressed separately.

TASKS	**TARGET DATES**
NYSDEC sends Fact Sheet notifying community of soil vapor sampling	Week of April 21, 2008
Spring groundwater sampling, soil probe installation, soil vapor and ambient air sample collection	Week of April 28, 2008
Lab data submitted to H&A	Week of May 26, 2008
Lab data shared with NYSDEC	Week of May 26, 2008
Summary report (includes soil vapor, ambient air, and groundwater results along with logs and other supporting documentation) submitted to NYSDEC	Week of June 16, 2008
Confirmatory re-sampling	Week of July 14, 2008
Lab data submitted to H&A	Week of August 11, 2008
Lab data shared with NYSDEC	Week of August 11, 2008
NYSDEC makes preliminary determination if "step-out" samples are needed.	Week of August 18, 2008
Re-sampling summary report (includes soil vapor and ambient air results (and groundwater results if additional groundwater samples were collected) along with logs and other supporting documentation) submitted to NYSDEC	Week of September 1 (may be later if NYSDEC's preliminary determination is that step-out samples are not needed contingent upon data validation confirming results are non-detect)

If step-out sampling needed:	
Step-out sampling work plan showing estimated non-detect line and proposed sample locations submitted to NYSDEC.	Week of September 8, 2008
NYSDEC approves work plan	Week of September 29, 2008
NYSDEC sends Fact Sheet notifying community step-out sampling (optional)	Week of October 13, 2008
Step out sampling completed in conjunction with the fall groundwater sampling event	Week of October 20, 2008
Lab data submitted to H&A	Week of November 17, 2008
Lab data shared with NYSDEC	Week of November 17, 2008
NYSDEC makes preliminary determination if vapor intrusion samples (sub-slab soil vapor, indoor air and ambient air) are needed at structures.	Week of December 1, 2008
Step-out sampling summary report submitted to NYSDEC	Week of December 8, 2008 (may be later if NYSDEC's preliminary determination is that structure samples are not needed contingent upon data validation confirming results are non-detect)
If structure sampling needed:	
Vapor intrusion work plan for selected structures submitted to NYSDEC	Week of January 5, 2009
NYSDEC approves vapor intrusion work plan	Week of January 26, 2009
NYSDEC sends Fact Sheet notifying community of vapor intrusion sampling (optional)	Week of February 9, 2009
Vapor intrusion sampling completed	Week of February 16, 2009
Lab data submitted to H&A	Week of March 9, 2009
Lab data shared with NYSDEC	Week of March 9, 2009
Vapor intrusion sampling summary report submitted to NYSDEC	Week of March 30, 2009
NYSDEC, NYSDOH and CooperVision identify next steps.	To be determined

Based on discussions with H&A, it is understood that field work is scheduled to start the week of April 28, 2008. Please note that NYSDEC will be preparing a Fact Sheet to notify the community of the soil vapor sampling work. Please do not start field work until the Fact Sheet has been sent to the community. Additionally, please notify me at least 5 business days in advance of all field activities.

Please contact me at (585) 226-5357 if you have any questions regarding these modifications to the Work Plan or if CooperVision does not accept these modifications.

Sincerely,

Frank Sowers, P.E.
Environmental Engineer 2

cc:
Vince Dick (Haley & Aldrich)
Claire DeBergalis (Haley & Aldrich)
Tarun Patel (CooperVision)
Susan Boyle (Haley & Aldrich)
file

ec:
Bart Putzig
Jim Charles
Julia Kenney
Joe Albert

SOIL VAPOR INVESTIGATION WORK PLAN
COOPERVISION, INC.
SCOTTSVILLE, NEW YORK
(VCA SITE #V00175-8)

by

Haley & Aldrich of New York
Rochester, New York

for

New York State Department of Environmental Conservation, Region 8
Avon, New York

File No. 70665-012
March 2008

HALEY & ALDRICH

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1 INTRODUCTION

1.1 Project Description

The CooperVision facility is located at 711 North Road in Scottsville, New York on an approximately 5.4 acre parcel of land (See Figures 1 and 2). The property includes an original building with additions having a total area of approximately 50,000 sq. ft. Soil and groundwater on some portions of the property have been found to be impacted by volatile organic compounds (VOCs), primarily 1,1,1-trichloroethane (TCA), likely resulting from activities by a former owner that occupied the property and used it for manufacturing beginning in the mid-1970s.

CooperVision, Inc. applied to the NYSDEC for participation in New York State's Voluntary Cleanup (VC) Program for the CooperVision facility. In determining eligibility, the NYSDEC reviewed a report entitled Report on Site Environmental Investigations prepared by Haley & Aldrich, dated 23 April 1998, describing previous investigations of the site. By letter dated 21 July 1998, NYSDEC notified CooperVision that it was eligible for participation in the VC program. The NYSDEC's review comments, dated 22 July 1998, contained requests for certain additional information and investigations. On 10 August 1998, and again on 1 September 1998, CooperVision submitted to NYSDEC written responses to the Agency's comments.

Upon being deemed an eligible Volunteer, an Investigative Work Plan dated 8 January 1999 as well as addenda dated 18 March 1999 and 3 September 1999 were submitted to the NYSDEC that described investigations that CooperVision would conduct in response to the NYSDEC's review comments. The Investigative Work Plan and addenda were subsequently approved by the NYSDEC and became an appendix to an investigation VCA for implementation of the investigation described herein, entered into between the NYSDEC and CooperVision.

Remedial activities completed at the CooperVision Site to-date, which included enhanced bio-remediation using Hydrogen Release Compound (HRC) and the installation of a sub-slab depressurization system, are described in the Preliminary Report on Remediation Activities dated 10 April 2002 and the Draft Final Engineering Report (FER) dated 7 May 2007.

1.2 Recent Activities

The Draft FER and Operations Maintenance and Monitoring (OM&M) Plan, both dated 7 May 2007 were submitted to the NYSDEC for review in June 2007. The NYSDEC provided comments to the documents in a letter dated 21 August 2007 to which Haley & Aldrich responded on behalf of CooperVision in a letter dated 11 October 2007. A meeting with the NYSDEC, the New York State Department of Health (NYSDOH), CooperVision, and Haley & Aldrich followed on 30 October 2007. The purpose of the meeting and associated correspondence was to discuss the two main concerns the NYSDEC had with the project thus far:

1. Residual source area concentrations
2. The potential for offsite migration of contaminated groundwater and vapor as a result of contaminant concentrations detected in MW-204 on the easternmost side of the Site.

Groundwater monitoring has occurred at the Site since 1997. In October 2006, concentrations of chlorinated compounds in MW-204, the easternmost downgradient well located along the eastern property boundary (see Figure 2), 1,1-dichloroethane (1,1-DCA), 1,1-dichloroethene (1,1-DCE), and 1,1,1-trichloroethane (TCA) were detected at levels higher than what has historically been detected in this well. Haley & Aldrich attributed this unique increase to low

groundwater elevations. Since the 2006 sampling and results, the chlorinated compound detections have decreased to low levels; consistent with what otherwise historically had been detected in this well.

Even though the chlorinated compound detections have decreased, the NYSDEC and NYSDOH expressed that the continued presence of contaminants in MW-204 may be indicative of the presence of soil vapor that should be assessed relative to off-site buildings beyond the eastern property boundary.

The NYSDEC submitted a letter to CooperVision dated 6 December 2007 requesting a work plan to investigate the potential soil vapor concern. After an exchange of correspondence relative to technical approach to be followed, a second meeting was held in Albany, NY on 14 February 2008 between CooperVision, Haley & Aldrich, the NYSDOH, and the NYSDEC (the latter via telephone) to further discuss a proposed work scope to investigate soil vapor along the property boundary. The resulting work plan is detailed herein.

1.3 Work Plan Objectives

The objectives of soil vapor investigation work plan are listed below and discussed in the following sections of this document.

- Present a plan for soil vapor investigation along the easternmost property boundary and right-of-way beyond the boundary.

- From the collected data, determine a site-specific soil vapor attenuation factor. The attenuation factor can then be used to calculate potential soil vapor concentrations beyond the sampled area (presuming that there are detections in soil vapor in the samples performed). The calculated values would be checked with follow-up confirmation samples. The results, once confirmed could then be used to determine a maximum allowable groundwater concentration that would be protective of human health and the environment, for particular use during groundwater monitoring via the Site Management Plan.

2 SOIL VAPOR INVESTIGATION WORK SCOPE

2.1 Investigation Elements

- To determine if there are detectable soil vapor concentrations present at the eastern property boundary of the CooperVision facility and perform appropriate confirmation sampling of results.

- To obtain paired groundwater and soil vapor data to be used for calculation of a site-specific groundwater-to-soil vapor attenuation factor.

- From the attenuation factor calculations, to project a "non-detect" line on the eastern portion of the CooperVision Site with respect to soil vapor.

- If appropriate from the sampling and attenuation factor calculations and confirmation samples, to determine appropriate groundwater action levels for monitoring.

2.2 Initial Soil Vapor Sampling

Soil vapor point installation and sampling will occur in general conformance to the New York State Department of Health Guidance for Evaluating Soil Vapor Intrusion in the State of New York dated October 2006. The procedure and work scope is described in the sections below.

2.2.1 Point Installation

Concurrent with the April 2008 groundwater sampling event, seven (7) permanent soil vapor points will be installed at the site as follows (Refer to Figure 2):

- **SV-1**: In the vicinity of well MW-501 to be used to determine a site-specific, groundwater-to-soil vapor attenuation factor.
- **SV-2**: In the vicinity of MW-2 to be used to determine a site-specific, groundwater-to-soil vapor attenuation factor.
- **SV-3, SV-4, and SV-5**: Along the eastern property boundary near MW-204 to monitor for possible soil vapor impacts at the property boundary.
- **SV-6 and SV-7**: Along the eastern right-of-way between the Site and the adjacent eastern property to determine if soil vapor is migrating offsite to the east.

At each location listed above, two discrete samples (shallow and deep) will be collected, therefore two separate nested probes will be installed in probe holes to depths of 3 feet (shallow) and 6 to 9 feet (just above the water table). Soil vapor probes will be installed in a configuration as depicted in the October 2006 NYSDOH guidance Figure 2.2. The probes will backfilled using a porous, inert backfill material (e.g., glass beads, washed #1 crushed stone, etc.) allowing a sampling zone of 1 to 2 feet in length, and sealed at the ground surface to prevent any inflow from ambient surface air. The surface seal design will include an 18-inch diameter surface seal of hydrated bentonite clay mounded around the soil gas probe at the ground surface, with an overlying layer of poly sheeting (a minimum of three feet in diameter), and an additional bentonite clay seal atop the poly sheeting around the soil vapor probe. This layered seal location is based on discussions of sampling technique with NYSDEC as a reliable method to prevent short circuiting of ambient air into the sub-surface.

2.2.2 Soil Vapor Sample Collection

Samples will be analyzed by an ELAP certified laboratory for VOCs using EPA Method TO-15. The target compound list will consist of 1,1-DCA, 1,1-DCE, and TCA consistent with the NYSDOH air sampling guidance and with the compounds detected in groundwater at downgradient well MW-204.

Two (2) sample depths will be performed at each location from the nested probes described in Section 2.2.1 above. This is intended to provide indication of the amount of sample attenuation with depth. Deep samples will be obtained from just above the groundwater table (approximately 6 to 9 ft. bgs.), and shallow samples will be obtained from approximately 3 ft. bgs.

The samples will be collected at least 24 hours after installation of the probes. The soil vapor probes will be briefly evacuated to purge any stagnant vapors within the probe (the purge volume will approximate one borehole volume). In addition, as requested by the NYSDOH, during the purging process a tracer compound (specifically helium) will be released around the probe at the ground surface, and vapor samples will be collected from the installed probe and analyzed for helium to assess potential short-circuiting and ensure that the surface seal is intact.

