REVISED SITE MANAGEMENT PLAN
COOPERVISION, INC
SCOTTSVILLE, NEW YORK
VCA SITE ~~#V00157-8~~ V00175-8 (FS)

by

Haley & Aldrich of New York
Rochester, New York

for

CooperVision, Inc.
Scottsville, New York

File No. 70665-017
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CooperVision, Inc.
711 North Road
Scottsville, New York 14546

Attention: Mr. Bernie Hallatt

Subject: *Revised* Site Management Plan
CooperVision, Inc.
Scottsville, New York
VCA Site #~~V00157-8~~ V00175-8 (FS)

Ladies and Gentlemen:

Haley & Aldrich of New York (Haley & Aldrich) is pleased to submit this *Revised* Site Management Plan for the above-referenced site. This document is required as an element of the remedial program at the CooperVision, Inc. facility (hereinafter referred to as the "site") under the New York State (NYS) Voluntary Cleanup Program (VCP) administered by New York State Department of Environmental Conservation (NYSDEC). Remedial activities were conducted at the Site in accordance with Remediation Voluntary Cleanup Agreement (Remediation VCA) #V00157-8, which was executed on 31 May 2001.

The 29 July 2009 SMP represented an update to the Draft Operations Maintenance and Monitoring (OM&M) Plan for the Site dated 7 May 2007 and previously submitted to the NYSDEC on 29 June 2007. That SMP superseded the Draft May 2007 OM&M Plan, included revisions per the NYSDEC's August 2007 comments to the Draft OM&M Plan, and was formatted in accordance with the recently developed Draft SMP template dated October 2008. The May 2010 SMP represented a revision to the 29 July 2009 SMP. It incorporated revisions per a NYSDEC comment letter dated 1 December 2009 and per discussions had with the NYSDEC in a meeting on 6 January 2010, a teleconference on 12 January 2010, and limited subsequent discussions to settle final language regarding evaluation of monitoring data. This SMP represents a second revision, and incorporates revisions per a NYSDEC email dated 8 June 2010. Both the May and June 2010 revisions are shown herein as italicized text.

This Site Management Plan (SMP) documents the measures required to maintain protection of human health and the environment at the site. This plan specifies the methods necessary to ensure compliance with the engineering controls (ECs) and institutional controls (ICs) required by the site Deed Restrictions. Compliance with this plan is required by the grantor of the Deed Restrictions, CooperVision, and the grantor's successors and assigns. This SMP may only be revised with the approval of the NYSDEC.

Please contact the undersigned with any questions you may have.

Sincerely yours,
HALEY & ALDRICH OF NEW YORK

Claire L. Mondello
Staff Environmental Scientist

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Enclosures

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EXECUTIVE SUMMARY

The purpose of this Site Management Plan (SMP) is to provide guidance on continued management (operation, maintenance, and monitoring of engineering and institutional controls, and excavation management) of environmental remediation components of the CooperVision facility at 711 North Road, Scottsville, New York (the "site") following release of liability under the Voluntary Cleanup Program (VCP), administered by the New York State Department of Environmental Conservation (NYSDEC). Continued management of the site generally includes the following activities; the applicable sections in the document related to those activities are noted also:

Excavation Management:

In the event that excavation occurs *on the Site* (i.e. – utility work, regrading of the parking lot, etc.), and excavations breach the existing *site cover*, excavations will require management in accordance with Section 2.5 – Excavation Management Plan of this SMP. Activities described in Section 2.5 include, but are not limited to:

- NYSDEC Notification
- Soil screening, sampling, stockpiling, and disposal requirements
- Material removal requirements
- Backfill criteria
- Fluid management, and dewatering
- Community air monitoring
- Other dust, odor, and nuisance monitoring
- Cover restoration

Monitoring:

1. **Semi-annual Groundwater Monitoring** – Groundwater monitoring will occur semi-annually at existing groundwater monitoring wells for three years following release from liability, or as otherwise instructed by the NYSDEC as described in Section 3.3 of this SMP.

2. **Existing Cover Monitoring –** The existing cover will be monitored annually or when breaches in the *cover* occur to ensure that breaches are repaired and the cover remains intact. The cover monitoring is described in Section *3.8.1*.

3. **Sub-Slab Depressurization System (SSD) Monitoring** – A SSD system was installed at the site to mitigate potential soil vapor intrusion into the site building. There are two components to the SSD system monitoring, as follows:
   - **SSD system vacuum monitoring/inspection** – This consists of visually observing manometers onsite to verify a sub-slab vacuum is present. This can be conducted by facility personnel and must be performed monthly.
   - **SSD system pressure testing** – This consists of monitoring existing pressure testing points using a hand-held manometer. This must be conducted annually by an environmental professional.

   Monitoring of the SSD System is described in Section *3.8.2*.

4. **Trench Collar Monitoring** – Five utility trench collars were installed along utility lines in locations shown on Figure 2. Monitoring of the trench collars is required only as needed if these

areas are disturbed during subsurface work (i.e. – utility work) to ensure they remain intact. The trench collar monitoring is described in Section *3.8.3*.

Operation and Maintenance:

The onsite sub-slab depressurization (SSD) system will require both routine and non-routine maintenance:

1. **Routine SSD System Operation and Maintenance** – The SSD system is designed to run continuously, and does not require manual start-up or shut down. Routine maintenance of the system includes preventative maintenance to ensure the system continues to function properly. Routine maintenance should be conducted as needed based on observations noted during routine monitoring.

2. **Non-Routine SSD System Maintenance** – Non-routine maintenance may be required in situations such as the system fails, becomes damaged, and/or parts need to be replaced. Also non-routine maintenance may be required in the event the site building undergoes a significant renovation, and the existing system is not adequate for the new building design.

The SSD System operation and maintenance is described in Section 4.2 of the SMP.

Annual Certification and Reporting:

Following release from liability, an annual Periodic Review Report and Certification must be submitted to the NYSDEC documenting that the engineering and institutional controls continue to be in place and effective. The annual report will include the results of excavation and monitoring, operation, and maintenance activities that occurred during the reporting period. Overall reporting requirements are described in Section *2.7*. Specific reporting requirements pertaining to monitoring and operation/maintenance are described in Sections *3.9* and 4.3, respectively. The annual report will require certification by a Professional Engineer as described in Section 2.7.2.

In addition to what is listed above and for purposes of overall site understanding, this SMP includes a summary of site environmental information and history, information regarding the engineering and institutional controls at the site, general inspections and notifications, contact information, and guidance for other non-routine activities (as they relate to the activities conducted under the VCP), such as:

- vapor intrusion evaluation for new building construction;
- utility installations
- a groundwater monitoring contingency plan;
- groundwater monitoring well repair, replacement, and decommissioning; and
- terminating a remedial system.

TABLE OF CONTENTS

TABLE OF CONTENTS
(continued)

TABLE OF CONTENTS
(continued)

LIST OF TABLES

LIST OF FIGURES

1. INTRODUCTION AND DESCRIPTION OF REMEDIAL PROGRAM

1.1 Introduction

This document is required as an element of the remedial program at the CooperVision, Inc. facility (hereinafter referred to as the "Site") under the New York State (NYS) Voluntary Cleanup Program (VCP) administered by New York State Department of Environmental Conservation (NYSDEC). The site was remediated in accordance with Voluntary Cleanup Agreement (VCA) #V00157-8, which was executed on 31 May 2001.

1.1.1 General

CooperVision, Inc. ("CooperVision") entered into a VCA with the NYSDEC to remediate a 5.4 acre site located in Scottsville, Monroe County, New York. This VCA required CooperVision, to investigate and remediate contaminated media at the site. A map showing the site location and boundaries of this 5.4-acre site is provided in Figures 1 and 2. The boundaries of the site are more fully described in the metes and bounds site description that accompanies the Declaration of Covenants and Restrictions ("Deed Restrictions"), and are attached as an appendix to this plan (Appendix A).

After completion of the remedial work described in the Remedial Action Work Plans and Interim Remedial Measure Work Plans, some contamination was left in the subsurface at this site, which is hereafter referred to as 'remaining contamination." This Site Management Plan (SMP) was prepared to manage remaining contamination at the site in perpetuity or until extinguishment of the Deed Restrictions. Remedial action work on the site began in 2001 (initiation of *enhanced* bioremediation), and was completed in 2008 (installation of utility line soil-bentonite collars); investigation activities were completed in 2009 (completion of potential vapor intrusion investigations). Monitoring of the site will continue. All reports associated with the site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State.

Excavations for any reason to be conducted on the Site that breach existing Site cover must be conducted in accordance with Section 2.5 of this SMP. Based on soil and groundwater data collected as of the date of this SMP, residual contamination exists primarily within the area delineated by the box shown on Figure 3.

This SMP was prepared by Haley & Aldrich of New York, on behalf of CooperVision, in accordance with the requirements and guidelines provided by NYSDEC. This SMP addresses the means for implementing the Institutional Controls (ICs) and Engineering Controls (ECs) that are required by the Deed Restrictions for the site.

1.1.2 Purpose

The site contains remaining contamination after completion of the remedial action. Engineering Controls have been incorporated into the site remedy to provide proper management of remaining contamination in the future to ensure protection of public health and the environment. Deed Restrictions will be recorded with the Monroe County Clerk, that provide an enforceable legal instrument to ensure compliance with this SMP and all ECs and ICs placed on the site. The ICs place restrictions on site use, and mandate operation, maintenance, monitoring and reporting measures for all ECs and ICs. This SMP specifies the methods necessary to ensure compliance

with all ECs and ICs required by the Deed Restrictions for contamination that remains at the site. This plan has been approved by the NYSDEC, and compliance with this plan is required by the grantor of the Deed Restrictions (CooperVision) and the grantor's successors and assigns. This SMP may only be revised with the approval of the NYSDEC.

This SMP provides a detailed description of procedures required to manage remaining contamination at the site after completion of the Remedial Action, including: (1) implementation and management of Engineering and Institutional Controls; (2) site *enhanced* bioremediation and groundwater monitoring; (3) operation and maintenance of the sub-slab depressurization system; and (4) performance of periodic inspections, certification of results, and submittal of Periodic Review Reports.

To address these needs, this SMP includes three plans: (1) an Engineering and Institutional Control Plan for implementation and management of EC/ICs, which includes a reporting plan for the submittal of data, information, recommendations, and certifications to NYSDEC; (2) a Monitoring Plan for implementation of Site Monitoring; and (3) an Operation and Maintenance Plan for maintenance of the sub-slab depressurization system.

It is important to note that:

- Failure to properly implement the SMP is a violation of *the Voluntary Cleanup Agreement, which could invalidate the Assignable Release and Covenant Not to Sue issued per the Agreement;*

At the time the SMP was prepared, the SMP and all site documents related to Remedial Investigation and Remedial Action were maintained at the NYSDEC office in Region 8, Avon, New York.

1.1.3 Applicability

This SMP, with the exception of the Excavation Plan (Section 2.5), is applicable to the controlled property, which is the entire CooperVision parcel. All Deed Restrictions are applicable to all portions of the site.

1.2 Site Background

1.2.1 Site Location and Description

The site is located in the Village of Scottsville, County of Monroe, New York and is identified as tax map *numbers 187.17-1-18 and 187.17-1-18.1/ex* on the Town of Wheatland Tax Map. The site is an approximately 5.4-acre area bounded by North Road beyond which are residences to the north, Heany Industries, a manufacturing facility to the south, Briarwood Lane, beyond which are apartments/townhouses to the east, and residences along North Road to the west (see Figure 2).

The CooperVision site is located at 711 North Road in Scottsville, New York (See Figures 1 and 2). The site includes an original building with additions having a total area of approximately 50,000 sq. ft. Soil and groundwater on some portions of the site have been found to be impacted by volatile organic compounds (VOCs), primarily 1,1,1-trichloroethane (1,1,1-TCA). The site has been used for manufacturing since the mid-1970s.

Remediation work performed at the site was focused in the parking lot area immediately south of the site building. This area is part of the area referred to herein as the Remediation Area. The Remediation Area is shown on Figure 3.

The boundaries of the site are more fully described in Appendix A.

1.2.2 Site History

Prior to 1976 the site consisted of undeveloped agricultural land. The site was purchased, developed, and operated by Union Corporation thereafter for the manufacture of contact lens eyewear. CooperVision acquired the operation in 1983. Today, CooperVision continues to manufacture contact lenses at the facility.

The current building used for manufacturing is a slab-on-grade structure, developed for commercial purposes and founded on typical spread footings. The building is shaped as an inverted "L" with the original one-story portion of the structure located on the northeast side of the structure. Two-story sections of the facility, a western and southwestern wing, were added in two phases in 1995 and 1997. Manufacturing occupies the northeastern portion of the facility; manufacturing, warehousing and shipping occupy the western/southwestern portion. Subsurface utilities consist of municipal sewer, water, and electrical services.

Historically, 1,1,1-TCA, methylene chloride, methanol, caustics, polymers, monomers, silicone oil, low-odor paraffin solvent, acetone, alcohols, and other compounds have been stored on site. Most chemicals have been purchased in small volumes, generally a few liters or less. Certain compounds (1,1,1-TCA, methylene chloride) were stored in 55-gal. drums in a secure indoor chemical storage room.

Industrial grade 1,1,1-TCA was used at this facility for the manufacture of contact lens eyewear from approximately the mid-1970's to 1993. It was delivered to the site in 55 gallon drums and dispensed by the transporter to an above-ground indoor 600-gal. tank. 1,1,1-TCA was drawn off the 600 gal. tank in small quantities for use at workstations to release lenses from lens forms, until the manufacturing process was modified in 1993. Once used, 1,1,1-TCA was transferred to another 275-gal. aboveground tank, adjacent to the 600 gal. tank.

The 600 gal. and 275 gal. tanks were located in a compressor room on the south side of the facility. The facility is slab-on-grade construction with no floor drains apparent in the compressor room or immediately adjoining rooms. The tanks were removed from the facility in 1993 and 1995 respectively.

1.2.3 Geologic Conditions

Subsurface soils generally consist of glacial till across the Site. An upper layer of the till appeared to have been modified by ice melt or similar reworking. The reworked till consists of fine sand with trace coarse sand and gravel and occurs generally from ground surface to approximately 10 ft. depth in the center of the Site, and has medium density. The unmodified till also consists of fine sand with trace coarse sand but is more dense than the reworked material.

Based on groundwater level data collected to-date, groundwater flow on the Site is generally towards the east-southeast. Hydraulic conductivity at the Site is low (10^{-6} to 10^{-7} cm/sec range).

A groundwater flow map is shown in Figure 4.

1.3 Summary of Remedial Investigation Findings

A Remedial Investigation (RI) was performed to characterize the nature and extent of contamination at the site. The results of the RI are described in detail in the following reports:

- "Report on Site Environmental Investigations," dated April 1998
- "Revised Report on VCA Investigations," dated May 2000
- *"Revised Soil Vapor Investigation Results Report," dated September 2009*
- *"Revised Soil Vapor Investigation Results Report Addendum," dated September 2009*

1.3.1 Soil and Groundwater Investigations

CooperVision, Inc. applied to the NYSDEC for participation in New York State's Voluntary Cleanup Program (VCP) 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 VCP. 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 a 1999 Investigation Voluntary Cleanup Agreement (Investigation VCA) for implementation of the investigation described below, entered into between the NYSDEC and CooperVision.

CooperVision completed the work described by the 1999 Investigative Work Plan and the results were summarized in a report entitled Revised Report on VCA Investigations (investigation report) dated May 2000. The results of the investigation showed that source residues in soil and groundwater at the CooperVision facility existed only in limited areas. The highest soil concentrations detected at that time were slightly above NYSDEC 4046 TAGM levels. 1,1,1-TCA concentrations in groundwater exceeded NYSDEC groundwater standards locally near the source and up to 240 + feet downgradient.

The investigation report evaluated several potential remediation approaches and ultimately recommended enhancing bioremediation using Hydrogen Release Compound (HRC), a commercially available slow-release substrate specifically formulated for application to remediation sites such as CooperVision.

1.3.2 On-Site and Off-Site Vapor Investigations

As a result of the elevated detection at MW-204 during routine groundwater monitoring (see Section 1.4 below), the NYSDEC and NYSDOH felt it prudent to evaluate the soil vapor conditions in this general area of the groundwater plume.

To address NYSDEC's concerns, a soil vapor investigation and indoor air/sub-slab vapor investigation was conducted between April 2008 and March 2009 on both the CooperVision site and at the residential properties located to the east of the site. The investigation revealed soil

vapors with detectable concentrations of site compounds of concern (1,1,1-TCA, 1,1-DCE, 1,1-DCA, chloroethane, and vinyl chloride) along the property line and in the adjacent eastern right-of-way, though the vapors were determined not to be adversely impacting the indoor air or sub-slab vapor at the apartment or townhome buildings to the east (as per indoor air and sub-slab vapor testing).

1.4 Summary of Remedial Actions

The site was remediated in accordance with the following NYSDEC-approved work plans:

- "CooperVision VCA Remediation Work Plan," dated 5 February 2001.
- "Sub-Slab Depressurization System (Amended Work Plan)," dated 18 May 2006
- "Interim Remedial Measure (IRM) Work Plan, CooperVision Inc., Scottsville, New York (VCA Site #V00175-8)" dated 1 August 2008.

The following is a summary of the Remedial Actions performed at the site:

Remediation design was provided to the NYSDEC in a work plan dated February 2001 (amended as per comments from the NYSDEC from submittals dated 23 June 2000 and 24 July 2000), and following NYSDEC approval, was submitted by the NYSDEC for public comment 18 June 2001. The 2001 work plan became the final version attached to the remediation VCA signed by the NYSDEC dated 31 May 2001. The remediation work plan was implemented and comprised a bioremediation remedy, initiated through HRC injection and monitoring well drilling activities performed between July and September 2001, and through subsequent initial performance monitoring (October 2001 and January 2002). Documentation of the HRC remediation has been provided to the NYSDEC and all other required recipients in a Preliminary Report on Remediation Activities, CooperVision, Inc. dated 10 April 2002. An Engineer's Statement was included in that report.

A supplemental remedial action consisting of a sub-slab depressurization system was requested by NYSDEC and NYSDOH representatives at a project update meeting on 19 November 2004. An amended Work Plan entitled CooperVision Sub-Slab Depressurization System (Amended SSD Work Plan) for the sub-slab depressurization system was submitted on 18 May 2006 and approved by the NYSDEC on 8 August 2006. The system was installed in September and October 2006.

A Draft Final Engineering Report (FER) and Operations Maintenance and Monitoring (OM&M) Plan, both dated 7 May 2007 were submitted to the NYSDEC for review. 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 remaining two main NYSDEC concerns with the project:

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, 1,1-dichloroethane (1,1-DCA), 1,1-dichloroethene (1,1-DCE), and 1,1,1-TCA were detected in MW-204, the easternmost downgradient well located along the eastern property boundary (see Figure 2) at levels higher than what had historically been detected in this well. These increases were attributed to the presence of lower groundwater elevations than was normal (due to a

summer with low precipitation). Since the 2006 sampling and results, the chlorinated compound detections have decreased to low parts-per-billion levels; consistent with what otherwise historically had been detected in this well.

Even though the chlorinated compound concentrations have decreased, the NYSDEC and NYSDOH felt it was prudent to evaluate the soil vapor conditions in this general area of the groundwater plume. A soil vapor investigation was conducted in 2007 – 2009 as described in Section 1.3.2 above. In addition to the investigation, an Interim Remedial Measure (IRM) was completed that consisted of installing soil-bentonite-cement (SBC) trench collars in five locations along existing utilities located on the CooperVision site and within the adjacent eastern right-of-way. The purpose of the trench collars was to mitigate the utility lines as a potential preferential pathway for vapors and groundwater.

Also included as part of the remedy, is the recording of Deed Restrictions that restrict land use, prevent future exposure to residual contamination (by preventing, for example, use of site groundwater for drinking water or industrial purposes), and require adherence to this Site Management Plan for long term management of the site.

1.4.1 Removal of Contaminated Materials from the Site

Excess soil comprising soil cuttings and excess soil from installation of the HRC wells, soil vapor points, and trench collars were removed from the site as part of the remediation and properly disposed.

A list of the soil cleanup objectives (SCOs) for the site is shown in Table V.

1.4.2 Quality of Backfill Placed in Excavated Areas

Backfill was not brought to the site as part of the remediation.

1.4.3 On-Site and Off-Site Treatment Systems

No active mechanical or powered long-term treatment systems were installed as part of the site remedy. *Enhanced bioremediation (via injection of HRC) is being used to treat on-site groundwater in situ.*

1.4.4 Nature & Extent of Contamination

Subsurface soil, groundwater, and soil vapor are affected by site compounds of concern. The site compounds of concern (COCs) include 1,1-DCA, 1,1-DCE, 1,1,1-TCA, chloroethane, and vinyl chloride. Historically, trichlorethene (TCE) and tetrachloroethene (PCE) were detected onsite as per site investigations, though currently they are no longer detected onsite and are no longer COCs. Based on recent groundwater sampling results, soil and groundwater impacts appear to be confined to the area defined herein as the *Remediation Area (See Figure 3)*.

Soil concentrations in the source area (area immediately south of the Site building in the vicinity of monitoring wells MW-205, OWD-302, OWS-302, and MW-401 (Figure 2)) range from 0.0071 mg/kg to 3.57 mg/kg of total chlorinated VOCs as per investigation results.

1.4.4.1 Pre-Remediation

Prior to initiation of *enhanced* bioremediation, concentrations of COCs in groundwater ranged from 0.16 mg/L to 690 mg/L, with the highest concentrations in the source area.

The COCs are generally found between 4 and 28 feet below ground surface, though within the source area, contaminants have been detected in deeper groundwater. Overall, the highest concentrations of contaminants are present in the source area and they decrease substantially moving out to the mid-gradient and down-gradient areas to the east-southeast.

Contaminants of concern have been detected in soil vapor both onsite, in the right-of-way to the east of the Site, on the properties to the east of the Site at concentrations between non-detect and 9,200 ug/m^{3,} with the greatest concentrations being found at the property boundary and right-of way.

1.4.4.2 Post-Remediation

Tables I - IV summarizes results of site groundwater samples and Figure 2 depicts locations of sampling associated with those results.

Following injection of hydrogen release compound (HRC), the overall concentrations of site contaminants in the groundwater decreased significantly. Based on current groundwater data, the nature and extent of groundwater contamination is as follows (refer to Figure 2 for well locations):

- Source Area (Near MW-205, OWD-302, OWS-302, MW-401): Detected compounds include 1,1-DCA, 1,1-DCE, 1,1,1-TCA, and chloroethane. Total VOCs were detected between 0.13 mg/L and 260 mg/L.
- Mid-Gradient Area (Near MW-2, MW-3, MW-501, and MW-502): Detected compounds include 1,1-DCA, chloroethane, and vinyl chloride. Total VOCs were detected between 0.4 mg/L and 8.7 mg/L.
- Down-Gradient Area (Near MW-304, MW-203, MW-202, MW-204, and MW-402): Detected compounds include 1,1-DCA between non-detect and 0.006 mg/L.

Following installation of utility trench collars, detected concentrations in soil vapor ranged from non-detect to 5,900 ug/m^3. The highest concentrations of soil vapor are present along the property line and eastern right-of-way in the vicinity of soil vapor points SV-3 and SV-6; Figure 2). *Based on onsite and offsite vapor investigations, soil vapors were not found to be adversely impacting the properties adjacent to the east of the Site (as per indoor air and sub-slab vapor sampling that occurred offsite as part of the 2008-2009 soil vapor intrusion investigation).*

1.4.5 Engineering and Institutional Controls

Since remaining contamination is present at this site, Engineering Controls and Institutional Controls have been implemented to protect public health and the environment for the applicable future use. Engineering and Institutional controls are described in Section 2 – Engineering and Institutional Controls Plan.

The site may continue to be used for commercial/industrial use, provided that the long-term Engineering and Institutional Controls described in the SMP remain in use. These EC/ICs are designed to:

- Prevent ingestion/direct contact with contaminated soil;
- Prevent inhalation of or exposure to contaminants volatilizing from contaminated soil;
- Prevent ingestion of groundwater with contaminant levels that exceed drinking water standards;
- Prevent contact with or inhalation of volatiles from contaminated groundwater;
- Restore groundwater to pre-disposal/pre-release conditions, to the extent practicable;
- Prevent the discharge of contaminants to surface water;
- Prevent contaminated groundwater from migrating off-site; and
- Prevent migration of contaminants that would result in off-site groundwater or surface water contamination.

2. ENGINEERING AND INSTITUTIONAL CONTROL PLAN

2.1 Introduction

2.1.1 General

Remedial activities completed at the site were conducted in accordance with the NYSDEC-approved work plans for the site. The remedial goals included attainment of Soil Cleanup Objectives (SCOs) for on-site soils for commercial use. SCOs approved by the NYSDEC are listed in Table V. Since remaining contaminated soil, groundwater, and soil vapor exists beneath the site, Engineering Controls and Institutional Controls (EC/ICs) are required to protect human health and the environment. This Engineering and Institutional Control Plan describes the procedures for the implementation and management of all EC/ICs at the site. The EC/IC Plan is one component of the SMP and is subject to revision by NYSDEC.

2.1.2 Purpose

The purpose of this Plan is to provide:

- A description of all EC/ICs on the site;
- The basic operation and intended role of each implemented EC/IC;
- A description of the key components of the ICs created as stated in the Deed Restrictions;
- A description of the features that should be evaluated during each periodic inspection and compliance certification period;
- A description of plans and procedures to be followed for implementation of EC/ICs, such as the implementation of an Excavation Plan for the safe handling of remaining contamination that may be disturbed during maintenance or redevelopment work on the site;
- Any other provisions necessary to identify or establish methods for implementing the EC/ICs required by the site remedy, as determined by the NYSDEC; and
- A description of the reporting requirements for these controls.