The soil vapor samples will be collected in dedicated, laboratory-supplied "batch certified clean" stainless steel Summa canisters at rates no greater than 0.2 L/min (i.e., and estimated 30 minutes completion time to fill one 6L Summa canister), with an average target fill-time of approximately 1 hour per canister.

2.2.3 Ambient Air Sample Collection

Concurrent with soil vapor sampling, one ambient air sample will be collected at the CooperVision Site at one downwind location to be determined in the field. This sample will be collected using a "certified-clean" 6.0-liter canister equipped with an 8-hour flow controller. The ambient air sample will also be submitted to an ELAP certified laboratory for VOCs using EPA Method TO-15. The ambient air sample will be collected and analyzed in general conformance to the New York State Department of Health Guidance for Evaluating Soil Vapor Intrusion in the State of New York dated October 2006.

2.3 Confirmatory Re-Sampling

Following the initial sampling event, a confirmatory re-sampling event will occur at the property line and right-of-way locations (SV-3 through SV-7) no longer than approximately six months following the initial sampling event, and concurrent with the October 2008 groundwater sampling event.

3 SAMPLE ANALYSIS

3.1 Estimation of a Non-Detect Line

With respect to the analytical data collected at soil vapor locations SV-3 through SV-7, the data collected will be used to calculate an anticipated vapor concentration "non-detect line." If greater than non-detect concentrations for the site target compounds are detected at the soil vapor locations SV-3 through SV-7, and the limits of the soil vapor plume can not be determined during this phase of the assessment plan, then additional step-out samples would be obtained to verify a calculated non-detect line.

3.2 Determination of a Site-Specific Attenuation Factor

In order to understand the relationship between the VOC concentrations detected in groundwater and the VOC concentrations detected in soil vapor, we will use the coupled soil vapor and groundwater values from MW-2, MW-501, SV-1, and SV-2 to develop a site-specific attenuation factor that can be used to calculate the potential soil vapor concentrations detected based on field-determined groundwater concentrations. The attenuation factor will be calculated as follows:

$$Site\text{-}Specific\ Attenuation\ Factor = \frac{Soil\ Vapor\ (\mu g / M^3)}{Groundwater\ Concentration\ (\mu g/L)}$$

The calculated soil vapor can then be determined at other locations following future groundwater sampling events as follows:

$$Calculated\ Soil\ Vapor\ (\mu g / M^3) =$$
$$Groundwater\ Concentration\ (\mu g/L) \times Site\text{-}Specific\ Attenuation\ Factor$$

With the use of the site-specific attenuation factor, potential soil vapor impacts under varying groundwater concentrations can be determined. If based on field calculations, there appears to be variation among attenuation factors based on different directional gradients (horizontal vs. vertical), separate calculations will be completed relative to the different directions. This capability would be used in conjunction with long-term groundwater sampling under the Site Management Plan.

4 WASTE MANAGEMENT PLAN

It is not anticipated that contaminated soil and/or groundwater will be generated as a result of soil vapor sampling point installation or sampling. All personal protective equipment, such as disposable gloves, will be disposed of in onsite dumpsters.

5 HEALTH & SAFETY PLAN

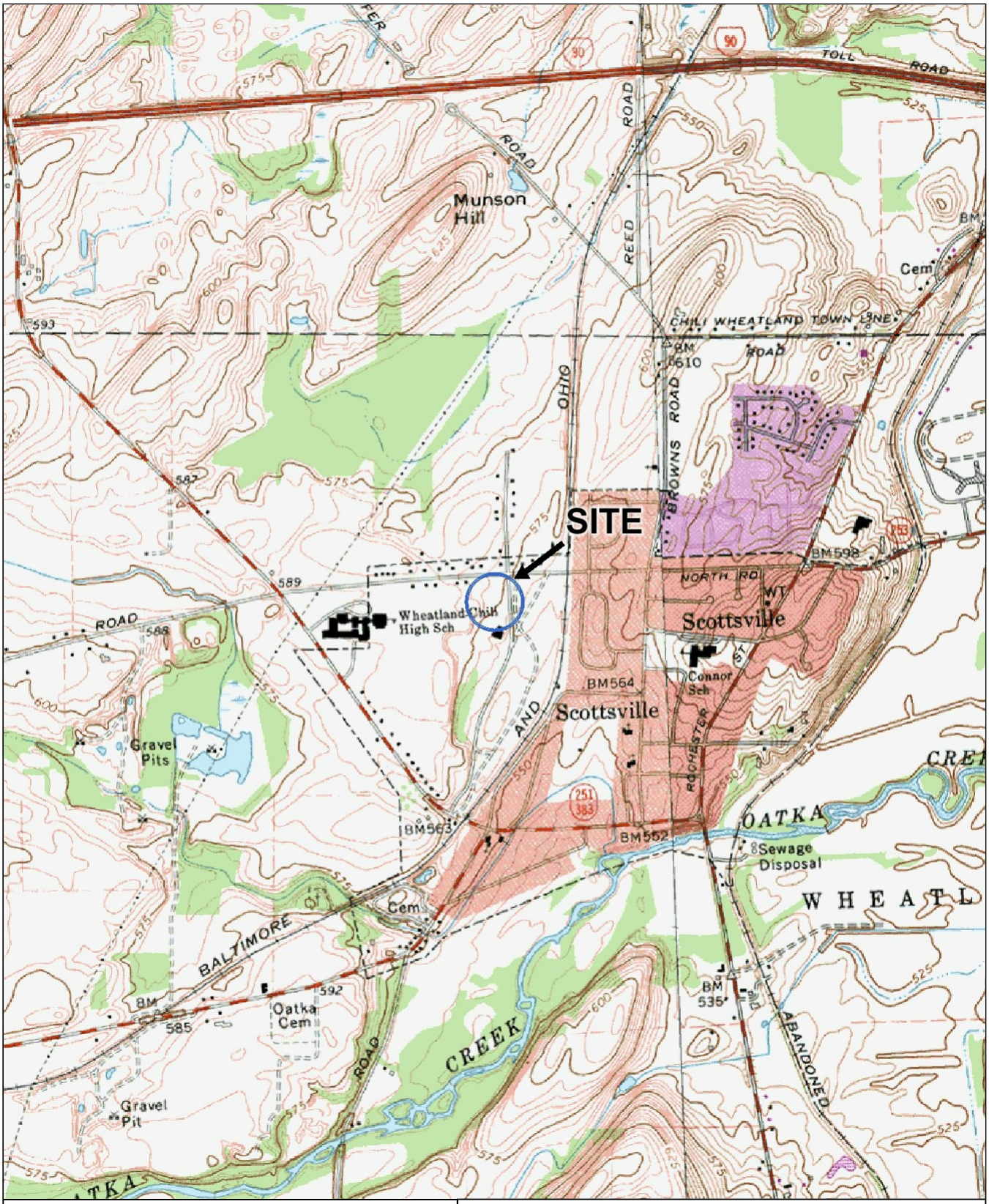
A Health and Safety plan for the work described herein is contained in Appendix A.

6 REPORTING & SCHEDULING

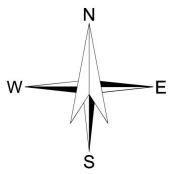
The field work to implement the activities discussed in this work plan will occur concurrently with the April 2008 semi-annual groundwater sampling event.

Based on our experience, completion of the field portion of the program including collection of the semi-annual groundwater samples is expected to take approximately one week.

A summary report will be prepared and submitted to the NYSDEC within three weeks after receipt of the laboratory analytical data.



SITE COORDINATES:43°1'39"N 77°45'27"W



U.S.G.S. QUADRANGLE: CLIFTON, NY

HALEY & ALDRICH

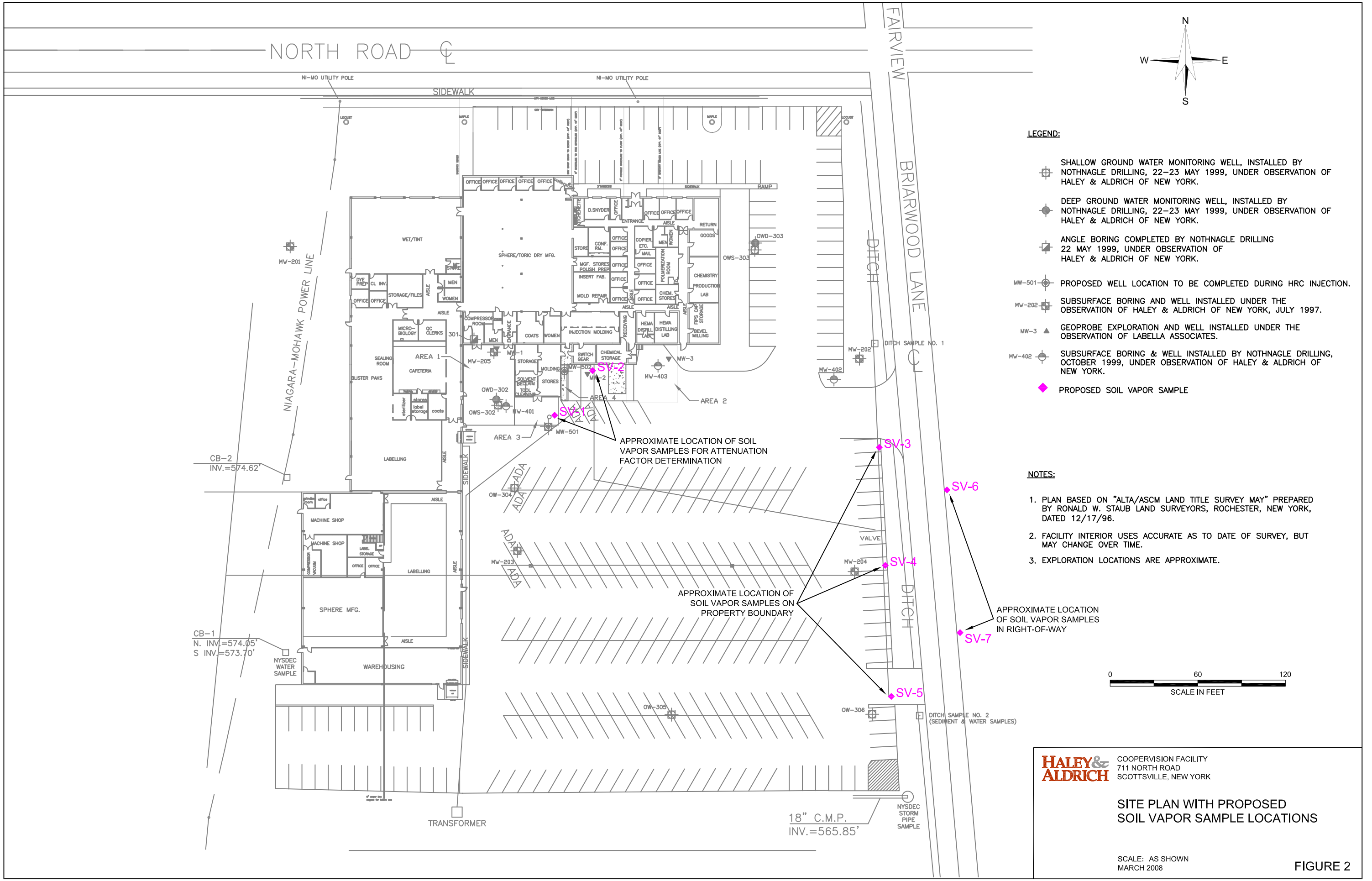
COOPERVISION, INC.
SCOTTSVILLE, NEW YORK

PROJECT LOCUS

SCALE: 1:24,000
MARCH 2008

FIGURE 1

70665-012 1.PDF



LEGEND:

- SHALLOW GROUND WATER MONITORING WELL, INSTALLED BY NOTHNAGLE DRILLING, 22–23 MAY 1999, UNDER OBSERVATION OF HALEY & ALDRICH OF NEW YORK.
- DEEP GROUND WATER MONITORING WELL, INSTALLED BY NOTHNAGLE DRILLING, 22–23 MAY 1999, UNDER OBSERVATION OF HALEY & ALDRICH OF NEW YORK.
- ANGLE BORING COMPLETED BY NOTHNAGLE DRILLING 22 MAY 1999, UNDER OBSERVATION OF HALEY & ALDRICH OF NEW YORK.
- MW-501 — PROPOSED WELL LOCATION TO BE COMPLETED DURING HRC INJECTION.
- MW-202 — SUBSURFACE BORING AND WELL INSTALLED UNDER THE OBSERVATION OF HALEY & ALDRICH OF NEW YORK, JULY 1997.
- MW-3 — GEOPROBE EXPLORATION AND WELL INSTALLED UNDER THE OBSERVATION OF LABELLA ASSOCIATES.
- MW-402 — SUBSURFACE BORING & WELL INSTALLED BY NOTHNAGLE DRILLING, OCTOBER 1999, UNDER OBSERVATION OF HALEY & ALDRICH OF NEW YORK.
- PROPOSED SOIL VAPOR SAMPLE

NOTES:

1. PLAN BASED ON "ALTA/ASCM LAND TITLE SURVEY MAY" PREPARED BY RONALD W. STAUB LAND SURVEYORS, ROCHESTER, NEW YORK, DATED 12/17/96.
2. FACILITY INTERIOR USES ACCURATE AS TO DATE OF SURVEY, BUT MAY CHANGE OVER TIME.
3. EXPLORATION LOCATIONS ARE APPROXIMATE.

HALEY & ALDRICH

COOPERVISION FACILITY
711 NORTH ROAD
SCOTTSVILLE, NEW YORK

SITE PLAN WITH PROPOSED SOIL VAPOR SAMPLE LOCATIONS

SCALE: AS SHOWN
MARCH 2008

FIGURE 2

G:\PROJECTS\70665012 - VCA CLOSEOUT\DRAWINGS\70665-012-SITEPLAN-SV LOCATIONS 3-5-08.DWG

APPENDIX A

Health & Safety Plan

HALEY & ALDRICH

HALEY & ALDRICH, INC.
SITE-SPECIFIC HEALTH & SAFETY PLAN

For

CooperVision, Inc.

711 North Road, Scottsville, New York

Project/File No. 70665-012

Prepared by: Claire DeBergalis Date: 18 March 2008

Revised by: _____ Date: _____

APPROVALS: The following signatures constitute approval of this Health & Safety Plan

_____ 3.27.08
Michael G. Beikirch - Local H&S Coordinator Date

_____ 3.27.08
Susan L. Boyle - Site Project Manager Date

_____ _____
Tom Benedict - Corporate H&S Manager Date
(Only required per request of LHSCs)

Date printed: 3/27/2008 at 5:45 PM

Note: This HASP has been developed for Haley & Aldrich purposes only and is not for use by others.

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1. PROJECT INFORMATION AND EMERGENCY RESOURCES

Project Name: CooperVision, Inc.	**H&A File No.: 70665-012**
Location: 711 North Road, Scottsville, New York	
Client/Site Contact: Phone Number: Emergency Phone Number:	Bernie Hallatt 585-264-3222
H&A Project Manager: Phone Number: Emergency Phone Number:	Susan L. Boyle 585-321-4222 585-760-3548
Local Health & Safety Coordinator: Emergency Phone Number:	Michael G. Beikirch 585-370-6568
Nearest Hospital: Address: (see map on next page) Phone Number:	Strong Memorial Hospital 601 Elmwood Avenue Rochester, NY 14624 585-275-2100
Emergency Response Number:	**911**
Other Local Emergency Response Number:	911
Other Ambulance, Fire, Police, or Environmental Emergency Resources:	911

Work Scope:

This Site-Specific Health and Safety Plan addresses the health and safety practices and procedures that will be employed by all Haley & Aldrich employees participating in the site characterization of the Project Site. This plan is based on an assessment of the site-specific health and safety risks available to Haley & Aldrich and Haley & Aldrich's experience with other project sites. The scope of work for the Site Characterization includes:

Task #1: Semi-Annual Groundwater Monitoring: Thirteen (13) onsite groundwater monitoring wells will be sampled using Waterra tubing and low-flow techniques during the Spring and Fall of each calendar year.

Task #2: Soil Vapor Probe Installation: Seven (7) permanent soil vapor points will be installed onsite and at the western property-right-of-way. The probes will be installed to a depth of up to 9 feet below ground using a hand auger. In the event that a hand auger can not be used, the points will be installed using direct-push (GeoProbe) methods.

Task #3: Soil Vapor Sampling: One soil vapor sample will be obtained from each of the seven (7) soil vapor points. One confirmation sample will also be obtained from each of the points no

longer than approximately six months following the initial sampling. Subsequent samples will be collected as requested or necessary. In addition to the soil vapor samples, one ambient air sample will be collected from the site during each soil vapor sampling event.

Task #4: Well Decommissioning & Site Restoration: Following completion of site monitoring and Department approval, the existing onsite monitoring wells will be decommissioned and other miscellaneous site restoration activities (such as asphalt patching) will be performed.

Subcontractor(s) to be involved in on-site activities:

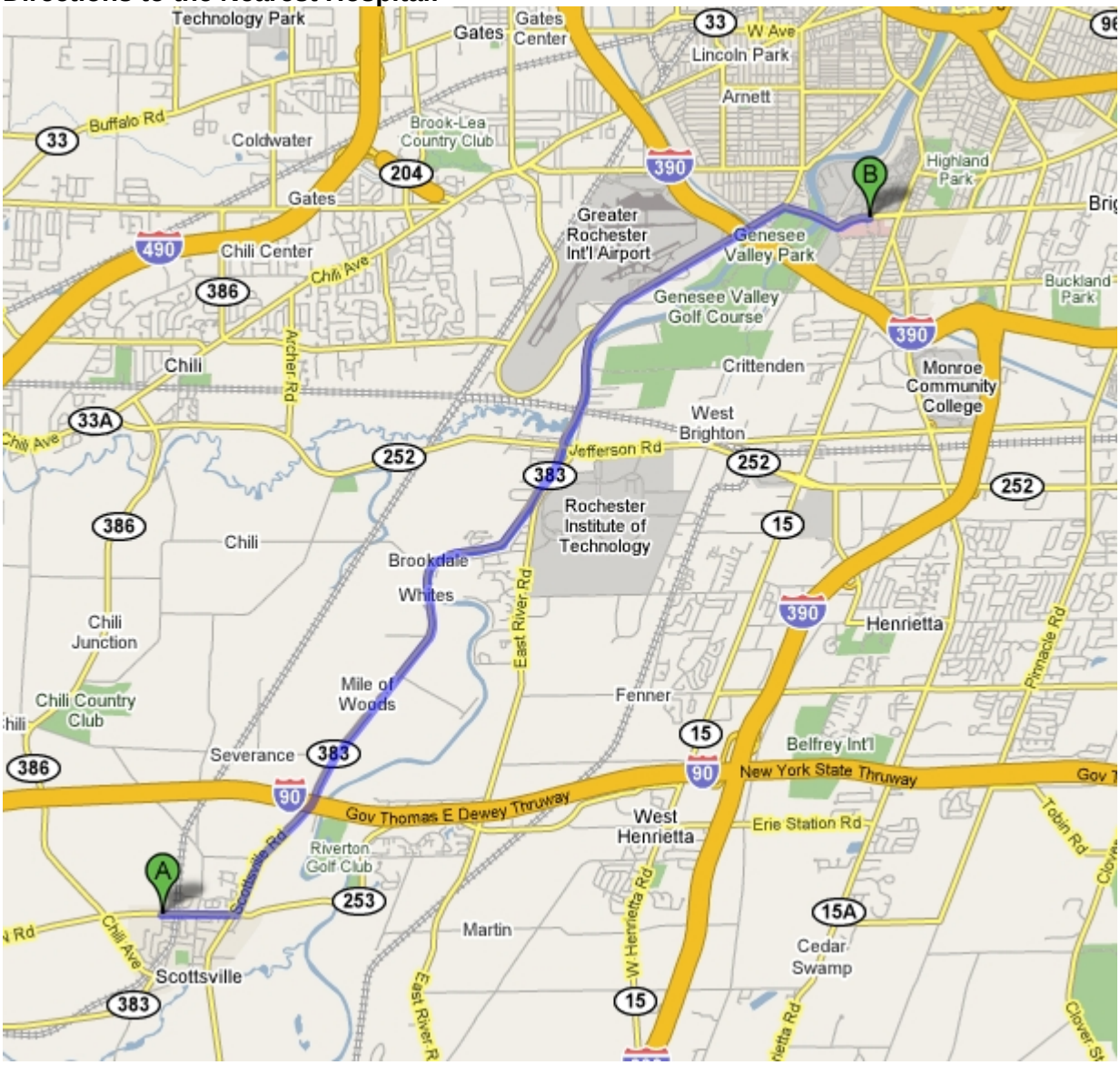
Firm Name	Work Activity
Drilling Subcontractor	Well Decomissioning

Projected Start Date: April 2008

Projected Completion Date: To Be Determined

Estimated Number of Days to Complete Field Work: 3 to 7 days semiannually until completion of the project; 2-3 days to decommission wells following project completion.

Directions to the Nearest Hospital:



A	From: 711 N Rd Scottsville, NY 14546	Edit
	Drive:	10.6 mi – about 21 mins
1.	Head **east** on **N Rd** toward **Fairview Rd**	0.7 mi
2.	Turn **left** at **RT-383/Scottsville Rd**	9.1 mi
3.	Slight **right** at **Elmwood Ave**	0.8 mi
B	To: **Strong Memorial Hospital** 601 Elmwood Ave #655, Rochester, NY 14642	Edit

2. SITE DESCRIPTION

Site Classification:

☑ Industrial	☐ Commercial	☐ Other Specify

General Description:

The CooperVision facility is located at 711 North Road in Scottsville, New York on an approximately 5.4 acre parcel of land. The property includes an original building with additions having a total area of approximately 50,000 sq. ft. Also on the property is a paved parking lot and grass areas. A drainage ditch is present along the western portion of the site.

Background and Historic Site Usage:

Prior to 1976, the site consisted of undeveloped agricultural land. The site was purchased, developed, and operated by Union Corporation thereafter for the manufacturing of contact lens eyewear. CooperVision acquired the property in 1983. Today, CooperVision continues to manufacture contact lenses at the facility. Soil and groundwater on some portions of the property have been found to be impacted by volatile organic compounds (VOCs), primarily 1,1,1-trichloroethane (TCA), likely resulting from activities by the former owner.

Project Scope:

The project scope consists of ongoing semi-annual groundwater sampling at existing groundwater monitoring wells and soil vapor investigation (installation of soil vapor points and subsequent sampling) on the subject and at the property line to determine if there is a potential for migration of soil vapor offsite to the west of the site. In the future, the project will be expanded to include decommissioning of the onsite groundwater monitoring wells and soil vapor sampling points and site restoration so that the site may be closed.

Overview of Hazards:

Site hazards include traffic hazards given that the groundwater and soil vapor sampling locations are located in an active parking lot and right-of-way, noise hazards from an air handling unit at one of the groundwater monitoring locations, and chemical hazards from groundwater and potentially soil vapor impacted by chlorinated compounds. A potential pinch hazard is present during the installation of the soil vapor points due to the use of slam-bars. A drilling hazard is anticipated to exist when the groundwater wells are decommissioned.

Site Status: Indicate current activity status and describe operations at the site.

☑ Active	☐ Inactive
☐ Partially active	☐ Other

The site is currently an active contact-lens manufacturer. Operations occur at the site 24-hours a day, seven days a week.

Site Plan:

Is a site plan or sketch available? ☑ Y ☐ N

Work Areas:

List/identify each specific work area(s) on the job site and indicate its location(s) on the site plan:

1. Groundwater Monitoring Wells – (outdoor locations)
   MW-2, MW-3, MW-202, MW-203, MW-204, MW-205, OWD-302D, OWS-302S, OW-304, MW-401, MW-402, MW-501, MW-502: Located throughout parking lot to the south and west of the site building.