2.2 Engineering Controls

2.2.1 Engineering Control Systems

2.2.1.1 Existing Cover

Exposure to remaining contamination in at the site is prevented by an existing cover, which consists of the CooperVision building slab, pavement, and vegetative cover. The Excavation Plan that appears in Section 2.5 outlines the procedures required to be implemented in the event the existing cover is breached, penetrated or temporarily removed, and any underlying remaining contamination is disturbed. Procedures for the

inspection and maintenance of this cover are provided in the Monitoring Plan included in Section 3 of this SMP.

2.2.1.2 Sub-Slab Depressurization System

A sub-slab depressurization (SSD) system was installed as a contingency measure in order to mitigate potential risks of soil vapor intrusion, at the request of the NYSDEC and the New York State Department of Health (NYSDOH) – see Figure 5. The system was designed according to the "Sub-Slab Depressurization System (Amended Work Plan)" dated 18 May 2006 (Amended SSD Work Plan) and correspondence from the NYSDEC (RE: CooperVision Site #V00175-8, Sub-Slab Depressurization System (Amended Work Plan)) dated 8 August 2006.

Six fans were installed during 2006 to depressurize the sub-slab in the vicinity of the source area of groundwater contamination, each with a discrete suction location (except for the fan above the switch gear room which has two suction locations). Fans are located on the roof of the facility. In addition to the suction points and fans, eighteen permanent test points were installed for testing of sub-slab vacuum (See the attached Figures 5 and 6 for system layout).

The system was installed in September and October 2006 and has been operating continuously. It depressurizes air space beneath the slab in order to mitigate potential risks of soil vapor intrusion by preventing the vapors that collect beneath the building from infiltrating into the building. The negative pressure beneath the slab is achieved via air exhausts, which are located throughout the facility as seen on Figure 6. These exhausts result in a sub slab air pressure that is relatively negative compared to the indoor air pressure.

Procedures for operating and maintaining the SSD system are documented in the Operation and Maintenance Plan (Section 4 of this SMP). Procedures for monitoring the system are included in the Monitoring Plan (Section 3 of this SMP). The Monitoring Plan also addresses severe condition inspections in the event that a severe condition, which may affect controls at the site, occurs.

2.2.1.3 Soil-Bentonite-Cement Utility Trench Collars

In order to *reduce* the potential for onsite and offsite utility lines (natural gas and water) to act as preferred pathways for offsite migration of soil vapor, five (5) soil-bentonite-cement (SBC) trench collars were installed along both the natural gas and water lines on the CooperVision site and in the adjacent eastern right-of-way (Figure 2). Trench collar design is shown on Figure 7.

Procedures for monitoring the trench collars are included in the Monitoring Plan (Section 3 of this SMP). The Monitoring Plan also addresses severe condition inspections in the event that a severe condition, which may affect controls at the site, occurs.

2.2.2 Criteria for Completion of Remediation/Termination of Remedial Systems

Generally, the remedial processes will be considered to be completed when effectiveness monitoring indicates that the remedy has achieved the remedial action objectives identified by the decision document (Remediation VCA).

2.2.2.1 Existing Cover

The existing cover is a permanent control and the quality and integrity of this system will be inspected at defined, regular intervals as long as this SMP remains applicable to the site.

2.2.2.2 Sub-slab Depressurization System

The active SSD system will not be discontinued unless prior written approval is granted by the NYSDEC. In the event that monitoring data indicates that the SSD system is no longer required, a proposal to discontinue the SSD system will be submitted by the site owner to the NYSDEC and NYSDOH.

2.2.2.3 Soil-Bentonite-Cement Utility Trench Collars

The SBC utility trench collars are a permanent control and the quality and integrity of the collars will be inspected as required as long as this SMP remains applicable to the site.

2.2.2.4 *Groundwater Monitoring*

Groundwater monitoring activities to assess the progress of enhanced bioremediation at the CooperVision site will continue, as determined by the NYSDEC, until residual groundwater concentrations are found to be consistently below NYSDEC standards or have become asymptotic at an acceptable level over an extended period of time. Monitoring will continue on the schedule described in this SMP and until permission to discontinue is granted in writing by NYSDEC. If groundwater contaminant concentrations at any point of the groundwater plume show an increasing trend over two sequential sample events for the same compound and well (based on conduct of a Mann-Kendall Test according to the procedure listed in Section 3.4.2 below), or become asymptotic at a level that is not protective of public health and the environment as determined by the Department, then additional measures will be evaluated and implemented as may be necessary (see Section 3.4 below).

2.3 Institutional Controls

A series of Institutional Controls is required by the Deed Restrictions to: (1) implement, maintain and monitor Engineering Control systems; (2) prevent future exposure to remaining contamination by controlling disturbances of the subsurface contamination; and, (3) limit the use and development of the site to commercial and industrial uses only. Adherence to these Institutional Controls on the site is required by the Deed Restrictions and will be implemented under this Site Management Plan. These Institutional Controls are:

- Compliance with the Deed Restrictions by the Grantor (CooperVision) and the Grantor's successors and assigns with all elements of this SMP;
- All Engineering Controls must be operated and maintained as specified in this SMP;
- All Engineering Controls on the Controlled Property must be inspected and certified at a frequency and in a manner defined in the SMP.

- Groundwater monitoring must be performed as defined in this SMP;

- Data and information pertinent to Site Management for the Controlled Property must be reported at the frequency and in a manner defined in this SMP;

- On-site environmental monitoring devices, including but not limited to, groundwater monitoring wells, must be protected and replaced as necessary to ensure the devices function in the manner specified in this SMP.

Institutional Controls may not be discontinued without an amendment to or extinguishment of the Deed Restrictions.

The site has a series of Institutional Controls in the form of site restrictions. Adherence to these Institutional Controls is required by the Deed Restrictions. Site restrictions that apply to the Controlled Property are:

- The owner of the Site shall prohibit the Controlled Property from ever being used for purposes other than for industrial or commercial uses without the express written waiver of such prohibition by the NYSDEC, or if the NYSDEC shall no longer exist, any New York State agency or agencies subsequently created to protect the environment of the State and the health of the State's citizens, hereinafter collectively referred to as the "Relevant Agency."

- The owner of the Site shall prohibit the use of the groundwater underlying the Site without treatment rendering it safe for drinking water or industrial purposes, as appropriate, unless the user first obtains permission to do so from the Relevant Agency.

- The owner of the Site shall provide notification to the Relevant Agency *per the requirements of the site Deed Restrictions (see Appendix A)* of any planned excavating activities within the subject area and shall not permit any disturbance of soil or fill at the property unless in accordance with the Relevant Agency approved Site Management Plan, unless a modification or exception to the Site Management Plan is approved by the Relevant Agency. *The owner of the Site shall provide the Relevant Agency with 30-days advance notice of project specific changes from the approved SMP.*

- The owner of the site shall annually submit in accordance with 6 NYCRR Part 375-1.8(h)(3)(i)(ii), unless an alternate certification period is approved in writing by the Relevant Agency, a written certification by a professional engineer, or such other environmental professional as the Relevant Agency may fine acceptable.

- The Declaration of Covenants and Restrictions is and shall be deemed a covenant that shall run with the land and shall be binding upon all future owners of the Property, and shall provide that owner and its successors and assigns consent to enforcement by the Relevant Agency, of the prohibitions and restrictions that Paragraph X of the Agreement requires to be recorded, and hereby covenants not to contest the authority of the Relevant Agency to seek enforcement.

- Any deed or conveyance included in the Subject area shall recite that said conveyance is subject to this Declaration of Covenants and Restrictions.

2.3.1 Soil Vapor Intrusion Evaluation

Prior to the construction of any enclosed structures *at the site*, a soil vapor intrusion (SVI) evaluation will be performed to determine whether any mitigation measures are necessary to

eliminate potential exposure to volatile organic vapors in the proposed structure. Alternatively, an *active* SVI mitigation system will be installed as an element of the building foundation without first conducting an investigation. *A passive system may be installed, which includes a vapor barrier and passive sub-slab depressurization system that is capable of being converted to an active system, if an SVI evaluation is performed prior to building occupancy indicating that an active system is not required, and the results are evaluated by the NYSDEC and NYSDOH. An exemption to the SVI evaluation and/or mitigation system installation for a new building based on the intended usage of the new building (e.g. - it is not intended to be occupied by Site personnel) may be provided by the NYSDEC/NYSDOH upon request to the NYSDEC.*

Prior to conducting an SVI investigation or installing a mitigation system, a work plan will be developed and submitted to the NYSDEC and NYSDOH for approval. This work plan will be developed in accordance with the most recent NYSDOH "Guidance for Evaluating Vapor Intrusion in the State of New York". Measures to be employed to mitigate potential vapor intrusion will be evaluated, selected, designed, installed, and maintained based on the SVI evaluation, the NYSDOH guidance, and construction details of the proposed structure.

Preliminary (unvalidated) SVI sampling data will be forwarded to the NYSDEC and NYSDOH for initial review and interpretation. Upon validation, the final data will be transmitted to the agencies, along with a recommendation for follow-up action, such as mitigation.

SVI sampling results, evaluations, and follow-up actions will also be summarized in the next Periodic Review Report.

2.4 Utility Installation

If utility installation is planned *at the Site*, in order to prevent migration of groundwater contaminants beyond the limits of the *Site*, and to prevent the contaminants within the *Remediation Area (Figure 3)* from impacting the utilities, the following shall occur during and following installation:

- *Because utility trenches have the potential to behave as migration pathways for groundwater and/or soil vapor, the contractor should install proper utility bedding and engineered trench collars (of concrete, bentonite, or similar) on the utilities where they cross the limits of the Remediation Area (Figure 3) to act as a barrier for groundwater and vapor migration.*

- When appropriate and depending on the type of utility, the contractor should seal pipe joints to prevent the migration of contaminated groundwater into the utility pipes.

Excavations for any reason to be conducted *at the Site* must be conducted in accordance with Section 2.5 of this SMP.

2.5 Excavation Plan

The soils handling and disposition activities outlined in this Excavation Plan (EP) apply to soil excavation at the Site.

The site remedy allows for commercial and industrial use. Any future intrusive work that will penetrate, encounter or disturb the remaining contamination, and any modifications or repairs to the existing cover will be performed in compliance with this Excavation Plan (EP). Intrusive construction work must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) prepared for the site. A sample HASP is attached as Appendix

B to this SMP. Note that the attached HASP is intended to serve as an example only. A project-specific HASP must be developed prior to excavation work, and conform to 29 CFR 1910, 29 CFR 1926, and other applicable Federal, State and local regulations extant at the time of work performance. Based on future changes to State and federal health and safety requirements, and specific methods employed by future contractors, the HASP and CAMP will be updated and re-submitted with the notification provided in Section 2.6.2 below. Any intrusive construction work will be performed in compliance with the EP, HASP and CAMP, and will be included in the periodic inspection and certification reports submitted under the Site Management Reporting Plan (See Section 2.7).

The site owner and associated parties preparing the remedial documents submitted to the State, and parties performing this work, are completely responsible for the safe performance of all invasive work, the structural integrity of excavations, and for structures that may be affected by excavations (such as building foundations).

The site owner will ensure that site development activities will not interfere with, or otherwise impair or compromise *the elements of the remedy and the activities described in the SMP.*

2.5.1 Notification of Excavation Activities

Notification to the NYSDEC is not required prior to excavation activities provided those activities are performed in conformance with the Excavation Plan included as Section 2.5 of this SMP. In the event that the elements of the Excavation Plan or SMP require modification for a specific project, the NYSDEC will be notified at least 30 days prior to the proposed work. The notice shall describe the proposed project- specific changes. Currently, this notification will be made to:

Mr. Frank Sowers, P.E.
New York State Department of Environmental Conservation – Region 8
6274 East Avon-Lima Road
Avon, New York 14414

This notification will include *a summary of why the excavation plan needs to be modified for the project and a summary of project-specific changes to the excavation plan. Additional details will also be provided, as needed, based on the scope and complexity of the project. Such details may include*:

- A detailed description of the work to be performed, including the location and areal extent, plans for site re-grading, intrusive elements or utilities to be installed below the soil cover, or any work that may impact an engineering control,
- A summary of environmental conditions anticipated in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;
- A schedule for the work, detailing the start and completion of all intrusive work,
- A statement that the work will be performed in compliance with this EP and 29 CFR 1910.120,
- A copy of the contractor's health and safety plan, in electronic format,
- Identification of disposal facilities for potential waste streams,

- Identification of sources of any anticipated backfill, along with all required chemical testing results.

2.5.2 Soil Screening Methods

Visual, olfactory and instrument-based soil screening will be performed by a qualified environmental professional during all remedial and development excavations into known or potentially contaminated material (remaining contamination). Soil screening will be performed regardless of when the invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work.

Soils will be segregated based on previous or newly performed environmental data and screening results into material that requires off-site disposal, material that requires testing, material that can be returned to the subsurface, and material that can be used as cover soil.

2.5.3 Stockpile Methods

Stockpiles shall be identified by material type (material that requires off-site disposal, material that requires testing, material that can be reused onsite, etc.). Soil will be stockpiled on poly sheeting with a minimum of 6-mil thickness. If stockpiles are located near drainage ways, or are larger than can be contained by poly sheeting, soil stockpiles will be continuously encircled with a berm and/or silt fence. Hay bales will be used as needed near catch basins, surface waters and other discharge points. Stockpiles will be kept covered at all times with appropriately anchored tarps. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced.

Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by NYSDEC.

Soils may be containerized in appropriate containers including drums and soil roll-off containers if quantities warrant such treatment.

2.5.4 Soil Characterization Methods

To determine if excavated soil requires off-site disposal or can be reused *onsite* as fill material, the soil will be characterized through sampling and laboratory analysis as described below. If the soil will be disposed of off-site, the disposal facility may require different and/or additional analysis. *Table V* includes applicable NYSDEC Soil Cleanup Objectives (SCOs) to be used for soil characterization and disposal of onsite material, and importing of offsite material. The SCOs listed in Table I represent the most recent iteration NYSDEC cleanup criteria prepared as of the date of this SMP. Should those cleanup criteria be revised in the future, the most recent available cleanup criteria should be used. The analytical results will be reviewed with respect to the soil management options as described in Sections 2.5.6 and 2.5.7, below.

2.5.4.1 Sample Collection and Handling

Excavated soil will be characterized for management purposes through the collection of representative samples for laboratory analysis for site-specific compounds (Section 2.5.4.4). Demolition material proposed for reuse onsite will be sampled for asbestos and results will be reported to the NYSDEC for acceptance.

Sampling will be conducted by a qualified Owner representative, Consultant, or Contractor. Each sample will be collected using a decontaminated or new stainless steel or plastic sampling device (hand trowel, shovel, scoop, hand augers or other appropriate sampling equipment).

For similarly stockpiled soil (i.e. – soil originating from the same location and soil type), one composite soil sample will be collected for every 100 cubic yards. The composite samples will be comprised of soil collected from four randomly selected areas of the pile at least 12 inches below the soil pile surface. To ensure the sample is properly composited, the soil will be combined and quartered in a decontaminated or new stainless steel or plastic bowl prior to containerizing the sample in the appropriate sample jars.

If soil is containerized (i.e. – roll-off), a sample from each container of a group of containers totaling 100 cubic yards or less of container volume will be collected and composited. Each sample will be collected at an approximate depth of 12 inches below the soil surface using a decontaminated or new stainless steel or plastic sampling device. One composite sample is to be submitted for analysis for every 100 cubic yards of container volume.

Immediately upon collection, samples will be labeled and placed in coolers, chilled with ice to approximately 4°C. The sample labels will identify the soil stockpile or container group, sample type (grab or composite), time and date of collection, name of the sampler, and required analyses. Sealed sample coolers will be delivered with accompanying chain of custody documentation to the analytical laboratory.

2.5.4.2 Sample Equipment Decontamination

To minimize the potential for cross-contamination, disposable sampling equipment will be used if possible. If sampling equipment is reused, the equipment will be decontaminated prior to each use using the following procedure:

- Potable water/non-phosphate detergent (i.e. – Alconox) solution wash
- Potable or distilled water rinse
- Wipe or air dry

Decontamination rinsate will be collected and disposed of in accordance with site permits and approvals.

2.5.4.3 Laboratory Analysis

Soil characterization samples and associated QA/QC samples will be delivered to a *ELAP-certified* laboratory for analyses in accordance with EPA Method 8260 for VOC analysis. Demolition material proposed for reuse onsite will be sampled for asbestos and results will be reported to the NYSDEC for acceptance, assuming no asbestos is detected (asbestos containing material will be disposed of offsite. Other analytical parameters that may be required depending on the disposal method and facility are not included in this plan.

2.5.5 Materials Excavation

In the event that excavation of materials is required, the following will occur:

- A qualified environmental professional or person under their supervision will oversee all invasive work and the excavation and load-out of all excavated material.

- The owner of the site and its contractors are solely responsible for safe execution of all invasive and other work performed under this Plan.

- The presence of utilities and easements on the site will be investigated by the qualified environmental professional. It will be determined whether a risk or impediment to the planned work under this SMP is posed by utilities or easements on the site.

2.5.6 Materials Reuse On-Site

Soils demonstrated through sampling and analysis (Section 2.5.4) to have specific constituent concentrations below NYSDEC 6NYCRR Part 375-6.8(b) Restricted Use Soil Cleanup Objectives for the Protection of Groundwater (SCOs), may be reused onsite. Chemical criteria for on-site reuse of material have been approved by NYSDEC and are listed in *Table V*. Note that the SCOs listed in *Table V* represent the most recent iteration of NYSDEC cleanup criteria prepared as of the date of this SMP. Should those criteria be revised in the future, the most recent available cleanup criteria should be used. The qualified owner representative, consultant, or contractor will ensure that procedures defined for materials reuse in this SMP are followed and that unacceptable material does not remain on-site.

Contaminated onsite soil that is acceptable for reuse onsite will be placed back into the original excavation or in close proximity to the original excavation, but not outside the limits of the *Site*. Following excavation and backfilling, the original existing cover must be restored or the existing cover shall be restored in kind to the original cover as described in Section 2.5.10, below.

Any demolition material proposed for reuse on-site will be sampled for asbestos and the results will be reported to the NYSDEC for acceptance. Concrete crushing or processing on-site will not be performed without prior NYSDEC approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the site will not be reused on-site.

Soils that do not meet the applicable SCOs, or soils that meet the SCOs and cannot be managed onsite will be required to be disposed of offsite as described in Section 2.5.7, below.

2.5.7 Materials Disposal Off-Site

All soil/fill excavated and removed from the *site* will be treated as contaminated and regulated material and will be transported and disposed in accordance with all local, State (including 6NYCRR Part 360) and Federal regulations. If disposal of soil from this site is proposed for unregulated off-site disposal (i.e. clean soil removed for development purposes), a formal request with an associated plan will be made to the NYSDEC. Unregulated off-site management of materials from *this site* will not occur without formal NYSDEC approval.

Off-site disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate, i.e. hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, C/D

recycling facility, etc. Actual disposal quantities and associated documentation will be reported to the NYSDEC in the Periodic Review Report. This documentation will include: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

Non-hazardous historic fill and contaminated soils taken off-site will be handled, at minimum, as a Municipal Solid Waste pursuant to 6NYCRR Part 360-1.2. Material that does not meet the lower of the SCOs for residential use or groundwater protection will not be taken to a New York State recycling facility (6NYCRR Part 360-16 Registration Facility) without a beneficial use determination issued by NYSDEC.

2.5.8 Fluids Management

All liquids to be removed from the site, including excavation dewatering and groundwater monitoring well purge and development waters, will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations. Dewatering, purge and development fluids will not be recharged back to the land surface or subsurface of the site, but will be managed off-site.

Purge and decontamination water generated during routine groundwater monitoring events may be discharged to the sewer system as per CooperVision's sewer use permit.

Discharge of water generated during large-scale construction activities to surface waters (i.e. a local pond, stream or river) will be performed under a SPDES permit.

2.5.9 Materials Load Out and Transport Offsite

In the event that materials require transport offsite, the following will occur:

- All transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 NYCRR Part 364. Trucks will be properly placarded.

- A truck wash will be operated on-site. The qualified environmental professional will be responsible for ensuring that all outbound trucks will be washed at the truck wash before leaving the site until the activities performed under this section are complete. Excavation equipment and tools that contact a known area of contaminated soil will be decontaminated upon completion of excavation activities. Decontamination will be accomplished with a pressure washer, hose, hand-washing with soap and water, or other method as determined by the site owner. Decontamination water/rinsate will be containerized/discharged in compliance with the existing procedures, permits, and approvals.

- Loaded vehicles leaving the site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and NYSDOT requirements (and all other applicable transportation requirements).

- Locations where vehicles enter or exit the site shall be inspected daily for evidence of off-site soil tracking.

- The qualified environmental professional will be responsible for ensuring that all egress points for truck and equipment transport from the site are clean of dirt and other materials

derived from the site during intrusive excavation activities. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to site-derived materials.

- Truck transport routes will be identified that will: (a) limit transport through residential areas and past sensitive sites; (b) use city-mapped truck routes; (c) minimize off-site queuing of trucks entering the facility; (d) limit total distance to major highways; and (e) promote safety in access to highways.

- Trucks will be prohibited from stopping and idling in the neighborhood outside the project site. Egress points for truck and equipment transport from the site will be kept clean of dirt and other materials during site remediation and development.

- Queuing of trucks will be performed on-site in order to minimize off-site disturbance. Off-site queuing will be prohibited.

2.5.10 Cover Restoration

After the completion of soil removal and any other invasive remedial activities the existing cover will be restored in a manner that complies with this SMP. All excavated areas will be restored in kind with respect to the original cover or other more protective barrier than currently exists so that contaminated soils do not remain exposed. “In kind” refers to replacing the original cover with a similar cover such that pavement is replaced by pavement, landscaped areas are replaced by landscaped areas, a building foundation is replaced by a building foundation, etc.

Other acceptable barriers include pavement (asphalt or concrete), or placement of a demarcation layer and at least 1 foot of imported clean cover material (free of industrial and/or other potential sources of chemical contamination).

If the type of cover changes from that which exists prior to the excavation (i.e., a soil cover is replaced by asphalt), this will constitute a modification of the cover element of the remedy and the upper surface of the ‘Remaining Contamination. A figure showing the modified surface will be included in the subsequent Periodic Review Report and in any updates to the Site Management Plan.

2.5.11 Backfill from Off-Site Sources

All materials proposed for import onto the site as backfill will be approved by the qualified environmental professional and will be in compliance with provisions in this SMP, applicable regulations (6NYCRR 375-6.7(d)) and guidance prior to receipt at the site. *Commercially purchased bagged topsoil used for landscaping purposes do not require approval prior to use.*

Material from industrial sites, spill sites, or other environmental remediation sites or potentially contaminated sites will not be imported to the site.

Soils brought to the site for filling and grading purposes shall be from an acceptable borrow source, free of industrial and/or other potential sources of chemical contamination.

For *all* sources, analytical testing of backfill materials imported to the site for use as clean cover shall consist of:

EPA Method 8260 (Target Compound List VOCs)
EPA Method 8270 (Target Compound List SVOCs)
EPA Method 6010 (Target Analyte List metals plus cyanide)
EPA Method 8081 (PCBs & Pesticides)

Testing shall be performed by a laboratory certified under the NYS Department of Health Environmental Laboratory Approval Program. Samples shall be collected at a frequency of one sample per *300* cubic yards of proposed imported material *or one sample per source if imported from a virgin mine/pit.*

All imported soils will meet the backfill and cover soil quality standards established in 6NYCRR 375-6.7(d). Suitable offsite material to be used as onsite backfill must not contain compounds at levels greater than NYSDEC soil cleanup objectives for commercial use or protection of groundwater (whichever is lower) as identified in 6 NYCRR Part 375-6.8(b) (*Table V*). Based on an evaluation of the land use, protection of groundwater and protection of ecological resources criteria, the resulting soil quality standards for imported backfill are listed in *Table V*. The SCOs listed in *Table V* represent the most recent iteration NYSDEC soil criteria prepared as of the date of this SMP. Should those soil criteria be revised in the future, the most recent available cleanup criteria should be used. Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this site, will not be imported onto the site without prior approval by NYSDEC. Solid waste will not be imported onto the site. The results of chemical analysis of the material being used for backfill and the basis for acceptance must be provided to the NYSDEC as part of the Periodic Review Report.

Trucks entering the site with imported soils will be securely covered with tight fitting covers. Imported soils will be stockpiled separately from excavated materials and covered to prevent dust releases.

2.5.12 Stormwater Pollution Prevention

If construction or excavation is performed that exceeds the criteria for construction-related stormwater pollution prevention control, during the duration of construction and until cover is restored, barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by NYSDEC. All necessary repairs shall be made immediately.

Accumulated sediments will be removed as required to keep the barrier and hay bale check functional.

All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials.
Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

Erosion and sediment control measures identified in the SMP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters

Silt fencing or hay bales will be installed around the entire perimeter of the remedial construction area.

2.5.13 Excavation Contingency Plan

If underground tanks or other previously unidentified contaminant sources are found during post-remedial subsurface excavations or development related construction, excavation activities will be suspended until sufficient equipment is mobilized to address the condition.

Sampling will be performed on product, sediment and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for full a full list of analytes (TAL metals; TCL volatiles and semi-volatiles, TCL pesticides and PCBs), unless the site history and previous sampling results provide a sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC for approval prior to sampling.

Identification of unknown or unexpected contaminated media identified by screening during invasive site work will be promptly communicated by phone to NYSDEC's Project Manager. Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline. These findings will be also included in daily and periodic electronic media reports.

2.5.14 Community Air Monitoring Plan

The Contractor is required to perform air monitoring for its own activities, in conformance to the Contractor's HASP. In addition, the Contractor shall follow the community air monitoring procedures set forth in the NYSDOH Generic Community Air Monitoring Plan (CAMP), which is attached to this document as Appendix C. *The owner of the site is responsible for ensuring that contractors at the site conduct community air monitoring in accordance with the CAMP. Exceedances of action levels listed in the CAMP will be reported to the NYSDEC and NYSDOH project managers.*

2.5.15 Odor Control Plan

This odor control plan is capable of controlling emissions of nuisance odors. If nuisance odors are identified at the site boundary during excavation work, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events. Implementation of all odor controls, including the halt of work, is the responsibility of the site owner's Remediation Engineer or contractor, and any measures that are implemented will be discussed in the Periodic Review Report.