2. Soil Vapor Sampling Points – (outdoor locations)
   SV-1 and SV-2: South of the site building
   SV-3, SV-4, and SV-5: Along the eastern property boundary
   SV-6 and SV-7: Along the eastern right-of-way

3. PROJECT TASK BREAKDOWN

List and describe each distinct work task below.

Task No.	Detailed Task Description	Employee(s)	Work Date(s) or Duration
1	Semi-annual groundwater monitoring	Two (2) H&A field staff	3 days/Semi-annually
2	Soil Vapor Point Installation	Two (2) H&A field staff/possible drilling subcontractor	1-2 day
3	Soil Vapor Sampling/ambient air sampling	Two (2) H&A field staff	1 to 2 days semi-annually or as necessary
4	Well Decommissioning and Site Restoration	Drilling Subcontractor H&A field staff	1 week at the completion of project

Task #1: Semi-Annual Groundwater Monitoring: Thirteen (13) onsite groundwater monitoring wells will be sampled using Waterra tubing and low-flow techniques during the Spring and Fall of each calendar year.

Task #2: Soil Vapor Probe Installation: Seven (7) permanent soil vapor points will be installed onsite and at the western property-right-of-way. The probes will be installed to a depth of up to 9 feet below ground using a hand auger. In the event that a hand auger can not be used, the points will be installed using direct-push (GeoProbe) methods.

Task #3: Soil Vapor Sampling: One soil vapor sample will be obtained from each of the seven (7) soil vapor points. One confirmation sample will also be obtained from each of the points no longer than approximately six months following the initial sampling. Subsequent samples will be collected as requested or necessary. In addition to the soil vapor samples, one ambient air sample will be collected from the site during each soil vapor sampling event.

Task #4: Well Decommissioning and Site Restoration: Following completion of site monitoring and Department approval, the existing onsite monitoring wells will be decommissioned and other miscellaneous site restoration activities (such as asphalt patching) will be performed.

4. HAZARD ASSESSMENT

Material Safety Data Sheets (MSDS) of hazardous materials used during the execution of work shall be available on site. MSDSs are required for chemicals used to prepare samples, calibration gases, etc. MSDSs are not required for waste materials. MSDSs are available in Boston-based field vehicles and at the Roland Street Laboratory.

Chemical Hazards:

Does chemical analysis data indicate that the site is contaminated? ☑ Y ☐ N

Indicate the potential physical state of the hazardous materials at the site.

☑ Gas/Vapor	☐ Sludge
☑ Liquid	☐ Solid/Particulate

Indicate the anticipated or actual class of compounds at the site.

☐ Asbestos	☐ Inorganics
☐ BTEX	☐ Pesticides
☑ Chlorinated Solvents	☐ Petroleum products
☐ Heavy Metals	☐ Other Specify

Impacted Environments:

Indicate media in which contamination is expected.

☑ Air	☑ Groundwater
☐ Soil	☐ Sediment
☐ Surface water	☐ Other Specify

Estimated concentrations:

Indicate medium of major chemicals expected to be encountered by onsite personnel.

Work Activity	Media	Chemical	Anticipated Concentration
Groundwater Monitoring	GW	1,1,1-TCA, 1,1-DCA, 1,1-DCE, Chloroethene, VC	ND – 400 ppm
Soil Vapor Point Installation	SO, A	1,1,1-TCA, 1,1-DCA, 1,1-DCE, Chloroethene, VC	ND – 30 ppb in air ND - 0.2 ppm in soil
Soil Vapor Sampling	A	1,1,1-TCA, 1,1-DCA, 1,1-DCE, Chloroethene, VC	D – 30 ppb in air ND - 0.2 ppm
Monitoring Well Decommissioning & Site Restoration	GW, SO	1,1,1-TCA, 1,1-DCA, 1,1-DCE, Chloroethene, VC	ND – 400 ppm in GW ND - 0.2 ppm

(Media key: A = Air; GW = Groundwater; SW = Surface Water; SO = Soil; SE = Sediment)

Chemicals of Concern:

1,1,1 Trichloroethane

The health effects for 1,1,1 TCA are as follows- Inhalation of vapors will irritate the respiratory tract. Affects the central nervous system. Symptoms include headache, dizziness, weakness, and nausea. Higher levels of exposure (> 5000 PPM) can cause irregular heart beat, kidney and liver damage, fall in blood pressure, unconsciousness and even death. Harmful if swallowed. Symptoms similar to inhalation will occur along with nausea, vomiting. Aspiration of material into the lungs can cause chemical pneumonitis, which can be fatal. If aspirated, may be rapidly absorbed through the lungs and result in injury to other body systems. Causes mild irritation and redness, especially on prolonged contact. Repeated contact may cause drying or flaking of the skin. Liquids and vapors cause irritation. Symptoms include tearing, redness, stinging, and swelling. Prolonged or repeated skin contact may cause dermatitis. Chronic exposure may affect the kidneys and liver. Dioxane is a suspected human carcinogen based on animal data. Personnel with CNS, kidney, liver or heart disease may be more susceptible to the effects of this substance. Use of alcoholic beverages may aggravate symptoms.

The OSHA permissible exposure limit (PEL) for 1,1,1 TCA is 350 PPM for an 8-hour time weighted average.

1,1-Dichloroethylene (1,1-DCE)

1,1-Dichloroethylene (1,1-DCE) is a colorless, class IB flammable liquid with a slightly acrid, chloroform-like odor.

1,1 -DCE is incompatible with strong oxidizers, strong alkalis, potassium hydroxide, and metals such as copper, and contains inhibitors to prevent polymerization.

There is no OSHA PEL for 1,1-DCE. The 8-hour TWA for 1,1-DCE is 1.0 ppm. The standard routes of entry in the body are through inhalation, ingestion, skin and eye contact. The points of attack are the respiratory system, central nervous system, and eyes.

Symptoms that may occur as a result of exposure to 1,1-DCE include irritation to the eyes; respiratory system distress; central nervous system depression.

Vinyl Chloride (VC)

Vinyl Chloride (VC) is a colorless, liquid or flammable gas with a pleasant odor at high concentrations.

VC is incompatible with oxidizers, peroxides, and metals such as copper, aluminum, iron and steel. VC polymerizes in air, sunlight, or heat unless it is stabilized by inhibitors such as phenol. It attacks iron and steel in the presence of moisture.

The OSHA PEL for VC is 1 ppm as am 8-hour TWA, and an acceptable ceiling of 5 ppm in a 15 minute period. The standard routes of entry in the body are through inhalation, skin and eye contact. The points of attack are the respiratory system, central nervous system, liver, blood, and lymphatic system.

Symptoms that may occur as a result of exposure to VC include weakness and exhaustion; abdominal pain; gastrointestinal bleeding; enlarged liver; and pallor or cyanosis of the extremities. Liquid VC can cause frostbite. VC can also cause liver cancer.

1,1-Dichloroethane (1,1-DCA)

1,1-Dichloroethane (1,1-DCA) is a colorless, class IB flammable, oily liquid with a chloroform-like odor.

1,1-DCA is incompatible with strong oxidizers and strong caustics.

The OSHA PEL for 1,1-DCA is 100 ppm as an 8-hour TWA. The standard routes of entry in the body are through inhalation, ingestion, skin and eye contact. The points of attack are the liver, kidney, lungs, central nervous system, skin and eyes.

Symptoms that may occur as a result of exposure to 1,1-DCA include irritation to the skin; central nervous system depression; and liver, kidney, and lung damage.

Chloroethane

Chloroethane is a colorless gas at room temperature and pressure with a sharp odor. It can kept as a liquid under pressure, however it quickly evaporates when exposed to room air. Chloroethane is flammable.

The OSHA PEL for Chloroethane is 1,000 ppm as an 8-hour TWA. The standard routes of entry into the body are through ingestion and inhalation. High levels of Chloroethane can affect you nervous system, causing lack of muscle control and unconsciousness.

Brief exposure to chloroethane can induce feelings of inebriation, and at higher levels and can lack of muscle coordination and unconsciousness as well as stomach cramps, nausea, vomiting, and eye irritation. It can produce a numbing sensation when applied to the skin, but can cause frost-bite if applied too long. Chloroethane is not classified as a carcinogen.

TABLE 1
OCCUPATIONAL EXPOSURE LIMITS (CONCENTRATIONS IN AIR)

(CIRCLE CONTAMINANTS OF CONCERN, WRITE ADDITIONAL CONTAMINANTS AND EXPOSURE ON LAST PAGE)

CHEMICAL	ROUTES OF EXPOSURE	IDLH	Ceiling	STEL	PEL	TLV	REL	PID (IP eV)	FID	ODOR THRES-HOLD	IRRITATION THRESHOLD	ODOR DESCRIPTION
VAPORS & GASES												
Acetone	R, I, C	2500	-	750 [ACGIH]	1000	500	250	9.69	60	13	-	fragrent, mint-like
Ammonia	R, I, C	300	-	35 [NOSH, ACGIH]	50	25	25	10.18**	-	0.5-2	10	Pungent suffocating odor
Benzene	R,A,I,C	Ca [500]	-	1 [NIOSH]; 2.5 [ACGIH]	1	0.5	0.1	9.24	150	4.68	-	Solvent, aromatic
Carbon tetrachloride (Tetrachloromethane)	R,A,I,C	Ca [200]	25 [instantaneous] 200 [5 min peak in any 4 hrs]	2 [NIOSH, 60-min]; 10 [ACGIH]	2	5	Ca	11.47**	10	50	-	Sweet, pungent, ether-like
Chlorobenzene	R,I,C	1000	-	-	75	10	-	9.07	200	0.68	-	Almond-like
Chloroform	R,I,C	Ca [500]	50 [OSHA]	2 [NIOSH, 60-min]	-	10	-	11.42**	65	50	-	Sweet, pleasant
o-Dichlorobenzene	R,A,I,C	200	50 [NIOSH, OSHA]	50 [ACGIH]	-	25	-	9.06	50	0.3	E 20-30	Pleasant, aromatic
p-Dichlorobenzene	R,A,I,C	Ca [150]	-	-	75	10	Ca	8.98	-	0.18	E 80-160	Distinct, aromatic, mothball-like
Dichlorodifluoromethane (Freon 12)	R,C	15000	-	-	1000	1000	1000	11.75**	15	-	-	Ether-like when at very high concs.
1,1-Dichloroethane	R,I,C	3000	-	-	100	100	100	11.06**	80	200	-	Distinct, chloroform-like
1,2-Dichloroethane (Ethylene dichloride)	R,I,A,C	Ca [50]	100 [OSHA]	2 ppm [NIOSH]; 200 ppm [OSHA, 5-min max peak in any 3 hours]	50	10	1	11.05**	80	88	-	Chloroform-like
1,1-Dichloroethylene (1,1-DCE, Vinylidene chloride)	R,A,I,C	Ca [ND]	-	-	-	5	Ca	10.00**	40	190	-	Chloroform-like
1,2-Dichloroethylene	R,I,C	1000	-	-	200	200	200	9.65	50	0.85	-	Bitter, chloroform-like
Ethanol	R,I,C	3300	-	-	1000	1000	1000	10.47**	25	10	-	Weak, ether-like, wine-like
Ethylbenzene	R,I,C	800	-	125 [NIOSH; ACGIH]	100	100	100	8.76	100	2.3	E 200	Aromatic
Ethylene Glycol	R,I,C	ND	50 [OSHA]; 100 mg/m^3 [ACGIH]	-	-	-	-	-	-	-	-	Odorless
Formaldehyde	I,C	Ca [20]	0.1 [NIOSH, 15-min]; 0.3 [ACGIH]	2	0.75	-	Ca [0.016]	10.88**	-	0.83	-	Pungent, suffocating
Gasoline	R,I,A,C	Ca [ND]	-	500 [OSHA; ACGIH]	300	300	-	-	-	-	E 0.5	Petroleum-like
n-Hexane	R,I,C	1100	-	-	500	50	50	10.18	70	130	E.T 1400-1500	Gasoline-like
Hydrogen Cyanide	R,A,I,C	50	4.7 [ACGIH; Skin]	4.7 [NIOSH - skin]	10 [skin]		-	-	-	0.58	-	Bitter almond
Hydrogen peroxide	R,I,C	75	-	-	1	1	1	10.54**	-	-	-	Sharp
Methanol	R,I,A,C	6000	-	250 [NIOSH; ACGIH; skin]	200	200 [skin]	200	10.84**	12	1000	-	Pungent
Methyl Ethyl Ketone Peroxide	R,I,C	ND	0.2 [NIOSH; ACGIH] 0.7 [OSHA]	-	-	-	-	-	-	-	-	Characteristic odor
Methyl Chloroform (1,1,1-TCA)	R,I,C	700	350 [NIOSH, 15-min]	450 [ACGIH]	350	350	Ca	11.00**	105	20-100	-	Chloroform-like
Methylene Chloride (Dichloromethane, Methylene dichloride)	R,I,A,C	Ca [2300]	-	125	25	50	Ca	11.32**	100	25-50	E 5000	Chloroform-like
Methyl Mercaptan	R,C	150	10 [OSHA] 0.5 [NIOSH, 15-min]	-	-	0.5	-	9.44	-	-	-	Garlic, rotten cabbage
MIBK (Hexone)	R,I,C	500	-	75 [NIOSH; ACGIH]	100	50	50	9.30	-	-	-	Pleasant
Naptha (coal tar)	R,I,C	1000	-	-	100	400	100	-	-	-	-	Aromatic
Naphthalene	R,A,I,C	250	-	15 [NIOSH; ACGIH]	10	10	10	8.12	-	0.3	E 15	Mothball-like
Octane	R,I,C	1000	385 [NIOSH, 15-min]	-	500	300	75	9.82	80	48	-	Gasoline-like
Pentachlorophenol	R,A,I,C	2.5 mg/m^3	-	-	0.5 mg/m^3 [skin]	0.5 mg/m^3 [skin]	0.5 mg/m^3 [skin]	-	-	-	-	Pungent when hot, benzene-like
Phenol	R,A,I,C	250	15.6 [NIOSH, 15-min]	-	5 [skin]	5 [skin]	5 [skin]	8.50	-	0.04	E.N.T. 68	Sweet, acrid
Propane	R,C	2100	-	-	1000	1000	1000	11.07**	80	1600	-	Odorless (commonly smells foul due to additive for odor detection)
Stoddard Solvent (Mineral Sprits)	R,Cl,I	20000 mg/m^3	1800 mg/m^3 [NIOSH, 15-min]	-	500	100	350 mg/m^3	-	-	1	E 400	Kerosene-like
Styrene	R,I,A,C	700	200 [OSHA]	100 [NIOSH]; 600 [OSHA, 5-min max peak in any 3 hours]; 40 [ACGIH]	100	20	50	8.40	85	0.047	E 200-400	Sweet, floral
1,1,2,2-Tetrachloroethane	R,I,A,C	Ca [100]	-	-	5 [skin]	1 [skin]	1 [skin]	11.10**	100	1.5	-	Pungent, chloroform-like
Tetrachloroethylene (Perchloroethylene, Perc, PCE)	R,I,A,C	Ca [150]	200 [OSHA]	300 [OSHA, 5-min max peak in any 3-hours]; 100 [ACGIH]	100	25	Ca	9.32	70	4.68	N.T513-690	Chloroform-like
Toluene	R,A,I,C	500	300 [OSHA]	150 [NIOSH]; 500 [OSHA, 10-min max peak]	200	50	100	8.82	110	2.14	E300-400	Sweet, pungent, benzene-like
Trichloroethylene (TCE)	R,I,A,C	Ca [1000]	200 [OSHA]	300 [OSHA, 5-min max peak in any 2-hours]; 100 [ACGIH]	100	50	Ca	9.45	70	21.4	-	Chloroform-like
1,2,3-Trimethylbenzene	R,I,C	ND	-	-	-	-	25	8.48	-	-	-	Distinctive, aromatic
1,2,4-Trimethylbenzene	R,I,C	ND	-	-	-	-	25	8.27	-	-	-	Distinctive, aromatic
1,3,5-Trimethylbenzene	R,I,C	ND	-	-	-	-	25	8.39	-	-	-	Distinctive, aromatic
Turpentine	R,A,I,C	800	-	-	100	20	100	-	-	200	E.N 200	Pine-like
Vinyl Chloride	R,C	Ca [ND]	5 [OSHA, 15-min]	-	1	1	Ca	9.99	-	3000	-	Pleasant odor at high concs.
Xylenes	R,A,I,C	900	-	150 [NIOSH; ACGIH]	100	100	100	8.56 (m- and o-) 8.44 (p-)	111/116	1.1	E.N.T. 200	Aromatic

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(CIRCLE CONTAMINANTS OF CONCERN, WRITE ADDITIONAL CONTAMINANTS AND EXPOSURE ON LAST PAGE)

CHEMICAL	ROUTES OF EXPOSURE	IDLH	Ceiling	STEL	PEL	TLV	REL	PID (IP eV)	FID	ODOR THRES-HOLD	IRRITATION THRESHOLD	ODOR DESCRIPTION
DUSTS, MISTS, FUMES, AND MISCELLANEOUS COMPOUNDS												
Asbestos	R	Ca (ND)	-	-	0.1 fiber/cc	0.1 fiber/cc	0.1 fiber/cc	-	-	-	-	-
PCBs-42% Chlorine	R,A,I,C	Ca [5 mg/m^3]	-	-	1 mg/m^3 [skin]	1 mg/m^3 [skin]	0.001 mg/m^3	-	-	-	-	Mild, hydrocarbon
PCBs-54% Chlorine	R,A,I,C	Ca [5 mg/m^3]	-	-	0.5 mg/m^3 [skin]	0.5 mg/m^3 [skin]	0.001 mg/m^3	-	-	-	-	Mild, hydrocarbon
Aluminum - metal dust	R,C	ND	-	-	15 mg/m^3 (total); 5 mg/m^3 (respirable)	10 mg/m^3	10 mg/m^3 (total); 5 mg/m^3 (respirable)	-	-	-	-	-
Aluminum - soluble salts	R,I,C	ND	-	-	2 mg/m^3	2 mg/m^3	2 mg/m^3	-	-	-	-	-
Arsenic- inorganic	R,A,I,C	Ca [5 mg/m^3]	0.002 mg/m^3 [NIOSH, 15-min]	-	0.01 mg/m^3	0.01 mg/m^3	Ca	-	-	-	-	-
Barium:soluble compounds	R,I,C	50 mg/m^3	-	-	0.5 mg/m^3	0.5 mg/m^3	0.5 mg/m^3	-	-	-	-	-
Beryllium	R,C	Ca [4 mg/m^3]	0.005 mg/m^3 [OSHA]; 0.025 mg/m^3 [OSHA, 30-min max peak]; 0.0005 mg/m^3	0.01 mg/m^3 [ACGIH]	0.002 mg/m^3	0.002 mg/m^3	Ca	-	-	-	-	-
Cadmium dusts	R,I	Ca [9 mg/m^3]	-	-	0.005 mg/m^3	0.01 mg/m^3	Ca	-	-	-	-	-
Chromates (Cr(VI) Compounds) & Chromic Acid	R,I,C	Ca [15 mg/m^3]	0.1 mg/m^3 [OSHA]	-	0.001 mg/m^3	0.05 mg/m^3 [water soluble]; 0.01 mg/m^3 [insoluble]	Ca	-	-	-	-	-
Chromium (III) Compounds	R,I,C	25 mg/m^3	-	-	0.5 mg/m^3	0.5 mg/m^3	0.5 mg/m^3	-	-	-	-	-
Chromium Metal	R,I,C	250 mg/m^3	-	-	1 mg/m^3	0.5 mg/m^3	0.5 mg/m^3	-	-	-	-	-
Copper - dust & mist	R,I,C	100 mg/m^3	-	-	1 mg/m^3	1 mg/m^3	1 mg/m^3	-	-	-	-	-
Lead	R,I,C	100 mg/m^3	-	-	0.050 mg/m^3	0.05 mg/m^3	0.050 mg/m^3	-	-	-	-	-
Manganese (compounds and fume)	R,I	500 mg/m^3	5 mg/m^3 [OSHA]	3 mg/m^3 [NIOSH]	-	0.2 mg/m^3	1 mg/m^3	-	-	-	-	-
Mercury & Inorganic Mercury Compounds	R,I,A,C	10 mg/m^3	0.1 mg/m^3 [NIOSH, Skin]; 0.1 mg/m^3 [OSHA]	-	-	0.025 mg/m^3	0.05 mg/m^3 [skin]	-	-	-	-	-
Organo-Mercury Compounds	R,A,I,C	2 mg/m^3	0.04 mg/m^3 [OSHA]	0.03 mg/m^3 [NIOSH]	0.01 mg/m^3	0.01 mg/m^3 [alkyl]; 0.1 mg/m^3 [metal];	0.01 mg/m^3	-	-	-	-	-
Nickel (metal and compounds)	R,I,C	Ca [10 mg/m^3]	-	-	1 mg/m^3	1.5 mg/m^3 [metal]; 1 mg/m^3 [soluble inorganic compounds]; 1 mg/m^3 [insoluble	0.015 mg/m^3	-	-	-	-	-
Particulate (Not otherwise regulated)	R, C	ND	-	-	15 mg/m^3 (total); 5 mg/m^3 (respirable)	10 mg/m^3 (inhalable); 3 mg/m^3 (respirable)	-	-	-	-	-	-
Portland cement	R,I,C	5000 mg/m^3	-	-	50 mppcf	10 mg/m^3	10 mg/m^3 (total); 5 mg/m^3 (respirable)	-	-	-	-	-
Selenium compounds	R,I,C	1 mg/m^3	-	-	0.2 mg/m^3	0.2 mg/m^3	0.2 mg/m^3	-	-	-	-	-
Silica, crystalline	R, C	Ca [25 mg/m^3 (cristobalie, tridymite); 50 mg/m^3 (quartz, tripoli)]	-	-	Dependent on silicon dioxide content of silica (see Appendix C of the NIOSH Pocket Guide to Chemical Hazards, 2005)	Dependent on minerology [see ACGIH 2005 TLVs and BEIs Handbook]	0.05 mg/m^3	-	-	-	-	-
Silver (metal and soluble compounds)	R,I,C	10 mg/m^3	-	-	0.01 mg/m^3	0.1 mg/m^3	0.01 mg/m^3	-	-	-	-	-
Thallium, soluble	R,A,I,C	15 mg/m^3	-	-	0.1 mg/m^3 [skin]	0.1 mg/m^3 [skin]	0.1 mg/m^3 [skin]	-	-	-	-	-
Tin (metal)	R,C	100 mg/m^3	-	-	2 mg/m^3	2	2 mg/m^3	-	-	-	-	-
Tin (organic compounds)	R,A,I,C	25 mg/m^3	-	-	0.1 mg/m^3	0.1 mg/m^3 [skin]	0.1 mg/m^3 [skin]	-	-	-	-	-
Zinc oxide dust & fume	R	500 mg/m^3	15 mg/m^3 [NIOSH, dust]	10 mg/m^3 [NIOSH; ACGIH; fume]	15 mg/m^3 (total dust); 5 mg/m^3 (respirable dust); 5 mg/m^3 [fume]	2 mg/m^3 [respirable]	5 mg/m^3 (total dust); 5 mg/m^3 [fume]	-	-	-	-	-

NOTES & ABBREVIATIONS:

All units in parts per million (ppm) unless otherwise noted.
R = Respiratory (Inhalation)
I = Ingestion
A = Skin Absorption
C = Skin Contact
-: Not available
ND: Not detectable.
Ca = Carcinogen
** = Use 11.7 eV lamp
IP: Ionization potential
eV: Electrovolts

IDLH: Immediately dangerous to life and health
Ceiling: Highest allowable instantaneous C = Skin and/or Eye Contact
STEL: Short-term exposure limit. Exposure period is 15 minutes unless otherwise indicated
PEL: OSHA Permissible Exposure Limit (legally-enforceable)
REL: NIOSH Recommended Exposure Limit
PID: Photoionization Detector
OSHA: United States Occupational Safety and Health Administration
NIOSH: National Institute of Occupational Safety and Health
TLV: ACGIH Threshold Limit Value
ACGIH: American Conference of Governmental Industrial Hygienists

Physical Hazards:

Indicate all hazards that may be present for each task. If any of these potential hazards are checked, it is the project manager's responsibility to determine how to eliminate/minimize the hazard to protect onsite personnel.