Reasonable and customary means will be employed to prevent on- and off-site nuisances. These measures may include: (a) limiting the area of open excavations and size of soil stockpiles; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances may include: (d) direct load-out of soils to trucks for off-site disposal; (e) use of chemical odorants in spray or misting systems; and, (f) use of staff to monitor odors in surrounding neighborhoods.

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to on-site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

2.5.16 Dust Control Plan

A dust suppression plan that addresses dust management during invasive on-site work will include, at a minimum, the items listed below:

- Dust suppression may be achieved through the use of a dedicated on-site water truck for road wetting or other suitable dust suppression techniques. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles.
- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.
- Gravel will be used on roadways to provide a clean and dust-free road surface.
- On-site roads will be limited in total area to minimize the area required for water truck sprinkling.

2.5.17 Other Nuisances

A plan will be developed and utilized by the contractor for all remedial work to ensure compliance with local noise control ordinances.

2.6 General Inspections and Notifications

2.6.1 Periodic Inspections

Periodic inspections of all remedial components installed at the site will be conducted at the frequency specified in SMP Monitoring Plan schedule. A comprehensive site-wide inspection will be conducted annually. The inspections will determine and document the following:

- Whether Engineering Controls continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMP *and the deed restrictions*;
- Achievement of remedial performance criteria;
- Sampling and analysis of appropriate media during monitoring events;
- If site records are complete and up to date; and
- Changes, or needed changes, to the remedial or monitoring system;

Inspections will be conducted in accordance with the procedures set forth in the Monitoring Plan of this SMP (Section 3).]. The reporting requirements are outlined in the Site Management Reporting Plan (Section 2.7).

If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs, an Inspection of the site will be conducted within 5 days of the event to verify the effectiveness of the EC/ICs implemented at the site by a qualified environmental professional as determined by NYSDEC.

2.6.2 General Notifications

Notifications will be submitted by the site owner to the NYSDEC as needed for the following reasons:

- 60-day advance notice of any proposed changes in site use that are required under the terms of the VCA, 6NYCRR Part 375, and/or Environmental Conservation Law.
- *30-day advance notice of any proposed excavation projects that deviate from the procedures described in the Excavation Plan.*
- Notice within 48-hours of any damage or defect to the foundations structures that reduces or has the potential to reduce the effectiveness of other Engineering Controls and likewise any action to be taken to mitigate the damage or defect.
- Notice within 48-hours of any emergency, such as a fire, flood, or earthquake that reduces or has the potential to reduce the effectiveness of Engineering Controls in place at the site, including a summary of actions taken, or to be taken, and the potential impact to the environment and the public.
- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action shall be submitted to the NYSDEC within 45 days and shall describe and document actions taken to restore the effectiveness of the ECs.
- Notifications will be made to Mr. Frank Sowers (NYSDEC Project Manager) at (585) 226-5357. In the event that NYSDEC develops a centralized notification system, that system will be used instead.

2.6.3 Evaluation

The results of the inspection and site monitoring data will be evaluated as part of the EC/IC certification to confirm that the:

- EC/ICs are in place, are performing properly, and remain effective;
- The Monitoring Plan is being implemented;
- Operation and maintenance activities are being conducted properly; and, based on the above items,
- The site remedy continues to be protective of public health and the environment and is performing as designed in the *Remediation Work Plan*.

2.7 Reporting Plan

2.7.1 Introduction

A Periodic Review Report will be submitted to NYSDEC once per year, beginning one year after the release from liability is issued. The frequency of submittal of the Periodic Review Report may be modified with the approval of the NYSDEC.

2.7.2 Certification of Engineering and Institutional Controls

Inspection of the EC/ICs will occur at the frequency described in Section 3 (Monitoring Plan) and Section 4 (Operation and Maintenance Plan). After the last inspection of the reporting period, a qualified environmental professional will prepare a Periodic Review Report which certifies that:

- On-site ECs/ICs are unchanged from the previous certification;
- They remain in-place and are effective;
- The systems are performing as designed;
- Nothing has occurred that would impair the ability of the controls to protect the public health and environment;
- Nothing has occurred that would constitute a violation or failure to comply with any operation and maintenance plan for such controls; and
- Access is available to the site by NYSDEC and NYSDOH to evaluate continued maintenance of such controls.

2.7.3 Periodic Review Report

A Periodic Review Report and EC/IC Certification will be submitted every year, beginning one year after CooperVision receives a release from liability. The report will be submitted within 45 days of the end of each certification period. Other reports, such as validated groundwater data, will be submitted annually, *unless requested on a more frequent basis by the NYSDEC,* until it is determined by the NYSDEC that the monitoring is no longer required or the frequency of the monitoring can be reduced. A summary of media sampling results will also be incorporated into the Periodic Review Report. The report will *be prepared in accordance with this SMP and relevant, applicable guidance and shall* include:

- EC/IC certification;
- All applicable inspection forms and other records generated for the site during the reporting period, including:
    - Date of monitoring events
    - Personnel conducting the monitoring
    - Description of the activities performed
    - Types of samples collected, if any
    - Copies of all field forms compiled (e.g., well logs, chain of custody documentation, etc.)

- Maintenance reports as described in Sections 4.3.1 and 4.3.2.

- *A summary of activities undertaken pursuant to the Excavation Plan during the certification period.*

- A figure illustrating sample type and locations

- A summary of any discharge monitoring data and/or information generated during the reporting period with comments and conclusions;

- Data summary tables and graphical representations of contaminants of concern by media (groundwater, soil vapor), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will include a presentation of past data sufficient for the Department to evaluate contaminant concentration trends;

- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted electronically in a NYSDEC-approved format;

- A performance summary for the SSD system at the site during the calendar year, including information such as:

    - The number of days the system was run for the reporting period;
    - A description of breakdowns and/or repairs along with an explanation for any significant downtime;
    - A description of the resolution of performance problems;
    - A summary of the performance and/or effectiveness monitoring; and
    - Comments, conclusions, and recommendations based on data evaluation.

- *A performance summary for the enhanced bioremediation system at the site during the calendar year, including information such as:*

    - *A description of the resolution of performance problems;*
    - *A summary of the performance and/or effectiveness monitoring; and*
    - *Comments, conclusions, and recommendations based on data evaluation.*

- A site evaluation, which includes the following:

    - *The compliance of the remedy with the requirements of the Remediation Work Plan and IRM Work Plans*
    - *The operation and the effectiveness of the treatment units (enhanced bioremediation, sub-slab depressurization system, and trench collars) including identification of any needed repairs or modifications.*
    - Any new conclusions or observations regarding site contamination based on inspections or data generated by the Monitoring Plan for the media being monitored;
    - Recommendations regarding any necessary changes to the remedyand/or Monitoring Plan; and
    - The overall performance and effectiveness of the remedy.

The Periodic Review Report will be submitted, in hard-copy *and electronic* format, to the NYSDEC Regional Office located closest to the site, and in electronic format to NYSDEC Central Office and the NYSDOH Bureau of Environmental Exposure Investigation.

3. MONITORING PLAN

3.1 Introduction

3.1.1 General

The Monitoring Plan describes the measures for evaluating the performance and effectiveness of the *remedy, including* implemented ECs, to reduce or mitigate contamination at the site. ECs at the site include the existing cover, SSD system, and SBC utility trench collars. Also required, is ongoing groundwater quality monitoring. This Monitoring Plan may only be revised with the approval of NYSDEC.

3.2 Purpose and Schedule

This Monitoring Plan describes the methods to be used for:

- Sampling and analysis of appropriate media (e.g., groundwater);
- Assessing compliance with NYSDEC standards and guidelines.
- *Assessing achievement of the site-specific cleanup levels in the Site Voluntary Cleanup Agreement;*
- Evaluating site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment; and
- Preparing the necessary reports for the various monitoring activities.

To adequately address these issues, this Monitoring Plan provides information on:

- Sampling locations, protocol, and frequency;
- Information on all designed monitoring systems (e.g., well logs);
- Analytical sampling program requirements;
- Reporting requirements;
- *Quality Assurance/Quality Control (QA/QC) requirements;*
- Inspection and maintenance requirements for monitoring wells;
- Monitoring well decommissioning procedures; and
- Annual inspection and periodic certification.

Monitoring of the performance remedy and overall reduction in contamination onsite will be ongoing except where otherwise noted in this monitoring plan (i.e. – groundwater monitoring – refer to Section 3.3.2), or until otherwise determined by the NYSDEC.

Trends in contaminant levels in groundwater in the affected areas, will be evaluated to determine if the remedy continues to be effective in achieving remedial goals. Monitoring programs for environmental media are summarized in Table VI and outlined in detail in Sections 3.3 through *3.8*, below.

Table VI: Media Monitoring Schedule

Monitoring Program	Frequency*	Matrix	Analysis	*SMP Section Reference*
Existing Cover Monitoring	Annually	N/A	N/A	*3.8.1*
SSD System-Sub-Slab Pressure Testing	Annually	N/A	N/A	*3.8.2*
SSD System – Vacuum Monitoring and Inspection	Monthly	N/A	N/A	*3.8.2*
Trench Collar Monitoring	As necessary following excavations or utility work	N/A	N/A	*3.8.3*
Groundwater Monitoring	Semi-Annually (April and October)	Groundwater	VOCs *Enhanced Bioremediation* Parameters	*3.3*

* The frequency of events will be conducted as specified until otherwise approved by NYSDEC and NYSDOH

Inspection frequency is subject to change with the approval of the NYSDEC. Unscheduled inspections and/or sampling may take place when a suspected failure of the existing cover has been reported or an emergency occurs that is deemed likely to affect the operation of the system.

3.3 Groundwater Monitoring Program

Groundwater monitoring will be performed in April and October each year in accordance with Tables VI and VII to assess the performance of the remedy. Figure 2 shows the surveyed groundwater well network.

3.3.1 Monitoring System Design

The network of monitoring wells has been installed to monitor both up-gradient and down-gradient groundwater conditions at the site. The network of on-site wells has been designed based on the following criteria:

The monitoring plan was designed based on the observed monitoring trends to date plus the desire to continue to monitor overall groundwater remediation conditions. Originally, the electron donor material (HRC) was estimated to persist approximately three years in the subsurface. As of the date of preparation of this SMP, the site is nearing eight years post-injection and monitored bioremediation parameters, with the exception of HRC dependent metabolic acids, persist. *Accordingly, the monitoring plan does not include metabolic acids from the list of analytes, with the exception of in well MW-205, where metabolic acids continue to be detected as of the date of this SMP. In the event that subsequent remediation (e.g. – HRC re-injection), metabolic acids may be required to be analyzed in other site wells in the future.*

Select monitoring wells will be sampled *semi-annually*. The wells included in this sampling plan are: MW-202, MW-203, MW-204, MW-205, MW-3, MW-501, MW-502, *OW-302S* and OW-306 (Figure 2). Monitoring well MW-205 and MW-3 are being sampled to assess the contaminant changes in the source area and mid-gradient areas, respectively. MW-202, MW-203, MW-204 were chosen to assess the downgradient areas of the plume and to monitor whether or not the plume appears to be migrating. OW-306 is being monitored to assess whether or not the plume appears to be migrating offsite.

For reference, monitoring well construction logs are included in Appendix D.

3.3.2 Groundwater Monitoring Schedule

The sampling frequency may be modified with the approval NYSDEC. The SMP will be modified in the future to reflect changes in sampling plans that are approved by NYSDEC. *Table VII* below shows the wells that require semi-annual sampling (April and October) and what contaminants/parameters require sampling in each well.

Semi-annual groundwater monitoring will continue for 3 years following release from liability, at which point the need for additional monitoring will be evaluated.

Table VII: Sampling and Analysis Plan

Well ID	Dissolved Gases	VOCs	*Metabolic Acids*	Field Parameters	Anion List	Cation List
MW-202		x		x		
MW-203		x		x		
MW-204		x		x		
MW-205	x	x	*x*	x	x	x
MW-3	x	x		x	x	x
MW-501	x	x		x	x	x
MW-502	x	x		x	x	x
OW-302S	x	x		x	x	x
OW-306		x		x		

Notes:
1. Dissolved gases include methane, ethane, and ethene
2. VOCs shall be analyzed by EPA method 8260
3. The Anion List includes sulfate, sulfide, nitrate, nitrite, chloride, and alkalinity
4. The Cation List includes ferrous and total iron
5. Field Parameters include dissolved oxygen, temperature, conductivity, oxidation-reduction potential, and pH
6. Metabolic Acids include acetic, lactic, butyric, propionic, and pyruvic acids.

Deliverables for the groundwater monitoring program are specified below.

3.3.3 Sampling Event Protocol

All monitoring well sampling activities will be recorded on a groundwater-sampling log presented in Appendix E. Other observations (e.g., well integrity, etc.) will be noted on the well sampling log. The well sampling log will serve as the inspection form for the groundwater monitoring well network.

Site-wide groundwater levels will be taken prior to each sampling event. Prior to sampling, the wells will be purged using Waterra flip valves and dedicated tubing. Field parameters will be monitored for stabilization during the purging. Stabilization occurs when the various low-flow parameters (pH, Temperature, Specific Conductivity, Redox Potential, Turbidity, and Dissolved Oxygen) have reached a certain quantifiable level or is consistent for a minimum of three readings as per a water quality meter connected to a flow cell (readings occur every three minutes).

The ranges for each parameter are as follows:

- pH: +/- 0.1 differential
- Temperature: <0.5ºC differential
- Specific Conductivity: +/- 0.2 mS/cm differential
- Redox Potential: +/- 10 mV differential
- Turbidity: +/- 5 to 10 NTU differential or below 50 NTU *(At the CooperVision site, well development makes this parameter difficult to obtain)*.
- Dissolved Oxygen: +/- 0.2 mg/L

Each reading is recorded throughout the purging process, and when it has been determined that stabilization has been "reasonably" reached, a sample is obtained from the well. Purging generally takes between 15 to 30 minutes at each well (5 to 10 readings) until stabilization is reached.

When the parameters have stabilized, groundwater samples will be collected using Waterra foot valves and dedicated tubing. A groundwater sampling schedule is included as *Table VII*, above.

Flip valves and other non-dedicated sampling equipment will be decontaminated in between each well as follows:

- Potable water/non-phosphate detergent (i.e. – Alconox) solution wash
- Potable or distilled water rinse
- Wipe or air dry

As per CooperVision's sewer discharge permit, purge water and wash water will be collected in buckets and discharged to the sewer system via a custodial closet in the CooperVision facility or other location deemed appropriate by the site owner. Should the use of the site change, and a discharge permit is not longer present at the site that allows for discharge of the water, the water will require drumming onsite and characterization for offsite disposal as per disposal facility requirements.

Personal protective equipment such as gloves and other trash items will be disposed of in the onsite dumpster.

3.4 *Groundwater Results Analysis*

Following receipt of the analytical data, it should be validated and reviewed by an environmental professional. The data should be analyzed based on previous sampling results to evaluate the continued effectiveness of the remedial system. Analysis includes remediation parameter data and statistical evaluation of the data.

3.4.1 *Remediation Parameter Data Evaluation*

Below are the list of parameters analyzed for and what insights they provide. Each parameter should be evaluated with respect to previous results and historical trends.

- *VOCs – VOC analysis indicates the presence of parent contaminant compound 1,1,1-TCA as well as its associated biodegradation breakdown compounds as shown below. Generally, as biodegradation progresses and 1,1,1-TCA concentrations decrease, total VOCs increase due to the production of daughter compounds.*

  1,1,1-TCA → 1,1-DCA → Chloroethane → Ethane/Chloride

- *Dissolved Gases (methane, ethane, and ethene) – Methane is an indicator of redox state of the groundwater, and ethene and ethane are the end products of the reductive dechlorination process. It is understood in the scientific community that the theoretical optimum ORP for reductive dechlorination falls between sulfate reduction and methanogenesis.*

- *Anions (sulfate, sulfide, chloride, and alkalinity) – Anions are indicative of various biological processes and redox state. Decrease in sulfate suggests redox state is conducive to reductive dechlorination. An increase of chloride ion is indicative of ongoing biodegradation. Decrease in alkalinity suggests anaerobic biological activity.*

- *Cations (ferrous and total iron) – Cations provide data relative to biological activity and redox state.*

- *Metabolic Acids (lactic, acetic, proprionic, pyruvic, and butyric acids) – Metabolic acids are a qualitative measure of the breakdown of the HRC and naturally-occurring sources of organic carbon, which releases hydrogen into the groundwater. Hydrogen fuels the reductive dechlorination process.*

- *Field measurements obtained at the wellhead (dissolved oxygen, ORP, carbon dioxide, ferrous iron, and alkalinity) – Field measurements provide data relative to biological activity and redox state.*

For additional information, there are several available technical guidance documents (e.g. – Interstate Technology Regulatory Council (ITRC) and Environmental Protection Agency (EPA)) that provide insight on the aquifer geochemistry associated with reductive dechlorination and enhanced bioremediation sites.

3.4.2 *Statistical Evaluation – Mann Kendall*

The Mann-Kendall Test shall be performed with each round of groundwater sampling. The initial Mann-Kendall Test results applied to available CooperVision site data as of implementation of this SMP are included in Appendix F attached hereto. With each sampling event, the newly collected data will be subjected to the Mann-Kendall Test, consistent with guidance presented in "EPA Practical Methods for Data Analysis, EPA QA/G-9 QA00 UPDATE, July 2000" and the presentation format in Appendix F. Additionally, tests will be conducted using a rolling set of values made up of the 10 most recent results for each well. The results will be characterized relative to a 95% confidence limit and results presented as to whether an increasing trend, decreasing trend, or no trend is indicated. Results shall be included in the site reports as described in this SMP. If an increasing trend is indicated for the same

compound and well in two consecutive sampling events (e.g. spring and the immediately following fall, or fall and the immediately following spring), then additional sampling (e.g. off-site vapor intrusion evaluations), source removal, treatment (e.g. HRC injections) and/or control measures (e.g. downgradient hydraulic control system) will be evaluated and implemented, as may be necessary.

The analytical results will also be presented graphically in the site reports as shown in Appendix F. A visual analysis of each graph will be conducted to determine if groundwater contaminant concentrations have become asymptotic over an extended period of time.

3.5 Groundwater Monitoring Contingency Plan

If groundwater contaminant concentrations at any point of the groundwater plume show an increasing trend over two sequential sample events for the same compound and well (based on conduct of a Mann-Kendall Test according to the procedure listed in Section 3.4), or become asymptotic at a level that is not protective of public health and the environment as determined by the Department, then additional measures will be evaluated and implemented as may be necessary such as additional sampling (e.g. off-site vapor intrusion evaluations), source removal, treatment (e.g. HRC injections) and/or control measures (e.g. downgradient hydraulic control system) as appropriate.

3.6 Monitoring Well Repairs, Replacement and Decommissioning

If biofouling or silt accumulation occurs in the on-site and/or off-site monitoring wells, the wells will be physically agitated/surged and redeveloped. Additionally, monitoring wells will be properly decommissioned and replaced (as per the Monitoring Plan), if an event renders the wells unusable.

Repairs and/or replacement of wells in the monitoring well network will be performed based on assessments of structural integrity and overall performance. *Monitoring wells will be visually inspected during each sampling event. Damaged or missing components (e.g. missing bolts, damaged well covers, poor surface seals, etc.) will be documented and the well will be repaired or replaced prior to the next sampling event.*

The decommissioning of site monitoring wells may periodically occur based on approved changes to the sampling and analysis plan, future modification to the site, or other changes to the environmental program. Monitoring wells will not be decommissioned without written approval from NYSDEC. The process for well abandonment consists of cutting of the well casing below grade (or removing the casing if practicable) and injecting a cement-bentonite grout mixture into the well bore using tremie rods and a drill rig pump. The grout will consist of approximately 5 pounds of powdered bentonite per sack of Portland cement and will be allowed to set for 48 hours. The surface will be completed as appropriate depending on whether it's located in the lawn area, building interior, etc.

The NYSDEC will be notified prior to any repair or decommissioning of monitoring wells for the purpose of replacement, and the repair or decommissioning and replacement process will be documented in the subsequent periodic report. Well decommissioning without replacement will be done only with the prior approval of NYSDEC. Well abandonment will be performed in accordance with the procedures described herein. Monitoring wells that are decommissioned because they have been rendered unusable will be reinstalled in the nearest available location, unless otherwise approved by the NYSDEC.

3.7 *Monitoring Quality Assurance/Quality Control*

All sampling and analyses will be performed in accordance with the QA/QC requirements of the Quality Assurance Project Plan (QAPP) prepared for the site (Appendix G). Main Components of the QAPP include:

- *QA/QC Objectives for Data Measurement;*
- *Sampling Program:*
    - *Sample containers will be properly washed, decontaminated, and appropriate preservative will be added (if applicable) prior to their use by the analytical laboratory. Containers with preservative will be tagged as such.*
    - *Sample holding times will be in accordance with the NYSDEC ASP requirements.*
    - *Field QC samples (e.g., trip blanks, coded field duplicates, and matrix spike/matrix spike duplicates) will not be collected unless requested by the NYSDEC, with the exception of a trip blank, which will be collected during each groundwater sampling event .*
- *Sample Tracking and Custody;*
- *Calibration Procedures:*
    - *All field analytical equipment will be calibrated immediately prior to each day's use. Calibration procedures will conform to manufacturer's standard instructions.*
    - *The laboratory will follow all calibration procedures and schedules as specified in USEPA SW-846 and subsequent updates that apply to the instruments used for the analytical methods.*
- *Analytical Procedures;*
- *Preparation of a Data Usability Summary Report (DUSR), which will present the results of data validation, including a summary assessment of laboratory data packages, sample preservation and chain of custody procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method (if requested by the agency).*
- *Internal QC and Checks;*
- *QA Performance and System Audits;*
- *Preventative Maintenance Procedures and Schedules;*
- *Corrective Action Measures.*

3.8 Engineering Control System Monitoring

3.8.1 Existing Cover

An existing cover, consisting of existing soil, landscaping, pavement, and/or building foundations is present over the Site. The existing cover must be maintained at all times, and must be replaced in-kind should it be breached as described in the Excavation Plan (Section 2.5)

3.8.1.1 Inspection Schedule

The existing cover will be inspected on an annual basis. If significant areas of distress are noted, they will be repaired to a condition required by this SMP. The cover will be repaired in-kind if it is damaged during any subsurface work (utilities, etc.).

Monitoring of the cover will be reported in the Periodic Review Report.

3.8.2 Sub-Slab Depressurization System

A SSD system was installed in the vicinity of the source area of contamination on the south side of the building to mitigate the potential for soil vapor intrusion and was approved by the NYSDEC. Refer to Section 2.2.1.2 for a description of the system.

As-built drawings of the SSD System are included as Figures 5 and 6.

3.8.2.1 Inspection Schedule

The existing *seventeen* test points shall be monitored via *pressure-testing (measuring the vacuum influence with a digital manometer at permanent monitoring point locations)* initially within 90 days after the Final Engineering Report has been approved. *Subsequent pressure-testing shall occur semi-annually for the first year and then annually thereafter. Pressure testing* will be conducted by an environmental professional and recorded on standard monitoring forms. In the event that the target minimum differential pressure is not achieved, non-routine maintenance may be required as described in Section 4.2.4. Operational maintenance issues will be reported and discussed in the Periodic Review Report.

In addition, the seven manometers connected to the seven suction points (See Figure 5) will be monitored monthly by Site personnel to ensure proper operation.

Monitoring deliverables for the SSD system are specified later in this Plan.

3.8.2.2 General Equipment Inspection

A visual inspection of the complete system will be conducted during the monitoring event. SSD system components to be monitored include, but are not limited to, the following:

- Fans
- General system piping
- Manometer readings (Monitored Monthly)
- Sub-Slab Vacuum point readings (Monitored Annually)

Sub-slab vacuum monitoring shall be performed by measuring the differential pressure between the indoor air and sub-slab to ensure a lower pressure is being maintained in the sub-slab. As published in previous reports, the design target is a minimum differential pressure of 0.002 inches of water at twenty feet from any given suction point. An additional design target was a continuous minimum differential pressure of 0.002 inches of water between the ambient and the sub-slab measurements between locations S-1 and S-7.

In addition, and in accordance with Section *4.2.3* below, the following routine maintenance should be conducted in conjunction with *monthly* system monitoring:

- A visual inspection of the complete system (i.e. fan, piping, labeling system, urethane seals, etc.);
- A visual inspection of the manometers and readings
- Identification and repair of leaks;
- Inspection of exhaust points to verify that air intakes have not been located nearby;
- Audible inspection to verify a fan's operational performance

If any equipment readings are not within their typical range, any equipment is observed to be malfunctioning, or the system is not performing within specifications, the site owner or owner's environmental professional will be notified so that maintenance can be performed, and the SSD system will be restarted.

3.8.2.3 System Monitoring Devices

The SSD system has a warning device to indicate that the system is not operating properly. *The warning device is in the form of a manometer, a picture of which is shown in Appendix I. Each fan is equipped with its own manometer.* In the event that the warning device *indicates the system is not working effectively* or there is a system shutdown, a site owner representative will notify the appropriate environmental professional via telephone contact. Additionally, applicable maintenance and repairs will be conducted, as specified in the Operation and Maintenance Plan (Section 4), and the SSD system restarted. The SSD system is also engineered to restart after an electrical failure. Operational problems will be noted in the subsequent Periodic Review Report.

3.8.3 Soil-Bentonite-Cement (SBC) Trench Collars

In order to eliminate the onsite and offsite utility lines (natural gas and water) as potential preferred pathways for offsite migration of soil vapor, five (5) soil-bentonite-cement (SBC) trench collars were installed along both the natural gas and water lines on the CooperVision site and in the adjacent eastern right-of-way (Figure 2). *An as-built diagram of a trench collar is shown on Figure 7.*

3.8.3.1 Inspection Schedule

The trench collars will be inspected as needed when utility lines are disturbed or excavations take place in the vicinity of the collars. If significant areas of distress are noted, they will be repaired to a condition required by the SMP. The trench collars will be repaired in-kind if they are damaged during any subsurface work (utilities, etc.).

Monitoring of the trench collars will be reported in the Periodic Review Report.

3.9 Monitoring Reporting Requirements

Forms and any other information generated during regular monitoring events and inspections will be kept on file on-site. All forms, and other relevant reporting formats used during the monitoring/inspection events, will be (1) subject to approval by NYSDEC and (2) submitted at the time of the Periodic Review Report, as specified in Section 2.7.3.

4. OPERATION AND MAINTENANCE PLAN

4.1 Introduction

This Operation and Maintenance Plan describes the measures necessary to operate and maintain the SSD system. This Operation and Maintenance Plan:

- Includes the steps necessary to allow individuals unfamiliar with the site to operate and maintain the SSD systems;
- Includes an operation and maintenance contingency plan; and,
- Will be updated periodically to reflect changes in site conditions or the manner in which the SSD systems is operated and maintained.

Information on non-mechanical Engineering Controls (i.e. existing cover) is provided in Section 3 - Engineering and Institutional Control Plan. A copy of this Operation and Maintenance Plan, along with the complete SMP, will be kept at the site. This Operation and Maintenance Plan is not to be used as a stand-alone document, but as a component document of the SMP.

4.2 Engineering Control System Operation and Maintenance

A SSD system was installed in the vicinity of the source area of contamination on the south side of the building to mitigate the potential for soil vapor intrusion and was approved by the NYSDEC. Refer to Section 2.2.1.2 for a description of the system.

4.2.1 System Start-Up and Testing

The SSD system is designed to work continuously and does not need to be turned on or shut down. The system has vacuum monitors (manometers) that can be inspected to evaluate performance and alarms to indicate system failure (see Section *3.8.2*, above). In the event that *a manometer indicates the system is ineffective* or there is a system shutdown, a site owner representative will notify the appropriate environmental professional via telephone contact.

4.2.2 System Operation: Routine Operation Procedures

Other than routine monitoring (See Section 4.2.3), the SSD system operates continuously and does not require manual system operation. In the event of an electrical failure, the system is engineered to restart. In the event that the warning devices *(manometers) indicate that the system is not working effectively or there* is a system shutdown, a site owner representative will notify the appropriate environmental professional via telephone contact.

4.2.3 System Operation: Routine Equipment Maintenance

Routine maintenance shall commence within 90 days after the Final Engineering Report has been approved by the NYSDEC. Monitoring shall occur monthly.

During routine *monthly* maintenance, the following activities (at a minimum) must be conducted:

1. A visual inspection of the complete system (i.e. fan, piping, labeling system, urethane seals, etc.);
2. A visual inspection of the manometers and readings;
3. Identification and repair of leaks;
4. Inspection of exhaust points to verify that air intakes have not been located nearby;
5. Audible inspection to verify a fan's operational performance

Sub-slab pressure testing will be completed semi-annually for the first year and annually thereafter. Preventative maintenance (i.e. replacing fans), repairs and/or adjustments shall be made to the system to ensure its continued effectiveness at mitigating potential exposures related to soil vapor intrusion. The need for preventative maintenance will depend upon the life expectancy and warranty for the specific part (fan life is generally between three and five years), as well as visual observations over time. The need for repairs and/or adjustments will depend upon the observation of system operation compared to that obtained when system operations were initiated.

If significant changes are made to the system or when the system's performance is unacceptable, the system may need to be reevaluated and restarted.

In addition to the routine OM&M activities described here, the building's owner and tenants will be provided with the Final Engineering Report and this SMP that explains the system's operation, maintenance and monitoring. Therefore, at any time during the system's operation, the building's owner or tenants may check that the system is operating properly.

4.2.4 System Operation: Non-Routine Equipment Maintenance

Non-routine maintenance may be required during the long-term operation of a SSD system. Examples of such situations include the following:

1. The need to replaces a fan;
2. The building's owners or occupants report that the warning device (vacuum gauge) indicates the SSD system is not operating properly;
3. The SSD system becomes damaged; or
4. The building has undergone renovations that may reduce the effectiveness of the vapor management system.

Activities conducted during non-routine maintenance will vary depending upon which of these situations was the reason for the maintenance. In general, non-routine maintenance activities may include examining the building for structural or HVAC system changes, or other changes that may affect the performance of the vapor management system (e.g. new combustion appliances or deterioration of the concrete slab). The non-routine maintenance may also include examining the operation of the warning device and the vent fan, or the extent of sub-slab depressurization. Repairs or adjustments should be made to the system as appropriate. If necessary, the system should be redesigned and restarted. Refer to Section 4.4.1 below for appropriate contact information for non-routine maintenance.

4.3 Maintenance Reporting Requirements

Maintenance reports and any other information generated during regular operations at the site will be kept on-file on-site. All reports, forms, and other relevant information generated will be available upon

request to the NYSDEC and will be submitted as part of the Periodic Review Report, as specified in the 2.7.3 of this SMP.

4.3.1 Routine Maintenance Reports

Forms will be completed during each routine maintenance event. Forms (*Appendix J*) will include, but not be limited to the following information:

- Date;
- Name, company, and position of person(s) conducting maintenance activities;
- Maintenance activities conducted;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet); and,
- Other documentation such as copies of invoices for maintenance work, receipts for replacement equipment, etc., (attached to the form).

4.3.2 Non-Routine Maintenance Reports

During each non-routine maintenance event, a form will be completed which will include, but not be limited to, the following information:

- Date;
- Name, company, and position of person(s) conducting non-routine maintenance/repair activities;
- Date of repair;
- Other repairs or adjustments made to the system;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents (included either on the form or on an attached sheet); and,
- Other documentation such as copies of invoices for repair work, receipts for replacement equipment, etc. (attached to the form).

4.4 Operations & Maintenance Contingency Plan

Emergencies may include injury to personnel, fire or explosion, environmental release, or serious weather conditions.

4.4.1 Telephone Numbers

In the event of any environmentally related situation or unplanned occurrence requiring assistance the Owner or Owner's representative(s) should contact the appropriate party from the contact list below. For emergencies, appropriate emergency response personnel should be contacted. Prompt

contact should also be made to an environmental professional where conditions that affect the implementation or monitoring of elements under this SMP may have emerged. These emergency contact lists must be maintained in an easily accessible location at the site.

Table VIII: Emergency Contact Numbers

Medical, Fire, and Police:	911
One Call Center:	(800) 272-4480 (3 day notice required for utility markout)
Poison Control Center:	(800) 222-1222
Pollution Toxic Chemical Oil Spills:	(800) 424-8802
NYSDEC Spills Hotline	(800) 457-7362

Table IX: Other Contact Numbers

Dig Safe (3 days advance for stakeouts):	(800) 962-7962 or 811
Frank Sowers NYSDEC Project Manager	(585) 226-5357
Haley & Aldrich of New York (Environmental Consultant)	(585) 359-9000
SSDS concerns *(Haley & Aldrich of New York)*	*(585) 359-9000*

* Note: Emergency contact numbers are subject to change and will be updated whenever a change in personnel occurs

4.4.2 Response Procedures

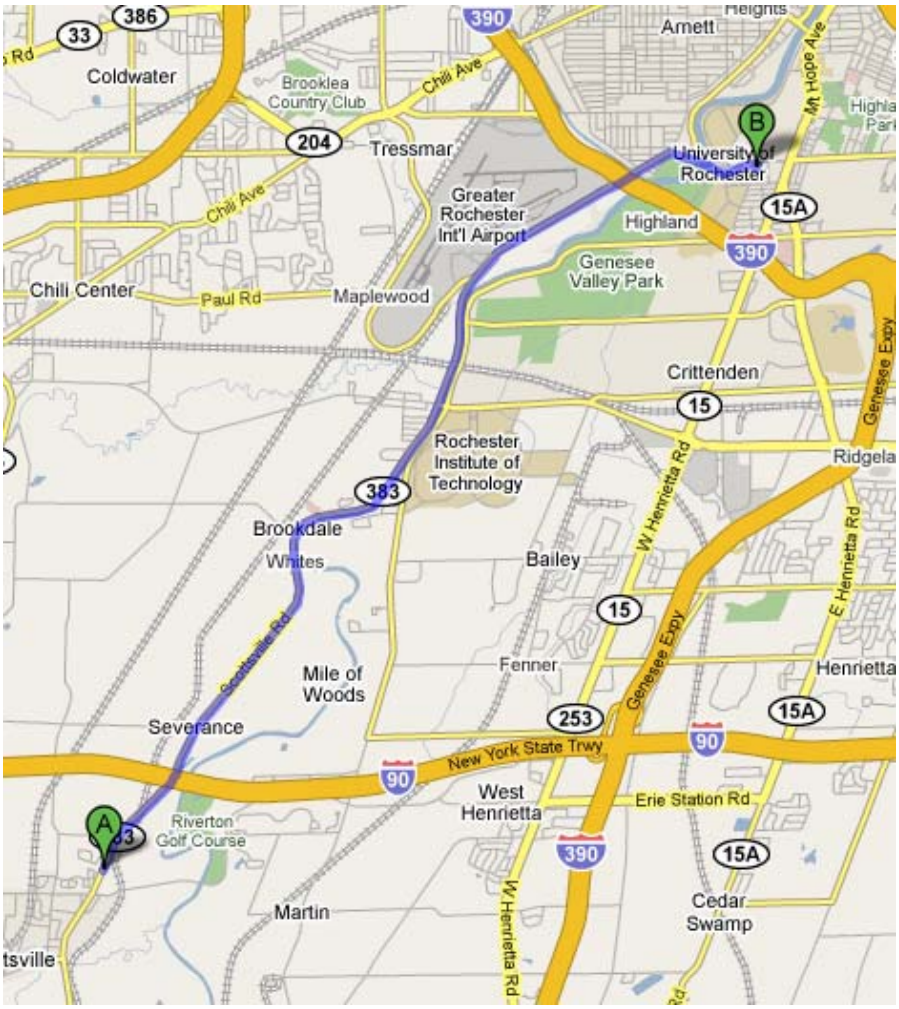
As appropriate, the fire department and other emergency response group will be notified immediately by telephone of the emergency. The emergency telephone number list is found at the beginning of this Contingency Plan (Table IV). The list will also be posted prominently at the site and made readily available to all personnel at all times.

4.4.3 Map and Directions to Emergency Health Facility

Site Location: 711 North Road, Scottsville, New York
Nearest Hospital: Strong Memorial Hospital
Hospital Location: 601 Elmwood Avenue, Rochester, New York
Hospital Telephone: (585) 275-2100
Directions to the Hospital *(9.7 miles, about 21 minutes)*:

1. Head **north** on **Scottsville Road/NY-383**
2. Continue on **Elmwood Avenue**
3. Turn **right** at **Thomas H. Jackson Dr.**

Map Showing Route from the site to the Hospital:



4.5 *Operation, Maintenance and Monitoring Plan Certification*

Haley & Aldrich of New York hereby states that, to the best of its knowledge and opinion, the activities proposed in section 3 and 4 of the Site Management Plan, entitled "Operation, Maintenance and Monitoring Plan" is being undertaken in accordance with New York State Department of Environmental Conservation's policies and guidelines and with the agency's agreement. This work also complies with generally accepted environmental engineering practices with the intent to further improve groundwater quality at the subject site.

Mark N. Ramsdell

Mark N. Ramsdell, P.E.
Senior Engineer

STATE OF NEW YORK
MARK N. RAMSDELL
71627
LICENSED PROFESSIONAL ENGINEER

7/29/10
Date

REFERENCES

1. "CooperVision VCA Remediation Work Plan," dated 5 February 2001. Prepared by Haley & Aldrich of New York.

2. "Draft Final Engineering Report, CooperVision Inc., Scottsville, New York (VCA Site #V00175-8)" dated 7 May 2007. Prepared by Haley & Aldrich of New York.

3. "Guidance for Evaluating Soil Vapor Intrusion in the State of New York" dated October 2006. Prepared by the New York State Department of Health

4. "Interim Remedial Measure (IRM) Work Plan, CooperVision Inc., Scottsville, New York (VCA Site #V00175-8)" dated 1 August 2008. Prepared by Haley & Aldrich of New York.

5. "Preliminary Report on Remediation Activities," dated 10 April 2002. Prepared by Haley & Aldrich of New York.

6. "Report on Site Environmental Investigations, CooperVision, Inc. Facility, Scottsville, New York," dated 23 April 1998. Prepared by Haley and Aldrich of New York.

7. "Re: Sub-Slab Depressurization System (Amended Work Plan)," dated 8 August 2006. Prepared by New York State Department of Environmental Conservation.

8. Revised Report on VCA Investigations, CooperVision, Inc. 711 North Road, Scottsville, New York," dated 6 May 2000. Prepared by Haley & Aldrich of New York.

9. "Soil Vapor Investigation Results Report, CooperVision Inc., Scottsville, New York (VCA Site #V00175-8)" dated 28 October 2008. Prepared by Haley & Aldrich of New York.

10. "Soil Vapor Investigation Results Report Addendum, CooperVision Inc., Scottsville, New York (VCA Site #V00175-8)" dated 12 June 2009. Prepared by Haley & Aldrich of New York.

11. "Soil Vapor Investigation Work Plan, CooperVision Inc., Scottsville, New York (VCA Site #V00175-8)" dated 27 March 2008. Prepared by Haley & Aldrich of New York.

12. "Soil Vapor Investigation Work Plan – Second Phase, CooperVision Inc., Scottsville, New York (VCA Site #V00175-8)" dated 10 December 2008. Prepared by Haley & Aldrich of New York.

13. "Sub Slab Vapor & Indoor Air Investigation Work Plan, CooperVision Inc., Scottsville, New York (VCA Site #V00175-8)" dated 4 February 2009. Prepared by Haley & Aldrich of New York.

14. "Sub-Slab Depressurization System (Amended Work Plan)," dated 18 May 2006. Prepared by Haley & Aldrich of New York.

15. Voluntary Cleanup Agreement, Index Number B8-0532-98-06, Site Number V001175-8, dated 31 May 2001

TABLE I
COOPERVISION, INC.
SUMMARY OF VOLATILE GASES AND DISSOLVED GASES
SOURCE AREA WELLS

All values expressed in mg/L (ppm)

Sample ID:	OWD-302D																							
Well Screen Interval (ft):	32.5 - 33.5																							
Date Sampled:	6/1/99	10/26/99	4/28/00	7/19/01	10/18/01	1/30/02	4/9/02	7/31/02	10/15/02	1/28/03	4/7/03	10/29/03	4/8/04	10/27/04	4/8/05	10/11/05	5/16/06	10/19/06	4/24/07	11/14/07	4/30/08	10/15/08	4/23/09	10/20/09
Compound:																								
VOLATILE ORGANICS																2X Dil.	5x Dil.	2x Dil.	5x Dil.	5x Dil.	2x Dil.		5x Dil.	5x Dil.
Acetone	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2.6**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	**54 D**	**1**	**0.63**	**3.1 D**	**1.7 D**	**0.57**	**1.2 D**	**0.24**	**0.97 D**	**0.51**	**12 D**	**0.46**	**0.76 D**	ND	**0.65**	**0.4 E**	**0.48**	**0.2**	**0.44 D**	**0.96 D**	ND	**0.11**	**0.51**	**0.65**
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.026**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	**110 D**	**0.021**	ND	**0.016**	ND	ND	**0.046**	ND	ND	ND	**0.16**	ND	ND	ND	ND	ND	ND	ND	ND	**0.24**	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	**0.0059**	ND	ND	ND	ND	ND	ND	**0.025**	ND	ND	**3.2**	ND	**0.041**	**0.046**	**0.021**	**0.048**	**0.016**	ND	**0.024**	**0.069**	**0.17**
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**7.1 D**	ND	ND	**15**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
SEMI-VOLATILE ORGANICS																								
Bis(2-ethylhexyl) pthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED GASES																					5x Dil.		100x Dil.	100x Dil.
Methane	NA	NA	NA	**0.038**	**0.016**	**0.013**	NA	ND	**0.0062**	**0.03**	**0.014**	NA	**0.002**	**0.77**	**0.013**	**0.031**	**0.043**	**0.05**	**0.056**	**0.036**	**0.3**	**0.033**	**3.4**	**1.8**
Ethane	NA	NA	NA	**0.015**	**0.0045**	**0.0041**	NA	ND	**0.0012**	**0.0083**	**0.0038**	NA	**0.001**	ND	ND	**0.0068**	**0.0056**	**0.0012**	**0.0051**	**0.0036**	ND	**0.0017**	ND	ND
Ethene	NA	NA	NA	**0.0013**	ND	ND	NA	ND	ND	ND	**0.0015**	NA	ND	ND	ND	**0.001**	ND	ND	ND	ND	ND	ND	ND	ND

Notes & Abbreviations:
ND: Not Detected
NA: Not Analyzed
DRY: Insufficent Recharge
D: Diluted Result
J: Estimated Result
B: Blank Contamination

1. The tables represent all data as reported from the lab in concentration format (mg/L).

2. The time-trend graphs concentrations have been converted to mmol/L to provide better stochiometric representation of relative mass of parent (TCA) to daughter (DCA, chloroethane, etc.) compounds. Also note that scale varies between graphs in order to depict ranges of values for each well.

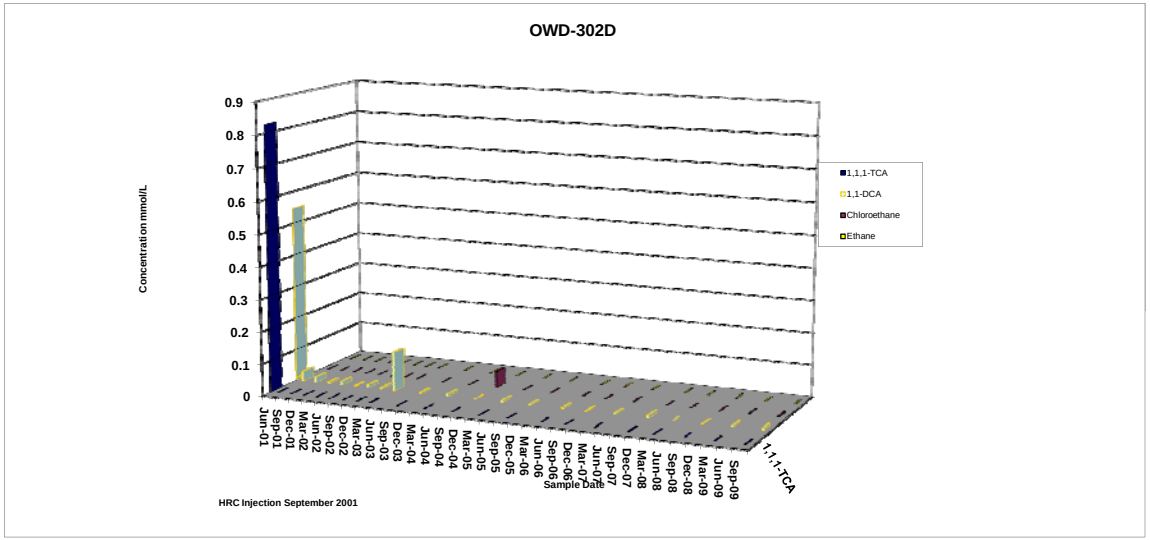


TABLE I
COOPERVISION, INC.
SUMMARY OF VOLATILE GASES AND DISSOLVED GASES
SOURCE AREA WELLS

All values expressed in mg/L (ppm)

Sample ID:	OWS-302S																						
Well Screen Interval (ft):	13.0 - 14.0																						
Date Sampled:	6/1/99	6/1/99 DEC SPLIT	4/28/00	7/19/01	10/18/01	1/30/02	4/9/02	7/31/02	10/16/02	1/28/03	4/7/03	10/30/03	4/8/04	10/27/04	4/8/05	10/12/05	5/16/06	10/17/06	4/24/07	11/15/07	4/30/08	10/16/08	4/23/09	10/20/09
Compound:																							
VOLATILE ORGANICS															2000x Dil.	1000x Dil.	250x Dil.	250x Dil.	100x Dil.	200x Dil.	200x Dil.	200x Dil.	500x Dil.	500x Dil.
Acetone	ND	**1.8 B**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	**49**	**61 D**	**390**	**180 D**	**200 D**	**370 D**	**390**	**270**	**360**	**330**	**300**	**220**	**250**	**230**	**240**	**140**	**37 D**	**27**	**1**	**0.52**	**1.4**	**0.81**	**2.9**	ND
1,1-Dichloroethene	ND	**0.022 J**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	**0.94**	ND	**4**	**2.2**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	**0.056 J**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**130**	**19 D**	**38**	**18**	**25 D**	**38**	**34 D**	**62**	**73**
1,2-Dichloroethane	ND	**0.02 J**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
SEMI-VOLATILE ORGANICS																								
Bis(2-ethylhexyl) pthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED GASES																			20x Dil.	2.5x Dil.			10x Dil.	10x Dil.
Methane	NA	NA	NA	DRY	ND	**0.002**	NA	**0.0063**	NA	**0.0016**	**0.031**	**0.0086**	**0.003**	**0.01**	**0.0068**	**0.016**	**0.0042**	**0.055**	**1.7**	**0.17**	**0.0074**	DRY	**0.83**	**3.1**
Ethane	NA	NA	NA	DRY	**0.0079**	ND	NA	**0.03**	NA	**0.0034**	**0.05**	**0.001**	**0.0084**	**0.029**	**0.0036**	**0.013**	**0.0013**	**0.014**	ND	**0.0085**	**0.0018**	DRY	ND	ND
Ethene	NA	NA	NA	DRY	**0.0075**	ND	NA	**0.022**	NA	**0.0025**	**0.049**	**0.0071**	**0.0048**	**0.37**	**0.0022**	**0.0089**	ND	**0.0069**	ND	**0.0033**	**0.0023**	DRY	ND	ND

Notes & Abbreviations:
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DRY: Insufficent Recharge
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1. The tables represent all data as reported from the lab in concentration format (mg/L).

2. The time-trend graphs concentrations have been converted to mmol/L to provide better stochiometric representation of relative mass of parent (TCA) to daughter (DCA, chloroethane, etc.) compounds. Also note that scale varies between graphs in order to depict ranges of values for each well.

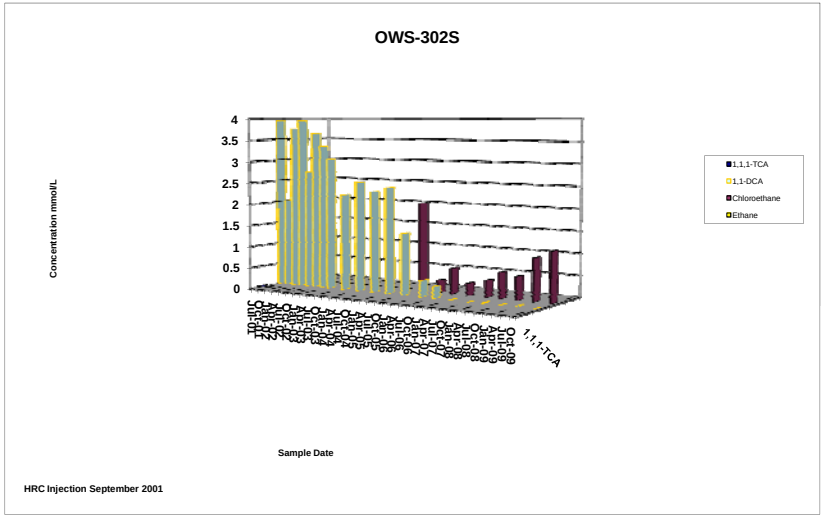

TABLE I
COOPERVISION, INC.
SUMMARY OF VOLATILE GASES AND DISSOLVED GASES
SOURCE AREA WELLS

All values expressed in mg/L (ppm)

Sample ID:	**OWS-302D**			**OWD-302S**	**B303-OWD-S**	**B303-OWD-D**	**B303-OWS-S**	**MW-1**	
Well Screen Interval (ft):	29.5 - 30.5			21.0 - 22.0	19.5 - 20.5	31.0 - 32.0	12.5 - 13.5	4.0 - 14.0	
Date Sampled:	6/1/99	10/26/99	4/28/00	4/28/00	6/1/99	6/1/99	6/1/99	4/16/97	6/2/99
Compound:									
VOLATILE ORGANICS									
Acetone	ND	NA	ND	ND	**0.18**	**0.073**	**0.16**	ND	ND
1,1-Dichloroethane	**1.5**	**220**	**23**	**350**	ND	ND	ND	**36**	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	**12**	**13**
1,1,1-Trichloroethane	**0.22**	ND	**8.8**	**2.4**	ND	ND	ND	**370**	**320**
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	ND	ND	ND	ND	NA	NA	NA	NA	NA
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA
SEMI-VOLATILE ORGANICS									
Bis(2-ethylhexyl) pthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED GASES									
Methane	NA	NA	NA	DRY	NA	NA	NA	NA	NA
Ethane	NA	NA	NA	DRY	NA	NA	NA	NA	NA
Ethene	NA	NA	NA	DRY	NA	NA	NA	NA	NA

Notes & Abbreviations:

ND: Not Detected

NA: Not Analyzed

DRY: Insufficent Recharge

D: Diluted Result

J: Estimated Result

B: Blank Contamination

1. The tables represent all data as reported from the lab in concentration format (mg/L).

2. The time-trend graphs concentrations have been converted to mmol/L to provide better stochiometric representation of relative mass of parent (TCA) to daughter (DCA, chloroethane, etc.) compounds. Also note that scale varies between graphs in order to depict ranges of values for each well.