Copy and paste a checkmark "✓"into appropriate boxes.

Physical Hazard Checklist				
Potential Job Hazards	**Task 1** GW Sampling	**Task 2** SV Point Installation	**Task 3** SV Sampling	**Task 4** MW Decom.
Confined space entry*				
Underground utilities		✓		
Overhead utilities				
Electrical hazards				
Excavations greater than 4' depth				
Open excavation fall hazards				
Heavy equipment				
Drilling hazards				✓
Noise (above 85 dBA)	✓			✓
Traffic concerns	✓	✓	✓	✓
Extreme weather conditions	✓	✓	✓	✓
Rough terrain for drilling equipment				
Buried drums				
Heavy lifting (more than 50 lbs)				
High risk fire hazard				
Poisonous insects or plants				
Water hazards				
Use of a boat				
Lockout/Tagout requirements				
Other: Pinch hazard for soil vapor installation		✓		

***CONFINED SPACE ENTRY REQUIRES SPECIAL PROCEDURES, PERMITS AND TRAINING AND MUST BE APPROVED BY THE CORPORATE HEALTH & SAFETY MANAGER.**

Potential Activity Hazards and Hazard Controls:

Copy and paste a checkmark "✓" adjacent to potential activity hazards and relevant hazard controls.

POTENTIAL ACTIVITY HAZARDS

Abrasions and Cuts ✓
Access
Asphyxiation
Bacteria
Biological Hazards
Bloodborne Pathogens
Cave Ins
Chemical/Thermal Burns
Chemicals
Cold Stress
Compressed Gases
Confined Spaces
Congestion
Defective Equipment
Dermatitis
Dropping Materials/Tools to Lower Levels
Drowning or Flowing Water
Electrical Shock
Energized Equipment
Equipment Misuse ✓
Ergonomics
Excavations
Explosions
Fatigue
Fire
Flammability
Flying debris
Foreign Body in Eye ✓
Frostbite/Cold ✓
Fueling and Fuel Storage
Fugitive Dust ✓
Fumes ✓
Generated Wastes
Guards removed
Hazardous Materials ✓
Heat Stress (cramps, exhaustion, stroke)
Heavy Equipment Operation
Heavy Equipment/Stability
Heavy Lifting
High crime area (violence)
High Winds
Hoists, Rigging, Slings, Cables
Housekeeping – Improper ✓
Illumination - Poor
Impact ✓
Inability to Maintain Communication
Inclement Weather ✓
Inclines
Insects/Reptiles
Mold
Moving Equipment, Conveyors or Vehicles ✓
Muddy Site Conditions
New Personnel
Noise ✓
Odor ✓
Overhead Utilities
Overhead Work
Overloaded Equipment
Oxygen deficiency
Pinch Points ✓
Poisonous Plants
Pressure
Pressurized Lines
Radiation
Repetitive Motion
Rigging - Improper
Sharp Objects ✓
Silicosis
Slips, Trips, and Falls ✓
Sprains and Strains ✓
Steam
Sunburn ✓
Surface Water Run-off
Toxicity ✓
Traffic ✓
Underground Utilities ✓
Uneven Terrain
Unsafe Atmosphere
Vibration
Visibility - Poor
Visitors Known/Unknown ✓
VOC Emissions ✓
Weight ✓
Work at Depth
Work at Heights
Work over Water
Working on Ice

HAZARD CONTROLS

Air Monitoring ✓
Appropriate Clothing/Monitoring Of Weather ✓
Appropriate Labels/Signage
Barricades/Fencing/Silt Fencing
Buddy System - Attendant✓
Chock Blocks
Confined Space Procedures
Decontamination Procedures ✓
Derived Waste Management Plan
Drinking Water/Fluids
Dust Abatement Measures
Emergency Action Plan Procedures
Equipment Inspection
Equipment Manuals/Training
Exclusion/Work Zones
Exhaust Ventilation
Eye Protection ✓
Fall Protection
Fire Extinguisher
Flotation Devices/Lifelines
Gloves ✓
Ground Fault Interrupter
Grounded Hydraulic Attachments
Grounded Equipment/Tanks
Hand Signal Communication
Hard Hat
Hazardous/Flammable Material Storage
Hearing Protection ✓
High Visibility Safety Vest
Hoses, Access to Water ✓
Hotwork Procedures
Isolation of Energy Sources(Lockout/Tagout)
Machine/Equipment Guards
Manual Lifting Equipment
Police Detail
Proper Lifting Techniques
Proper Tool for Job ✓
Proper Work Position/Tools
Protective Equipment ✓
Radio Communication
Respirator, (Specify Type)
Safety Harness /Lanyard/Scaffold
Security Escort
Sloping, Shoring, Trench Box
Spill Prevention Measures
Spill Kits
Stormwater Control
Traffic Controls ✓
Procedures/Methods
Vehicle Inspection
Visitor Orientation Escort✓ **(public)**
Window Cleaning/Defrost

Specific Activity Hazards and Precautions

The site is a manufacturing site that is active 24-hours per day, 7 days per week. Because the work tasks must take place in a utilized parking lot, work will have to be temporarily ceased in-between shift changes to avoid car hazards.

Safety Meetings

All H&A personnel visiting the site will be given an orientation safety meeting and are required to read and sign this HASP. Daily safety meetings will be conducted onsite and documented on a Health & Safety Tailgate Meeting Form.

Utility Locators and Underground Hazards

Prior to drilling or excavating, Haley & Aldrich staff members will ensure that permission has been gained from the property owner to access the property. Contact site facilities and commercial utility clearance personnel to assist with location of underground utilities. Before marking any proposed exploration location, it is critical that all readily available information on underground utilities and structures be obtained. The estimated location of utility installations, such as gas, electric, fuel, steam, sewer, telephone, fiber optic, water, drainage or any other underground installation that may be expected to be encountered during drilling work, will be identified with the appropriate authority. Appropriate authorities include client representatives, utility companies, nonprofit organizations (e.g., "Dig-Safe), and others.

Heavy Equipment

Staff Members must be especially careful and alert when working with contractors who use heavy equipment, since equipment failure or breakage can lead to accidents and worker injury. Cranes and equipment for drilling, pile driving, test pitting and coring is of special concern. Should these devices fail during operation the likelihood of worker injury is high. Equipment of this nature should be visually inspected and checked for proper working order prior to the commencement of field work. Those that operate heavy equipment must meet all of the requirements to operate heavy equipment. Haley & Aldrich, Inc. staff members that supervise projects or are associated with such high risk projects that involve digging should use due diligence when working with a construction firm. Maintain visual contact with operators at all times and keep out of the strike zone whenever possible. Always approach heavy equipment with an awareness of the swing radius and traffic routes of each piece of equipment and never go beneath a hoisted load. High-visibility safety vests must be worn onsite at all times. Avoid fumes created by heavy equipment exhaust.

Noise Reduction

Site activities in proximity to heavy equipment often expose workers to excessive noise. It is anticipated that situations may arise when noise levels may exceed the OSHA Action Level of 85 dBA in an 8-hour time-weighted average (TWA). An example of this possibility is working in close proximity to the subcontractor during drilling activities onsite. If excessive noise levels occur, efforts will be made to control this by issuance of earplugs to all personnel and by implementing a system of hand signals understood by all.

Work Site Access & Controls (Standard Precautions)

The work area is restricted to authorized personnel. Clearly define the work area before beginning activities for the day. Caution tape and safety cones must be provided as necessary for vehicular traffic concerns and to protect passers-by. Proper housekeeping is essential to avoid creating hazards to pedestrian and vehicular traffic. Running equipment will not be left unattended at any time. Test borings and test pits will be backfilled upon completion and the area restored. Drilling equipment will be secured above test borings during work stoppages and at the end of the workday.

Site Security

Equipment will not be left onsite during none work hours. The monitoring wells and soil vapor points will be closed and not accessible during non work hours.

Weather Related Hazards

H&A employees and their subcontractors should be aware of potential health effects and/or physical hazards of working during inclement weather. Refer to OP1003-Cold Stress and OP1015-Heat Stress for discussion on weather hazards.

5. PROTECTIVE MEASURES

Personal Protective Equipment Requirements:

Copy and paste a checkmark "✓"into appropriate boxes.

Required PPE	Task 1	Task 2	Task 3	Task 4
	GW Sampling	SV Point Installation	SV Sampling	MW Decom.
Hard hat				✓
Safety glasses w/side shields	✓	✓		✓
Steel-toe footwear	✓	✓		✓
Hearing protection (plugs, muffs)	✓	✓		✓
Tyvek ™ coveralls	✓	✓		
PE-coated Tyvek™ coveralls				
Boots, chemical resistant	✓			
Boot covers, disposable				
Leather work gloves				
Inner gloves - Nitrile	✓	✓	✓	✓
Outer gloves - Neoprene	✓	✓		
Tape all wrist/ankle interfaces				
Half-face respirator*				
Full-face respirator*				
Organic vapor cartridges				
Acid gas cartridges				
Other cartridges: GME-P100				
P-100 (HEPA) filters				
Face shield				
Personal Flotation Device (PFD)				
High-Visibility Safety Vest	✓	✓	✓	✓
Other:				
Level of protection required [C or D]:	D Mod	D Mod	D Mod	D Mod

* In the event of respirator use, H&A staff must be medically qualified, fit tested and clean shaven with no facial hair that will interfere with the seal.

The required PPE checked in any box above must be on site during the task being performed. Work shall not commence unless the required PPE is present.

Site Safety Equipment Requirements:

Check all items that are required to be on site.

Site Safety Equipment

☐ Fire Extinguisher	☑ First Aid Kit	☐ Flashlight
☐ Air horn/signaling device	☑ Cellular Phone	☐ Duct tape
☐ Ladder	☐ Barricade tape	☐ Drum dolly
☐ Two-way radio	☑ Safety cones	☐ Harness/Lanyard
☐ Other Specify		

The required equipment checked in any box above must be on site during the task being performed. Work shall not commence unless the equipment is present.

6. MONITORING PLAN AND EQUIPMENT

Is air/exposure monitoring required at this work site for personal protection? ☑ Y ☐ N

Is perimeter monitoring required for community protection? ☐ Y ☑ N

Monitoring/Screening Equipment Requirements:

Check all items that are required to be on site.

Required Monitoring/Screening Equipment

- ☐ Photo-Ionization Detector (PID) 10.2eV
- ☐ Photo-Ionization Detector (PID) 11.7eV
- ☐ Photovac Micro Tip (PID) 10.6eV
- ☐ Organic Vapor Monitor (FID)
- ☐ Photovac Gas Chromatagraph (GC)
- ☐ Combustible Gas Indicator (CGI) (LEL)
- ☐ Multiple Gas Detector LEL/O2/H2S/CO
- ☐ Dust Monitors (RAMs)
- ☑ Colorimetric tubes
- ☑ Other RAE Mini Rae 2000; Air Samples for VC & DCE

The required equipment checked in any box above must be on site. Work shall not commence unless the equipment is present.