TABLE I
COOPERVISION, INC.
SUMMARY OF VOLATILE GASES AND DISSOLVED GASES
SOURCE AREA WELLS

All values expressed in mg/L (ppm)

Sample ID:	**MW-205**																								
Well Screen Interval (ft):	21.2 - 28.0																								
Date Sampled:	7/10/97	6/2/99	4/28/00	7/19/01	10/18/01	1/29/02	4/9/02	7/31/02	10/15/02	1/29/03	4/7/03	10/29/03	4/6/04	4/6/04 DEC split	10/28/04	4/8/05	10/11/05	5/16/06	10/18/06	4/25/07	11/15/07	4/30/08	10/16/08	4/24/09	10/21/09
Compound:																									
VOLATILE ORGANICS																2000x Dil.	2000x Dil.	2000x Dil.	2000x Dil	2000x Dil	2000x Dil.	2000x Dil.	2000x. Dil	2000x Dil.	2000x Dil.
Acetone	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	**153**	**190 D**	NA	**180 D**	**160 D**	**240**	**290**	**260**	**260**	**230**	**290**	**210**	**200 D**	**180**	**230**	**240**	**230**	**220**	**270**	**230**	**390**	**200**	**200**	**200**	**200**
1,1-Dichloroethene	ND	ND	NA	**2.6**	ND	ND	ND	ND	ND	ND	ND	ND	**1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	**421**	**480 D**	NA	**260 D**	**180 D**	**300**	**300**	**280**	**260**	**200**	**320**	**250**	**140 D**	**150**	**100**	**76**	**80**	**57**	**62**	**41**	**84**	**42**	**57**	**48**	**99**
Tetrachloroethene	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.14**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.11**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.14**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.075**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.05**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.11**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.009**	**0.008**	NA	ND	NA	NA	NA	NA	NA	ND	NA	ND	ND
SEMI-VOLATILE ORGANICS																									
Bis(2-ethylhexyl) pthalate	NA	**0.016**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED GASES																									
Methane	NA	NA	NA	**0.005**	**0.0053**	**0.0052**	NA	**0.0062**	**0.0057**	**0.0014**	**0.022**	**0.0057**	**0.0013**	NA	**0.0064**	**0.0062**	**0.0098**	**0.011**	**0.013**	**0.019**	**0.033**	**0.014**	**0.022**	**0.014**	**0.010**
Ethane	NA	NA	NA	**0.01**	**0.0084**	**0.0069**	NA	**0.0098**	**0.0086**	**0.0012**	**0.013**	**0.0038**	**0.006**	NA	**0.0059**	**0.007**	**0.012**	**0.016**	**0.017**	**0.019**	**0.026**	**0.019**	**0.023**	**0.020**	**0.012**
Ethene	NA	NA	NA	**0.0029**	**0.0024**	**0.002**	NA	**0.0026**	**0.0023**	**0.004**	**0.0048**	**0.0021**	**0.0028**	NA	**0.0048**	**0.0051**	**0.012**	**0.012**	**0.014**	**0.013**	**0.016**	**0.012**	**0.02**	**0.015**	**0.011**

Notes & Abbreviations:
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B: Blank Contamination

1. The tables represent all data as reported from the lab in concentration format (mg/L).

2. The time-trend graphs concentrations have been converted to mmol/L to provide better stochiometric representation of relative mass of parent (TCA) to daughter (DCA, chloroethane, etc.) compounds. Also note that scale varies between graphs in order to depict ranges of values for each well.

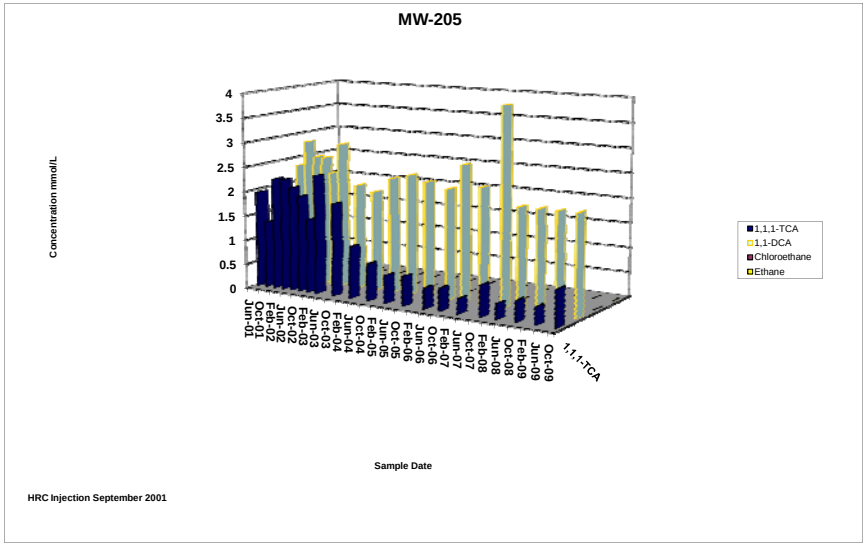

TABLE I
COOPERVISION, INC.
SUMMARY OF VOLATILE GASES AND DISSOLVED GASES
SOURCE AREA WELLS

All values expressed in mg/L (ppm)

Sample ID:	OW-401																						
Well Screen Interval (ft):	44.0 - 46.0																						
Date Sampled:	10/26/99	4/28/00	7/19/01	10/18/01	1/29/02	4/10/02	7/30/02	10/15/02	1/29/03	4/7/03	10/29/03	4/7/04	10/27/04	4/8/05	10/12/05	5/16/06	10/17/06	4/24/07	11/15/07	4/30/08	10/16/08	4/22/09	10/21/09
Compound:																							
VOLATILE ORGANICS															2.5x Dil.	5x Dil.	5x Dil.						
Acetone	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	**0.22**	ND	**0.5**	**0.43**	**0.7 D**	**0.5 D**	**0.5**	**2.2 D**	**0.31**	**0.17**	**0.036**	**0.33 D**	**0.65**	**0.74**	**0.46**	**0.47 D**	**0.62**	**0.23**	**0.15**	**0.091**	**0.16**	**0.094**	**0.16**
1,1-Dichloroethene	**0.014**	ND	**0.045**	**0.028**	**0.057**	**0.044**	**0.032**	**0.066**	**0.025**	**0.011**	ND	**0.026**	**0.042**	**0.044**	**0.019**	**0.028**	**0.025**	**0.012**	**0.011**	ND	**0.0072**	ND	**0.0079**
1,1,1-Trichloroethane	**0.21**	ND	**0.36**	**0.14**	**0.021**	**0.0075**	**0.025**	**1.5**	ND	**0.0076**	**0.0071**	**0.0011**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.048**	ND	**0.014**	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	**0.18**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
SEMI-VOLATILE ORGANICS																							
Bis(2-ethylhexyl) pthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED GASES																							
Methane	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethane	NA	NA	NA	NA	NA	NA	**0.0013**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethene	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes & Abbreviations:
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NA: Not Analyzed
DRY: Insufficient Recharge
D: Diluted Result
J: Estimated Result
B: Blank Contamination

1. The tables represent all data as reported from the lab in concentration format (mg/L).

2. The time-trend graphs concentrations have been converted to mmol/L to provide better stochiometric representation of relative mass of parent (TCA) to daughter (DCA, chloroethane, etc.) compounds. Also note that scale varies between graphs in order to depict ranges of values for each well.

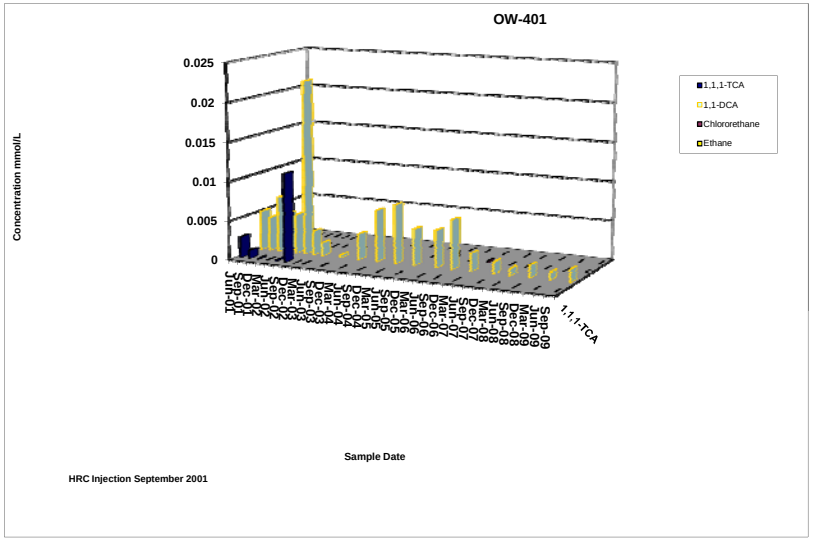

TABLE II
COOPERVISION, INC.
SUMMARY OF VOLATILE ORGANICS AND DISSOLVED GASES
MID-GRADIENT WELLS

All values expressed in mg/l (ppm)

Sample ID:	MW-2																						
Well Screen Interval (ft):	2.0 - 10.0																						
Date Sampled:	4/16/1997	6/2/1999	7/19/2001	10/18/2001	1/28/2002	4/9/2002	7/29/2002	10/15/2002	1/29/2003	4/7/2003	10/28/2003	4/6/2004	10/28/2004	4/7/2005	10/11/2005	5/17/2006	10/18/2006	4/25/2007	11/14/2007	4/30/2008	10/15/2008	4/24/2009	10/20/2009
Compound:																							
VOLATILE ORGANICS															5x Dil.				20x Dil.		10x Dil.		5x Dil.
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.2**	ND	ND	ND	**0.044**	ND	ND	ND	ND
1,1-Dichloroethane	**0.372**	**0.1**	**0.17**	**0.3**	**0.19**	**0.26**	**0.26**	**4.9 D**	**1.1**	**0.8**	**0.33**	**0.46**	**0.0088**	**0.028**	**0.21**	**0.011**	**0.035**	ND	**0.095**	**0.023**	**0.14**	**0.0041 J**	**0.11**
1,1-Dichloroethene	**0.182**	**0.41**	**0.21 D**	**0.46**	**0.27**	**0.38**	**0.27**	**0.88**	**0.21**	**0.17**	**0.047**	**0.12**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	**0.37**	**0.063**	**0.05**	**0.016**	**0.0037**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	**0.519**	**3.7**	**1.2 D**	**3**	**2.1**	**2.7**	**1.8**	**1.1**	**0.29**	**0.29**	**0.032**	ND	**0.006**	**ND**	**0.067**	**0.0069**	**0.032**	ND	ND	ND	ND	**0.0059**	ND
Tetrachloroethene	**0.006**	ND	**0.022**	ND	**0.1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.00051 J**	ND
Trichloroethene	**0.039**	ND	**0.074**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	**0.26**	**0.1**	**0.1**	**0.086**	**0.62**	**0.012**	**0.78**	**1.3 E**	**0.078**	**0.022**	**0.022**	**2.3 D**	**0.18**	**0.72 D**	**0.0094**	**0.91**
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.089**	**0.18**	**0.01**	ND	ND	**0.36 D**	**0.031**	**0.18**	**0.0030 J**	**0.16**
1,4-Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED GASES																							
Methane	NA	NA	NA	NA	NA	NA	**0.083**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethane	NA	NA	NA	NA	NA	NA	**0.0025**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethene	NA	NA	NA	NA	NA	NA	**0.0026**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes & Abbreviations:
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1. The tables represent all data as reported from the lab in concentration format (mg/L).

2. The time-trend graphs concentrations have been converted to mmol/L to provide better stochiometric representation of relative mass of parent (TCA) to daughter (DCA, chloroethane, etc.) compounds. Also note that scale varies between graphs in order to depict ranges of values for each well.

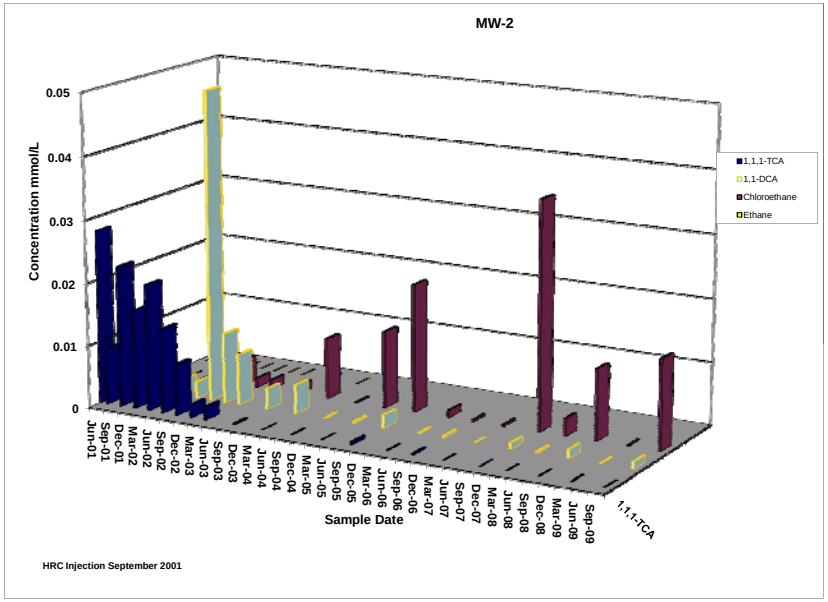

TABLE II
COOPERVISION, INC.
SUMMARY OF VOLATILE ORGANICS AND DISSOLVED GASES
MID-GRADIENT WELLS

All values expressed in mg/l (ppm)

Sample ID:	MW-3																							
Well Screen Interval (ft):	3.0 - 10.0																							
Date Sampled:	6/18/1997	6/2/1999	10/26/1999	10/18/2001	2/15/2002	4/9/2002	7/30/2002	10/15/2002	1/28/2003	4/7/2003	10/28/2003	4/6/2004	4/6/2004 DEC split	10/27/2004	4/6/2005	10/10/2005	5/17/2006	10/18/2006	4/25/2007	11/14/2007	4/28/2008	10/13/2008	4/24/2009	10/20/2009
Compound:																								
VOLATILE ORGANICS																	20x Dil.	20x Dil.	20x Dil.	20x Dil.	20x Dil.	20x Dil	20x Dil.	10x Dil.
Acetone	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.02**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	**2**	**2.9**	**3.2**	**0.79 D**	**2.8**	**2.4**	**3.8**	**3.9**	**5.8**	**8.4**	**0.56**	**1 D**	**0.74 D**	**3.1**	**0.68**	**1**	**0.34**	**0.51**	**0.93**	**0.22**	**0.36**	**0.36**	**0.38**	**0.21**
1,1-Dichloroethene	**0.63**	**1.8**	**2.2**	**0.53 D**	**2**	**2**	**1.8**	**1.4**	**1.5**	**1.2**	**0.57**	**0.33**	**0.23 D**	**0.36**	**0.099**	**0.1**	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.006**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	**3.3**	**10**	**8**	**2.4 D**	**9.1**	**8.5**	**6.2**	**3.4**	**1.7**	ND	**0.23**	**0.9 D**	**0.66 D**	**0.42**	**0.23**	**0.17**	ND	ND	**0.14**	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.007**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	**0.037**	ND	ND	ND	ND	ND	ND	ND	**0.026**	**0.031**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	**0.29**	**1.3**	**3**	**2.8 D**	**3 D**	**2.3**	**1.0**	**2.8 E**	**2.3**	**3.7**	**3.4**	**2.5**	**2.4**	**2.8**	**3.1**	**1.8**
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.007**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.001**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.013**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.21**	**0.36**	**0.50**	**0.34**	**0.082**	**0.56**	**0.39**	**0.71**	**0.67**	**0.51**	**0.5**	**0.63**	**0.69**	**0.38**
1,4-Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.058**	**0.660**	NA	ND	NA	NA	NA	NA	NA	**0.088 D**	NA	**0.075**	NA
DISSOLVED GASES																		10x Dil.	10x Dil.		10x Dil.	20x Dil	20x Dil.	20x Dil.
Methane	NA	NA	NA	DRY	**0.02**	NA	**0.039**	**0.036**	**0.12**	**0.18**	**0.17**	**0.0095**	NA	**0.38**	**0.019**	**0.3**	**0.37**	**0.9**	**0.96**	**0.73**	**0.58**	**1.2**	**1**	**0.83**
Ethane	NA	NA	NA	DRY	**0.0039**	NA	**0.0029**	**0.0016**	**0.0029**	**0.003**	ND	ND	NA	ND	**0.0019**	ND	ND	ND	ND	ND	ND	**0.003**	ND	ND
Ethene	NA	NA	NA	DRY	ND	NA	ND	ND	ND	ND	ND	ND	NA	ND	ND	**0.0066**	ND	**0.019**	**0.016**	**0.015**	**0.011**	**0.027**	ND	**0.010**

Notes & Abbreviations:

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1. The tables represent all data as reported from the lab in concentration format (mg/L).

2. The time-trend graphs concentrations have been converted to mmol/L to provide better stochiometric representation of relative mass of parent (TCA) to daughter (DCA, chloroethane, etc.) compounds. Also note that scale varies between graphs in order to depict ranges of values for each well.

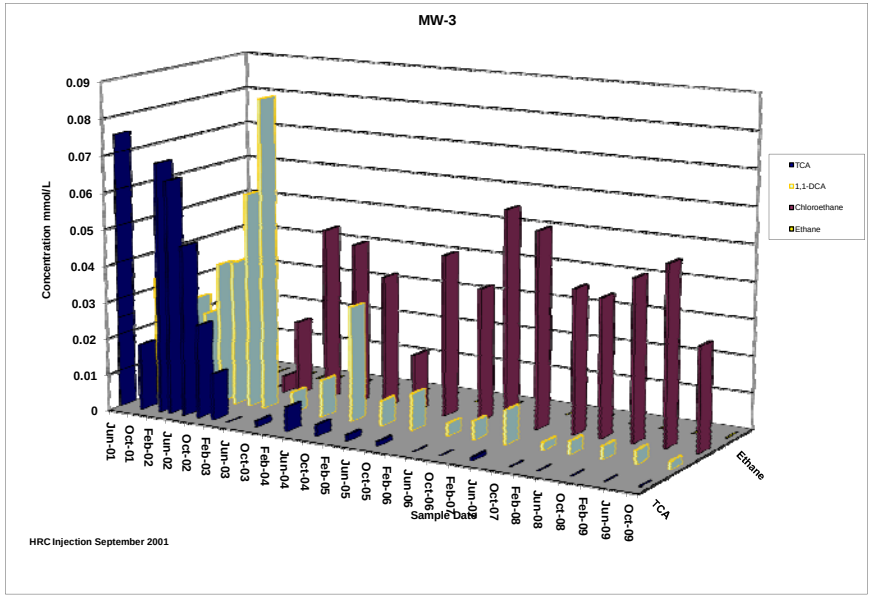

TABLE II
COOPERVISION, INC.
SUMMARY OF VOLATILE ORGANICS AND DISSOLVED GASES
MID-GRADIENT WELLS

All values expressed in mg/l (ppm)

Sample ID:	MW-403		MW-501																						
Well Screen Interval (ft):	38.5 - 43.5		20.0 - 25.0																						
Date Sampled:	10/26/1999	10/26/1999 DEC SPLIT	7/19/2001	7/23/2001	10/17/2001	10/17/2001 DEC SPLIT	2/15/2002	4/9/2002	7/30/2002	10/15/2002	1/29/2003	4/7/2003	10/29/2003	4/7/2004	10/27/2004	4/8/2005	10/11/2005	5/16/2006	10/18/2006	4/25/2007	11/14/2007	4/28/2008	10/15/2008	4/24/2009	10/20/2009
Compound:																									
VOLATILE ORGANICS																	5x Dil.	10x Dil.	2x Dil.	2x Dil.	5x Dil.	5x Dil.	2.5x Dil.	5x Dil.	2.5x Dil.
Acetone	ND	**0.062 B**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	**0.0059**	**0.001 J**	ND	**5.3 D**	**0.055**	**0.4475**	**0.96**	**9.9 D**	**1.8**	**2.2 D**	**4.3**	**7**	**0.4**	**0.56**	**0.6**	**0.79**	**0.49**	**0.48**	**0.29**	**0.31**	**0.24**	**0.15**	**0.09**	**0.17**	**0.11**
1,1-Dichloroethene	ND	ND	ND	**0.0098**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	**0.001 J**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.26**	**0.7**	**0.9**	**0.42**	**0.37**	**1.4 E**	**0.68 D**	**0.31**	**0.28**	**0.71 D**	**0.52**	**0.32**	**0.61**	**0.47**
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	ND	**0.005 J**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.028**	**0.029**	ND	**0.041**	**0.046**	**0.06**	**0.054**	**0.051**	**0.051**	**0.058**	**0.018**	**0.071**	**0.047**
1,4-Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED GASES																200X Dil.	100X Dil.	100x Dil.	100x Dil.	100x Dil.		200x Dil.	20x Dil.	250x Dil.	100x Dil.
Methane	NA	NA	**0.0033**	**0.0081**	**0.018**	NA	**0.02**	NA	**0.037**	**0.25**	**5.5**	**6.8**	**11**	**13**	**4.4**	**13**	**5**	**8.6**	**8**	**7.1**	**0.042**	**10**	**1.6**	**15**	**37**
Ethane	NA	NA	ND	**0.005**	**0.004**	NA	**0.0018**	NA	**0.0011**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.0024**	ND	ND
Ethene	NA	NA	ND	**0.0045**	**0.0014**	NA	**0.0012**	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes & Abbreviations:
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NA: Not Analyzed
DRY: Insufficent Recharge
D: Diluted Result
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B: Blank Contamination

1. The tables represent all data as reported from the lab in concentration format (mg/L).

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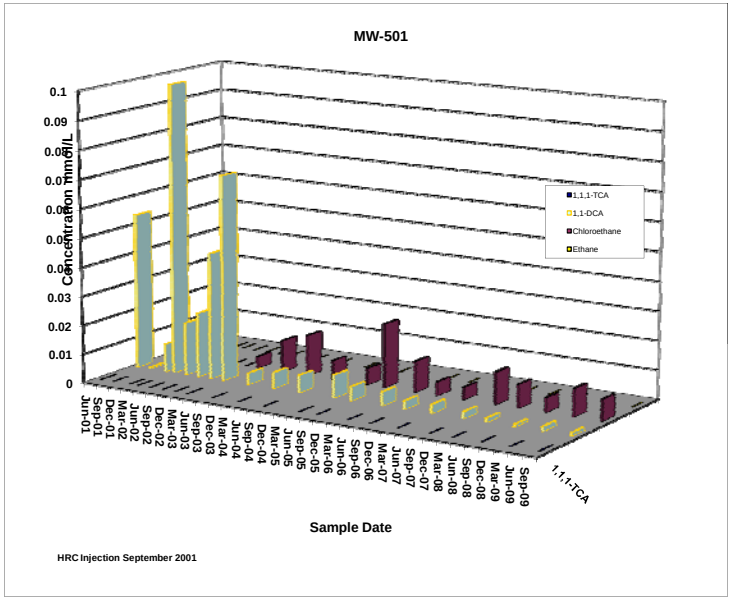

TABLE II
COOPERVISION, INC.
SUMMARY OF VOLATILE ORGANICS AND DISSOLVED GASES
MID-GRADIENT WELLS

All values expressed in mg/l (ppm)

Sample ID:	MW-502																					
Well Screen Interval (ft):	30.0 - 35.0																					
Date Sampled:	7/24/2001	10/17/2001	10/17/2001 DEC SPLIT	1/28/2002	4/9/2002	7/30/2002	10/15/2002	1/27/2003	4/7/2003	10/28/2003	4/7/2004	10/27/2004	4/7/2005	10/11/2005	7/6/2006	10/18/2006	4/25/2007	11/14/2007	4/30/2008	10/15/2008	4/24/2009	10/20/2009
Compound:																						
VOLATILE ORGANICS													100x Dil.	100x Dil.	40x Dil.	100X Dil.	50x Dil.	50x Dil.	50x Dil.	50x Dil.	50x Dil.	50x Dil.
Acetone	ND	ND	**0.072**	ND	ND	ND	ND	ND	ND	ND	**0.14**	ND	ND	ND	0.35	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	**9.8 D**	**11**	**4.4**	**3.3**	**0.82 D**	**3.8 D**	**11 D**	**17**	**13**	**1.5**	**0.52**	ND	**6.8**	ND	ND	**0.016**	**0.054**	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	**0.14**	ND	ND	ND	**0.14**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	**0.059**	**0.16**	ND	ND	ND	0.26	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	**0.011**	ND	**0.0455**	ND	ND	ND	ND	ND	ND	**11**	**7.5 D**	**12**	**10**	**12**	**5.7 D**	**10 D**	**7.9**	**8.8**	**7.5**	**8.7**	**7.8**	**9.1**
1,2-Dichloroethane	**0.012**	ND	**0.0115**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	**0.0063**	**1.1**	**0.0489**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	**0.011**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.19**	ND	ND	ND	**0.28**	**0.19**	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.69**	**5.6**	ND	**0.12**	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED GASES													100X Dil.	200X Dil.	100X Dil.	100X Dil.	200x Dil.	100x Dil.	200x Dil.	50x Dil.	300x Dil.	400x Dil.
Methane	DRY	**0.018**	NA	**0.0027**	NA	**0.32**	**0.78**	**3.4**	**1.5**	**6.3**	**6.9**	**7.4**	**8.5**	**12**	**4.8**	**5.8**	**12**	**9.4**	**15**	**44 D**	**8.8**	**10**
Ethane	DRY	**0.024**	NA	**0.0061**	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.0051**	ND	ND
Ethene	DRY	**0.0066**	NA	**0.002**	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes & Abbreviations:
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NA: Not Analyzed
DRY: Insufficent Recharge
D: Diluted Result
J: Estimated Result
B: Blank Contamination

1. The tables represent all data as reported from the lab in concentration format (mg/L).

2. The time-trend graphs concentrations have been converted to mmol/L to provide better stochiometric representation of relative mass of parent (TCA) to daughter (DCA, chloroethane, etc.) compounds. Also note that scale varies between graphs in order to depict ranges of values for each well.

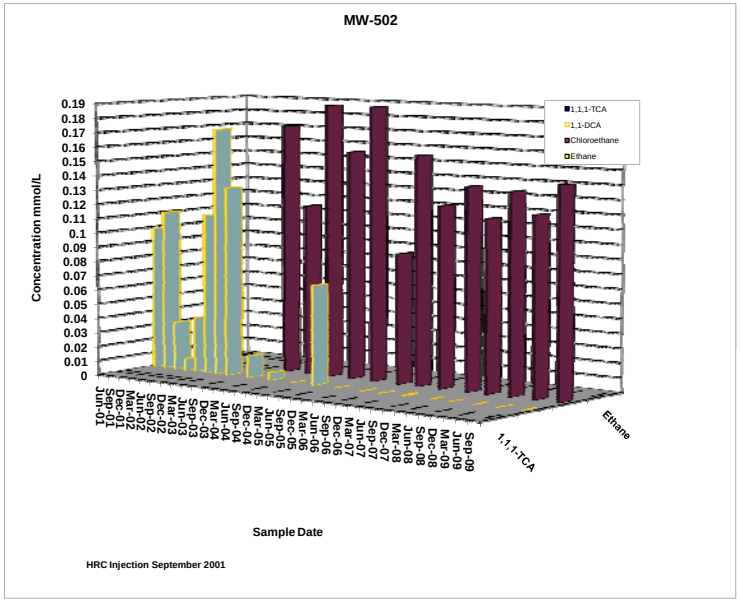

TABLE III
COOPERVISION, INC.
SUMMARY OF VOLATILE ORGANICS AND DISSOLVED GASES
DOWN-GRADIENT WELLS

All values expressed in mg/l (ppm)

Sample ID:	B304-OW																					
Well Screen Interval (ft):	4.0 - 14.0																					
Date Sampled:	6/1/99	7/18/01	10/18/01	1/29/02	4/8/02	7/29/02	10/14/02	1/30/03	4/7/03	10/30/03	4/7/04	10/27/04	4/7/05	10/10/05	5/17/06	10/19/06	4/26/07	11/14/07	4/30/08	10/13/08	4/23/09	10/21/09
Compound:																						
VOLATILE ORGANICS																						
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	**0.012**	**0.024**	**0.044**	ND	ND	**0.007**	**0.014**	ND	ND	**0.008**	ND	ND	ND	ND	**0.099**	**0.007**	**0.035**	**0.0078**	ND	**0.0052**	ND	**0.0057**
1,1-Dichloroethene	**0.006**	**0.014**	**0.026**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	**0.036**	**0.028**	**0.037**	**0.010**	**0.009**	**0.014**	**0.017**	**0.006**	**0.006**	**0.011**	**0.007**	ND	ND	**0.006**	**0.013**	**0.008**	**0.021**	**0.0068**	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.062**	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED GASES																						
Methane	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethane	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethene	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes & Abbreviations:
ND: Not Detected
NA: Not Analyzed
DRY: Insufficent Recharge
D: Diluted Result
J: Estimated Result
B: Blank Contamination
E: Estimated Result

1. The tables represent all data as reported from the lab in concentration format (mg/L).

2. The time-trend graphs concentrations have been converted to mmol/L to provide better stochiometric representation of relative mass of parent (TCA) to daughter (DCA, chloroethane, etc.) compounds. Also note that scale varies between graphs in order to depict ranges of values for each well.

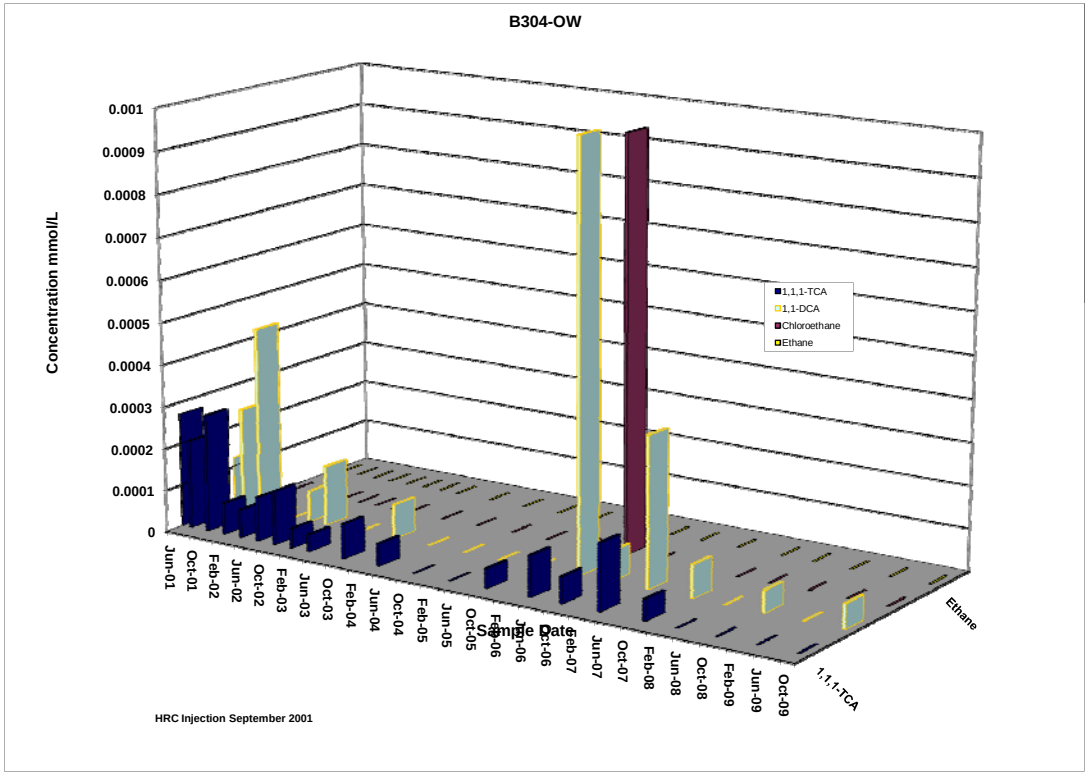

TABLE III
COOPERVISION, INC.
SUMMARY OF VOLATILE ORGANICS AND DISSOLVED GASES
DOWN-GRADIENT WELLS

All values expressed in mg/l (ppm)

Sample ID:	MW-202																							
Well Screen Interval (ft):	10.1 - 20.3																							
Date Sampled:	7/10/97	6/2/99	10/26/99	7/18/01	10/18/01	1/28/02	4/8/02	7/29/02	10/14/02	1/29/03	4/7/03	10/28/03	4/7/04	10/26/04	4/6/05	10/10/05	7/6/06	10/17/06	4/24/07	11/14/07	4/28/08	10/13/08	4/23/09	10/20/09
Compound:																								
VOLATILE ORGANICS																								
Acetone	**0.027**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	**0.008**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.0064**	**0.0053**	ND	**0.0093**	**0.0110**
1,1-Dichloroethene	**0.018**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.0056**	ND	ND	**0.0050**	**0.0078**
1,1,1-Trichloroethane	**0.061**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	**0.008**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED GASES																								
Methane	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethane	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethene	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes & Abbreviations:

ND: Not Detected
NA: Not Analyzed
DRY: Insufficent Recharge
D: Diluted Result
J: Estimated Result
B: Blank Contamination
E: Estimated Result

1. The tables represent all data as reported from the lab in concentration format (mg/L).

2. The time-trend graphs concentrations have been converted to mmol/L to provide better stochiometric representation of relative mass of parent (TCA) to daughter (DCA, chloroethane, etc.) compounds. Also note that scale varies between graphs in order to depict ranges of values for each well.

TABLE III
COOPERVISION, INC.
SUMMARY OF VOLATILE ORGANICS AND DISSOLVED GASES
DOWN-GRADIENT WELLS

All values expressed in mg/l (ppm)

Sample ID:	**MW-203**																						
Well Screen Interval (ft):	9.8 - 20.0																						
Date Sampled:	7/10/97	6/2/99	7/18/01	10/18/01	1/29/02	4/8/02	7/29/02	10/14/02	1/30/03	4/7/03	10/28/03	4/7/04	10/26/04	4/6/05	10/10/05	5/15/06	10/19/06	4/26/07	11/14/07	4/30/08	10/13/08	4/22/09	10/21/09
Compound:																							
VOLATILE ORGANICS																							
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	**0.118**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.018**	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.009**	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED GASES																							
Methane	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethane	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethene	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes & Abbreviations:
ND: Not Detected
NA: Not Analyzed
DRY: Insufficent Recharge
D: Diluted Result
J: Estimated Result
B: Blank Contamination
E: Estimated Result

1. The tables represent all data as reported from the lab in concentration format (mg/L).

2. The time-trend graphs concentrations have been converted to mmol/L to provide better stochiometric representation of relative mass of parent (TCA) to daughter (DCA, chloroethane, etc.) compounds. Also note that scale varies between graphs in order to depict ranges of values for each well.

TABLE III
COOPERVISION, INC.
SUMMARY OF VOLATILE ORGANICS AND DISSOLVED GASES
DOWN-GRADIENT WELLS

All values expressed in mg/l (ppm)

Sample ID:	**MW-204**																								
Well Screen Interval (ft):	9.8 - 20.0																								
Date Sampled:	7/10/97	6/2/99	7/18/01	10/18/01	1/28/02	4/8/02	7/29/02	10/14/02	1/30/03	4/7/03	10/28/03	4/6/04	4/6/04 DEC split	10/26/04	4/6/05	10/10/05	7/6/06	10/18/06	4/26/07	11/14/07	4/28/08	10/13/08	4/23/09	10/20/09
Compound:																									
VOLATILE ORGANICS																									
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	**0.012**	**0.019**	**0.011**	**0.010**	**0.007**	**0.010**	**0.008**	**0.006**	**0.008**	**0.006**	**0.006**	ND	**0.0068**	**0.0053**	ND	**0.1800**	**0.0740**	**0.0070**	**0.0056**	**0.0060**	**0.0056**	**0.0063**
1,1-Dichloroethene	ND	ND	**0.0088**	**0.015**	**0.008**	**0.007**	ND	**0.008**	**0.006**	**0.005**	**0.005**	**0.006**	**0.004**	ND	ND	ND	ND	**0.009**	ND	**0.0067**	ND	ND	ND	**0.0067**
1,1,1-Trichloroethane	ND	ND	**0.01**	**0.022**	**0.011**	**0.010**	ND	**0.011**	**0.007**	ND	**0.006**	**0.006**	**0.005 J**	ND	ND	ND	ND	**0.097**	**0.030**	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.005**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	**0.015**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.090**	**0.086**	NA	**0.047**	NA	NA	NA	NA	NA	**0.030 D**	NA	**0.022**	NA
DISSOLVED GASES																									
Methane	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethane	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethene	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes & Abbreviations:

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DRY: Insufficent Recharge
D: Diluted Result
J: Estimated Result
B: Blank Contamination
E: Estimated Result

1. The tables represent all data as reported from the lab in concentration format (mg/L).

2. The time-trend graphs concentrations have been converted to mmol/L to provide better stochiometric representation of relative mass of parent (TCA) to daughter (DCA, chloroethane, etc.) compounds. Also note that scale varies between graphs in order to depict ranges of values for each well.

TABLE III
COOPERVISION, INC.
SUMMARY OF VOLATILE ORGANICS AND DISSOLVED GASES
DOWN-GRADIENT WELLS

All values expressed in mg/l (ppm)

Sample ID:	**OW-402**																					
Well Screen Interval (ft):	38.5 - 43.5																					
Date Sampled:	10/26/99	7/18/01	10/18/01	1/28/02	6/21/02	7/29/02	10/14/02	1/29/03	4/7/03	10/28/03	4/5/04	10/26/04	4/6/05	10/10/05	5/15/06	10/17/06	4/24/07	11/14/07	4/28/08	10/13/08	4/23/09	10/20/09
Compound:																						
VOLATILE ORGANICS																						
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED GASES																						
Methane	NA	NA	NA	NA	NA	**0.0038**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethane	NA	NA	NA	NA	NA	**0.0014**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethene	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes & Abbreviations:
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NA: Not Analyzed
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1. The tables represent all data as reported from the lab in concentration format (mg/L).

2. The time-trend graphs concentrations have been converted to mmol/L to provide better stochiometric representation of relative mass of parent (TCA) to daughter (DCA, chloroethane, etc.) compounds. Also note that scale varies between graphs in order to depict ranges of values for each well.

TABLE IV
COOPERVISION INCORPORATED
ADDITIONAL ANALYTICAL
PARAMETER SUMMARY

Sample ID	MW-205																				
Analyte	7/19/01	9/26/01	10/18/01	1/28/02	4/9/02	7/29/02	10/15/02	1/28/03	4/7/03	10/30/03	4/6/04	10/28/04	4/8/05	10/11/05	5/16/06	10/18/06	4/25/07	11/15/07	4/30/08	10/16/08	4/24/09	10/21/09
INORGANICS (mg/L)																						
Nitrite Nitrogen	**0.0265**	NS	<0.0500	NA	NA	**0.0174**	NA	NA	**0.0151**	NA	**0.069**	NA	**0.0291**	<0.0500	**0.0524**	**0.0107**	<0.0600	<0.100	<0.04	<2.0	<0.01	26.6
Nitrate/Nitrite Nitrogen	<.0500	NS	NA	NA	NA	<.0500	NA	NA	**0.135**	NA	<.0500	NA	<0.100	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	<0.05	NA
Chloride	**750**	NS	**708**	NA	NA	**741**	NA	NA	**729**	NA	**746**	**613**	**689**	**677**	**684**	**705**	**690**	**671**	**697**	**834**	**705**	**734**
Dissolved Organic Carbon	**52.2**	NS	**55.2**	NA	NA	**201**	NA	NA	**354**	NA	**497**[TOC]	NA	**667**	**1630**	**979**	**1020**	**1420**	**1270**	**1690**	**1620**	**2220**	**2653**
Nitrate Nitrogen	**0.0514**	NS	<.0500	NA	NA	<.0500	NA	NA	**0.12**	NA	<.0500	<1.0	<0.200	<0.0500	<0.0500 J	<0.0500	<0.0500	<0.500	<1.0	<0.5	<0.05	<0.50
Total Alkalinity	**404**	NS	**378**	NA	NA	**619**	NA	NA	**1010**	NA	**1400**	NA	**1380**	**1470**	**1500**	**1440**	**1650**	**1820**	**1980**	**2100**	**2350**	**2390**
Sulfate	**96.9**	NS	**91**	NA	NA	**27.5**	NA	NA	**9.21**	NA	**11.4**	<2.0	**2.5**	**2.46**	**2.34**	<0.2	<2.0	<2.0	**6.26**	**4.8**	**5.7**	**8.4**
Total Sulfide	<1.00	NS	<1.00	NA	NA	<1.00	NA	NA	<1.00	NA	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	**4.25**	**3.05**	<1.0	**2**	<1.0	<1.0
Total Iron	**21.2**	NS	**47.3**	NA	NA	**51.2**	NA	NA	**40.2**	NA	**42.9**	**54.2**	**64.3**	**90.1**	**72.7**	**89.8**	**92.2**	**186**	**90.8**	**126**	**89.8**	**93.9**
Total Manganese	**0.641**	NS	NA	NA	NA	**1.3**	NA	NA	**0.912**	NA	**0.591**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HRC COMPONENTS (mg/L)													5X Dil.		10x Dil.	5x Dil	10x Dil	10x Dil.	10x Dil.	10x Dil.	5x Dil.	10x Dil.
Lactic Acid (C3)	<1.0	NS	NA	**23.6**	NA	**39.1**	**59.5**	**41**	**81.3**	**117**	**72.9**	<10	<1.0	<1.0	<10	<1.0	<10	<1.0	<10	<10	<5.0	<10
Acetic Acid (C2)	**139**	NS	NA	**179**	NA	**209**	**236**	**273**	**282**	**364**	**326**	**210**	**250**	**140 E**	**360**	**380 D**	**360**	**350 D**	**350**	**340**	**270**	**270**
Propionic Acid (C3)	<1.0	NS	NA	<1.0	NA	**34.9**	**62.1**	**134**	**138**	**202**	**158**	**210**	**190**	**320 E**	**470**	**530 D**	**730**	**600 D**	**670**	**800**	**900**	**790**
Pyruvic Acid (C3)	<0.1	NS	NA	<0.1	NA	<0.1	<0.1	<0.1	**0.9**	**4.1**	<0.1	<10	<5.0	<0.5	<5.0	<0.5	<5.0	<0.5	<5.0	<5.0	<2.5	<5.0
Butyric Acid (C4)	<1.0	NS	NA	<1.0	NA	<1.0	<1.0	**13.1**	**26.4**	**68.6**	**177**	**420**	**400**	**470 E**	**540**	**700 D**	**1000**	**950**	**1200**	**1200**	**1900**	**1700**
FIELD PARAMETERS																						
Dissolved Oxygen (mg/L)	NA	NA	NA	**0.29**	**0.014**	**0.1**	**0.63**	**0.5**	**1.07**	**0.39**	**1.18**	NA	**0.76**	NA	**0.61**	**0.27**	**1.04**	**0.7**	**0.18**	**0**	**5.11***	**0**
Redox (mV)	**-53**	**-26**	NA	**-88**	**-61**	**-182**	**-166**	**-103**	**-42**	**-174**	**-395**	NA	**-189**	NA	**-295**	**-517**	**-112**	**-105**	**-89**	**-85**	**-90**	**-68**
Conductivity (mS)	**2.41**	**3**	NA	**2.31**	**2.48**	**2.49**	**2.9**	**2.7**	**2.7**	**4.69**	**4.81**	NA	**4.87**	NA	**4.99**	**5.21**	**5.59**	**5.43**	**5.58**	**5.86**	**5.46**	**6.04**
Iron, dissolved (mg/L)	**0.2**	NA	NA	**2.6**	**3.2**	**4.9**	**5.8**	**5.0**	**5.8**	**5.8**	**4.2**	NA	**5.4**	NA	**2.8**	**2.2**	**2.2**	**2.4**	**2.4**	**2.5**	**5**	**1.4**
Alkalinity (mg/L)	**500**	NA	NA	**580**	**580**	**630**	**680**	**600**	**1300**	**760**	**1320**	NA	**920**	NA	**200**	**1700**	**1600**	**1760**	**1620**	**2320**	**1500**	**2360**
Carbon Dioxide (mg/L)	**182**	NA	NA	**140**	**330**	**220**	**59**	**418**	**1.07**	**1275**	NA	NA	NA	NA	**160**	NA	NA	NA	NA	NA	**272**	NA

TABLE IV
COOPERVISION INCORPORATED
ADDITIONAL ANALYTICAL
PARAMETER SUMMARY

Sample ID	MW-3																					
Analyte	7/19/01	9/26/01	10/18/01	2/15/02	4/9/02	7/30/02	10/15/02	1/28/03	4/7/03	10/30/03	4/6/04	10/27/04	4/6/05	10/11/05	5/17/06	10/18/06	4/25/07	11/14/07	4/28/08	10/13/08	4/23/09	10/20/09
INORGANICS (mg/L)																						
Nitrite Nitrogen	NS	NS	**0.13**	NA	NA	<0.01	NA	NA	<0.0100	NA	**0.0433**	NA	<0.01	<0.01	**0.0171**	**0.0155**	<0.0100	<0.0100	<0.0100	<0.5	<0.01	<0.50
Nitrate/Nitrite Nitrogen	NS	NS	NA	NA	NA	<0.05	NA	NA	**0.093**	NA	<0.0500	NA	<0.05	<0.05	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	<0.05	NA
Chloride	NS	NS	**139**	NA	NA	**171**	NA	NA	**269**	NA	**253**	**330**	**391**	**369**	**381**	**382**	**367**	**345**	**251**	**305**	**288**	**189**
Dissolved Organic Carbon	NS	NS	**2.19**	NA	NA	**287**	NA	NA	**52.7**	NA	**5.67**[TOC]	NA	**3.51**	**5.49**	**19.9**	**21.8**	**11.8**	**10.8**	**12.5**	**5.45**	**5.8**	**4.2**
Nitrate Nitrogen	NS	NS	**2.21**	NA	NA	<0.05	NA	NA	**0.093**	NA	<0.0500	<1.0	<0.05	<0.05	<0.0500	<0.0500	<0.0500	<0.5	<0.5	<0.5	<0.05	<0.50
Total Alkalinity	NS	NS	**197**	NA	NA	**610**	NA	NA	**349**	NA	**218**	NA	**207**	**230**	**251**	**265**	**241**	**266**	**248**	**270**	**242**	**241**
Sulfate	NS	NS	**15.1**	NA	NA	**2.08**	NA	NA	**8.81**	NA	**11.0**	**5.9**	**4.7**	**4.4**	**2.7**	<0.200	<2.0	<2.0	<2.0	**3.03**	<2.0	**2.4**
Total Sulfide	NS	NS	<1.0	NA	NA	<1.0	NA	NA	<1.00	NA	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Iron	NS	NS	**14.1**	NA	NA	**181**	NA	NA	**116**	NA	**15.6**	**14.9**	**44.4**	**47.9**	**26.1**	**35.5**	**42.6**	**28.4**	**15.5**	**44.9**	**36.4**	**10**
Total Manganese	NS	NS	NA	NA	NA	**8.01**	NA	NA	**6.28**	NA	**1.60**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HRC COMPONENTS (mg/L)																						
Lactic Acid (C3)	NS	NS	NA	<1.0	<1.0	**8.2**	<1.0	**12.5**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Acetic Acid (C2)	NS	NS	NA	**14**	**37.2**	**83.8**	**180**	**86.8**	**80.8**	**18.7**	**11.1**	<1.0	**4.7**	**9.7**	**49**	**58**	**42**	**24**	**22**	**7.8**	**12**	<1.0
Propionic Acid (C3)	NS	NS	NA	**15**	**42.5**	**248**	**606**	**241**	**225**	**28.6**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Pyruvic Acid (C3)	NS	NS	NA	<0.1	**0.2**	**0.1**	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	<5.0	<0.5	<0.50	<0.50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50
Butyric Acid (C4)	NS	NS	NA	**7.6**	**24.3**	**72**	**505**	**157**	**100**	<1.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
FIELD PARAMETERS																						
Dissolved Oxygen (mg/L)	NS	NS	NA	**5.19**	**4.95**	**1.34**	**2.86**	**2.40**	**3.58**	**1.11**	**5.68**	NA	**6.91**	NA	**1.42**	**1.98**	**0.93**	NA	NA	NA	NA	**0.85**
Redox (mV)	NS	NS	NA	**-116**	**35**	**-127**	**-70**	**-79**	**-80**	**-37**	**54**	NA	**-68**	NA	**194**	**61**	**-38**	NA	NA	NA	NA	**-56**
Conductivity (mS)	NS	NS	NA	**0.07**	**0.06**	**0.12**	**0.25**	**0.00**	**1.10**	**1.33**	**1.20**	NA	**1.58**	NA	**1.61**	**1.76**	**1.72**	NA	NA	NA	NA	**1.41**
Iron, dissolved (mg/L)	NS	NS	NA	NA	**0.2**	**0.9**	**4.4**	**4.5**	**4.5**	**3**	**1.2**	NA	**0.2**	NA	**0.01**	**0.2**	**1.2**	**0**	**0.4**	**0.2**	NA	**0.6**
Alkalinity (mg/L)	NS	NS	NA	NA	**240**	**680**	**1000**	**280**	**560**	**480**	**280**	NA	**160**	NA	**60**	**320**	**300**	**280**	**220**	**400**	NA	**320**
Carbon Dioxide (mg/L)	NS	NS	NA	NA	**61.7**	**84**	**268**	**220**	**356**	**242**	**460**	NA	NA	NA	**23.5**	**220**	**160**	**194**	**140**	**212**	NA	**140**