Standard Action Levels and Required Responses:

Exposure Guidelines for common contaminants are listed in Table 1 - Occupational Exposure Limits in the Chemical Hazards section above.

Requirements for PPE upgrades based on monitoring are in Table 2 - Monitoring Methods, Action Levels and Protective Measures following the Specific Monitoring Requirements section below.

Action levels for readings obtained with a multiple gas detector are listed below.

Instrument	Normal	Operating levels	Action levels – required responses
Oxygen Meter	20.9%	Between 19.5-23.5%	Below 19.5 %: leave area, requires supplied air Above 23.5%: leave area, fire hazard
CGI	0%	Less than 10%	Greater than 10%: fire/explosion hazard; cease work
Hydrogen Sulfide	0%	Less than 10 ppm.	Greater than 15 ppm (or 10 ppm for 8 hrs) requires supplied air respirator
Carbon Monoxide	0%	Less than 25 ppm	Greater than 200 ppm for 1 hour (or 25 ppm for 8 hrs) requires supplied air respirator

Standard Air Monitoring Plan (Volatiles):

- Prior to the beginning of work obtain background readings with the PID away from the site.
- Monitor the breathing zone when site soil is exposed (e.g., while drilling or excavating is occurring, etc.) with the PID.
- Monitoring should be conducted most frequently (e.g., every 15-30 minutes) when drilling or excavation first begins in a particular area and when soil is removed from the hole. After this, and if no exceedances of exposure limits are noted (see below), monitoring may be conducted less frequently (e.g., every 60 minutes).
- H&A general exposure limits will be used when a mixture of potentially volatile chemicals are suspected to be present in soil at the site.
- Monitor breathing zone during groundwater purging and sampling activities

In summary, if a reading of 10 ppm above background is detected with the PID for 5 minutes or longer, back away for a few minutes. Screen the air again after any vapors/gases have been given a chance to dissipate. If 10 ppm above background is still noted, evacuate the area and call the LHSC and PM for further guidance.

- Record monitoring data and PPE upgrades in field book or on Record of Field Monitoring form and maintain with project files.

- Air monitoring for exposure should be based on the frequency established under the Standard Air Monitoring Plan or under the Specific Monitoring Requirements. Record time, location and results of monitoring and actions taken based upon the readings.

Standard Dust Control Measures and Monitoring Plan:

Dust Control Measures:

It is anticipated that exposure to airborne dust can be mitigated during work operations as necessary to control dust emissions by means of limiting the area of exposed soils and through the use of water sprays. If dust emissions cannot be controlled by these standard measures, additional measures may be employed such as the use of a tackifier (if approved) to stabilize soil exposures or by covering exposed soil and stockpiles with tarpaulins, plastic sheeting or geotextile fabric. Otherwise cease work immediately and contact the Project Manager or the Corporate Health & Safety Manager for assistance. It is not permissible for dust emissions to escape from the site at any time and perimeter dust monitoring may be required to insure public safety.

Dust Monitoring:

Respirable Aerosol Monitors (RAM) can be used to monitor total dust levels in work zones and/or at the site perimeter. These instruments do not give specific readings of contaminant concentration (e.g. metals, asbestos, etc.). Depending upon the contaminants present, it may be mandatory for all workers to upgrade to level C protection using a half-face air-purifying respirator with HEPA (P-100) filters if dust levels cannot be adequately controlled during any of the on-site tasks. The H&A Site Safety Officer (SSO) will determine PPE upgrades based upon visual determination as necessary and the OSHA PEL for each known or suspected

contaminant. The OSHA PEL/STEL for Respirable Nuisance Dust is 5 mg/m^3 (8 hour TWA). Action levels for fugitive dust at the site perimeter are based upon the daily PM_{10} dust standard of 0.15 mg/m^3 in the National Ambient Air Quality Standard for Inhalable Dust (NAAQS).

Personal dust monitoring using an industrial hygiene pump and a filter cassette may be conducted on each day of operations. In such cases samples are collected from workers with the greatest potential dust exposure and analyzed by an accredited laboratory for specific contaminants.

Specific Monitoring Requirements:

Monitoring requirements and frequency is indicated by task and location below.

Task Number:	1,2,3,4	Frequency	Continuous	times per	All Day during task activities

VOC monitoring using a PID will occur continuously during groundwater monitoring (task 1), soil vapor installation (task 2), soil vapor sampling (task 3), and site restoration (task 4) when personnel are present onsite.

TABLE 2
Last Revised September 2002

MONITORING METHOD, ACTION LEVELS AND PROTECTIVE MEASURES

INSTRUMENT	HAZARD	ACTION LEVEL	ACTION RESPONSE
Respirable Dust Monitor	Total Particulates	> 5 mg/m^3	Upgrade to Level C Protection
OVA, HNU[2], Photovac Microtip	Total Organic Vapors	Background 10 ppm > background or lowest OSHA permissible exposure limit, whichever is lower, or as modified for this task. Sustained for >5 minutes in the breathing zone. 50 ppm over background, unless lower values required due to respirator protection factors	Level D Protection Upgrade to Level C - site evacuation may be necessary for specific compounds Cease work; upgrade to Level B[3] may be required
Explosimeter[4] (LEL)	Flammable/Explosive Atmosphere	<10% Scale Reading 10-15% Scale Reading >15% Scale Reading	Proceed with work Monitor with extreme caution Evacuate site
0xygen Meter[5]	Oxygen-Deficient Atmosphere	19.5% - 23.5% 0_2 < 19.5% 0_2 > 23.5% 0_2	Normal - Continue work Evacuate site; oxygen deficient Evacuate site; fire hazard
Radiation Meter[6]	Ionizing Radiation	0.1 Millirem/Hour > 1 Millirem/Hour	If > 0.1, radiation sources may be present[7] Evacuate site; radiation hazard
Drager Tubes	Vapors/Gases	Species Dependent > 1 ppm vinyl chloride > 1 ppm benzene > 1 ppm 1,1-DCE	Consult Table 1 or other resources for concentration toxicity/detection data. Upgrade to Level C if concentration of compounds exceed thresholds shown at left; May need to cease work if other levels exceeded - site specific
Gas Chromatograph (GC)	Organic Vapors	3 ppm total OV > background or > lowest specific OSHA permissible exposure limit, whichever is lower	On-site monitoring or tedlar bag sample collection for off-site/laboratory analysis

Notes:
1. Monitor breathing zone.
2. Can also be used to monitor some inorganic species.
3. Positive pressure demand self contained breathing apparatus
4. Lower explosive limit (LEL) scale is 0-100%. LEL for most gasses is 15%.
5. Normal atmospheric oxygen concentration at sea level is 20%
6. Background gamma radiation is ~0.01-0.02 millirems/hour.
7. Contact H&A Health and Safety staff immediately.

Calibration and Use of Equipment:

Calibrate all monitoring equipment in accordance with manufacturers requirements, H&A calibration (OP) standards and site specific requirements (e.g., at the beginning and end of each work day). Calibration of equipment shall be documented in the field notes or Daily Field Report (DFR). Documentation should include:

- Date/time
- Zero reading before calibration
- Concentration of calibration gas
- Reading obtained with calibration gas before adjusting span\
- Final reading obtained with calibration gas after adjusting span

7. DECONTAMINATION AND DISPOSAL METHODS

Personal Hygiene Safeguards:

The following minimum personal hygiene safeguards shall be adhered to:

- No smoking or tobacco products on any Hazwoper project.
- No eating or drinking in the exclusion zone.
- It is required that personnel present on site wash hands before eating, smoking, taking medication, chewing gum/tobacco, using the restroom, or applying cosmetics and before leaving the site for the day.
- It is recommended that personnel present on site shower or bathe at home at the end of each day of working on the site.

Standard Personal Decontamination Procedures:

Outer gloves and boots should be decontaminated periodically as necessary and at the end of the day. Brush off solids with a hard brush and clean with soap and water or other appropriate cleaner whenever possible. Remove inner gloves carefully by turning them inside out during removal. Wash hands and forearms frequently. It is good practice to wear work-designated clothing while on-site which can be removed as soon as possible. Non-disposable overalls and outer work clothing should be bagged onsite prior to laundering. If gross contamination is encountered on-site contact the Project Manager and LHSC to discuss proper decontamination procedures. The steps required for decontamination will depend upon the degree and type of contamination but will generally follow the sequence below.

1. Remove and wipe clean hard hat
2. Rinse boots and gloves of gross contamination
3. Scrub boots and gloves clean
4. Rinse boots and gloves
5. Remove outer boots
6. Remove outer gloves
7. Remove Tyvek coverall
8. Remove respirator, wipe clean and store, if applicable
9. Remove inner gloves

Location of Decontamination Station:

At each work/installation location.

Disposal of PPE:

PPE that is not grossly contaminated can be bagged and disposed in regular trash receptacles. PPE that is grossly contaminated must be bagged (sealed) and field personnel should communicate with the Project Manager to determine proper client-approved, on-site disposal.

Waste PPE shall not be brought back to the H&A office or lab.

Tools & Equipment Decontamination:

All decontamination should be conducted at the site and not at the office or lab.

Check all equipment and materials needed for decontamination of tools and other equipment.

☐ Acetone	☐ Distilled water	☐ Poly sheeting
☑ Alconox soap	☐ Drums for water	☐ Steam cleaner
☐ Brushes	☐ Hexane	☑ Tap water
☑ Disposal bags	☐ Methanol	☐ Washtubs
☑ 5 gallon pails	☐ Other Paper towels	

Standard Equipment Decontamination Procedures:

Air monitoring instrumentation and delicate instruments that are difficult to decontaminate or sensitive to water should be protected from contamination during use through the use of plastic sheeting. To the extent possible, efforts should be taken to limit the degree of contamination to hand tools and sampling equipment during use. Proper PPE must be worn while performing decontamination, including the wearing of chemical safety glasses and gloves. Storage or transport of decontamination solvents in squirt bottles is not permitted as they may discharge their contents upon ambient temperature change or leak if overturned. Standard equipment decontamination procedures are as follows. Any additional requirements are listed under Specific Equipment Decontamination Procedures below.

Pretreatment of heavily contaminated equipment may be conducted as necessary:

1. Remove gross contamination using a brush or wiping with a paper towel
2. Soak in a solution of Alconox and water (if possible)
3. Wipe off excess contamination with a paper towel

Standard decontamination procedure:

1. Wash using a solution of Alconox and water
2. Rinse with potable water
3. Rinse with distilled water

Specific Equipment Decontamination Procedures:

1. Wash using a solution of Alconox and water

2. Rinse in potable water

Waste equipment/decon materials shall not be brought back to the H&A office.

Disposal Methods for Contaminated Materials:

Excess sample solids, decontamination materials, rags, brushes, poly sheeting, etc. that are determined to be free of contamination through field screening can usually be disposed into client-approved, on-site trash receptacles. Uncontaminated wash water may be discarded onto the ground surface away from surface water bodies in areas where infiltration can occur. Purge water from the groundwater wells and associated decontamination water is to be discharged to the sanitary sewer system via the basin drain in the janitor's closet. PPE may be discarded in onsite dumpsters.

Disposal Methods for Contaminated Soils:

Contaminated soil cuttings and spoils must be drummed for disposal off-site unless otherwise specifically directed. Soil cuttings and spoils determined to be free of contamination through field screening can usually be returned to the boreholes or excavations from which they came. Any additional requirements are listed under Specific Disposal Methods for Contaminated Soils below.

Contaminated Soil Sent to Geotechnical Lab:

Assignments that include geotechnical lab testing on contaminated samples must be accompanied with written data that will provide information on the type and extent of contamination. Project Managers must communicate any anticipated or known chemical hazards to the lab when assigning geotechnical tests. Preferably, a copy of this HASP should be forwarded to the laboratory for their review. If the contamination is not known, the PM must contact the laboratory and discuss the source of the sample to help identify any potential hazards that may be associated with the sample.