TABLE IV
COOPERVISION INCORPORATED
ADDITIONAL ANALYTICAL
PARAMETER SUMMARY

Sample ID	MW-501																					
Analyte	7/19/01	9/26/01	10/18/01	2/15/02	4/9/02	7/29/02	10/15/02	1/29/03	4/7/03	10/30/03	4/7/04	10/27/04	4/6/05	10/11/05	5/16/06	10/18/06	4/25/07	11/14/07	4/28/08	10/15/08	4/23/09	10/20/09
INORGANICS (mg/L)																						
Nitrite Nitrogen	ND	NS	**0.159**	NA	NA	**0.0143**	**0.0143**	NA	0.012	NA	**0.0152**	NA	**0.0407**	<0.0100	<0.0100	**0.0167**	<0.0100	<0.01	**0.0144**	<0.5	<0.01	<0.5
Nitrate/Nitrite Nitrogen	**0.063**	NS	NA	NA	NA	<0.0500	<0.0500	NA	0.16	NA	<0.0500	NA	<0.100	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	<0.05	NA
Chloride	**355**	NS	**85.6**	NA	NA	**208**	NA	NA	**1840**	NA	**3870**	**2180**	**2130**	**1860**	**1700**	**1200**	**1060**	**418**	**3500**	**1140**	**2240**	**594**
Dissolved Organic Carbon	**3.38**	NS	**141**	NA	NA	**15.7**	NA	NA	**173**	NA	**4.72**[TOC]	NA	**4.7**	**5.69**	**5.19**	**7.3**	**6.88**	**7.91**	**4.82**	**9.17**	**5.7**	**8.95**
Nitrate Nitrogen	**0.063**	NS	**0.634**	NA	NA	<0.0500	NA	NA	**0.148**	NA	<0.0500	<1.0	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.500	<0.500	<0.5	<0.05	**0.69**
Total Alkalinity	**201**	NS	**167**	NA	NA	**259**	NA	NA	**575**	NA	**229**	NA	**270**	**289**	**296**	**349**	**402**	**359**	**231**	**439**	**318**	**282**
Sulfate	**40.2**	NS	**21.5**	NA	NA	**27.3**	NA	NA	**4.38**	NA	**43.3**	**5.96**	**31**	**6.32**	**24.4**	**12**	**21.5**	**2.29**	**51.2**	**2.75**	**9.4**	**15.5**
Total Sulfide	<1.00	NS	**1.18J**	NA	NA	ND	NA	NA	**3.44**	NA	**2.57**	<1.0	**1.24**	<1.00	<1.0	**1.27**	<1.0	**1.32**	<1.0	**2.76**	<0.01	<1.0
Total Iron	**462**	NS	**662**	NA	NA	**152**	NA	NA	**99.4**	NA	**238**	**998**	**377**	**11.3**	**9.31**	**7.3**	**2.96**	**8.57**	**10.5**	**9.35**	**8890**	**155**
Total Manganese	**11.8**	NS	NA	NA	NA	**4.1**	NA	NA	**3.02**	NA	**7.50**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HRC COMPONENTS (mg/L)																						
Lactic Acid (C3)	<1.0	NS	NA	NA	**34.3**	**8.7**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Acetic Acid (C2)	<1.0	NS	NA	NA	**15.7**	**10.3**	**6.3**	**33.3**	**135**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**1.4**	<1.0	**1.4**	<1.0	<1.0	<1.0	<1.0
Propionic Acid (C3)	<1.0	NS	NA	NA	**15.4**	**10.1**	**4.2**	**15.2**	**111**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Pyruvic Acid (C3)	<0.1	NS	NA	NA	**1.1**	<0.1	**2.4**	<0.1	<0.1	<0.1	<0.1	<1.0	<5.0	<0.50	<0.50	<0.50	<0.50	<0.5	<0.5	<0.5	<0.5	<0.50
Butyric Acid (C4)	<1.0	NS	NA	NA	**8.2**	<1.0	<1.0	<1.0	**46.3**	<1.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<2.0	<2.0	<2.0	<2.0
FIELD PARAMETERS																						
Dissolved Oxygen (mg/L)	**0.3**	**0.01**	NA	**0.27**	**1.07**	**0.49**	**2.18**	**0.46**	**0.38**	**0.4**	**3.39**	NA	**3.63**	NA	**1.19**	**2.85**	**1.39**	NA	NA	NA	NA	**0.86**
Redox (mV)	**-280**	**-205**	NA	**-108**	**5**	**-196**	**-141**	**-131**	**-208**	**-36**	**211**	NA	**-106**	NA	**92**	**61**	**85**	NA	NA	NA	NA	**-84**
Conductivity (mS)	**1.61**	**0.68**	NA	**12.03**	**1.55**	**0.76**	**1.01**	**8.08**	**8.47**	**1.55**	**12.2**	NA	**7.73**	NA	**5.7**	**4.28**	**4.03**	NA	NA	NA	NA	**1.79**
Iron, dissolved (mg/L)	ND	NA	NA	**0.2**	ND	ND	**0.5**	**0.9**	**2.8**	**1.8**	**1.8**	NA	**0.8**	NA	**1.5**	**0.2**	**0**	**0.9**	**0.8**	**0**	**2.4**	**0.3**
Alkalinity (mg/L)	**920**	NA	NA	**200**	**210**	**320**	**360**	**280**	**960**	**440**	**260**	NA	**100**	NA	**150**	**400**	**360**	**340**	**180**	**500**	**400**	**300**
Carbon Dioxide (mg/L)	**34**	NA	NA	**90**	**60**	**38**	**32.6**	**104**	**284**	**188**	**230**	NA	NA	NA	**24**	**148**	**210**	**150**	**90**	**100**	**160**	**140**

TABLE IV
COOPERVISION INCORPORATED
ADDITIONAL ANALYTICAL
PARAMETER SUMMARY

Sample ID	MW-502																					
Analyte	7/19/01	9/26/01	10/18/01	1/28/02	4/9/02	7/29/02	10/15/02	1/27/03	4/7/03	10/30/03	4/6/04	10/27/04	4/6/05	10/11/05	5/16/06	10/18/06	4/25/07	11/14/07	4/30/08	10/15/08	4/24/09	10/20/09
INORGANICS (mg/L)																						
Nitrite Nitrogen	**0.0389**	NS	ND	NA	NA	ND	NA	NA	<0.010	NA	<0.0100	NA	**0.066**	<0.0200	**0.0259**	**0.0183**	**<0.0200**	<0.0100	<0.200	<0.5	<0.05	<0.50
Nitrate/Nitrite Nitrogen	**0.137**	NS	NA	NA	NA	ND	NA	NA	<0.050	NA	<0.0500	NA	<0.200	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	<0.05	NA
Chloride	**246**	NS	**241**	NA	NA	**84.6**	NA	NA	**281**	NA	**310**	**366**	**347**	**360**	**382**	**434**	**505**	**523**	**522**	**493**	**476**	**600**
Dissolved Organic Carbon	**5.21**	NS	**26.7**	NA	NA	**34.7**	NA	NA	**284**	NA	**639**[TOC]	**NA**	**903**	**545**	**190**	**167**	**87.4**	**59.6**	**54**	**14.3**	**13.9**	**12.7**
Nitrate Nitrogen	**0.137**	NS	**0.859**	NA	NA	ND	NA	NA	**0.139**	NA	<0.0500	<1.0	<0.200	<0.0500	<0.0500	<0.0500	<0.0500	<0.500	<0.500	<0.5	<0.05	<0.50
Total Alkalinity	**1.08**	NS	**94.4**	NA	NA	**125**	NA	NA	**531**	NA	**860**	**NA**	**1160**	**1160**	**998**	**1920**	**1000**	**1060**	**968**	**765**	**742**	**791**
Sulfate	**183**	NS	**56.2**	NA	NA	**4.74**	NA	NA	ND	NA	<2.00	<2.0	<2.0	<2.0	**3.13**	<0.200	<2.0	<2.0	<2.0	**2.46**	<2.0	<2.0
Total Sulfide	**1.08**	NS	**1.28**	NA	NA	**1.2**	NA	NA	**2.29**	NA	<1.00	<1.0	<1.0	<1.00	**29.3**	**1.24**	**4.33**	**2.68**	<1.0	**1.8**	<1.0	<1.0
Total Iron	**ND**	NS	**4.96**	NA	NA	**12**	NA	NA	**72.7**	NA	**282**	**1820**	**1960**	**1030**	**992**	**631**	**2940**	**2580**	**1350**	**1090**	**987**	**284**
Total Manganese	**0.317**	NS	NA	NA	NA	**0.259**	NA	NA	**1.77**	NA	**12.10**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HRC COMPONENTS (mg/L)													**20x Dil.**	**10x Dil.**	**5x Dil.**							
Lactic Acid (C3)	<1.0	NS	NA	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**23.8**	<1.0	<1.0	<20	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Acetic Acid (C2)	<1.0	NS	NA	<1.0	**3.5**	**38.5**	**70.5**	**236**	**220**	**451**	**635**	<1.0	**400**	**660**	**120 D**	**150**	**75**	**79**	**87**	**7.8**	**7.7**	**6.1**
Propionic Acid (C3)	<1.0	NS	NA	<1.0	<1.0	**22.6**	**97.5**	**233**	**216**	**402**	**281**	<1.0	**870**	**470**	**260 D**	**200**	**37**	**14**	**1.5**	<1.0	<1.0	<1.0
Pyruvic Acid (C3)	<0.1	NS	NA	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	<10	<5.0	<0.5	<0.5	<0.50	<0.5	<0.5	<0.5	<0.5	<0.50
Butyric Acid (C4)	<1.0	NS	NA	<1.0	<1.0	<1.0	**20.2**	**54.8**	**62.9**	**99.7**	**113**	<2.0	<40	**74**	<2.0	<2.0	3.9	<2.0	<2.0	<2.0	<2.0	<2.0
FIELD PARAMETERS																						
Dissolved Oxygen (mg/L)	**2.9**	**0.51**	NA	**2.93**	**0.13**	**0.00**	**0.21**	**0.93**	**1.03**	**0.21**	**1.18**	NA	**0.41**	NA	**0.36**	**0.25**	**0**	**0.38**	**0**	**0**	**3.13***	**1.97**
Redox (mV)	**-264**	**-262**	NA	**28**	**-103**	**-117**	**-196**	**-118**	**-121**	**-13**	**-164**	NA	**-145**	NA	**93**	**88**	**-105**	**-112**	**-124**	**-168**	**-160**	**-116**
Conductivity (mS)	**0.64**	**0.98**	NA	**0.33**	**2.79**	**0.1**	**0.93**	**1.06**	**1.38**	**2.83**	**2.93**	NA	**13.42**	NA	**2.9**	**3.36**	**3.24**	**2.99**	**3.06**	**2.27**	**2.27**	**2.8**
Iron, dissolved (mg/L)	ND	NA	NA	ND	ND	ND	ND	**1.5**	**0.8**	**2.7**	**2.2**	NA	**2.8**	NA	**0.1**	**3**	**1**	**1.4**	NA	**1.5**	**0.5**	**1.6**
Alkalinity (mg/L)	**120**	NA	NA	**75**	**54**	**220**	**200**	**140**	**440**	**1100**	NA	NA	**280**	NA	NA	**2300**	**1160**	**920**	**960**	NA	**820**	**920**
Carbon Dioxide (mg/L)	**27.2**	NA	NA	**37.4**	**180**	**72**	**32.6**	**114**	**182**	**240**	NA	NA	NA	NA	**200**	**802**	**800**	**600**	NA	NA	**336**	**426**

TABLE IV
COOPERVISION INCORPORATED
ADDITIONAL ANALYTICAL
PARAMETER SUMMARY

Sample ID	OWD-302-D																				
Analyte	7/19/01	9/26/01	10/18/01	1/28/02	4/9/02	7/29/02	10/15/02	1/28/03	4/7/03	10/30/03	4/8/04	10/27/04	4/6/05	10/12/05	5/16/06	10/17/06	4/24/07	11/15/07	4/30/08	10/16/08	4/23/09	10/20/09
INORGANICS (mg/L)																						
Nitrite Nitrogen	ND	NS	**0.0823**	NA	NA	**0.0386**	NA	NA	**0.014**	NA	**0.104**	NA	**0.631**	<0.0100	**0.079**	**0.0318**	**0.0498**	**0.0397**	<0.0100	**2.74**	<0.05	<0.5
Nitrate/Nitrite Nitrogen	**0.204**	NS	NA	NA	NA	**0.0571**	NA	NA	**0.181**	NA	<0.0500	NA	0.226	<0.0500	<0.0500	**0.283**	**0.0916**	**0.791**	NA	NA	<0.05	NA
Chloride	NA	NS	**37.2**	NA	NA	**27**	NA	NA	**2750**	NA	**2930**	**1070**	**9050**	**567**	**756**	**8.54**	**8870**	**776**	**536**	**590**	**1830**	**647**
Dissolved Organic Carbon	**4.23**	NS	**16.8**	NA	NA	**4.64**	NA	NA	**290**	NA	**5.70**[TOC]	NA	**4.35**	**4.62**	**10.3**	**4.97**	**9.26**	**6.98**	**9.44**	**11**	**4.9**	**5.6**
Nitrate Nitrogen	NA	NS	<0.0500	NA	NA	<0.0500	NA	NA	**0.167**	NA	<0.0500	<1.0	<0.0500	<0.0500	<0.0500	**0.251**	<0.0500	**0.791**	<0.500	**2.74**	<0.05	<0.5
Total Alkalinity	NA	NS	NA	NA	NA	**67**	NA	NA	**801**	NA	**50**	**NA**	**265**	**79.7**	**163**	**74.3**	**50**	**103**	**212**	**210**	**240**	**285**
Sulfate	**850**	NS	**740**	NA	NA	**634**	NA	NA	**219**	NA	**550**	<2.0	**249**	**491**	**367**	**7.42**	**256**	**160**	**202**	**161**	**153**	**165**
Total Sulfide	<1.00	NS	<1.00	NA	NA	<1.00	NA	NA	**7.96**	NA	<1.00	<1.0	<1.0	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	**2.64**	<1.0	**8.4**
Total Iron	**5.47**	NS	**2.9**	NA	NA	**0.858**	NA	NA	**177**	NA	**3.15**	**130**	**34.1**	**15**	**435**	**98.5**	**353**	**322**	**20.2**	**2.61**	**152**	**1330**
Total Manganese	**0.0589**	NS	**NA**	NA	NA	**0.0504**	NA	NA	**3.85**	NA	**0.0429**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HRC COMPONENTS (mg/L)																						
Lactic Acid (C3)	<1.0	NS	NA	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**18.1**	<1.0	<25	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Acetic Acid (C2)	<1.0	NS	NA	<1.0	<1.0	<1.0	<1.0	<1.0	**344**	<1.0	<1.0	**1900**	<1.0	<1.0	<1.0	<1.0	5.4	<1.0	**12**	<1.0	**5.1**	<1.0
Propionic Acid (C3)	<1.0	NS	NA	<1.0	<1.0	<1.0	**41.8**	<1.0	<1.0	<1.0	<1.0	**1100**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Pyruvic Acid (C3)	<0.1	NS	NA	<0.1	**0.3**	<0.1	<0.1	<0.1	<0.1	<1.0	<0.1	<25	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Butyric Acid (C4)	<1.0	NS	NA	<1.0	<1.1	<1.0	<1.0	<1.0	**22.7**	<0.1	<1.0	**500**	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
FIELD PARAMETERS																						
Dissolved Oxygen (mg/L)	**1.42**	NS	NA	**7.2**	**1.29**	**0.77**	**2.86**	**0.87**	**9.68**	**3.98**	**5.03**	NS	**5.2**	NA	**2.38**	**0.95**	**1.3**	NA	NA	NA	NA	NA
Redox (mV)	**-68**	NS	NA	**162**	**-23**	**-141**	**-70**	**84**	**-132**	**55**	**255**	NS	**-154**	NA	**61**	**-95**	**-78**	NA	NA	NA	NA	NA
Conductivity (mS)	**1.58**	NS	NA	**1.1**	**1.34**	**1.13**	**0.25**	**2.81**	NA	**4.16**	**10.57**	NS	**30.4**	NA	**0.49**	**1.81**	**34.6**	NA	NA	NA	NA	NA
Iron, dissolved (mg/L)	ND	NS	NA	ND	ND	ND	**4.4**	ND	**4.6**	**0.2**	NA	NS	**3.5**	NA	NA	**0.0**	**0.0**	**0.1**	**0.0**	**0.0**	NA	NA
Alkalinity (mg/L)	**120**	NS	NA	**85**	**100**	**100**	**1000**	**240**	**1200**	**160**	NA	NS	**360**	NA	NA	**160**	**200**	**680**	**280**	**380**	NA	NA
Carbon Dioxide (mg/L)	**20.8**	NS	NA	**49.8**	**50**	**40**	**268**	**26**	**2200**	**220**	NA	NS	NA	NA	NA	**64**	**0**	**380**	**170**	**100**	NA	NA

TABLE IV
COOPERVISION INCORPORATED
ADDITIONAL ANALYTICAL
PARAMETER SUMMARY

Sample ID	OWS-302-S																					
Analyte	7/19/01	9/26/01	10/18/01	1/28/02	4/9/02	7/29/02	10/15/02	1/28/03	4/7/03	10/30/03	4/8/04	10/27/04	4/6/05	10/12/05	5/16/06	10/17/06	4/25/07	11/14/07	4/30/08	10/15/08	4/23/09	10/20/09
INORGANICS (mg/L)																						
Nitrite Nitrogen	NA	NS	**0.143**	NA	NA	**0.03008**	NA	NA	**0.0279**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate/Nitrite Nitrogen	NA	NS	NA	NA	NA	**0.0576**	NA	NA	**0.147**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	NA	NS	**1600**	NA	NA	NA	NA	NA	**2370**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dissolved Organic Carbon	NA	NS	NA	NA	NA	**148**	NA	NA	**52.6**	NA	NA	NA	NA	NA	NA	NA	NA	NA	**604**	NA	NA	NA
Nitrate Nitrogen	NA	NS	<0.0500	NA	NA	<0.0500	NA	NA	**0.119**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Alkalinity	NA	NS	**69.7**	NA	NA	**696**	NA	NA	**350**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	NA	NS	**228**	NA	NA	NS	NA	NA	**407**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Sulfide	NA	NS	**3**	NA	NA	NS	NA	NA	**2.49**	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.0	NA	NA	NA
Total Iron	NA	NS	NA	NA	NA	NS	NA	NA	**260**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Manganese	NA	NS	NA	NA	NA	NS	NA	NA	**5.62**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HRC COMPONENTS (mg/L)													10x Dil.	10x Dil.	10x Dil						2x Dil.	5x Dil.
Lactic Acid (C3)	NA	NS	NA	<1.0	**13.4**	**4.6**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10	<10	<1.0	<1.0	<1.0	<5.0	NA	**3.2**	<5.0
Acetic Acid (C2)	NA	NS	NA	<1.0	**293**	**286**	**240**	**297**	**90.8**	**443**	**623**	**65**	**290**	**1000**	**890**	**100**	**110**	**190**	**910**	NA	**770**	**690**
Propionic Acid (C3)	NA	NS	NA	<1.0	**9.8**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	**150**	**120**	**17**	**6**	**24**	**190**	NA	**220**	**200**
Pyruvic Acid (C3)	NA	NS	NA	<0.1	**0.5**	**1.4**	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	<5.0	<5.0	<5.0	<0.5	<0.5	<0.5	<2.5	NA	<1.0	<2.5
Butyric Acid (C4)	NA	NS	NA	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**35.3**	<2.0	**23**	**100**	**77**	**14**	**7.9**	**9.8**	**88**	NA	**110**	**79**
FIELD PARAMETERS																						
Dissolved Oxygen (mg/L)	NA	NS	NA	NA	**1.74**	**1.24**	**2.23**	**8.5**	**0.11**	**1.7**	**6.88**	NS	**7.26**	NA	NS	**8.19**	**1.46**	NA	NA	NA	NA	NS
Redox (mV)	NA	NS	NA	NA	**-59**	**-133**	**-122**	**-51**	**-158**	**9**	**78**	NS	**-62**	NA	NS	**38**	**-126**	NA	NA	NA	NA	NS
Conductivity (mS)	NA	NS	NA	NA	**6.45**	**0.94**	**4.22**	**5.03**	**5.03**	**4.43**	**7.86**	NS	**13.09**	NA	NS	**1.65**	**24.4**	NA	NA	NA	NA	NS
Iron, dissolved (mg/L)	ND	NS	NA	NA	**3.3**	**5.9**	**5.2**	**3.8**	NA	**3**	**3.4**	NS	NA	NA	NS	**1.3**	**2.2**	**1.6**	**4**	**0**	NA	NS
Alkalinity (mg/L)	**640**	NS	NA	**580**	**600**	**720**	**820**	**520**	NA	**960**	**1200**	NS	NA	NA	NS	**720**	**520**	**320**	**1040**	**1160**	NA	NS
Carbon Dioxide (mg/L)	NA	NS	NA	NA	**358**	**260**	**38**	**475**	NA	**730**	**390**	NS	NA	NA	NS	**320**	**234**	NA	**600**	**264**	NA	NS

Notes & Abbreviations

NS - Not Sampled

NA - Not analyzed or results not determined due to field conditions (e.g. - water too turbid to obtain field parameters).

ND - Not detected in field tests

TOC - Total Organic Carbon

* - The dissolved oxygen values detected may be a result of malfunctioning field equipment and may not be indicative of actual aquifer conditions.

1. Due to the conditions at wells MW-3, OWD-302-D, OWS-302-S, and MW-501 (poor well recharge during purging), dissolved oxygen and redox values will appear variable and may not be indicative of actual aquifer conditions.

TABLE V - SUMMARY OF NYSDEC APPLICABLE SOIL CLEANUP OBJECTIVES
COOPERVISION, INC
SCOTTSVILLE, NEW YORK
FILE NO.: 70665-017

	NYSDEC Soil Cleanup Objectives (Restricted Use)		Eastern United States Background Levels
	Protection of Groundwater (ppm)	Imported Fill Requirements (ppm)	
Metals			
Arsenic	16 [2]	16 [2]	3-12
Barium	820	400	15-600
Beryllium	47	47	0-1.75
Cadmium	7.5	7.4	0.1-1
Chromium, hexavalent[1]	19	19	1.5-40
Chromium, trivalent[1]	--	1500	1.5-40
Copper	1720	270	1-50
Total Cyanide[1]	40	27	--
Lead	450	450	200-500
Manganese	2000 [2]	2000 [2]	50-5000
Total Mercury	0.73	0.73	0.001-0.2
Nickel	130	130	0.5-25
Selenium	4 [2]	4 [2]	0.1-3.9
Silver	8.3	8.3	--
Zinc	2480	2480	9-50
PCBs/Pestacides			
2,3,5-TP Acid (Silvex)	3.8	3.8	--
4,4'-DDE	17	17	--
4,4'-DDT	136	47	--
4,4'-DDD	14	14	--
Aldrin	0.19	0.19	--
alpha-BHC	0.02	0.02	--
beta-BHC	0.09	0.09	--
Chlordane (Alpha)	2.9	2.9	--
delta-BHC	0.25	0.25	--
Dibenzofuran	210	210	--
Dieldrin	0.1	0.1	--
Endosulfan I	102	102	--
Endosulfan II	102	102	--
Endosulfan sulfate	1000 [5]	200 [4]	--
Endrin	0.06	0.06	--
Heptachlor	0.38	0.38	--
Lindane	0.1	0.1	--
Polychlorinated Biphenyls	3.2	1	--
			--
Semi-Volatile Organic Compounds			--
Acenaphthene	98	98	--
Acenapthylene	107	107	--
Anthracene	1000 [5]	500 [3]	--
Benz(a)anthracene	1 [2]	1 [2]	--
Benzo(a)pyrene	22	1 [2]	--
Benzo(b)fluoranthene	1.7	1.7	--
Benzo(g,h,i)perylene	1000 [5]	500 [3]	--
Benzo(k)fluoranthene	1.7	1.7	--
Chrysene	1 [2]	1 [2]	--
Dibenz(a,h)anthracene	1000 [5]	0.56	--
Fluoranthene	1000 [5]	500 [3]	--
Fluorene	386	386	--
Indeno(1,2,3-cd)pyrene	8.2	5.6	--
m-Cresol	0.33 [6]	0.33 [6]	--
Naphthalene	12	12	--
o-Cresol	0.33 [6]	0.33 [6]	--
p-Cresol	0.33 [6]	0.33 [6]	--
Pentachlorophenol	0.8 [6]	0.8 [6]	--
Phenanthrene	1000 [5]	500 [3]	--
Phenol	0.33 [6]	0.33 [6]	--
Pyrene	1000 [5]	500 [3]	--

TABLE V - SUMMARY OF NYSDEC APPLICABLE SOIL CLEANUP OBJECTIVES
COOPERVISION, INC
SCOTTSVILLE, NEW YORK
FILE NO.: 70665-017

	NYSDEC Soil Cleanup Objectives (Restricted Use)		Eastern United States Background Levels
	Protection of Groundwater (ppm)	Imported Fill Requirements (ppm)	
			--
Volatile Organic Compounds			--
1,1,1-Trichloroethane	0.68	0.68	--
1,1-Dichloroethane	0.27	0.27	--
1,1-Dichloroethene	0.33	0.33	--
1,2-Dichlorobenzene	1.1	1.1	--
1,2-Dichloroethane	0.02 [2]	0.02 [2]	--
cis-1,2-Dichloroethene	0.25	0.25	--
trans-1,2-Dichloroethene	0.19	0.19	--
1,3-Dichlorobenzene	2.4	2.4	--
1,4-Dichlorobenzene	1.8	1.8	--
1,4-Dioxane	0.1 [6]	0.1 [6]	--
Acetone	0.05	0.05	--
Benzene	0.06	0.06	--
Butylbenzene	12	12	--
Carbon tetrachloride	0.76	0.76	--
Chlorobenzene	1.1	1.1	--
Chloroform	0.37	0.37	--
Ethylbenzene	1	1	--
Hexachlorobenzene	3.2	3.2	--
Methyl ethyl ketone	0.12	0.12	--
Methyl tert-butyl ether	0.93	0.93	--
Methylene Chloride	0.05	0.05	--
n-Propylbenzene	3.9	3.9	--
sec-Butylbenzene	11	11	--
tert-Butylbenzene	5.9	5.9	--
Tetrachloroethane	1.3	1.3	--
Toluene	0.7	0.7	--
Trichloroethene	0.47	0.47	--
1,2,4-Trimethylbenzene	3.6	3.6	--
1,3,5-Trimethylbenzene	8.4	8.4	--
Vinyl Chloride	0.02	0.02	--
Xylene (mixed)	1.6	1.6	--

NOTES & ABBREVIATIONS:

-- = No Standard or Value

**The soil cleanup objectives herein are from the 6 NYCRR Part 375-6.8(b) dated 14 December 2006. In the event that revisions to the SCOs are published that post-date this SMP, the most recent iteration of the SCOs will be used.