8. CONTINGENCY PLANNING

How H&A responds to an emergency depends on whether we are at an active facility or another other location. Many active facilities have very stringent requirements for the mitigation of emergencies. Therefore, the PM is responsible for identifying any specific requirements from the client contact.

As a rule of thumb, the following are H&A's basic responses to handling Emergencies. Typically, H&A does not mitigate emergencies. When Clients request or require specific functions such as First Aid/CPR trained personnel on site, we typically conform. Before any Project Manager or LHSC agrees to something more stringent, many issues should be considered such as training, safety, feasibility of an adequate response, insurance requirements, and much more.

Fire:

- Major Fires - Major fires will be mitigated by the local fire departments or by client's on-site fire/emergency response departments.
- Incipient Stage Fires -Incipient stage fires will be extinguished by on-site personnel using fire extinguishers. Only those who have received annual training may use an extinguisher.

Medical:

All H&A employee injuries and illnesses will be documented using the Supervisor's Accident / Injury / Near Miss Report (SAIR). This form is available on the Intranet.

- First Aid - First aid will be addressed using the on-site first aid kit. H&A employees are not required or expected to administer first aid/CPR to any H&A, Contractor, or Civilian personnel at any time and it is H&A's position that those who do are doing it on their behalf and not as a function of their job.
- Trauma - Based upon the nature of the injury, the injured party may be transported to the nearest hospital or emergency clinic by on-site personnel or by ambulance. First response to a trauma incident is to call 911 or facility security. H&A staff members are expected to assist in ancillary roles only such as directing ambulances to the scene. It is the discretion of the staff member on site whether an ambulance should be procured in remote locations where ambulance services will not be effective.

Hazardous Materials Spill:

- Small incidental spills (e.g. pint of motor oil) caused by H&A employees and/or by the contractor will be mitigated by the H&A staff member and/or the contractor.
- Large spills (e.g. large leak from heavy equipment fuel tank). The contractor is responsible for cleanup. In the event that it posses a serious human or environmental threat, the local Fire Department and/or client emergency response department will be contacted. Once emergency has been mitigated typically clean up will be provided by a vendor.

Rescue:

H&A employees will not enter any confined spaces for rescue purposes.

Weather Related Emergencies:

H&A employees and their subcontractors should be aware of potential health effects and/or physical hazards of working during inclement weather. If applicable, safeguards against the effects and hazards of heat stress, cold stress, frostbite, thunderstorms, and lightning, etc., should be included with the section pertaining to physical hazards in this HASP.

Evacuation Alarms:

Evacuation alarms and/or emergency information will be communicated among personnel on site through verbal communication.

Emergency Services:

Emergency services will be summoned via on-site or cellular phone.

Emergency Evacuation Plan:

The site evacuation plan is as follows:

1. Establish a designated meeting area to conduct a head count in the event of an emergency evacuation.
2. If the work area is not near an emergency exit, exit via the closest route and meet at the designated meeting area.
3. Notify emergency response personnel (fire, police and ambulance) of the number of missing or unaccounted for employees and their suspected location.
4. Administer first aid will in the meeting area as necessary.

Under no circumstances should any personnel re-enter the site area without the approval of the corporate H&S manager, the H&S coordinator, and the fire department official in charge.

9. HEALTH & SAFETY PLAN ACKNOWEDGMENT FORM

Note: Only H&A employees sign this page.

I hereby acknowledge receipt and briefing on this Health & Safety Plan prior to the start of on-site work and declare that I understand and agree to follow the provisions and procedures set forth herein while working on this site.

PRINTED NAME	SIGNATURE	DATE

10. PRE-JOB SAFETY CHECKLIST

The following checklist is designed to help Project Managers verify that all Health & Safety requirements are satisfied for projects involving site work and to aid in the preparation of the site-specific HASP.

Please initial and date the appropriate box once each requirement has been satisfied prior to commencement of site work.

#	Project H&S Requirements	Approval by PM or LHSC (initial each box or place NA)	Date Approved
1	Project site history has been researched and summarized, current site conditions have been determined and documentation of previous investigations, risk analyses and chemical data has been assembled and summarized.		
2	Project work scope has been outlined and potential chemical and physical hazards associated with work tasks have been identified.		
3	Task Safety Analysis has been performed and attached to the HASP.		
4	H&A personnel to be involved with the project have been identified and are current with medical surveillance, OSHA 40 hour and 8 hour refresher training. Hazwoper site supervisor requirements are satisfied.		
5	Additional training requirements have been met: e.g. nuclear density gauge, DOT, Confined Space Entry, Competent Person Training for Excavation, OSHA 10 hour certification, Railway Safety Training, etc.		
6	H&A personnel that may be required to wear a respirator are medically qualified and have current certification of fit testing.		
7	Client's additional H&S requirements have been met: e.g. facility safety orientations, safety documentation, meetings, special PPE requirements		
8	H&A subcontractors have met H&A's minimum requirements including: current OSHA 40 hour training, medical surveillance, written HASP, insurance, MSDSs.		
9	MSDSs are on site and available for chemicals on site.		
10	Safety equipment is available: e.g. flashlight, telephone, ladders, traffic cones, barricade tape, fire extinguisher, first aid kit, PPE, respiratory protection, air and dust monitoring instrumentation (calibrated), personal flotation device (PFD), 90' life line with ring, decontamination equipment, etc.		
11	HASP and supporting documentation is complete and signed by all members.		

APPENDIX A
HASP Amendment Form

This Appendix is to be used whenever there is an immediate change in the project scope that would require an amendment to the HASP. For project scope changes associated with "add-on" tasks, the changes must be made in the body of the HASP. Before changes can be made, a review of the potential hazards must be initiated by the H&A Project Manager.

Amendment No.	
Site Name:	
Work Assignment No.:	
Date:	
Type of Amendment:	
Reason for Amendment:	
Alternate Safeguard Procedures:	
Required Changes in PPE:	

Project Manager Signature: _____ Date: _____

Local Health and Safety Coordinator: _____ Date: _____

This original form must remain on site with the original HASP. If additional HASPs are in the field, it is the Project Manager's responsibility to forward a signed copy of this amendment to those who have copies.

APPENDIX B
Issuance and Compliance
Site Safety Officer Role and Responsibilities
Training Requirements

This Health & Safety Plan (HASP) has been prepared in accordance with the requirements of Title 29 the Code of Federal Regulations (CFR) Section 1910.120/1926.65 to provide guidance for the protection of onsite personnel from physical harm and chemical exposure while working at the subject site.

The specific requirements of this HASP include precautions for hazards that exist during this project and may be revised as new information is received or as site conditions change.

- This HASP must be signed by all Haley & Aldrich (H&A) staff members who will work on the project, including H&A visitors. By signing the Health and Safety Plan Acknowledgement Form personnel are acknowledging that they are aware of the specific hazards of the site and agree to follow the provisions and procedures required to safeguard themselves and others from those hazards.
- This HASP or a current signed copy must be retained at the site at all times when H&A staff members are present.
- Deviations from this HASP are not permitted without prior approval from the above signed. Unauthorized deviations may constitute a violation of H&A company procedures/policies and may result in disciplinary action.
- Revisions to this HASP must be outlined within the contents of the HASP. If immediate or minor changes are necessary, the LHSC and H&A Project Manager may use Appendix A (HASP Amendment Form), located in the back of this HASP. Any revision to the HASP requires personnel to be informed of the changes and that they understand the requirements of the change.
- This HASP is not for H&A Subcontractor use. Each subcontractor engaged is responsible for all matters relating to the health and safety of their personnel and the safe operation of their equipment. This HASP will be made available as a reference so that subcontractors are informed of the potential hazards associated with the site to the extent we are aware. Subcontractors must develop their own HASP which must be, at a minimum, at least as protective as this HASP.
- This Site Specific HASP provides only site-specific descriptions and work procedures. General safety and health compliance programs in support of this HASP (e.g., injury reporting, medical surveillance, personal protective equipment (PPE) selection, etc. are described in detail in the H&A Corporate Health and Safety Program Manual and within Standard Operating Procedures (OPs). Both the manual and OPs can be located on the Company Intranet. When appropriate, users of this HASP should always refer to these resources and incorporate to the extent possible. The manual and OPs are available to clients and regulators per request.

Site Safety Officer:

The site safety officer (SSO) is defined as the individual responsible to the employer with the authority and knowledge necessary to implement the HASP and verify compliance with applicable health and safety requirements.

The H&A Project Manager may designate any person as the site safety officer (SSO) and determines the order of authority on site. Usually the highest ranking person on site is the SSO. A site safety officer must be on site at all times. When none of the designated SSOs are present on site, the senior person for H&A on site will default to the SSO. This project has identified the following hierarchy for SSO.

1. Claire L. DeBergalis
2. _____

Site Safety Officer Roles and Responsibilities:

The SSO is responsible for field implementation of this HASP and enforcement of safety rules and regulations. SSO functions include:

- Act as H&A's liaison for health and safety issues with client, staff, subcontractors, and agencies.
- Verify that utility clearance has been performed by H&A subcontractors.
- Oversee day-to-day implementation of the HASP by H&A employees on site.
- Interact with subcontractor project personnel on health and safety matters.
- Verify use of required PPE as outlined in the HASP.
- Inspect and maintain H&A safety equipment, including calibration of air monitoring instrumentation used by H&A.
- Perform changes to HASP and document in Appendix A of the HASP as needed and notify appropriate persons of changes.
- Investigate and report on-site accidents and incidents involving H&A and its subcontractors.
- Verify that site personnel are familiar with site safety requirements (e.g., the hospital route and emergency contact numbers).
- Report accidents, injuries, and near misses to the H&A PM and Local Health and Safety Coordinator (LHSC) as needed.

The SSO will conduct initial site safety orientations with site personnel (including subcontractors) and conduct toolbox and safety meetings thereafter with H&A employees and H&A subcontractors at regular intervals and in accordance with H&A policy and contractual obligations. The SSO will track the attendance of site personnel at H&A orientations, toolbox

talks, and safety meetings. Subcontractors will document training and provide training rosters to the H&A SSO.

The SSO will report accidents such as injury, overexposure, or property damage to the Local Health and Safety Coordinator, to the Project Manager, and to the safety managers of other on-site consultants and contractors. The SSO will consult with the safety managers of other on-site consultants and subcontractors on specific health and safety issues arising over the course of the project, as needed.

Health and Safety Training Requirements:

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

The H&A Project Manager/LHSC will be responsible for maintaining and providing to the client/site manager documentation of H&A staff members' compliance with required training as requested. Records shall be maintained per OSHA requirements.

40-Hour Health and Safety Training

The 40-Hour Health and Safety Training course provides instruction on the nature of hazardous waste work, protective measures, proper use of personal protective equipment, recognition of signs and symptoms which might indicate exposure to hazardous substances, and decontamination procedures. It is required for all personnel working on-site, such as equipment operators, general laborers, and supervisors, who may be potentially exposed to hazardous substances, health hazards, or safety hazards consistent with 29 CFR 1910.120.

8-hour Annual Refresher Training

Personnel who complete the 40-hour health and safety training are subsequently required to attend an annual 8-hour refresher course to remain current in their training. When required, site personnel must be able to show proof of completion (i.e., certification) at an 8-hr refresher training course within the past 12 months.

8-Hour Supervisor Training

On-site managers and supervisors directly responsible for, or who supervise staff members engaged in hazardous waste operations, should have eight additional hours of Supervisor training in accordance with 29 CFR 1910.120. Supervisor Training includes, but is not limited to, accident reporting/investigation, regulatory compliance, work practice observations, auditing, and emergency response procedures.

Additional Training for Specific Projects

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

- Client specific training or orientation
- Competent person excavations
- Confined space entry (entrant, supervisor, and attendant)
- Heavy equipment including aerial lifts and forklifts
- First aid/ CPR
- Diving certification
- Use of fall protection
- Commercial drivers license
- Use of nuclear density gauges
- Asbestos awareness