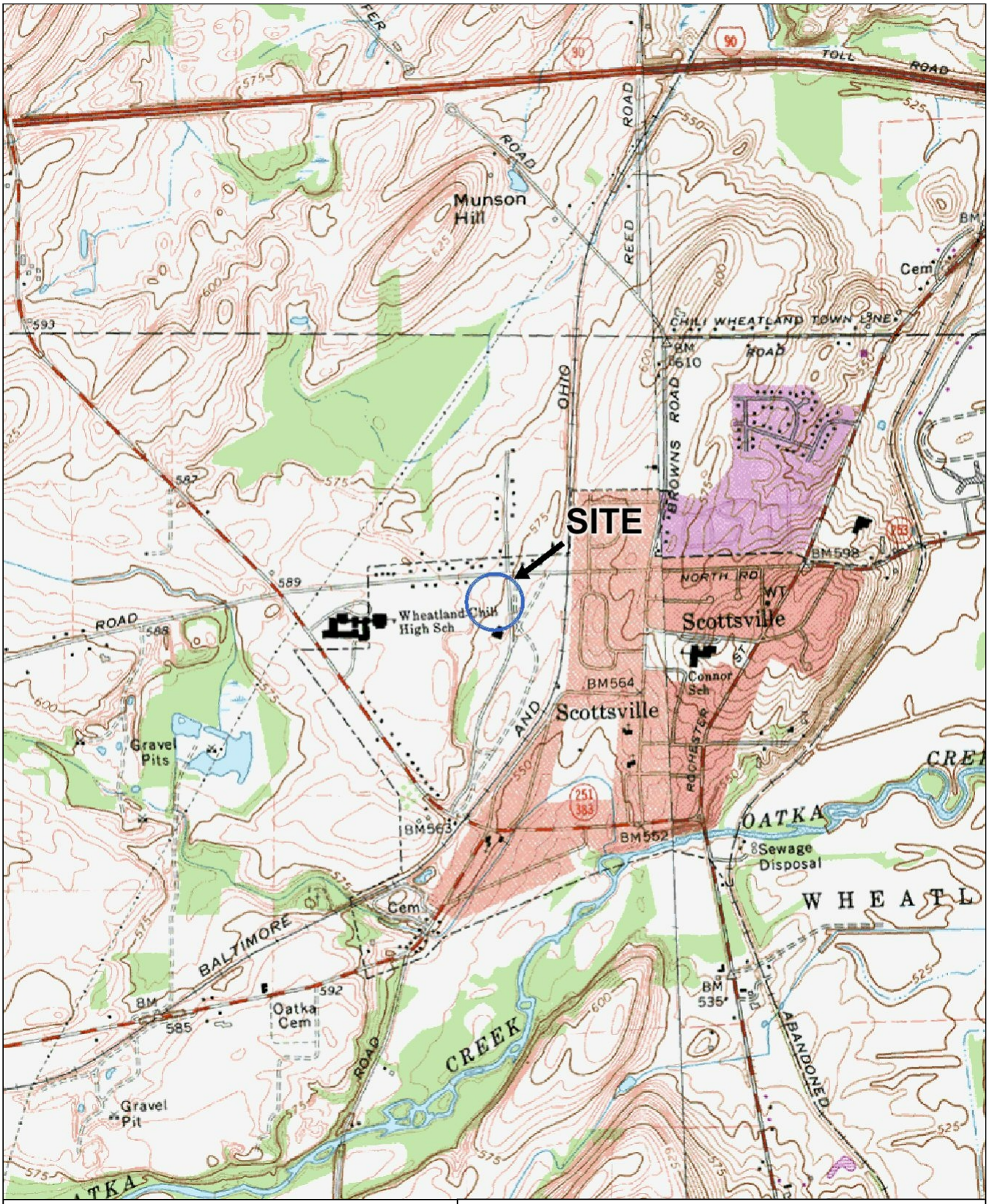
1. The SCO for this specific compound (or family of compounds) is considered to be met if the analysis for the total species of thie contaminant is below the SCO
2. For consituants where the calculated SCO was lower than the rural soil background concentration determined by the Department and Department of Health rural soil survey, the rural soil background concentration is used as the Track 2 SCO value for this use of the site.
3. The SCOs were capped at a maximum value of 500 ppm.
4. This SCO is for the sum of endosulfan I, endosulfan II, and endosulfan sulfate.
5. The SCOs for the protection of groundwater were capped at a maximum value of 1000 ppm.
6. For constituents were the calculated SCO was lower than the contract required quantitation limit (CRQL), the CRQL is used as the SCO value.
7. *Shaded cells represent the contaminants of concern for the Site. Chloroethane is also a contaminant of concern, but there is no soil objective for chloroethane in 6 NYCRR Part 375.*

APPLICABILITY:

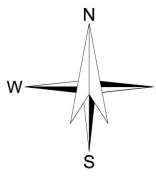
This table presents the NYSDEC approved applicable Soil Cleanup Objectives
The cleanup objectives should be used as follows:

1. **Onsite Soils to be Reused Onsite On Site:** Must be below the Resticted for Protection of Groundwater Standards.
2. **Imported Offsite Fill for Use Onsite:** Must be below Imported Fill Requirements.

Refer to the Excavation Plan (Section 2.5) for additional information.



SITE COORDINATES:43°1'39"N 77°45'27"W



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

HALEY & ALDRICH

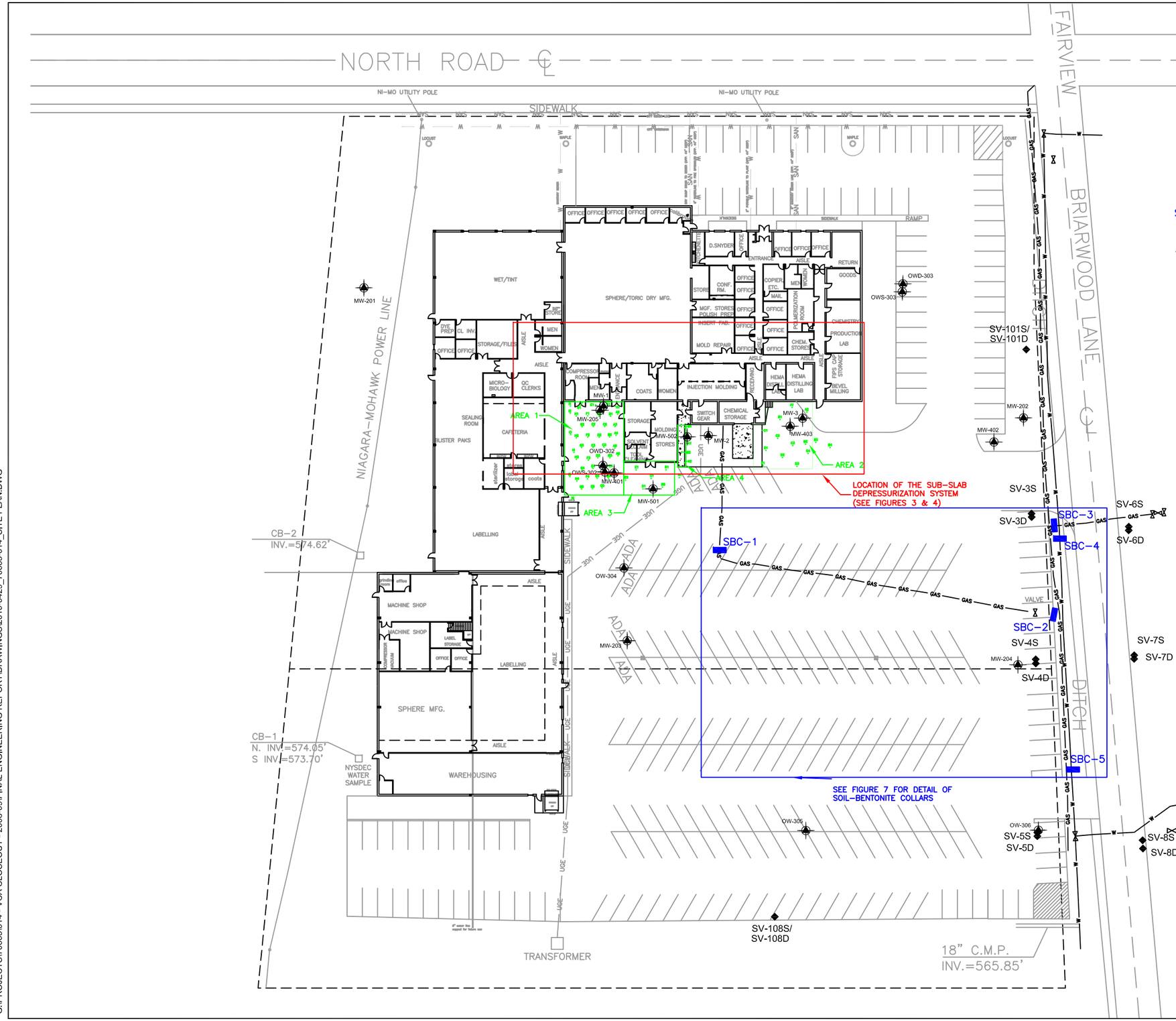
COOPERVISION, INC.
SCOTTSVILLE, NEW YORK

PROJECT LOCUS

SCALE: 1:24,000
MAY 2010

FIGURE 1

70665-014 1.PDF



LEGEND:

- MONITORING/OBSERVATION WELL
- B4 HRC INJECTION POINT LOCATION
- LOCATION OF SOIL VAPOR POINTS
- SBC-1 SOIL-BENTONITE-CEMENT COLLAR
- VALVE
- PROPERTY BOUNDARY
- GAS LOCATION OF KNOWN NATURAL GAS PIPELINE UTILITIES
- W LOCATION OF KNOWN WATER UTILITIES

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. SEE REPORT TEXT FOR FURTHER INFORMATION.
4. EXPLORATION LOCATIONS ARE APPROXIMATE.
5. HRC INSTALLED JULY-AUGUST 2001.
6. REFER TO APPENDIX D OF THE FINAL ENGINEERING REPORT FOR A FIGURE SHOWING THE LOCATIONS OF OFFSITE SAMPLE VAPOR POINTS.
7. ALL LOCATIONS ARE APPROXIMATE AND NOT TO SCALE
8. GAS PIPELINE LOCATIONS BASED ON RECORDS PROVIDED BY RG&E AND ATLANTIC SURVEYING & MAPPING.
9. PROPERTY BOUNDARIES BASED ON RECORDS FROM MONROE COUNTY AND ATLANTIC SURVEYING & MAPPING.

HALEY & ALDRICH

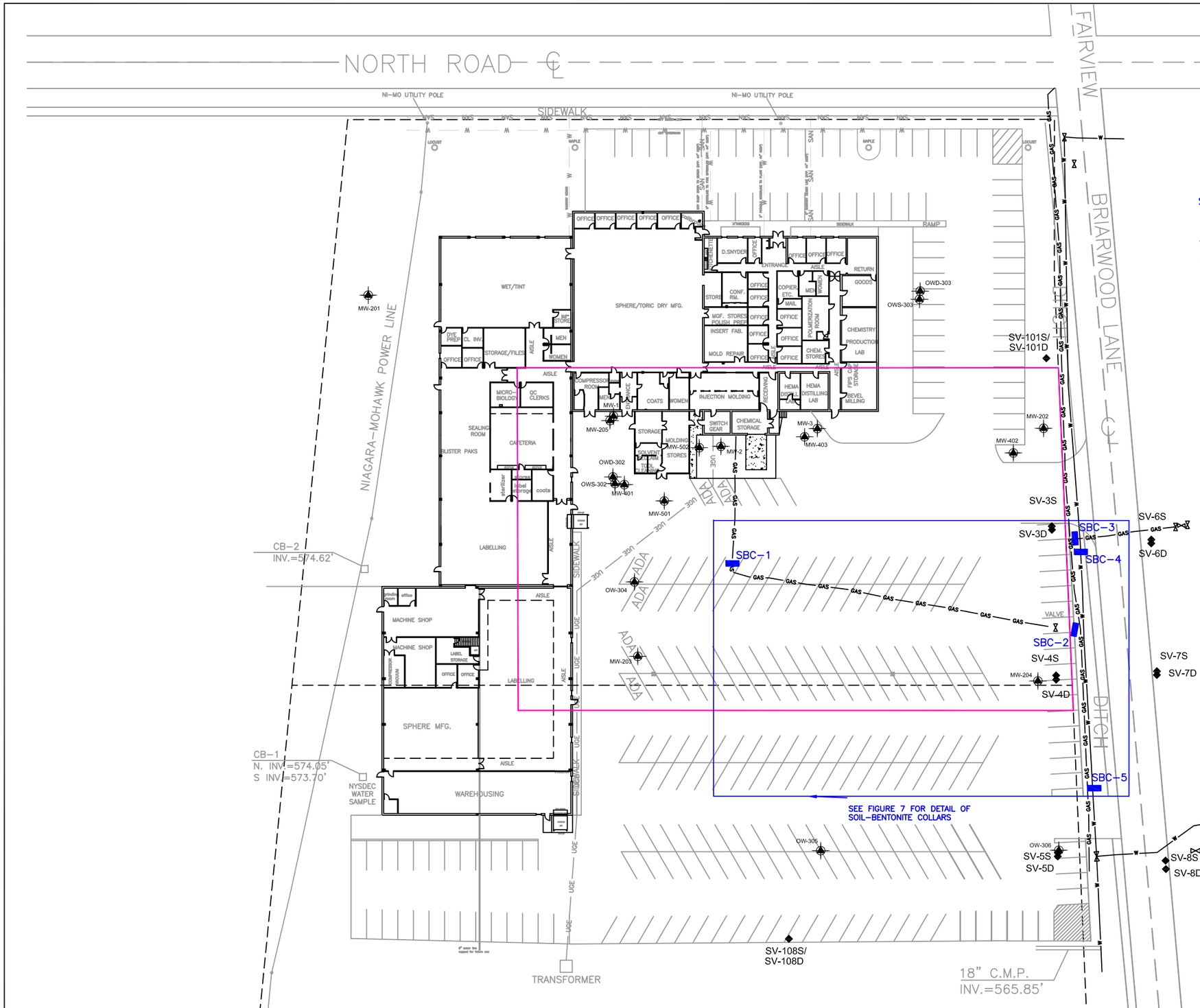
COOPERVISION FACILITY
711 NORTH ROAD
SCOTTSVILLE, NEW YORK

SITE PLAN

SCALE: AS SHOWN
JUNE 2010

FIGURE 2

G:\PROJECTS\70665\014 - VCA CLOSEOUT - 2008-09\FINAL ENGINEERING REPORT\DRAWINGS\2010-0429_70665-014_SITE PLAN.DWG



LEGEND:

- MONITORING/OBSERVATION WELL
- LOCATION OF SOIL VAPOR POINTS
- SBC–1 SOIL–BENTONITE–CEMENT COLLAR
- VALVE
- PROPERTY BOUNDARY
- GAS LOCATION OF KNOWN NATURAL GAS PIPELINE UTILITIES
- W LOCATION OF KNOWN WATER UTILITIES
- SOIL AND GROUNDWATER REMEDIATION AREA

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. SEE REPORT TEXT FOR FURTHER INFORMATION.
4. EXPLORATION LOCATIONS ARE APPROXIMATE.
5. HRC INSTALLED JULY–AUGUST 2001.
6. REFER TO APPENDIX D OF THE FINAL ENGINEERING REPORT FOR A FIGURE SHOWING THE LOCATIONS OF OFFSITE SAMPLE VAPOR POINTS.
7. ALL LOCATIONS ARE APPROXIMATE AND NOT TO SCALE
8. GAS PIPELINE LOCATIONS BASED ON RECORDS PROVIDED BY RG&E AND ATLANTIC SURVEYING & MAPPING.
9. PROPERTY BOUNDARIES BASED ON RECORDS FROM MONROE COUNTY AND ATLANTIC SURVEYING & MAPPING.
10. THE LIMITS OF THE SGMA ARE CONTINGENT ON NO LONG TERM GROUNDWATER EXTRACTION FOR ANY PURPOSE OUTSIDE THE SGMA.

N
W E
S

0 60 120
SCALE IN FEET

HALEY & ALDRICH

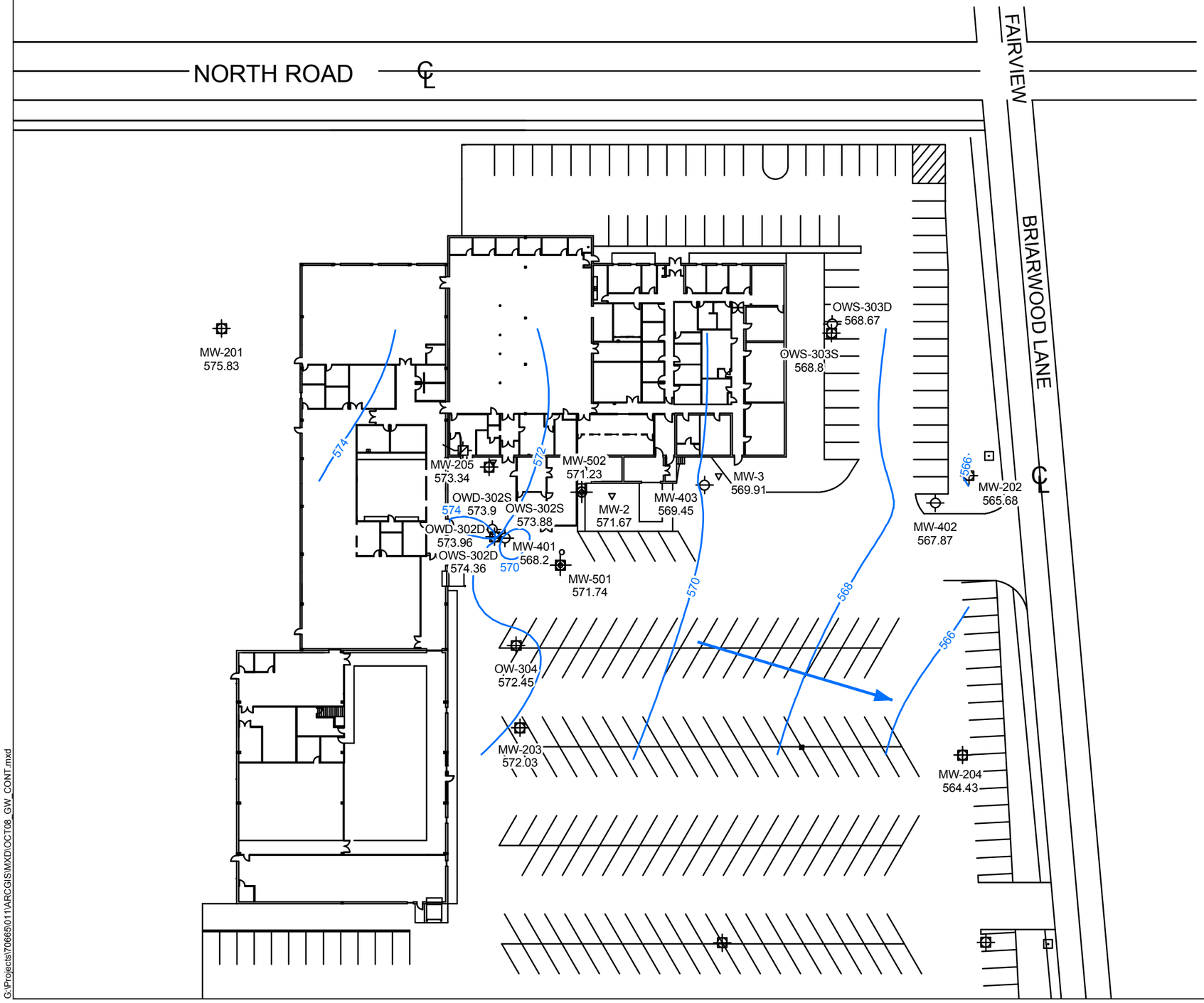
COOPERVISION FACILITY
711 NORTH ROAD
SCOTTSVILLE, NEW YORK

REMEDIATION AREAS

SCALE: AS SHOWN
JUNE 2010

FIGURE 3

G:\PROJECTS\70665\0014 - VCA CLOSEOUT - 2008-09\FINAL ENGINEERING REPORT\DRAWINGS\2010-0429_70665-014_SITE PLAN.DWG



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 U NDER 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.
- GROUNDWATER SAMPLES AND GROUNDWATER ELEVATIONS MEASUREMENTS OBTAINED BY HALEY & ALDRICH IN APRIL 2008.
- GROUNDWATER FLOW DIRECTION

NOTES:

1. PLAN BASED ON "ALTA/ASCM LAND TITLE SURVEY MAY" PREPARED BY RONALD W. STAUB LAND SURVEYORS, ROCHESTER, NEW YORK, DATED 17 DECEMBER 1996.
2. GROUNDWATER CONTOURS ARE BASED ON DATA COLLECTED ON 13 OCTOBER 2008.
3. EXPLORATION LOCATIONS ARE APPROXIMATE.

N W E S

0 20 40 80

Feet

HALEY & ALDRICH

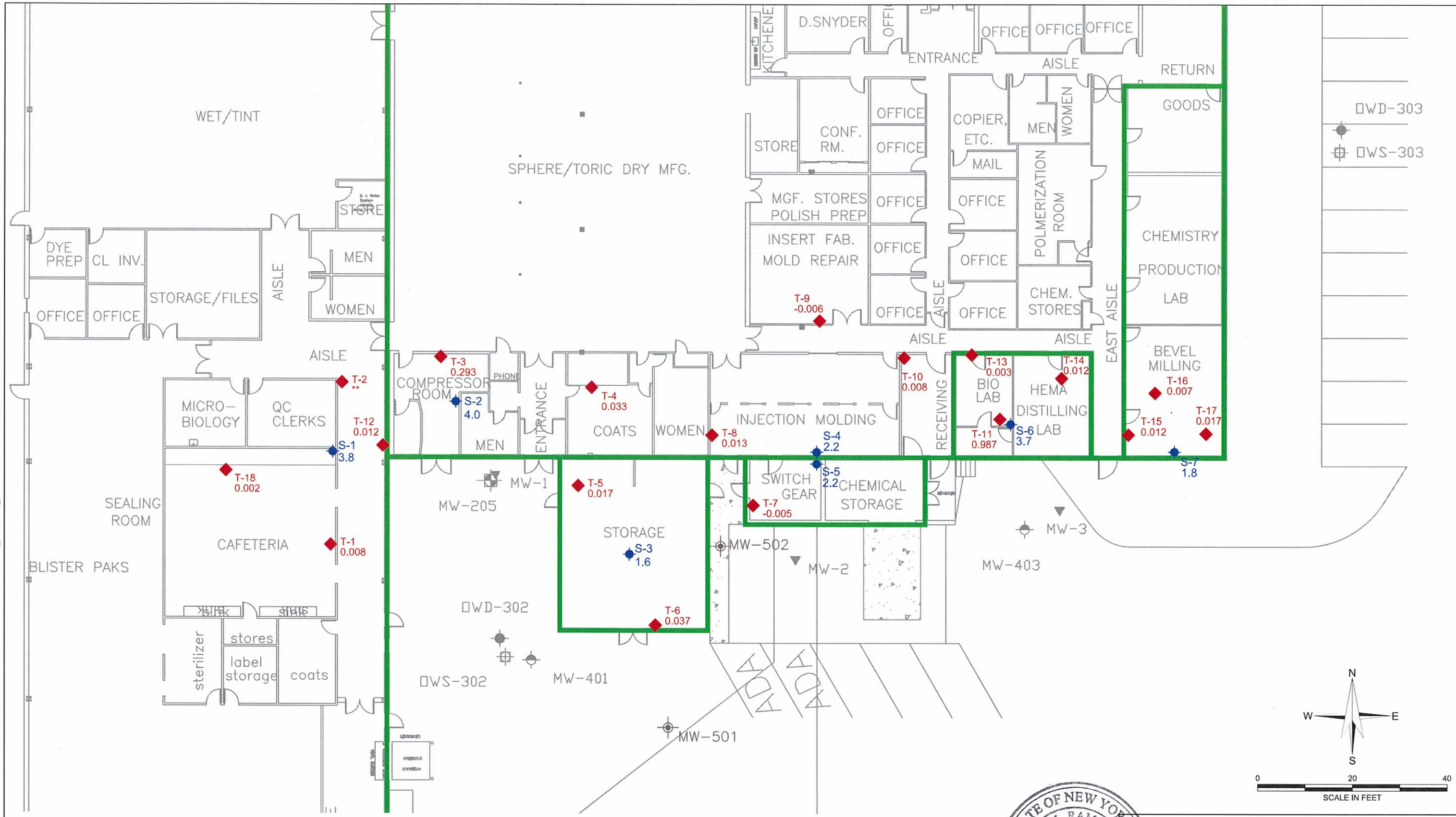
COOPERVISION FACILITY INVESTIGATION
711 NORTH ROAD
SCOTTSVILLE, NEW YORK

GROUNDWATER CONTOUR PLAN (OCTOBER 2009)

SCALE: AS SHOWN
MAY 2010

FIGURE 4

G:\Projects\70665\011\ARC\GIS\MXD\OCT08_GW_CONT.mxd



THIS RECORD DRAWING HAS BEEN PREPARED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THIS RECORD DRAWING OR FOR ANY ERRORS OR OMISSIONS THAT MAY HAVE BEEN INCORPORATED INTO IT AS A RESULT OF INCORRECT INFORMATION PROVIDED TO THE ENGINEER. THOSE RELYING ON THIS RECORD DOCUMENT ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY.

S-3 1.6 — APPROXIMATE SUCTION POINT LOCATION WITH VACUUM READING

T-16 0.007 — APPROXIMATE TEST POINT LOCATION WITH VACUUM READING

APPROXIMATE LOCATION OF SUB-SLAB BARRIERS AFFECTING THE SYSTEM

NOTE:

1. VACUUM DIFFERENTIALS READ ON 19 DECEMBER 2006.
2. ** T-2 IS NOT A VALID TEST POINT.
3. ALL READINGS ARE IN "WC.

STATE OF NEW YORK · MARK N. RAMSDELL · 071627 · LICENSED PROFESSIONAL ENGINEER

HALEY & ALDRICH

SUB-SLAB DEPRESSURIZATION SYSTEM
NORTH ROAD
SCOTTSVILLE, NEW YORK

RECORD DRAWING: SUB-SLAB DEPRESSURIZATION SYSTEM LAYOUT

SCALE: AS SHOWN
MAY 2010

FIGURE 5

G:\PROJECTS\70665\014 - VCA CLOSEOUT - 2008-09\FINAL ENGINEERING REPORT\DRAWINGS\2010-0430_70665-014_SUB-SLAB DEPRESSURIZATION SYSTEM LAYOUT.DWG

F-1
F-2
F-3
F-4
F-5
F-6
ADA
ADA
SINK
SINK
DOCK 25
DOCK 26
HYDRAULIC LIFT
N
W
S
0
20
40
SCALE IN FEET

THIS RECORD DRAWING HAS BEEN PREPARED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THIS RECORD DRAWING OR FOR ANY ERRORS OR OMISSIONS THAT MAY HAVE BEEN INCORPORATED INTO IT AS A RESULT OF INCORRECT INFORMATION PROVIDED TO THE ENGINEER. THOSE RELYING ON THIS RECORD DOCUMENT ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY.

F-2 APPROXIMATE SSDS FAN LOCATION

APPROXIMATE BUILDING HVAC EXHAUST LOCATION

APPROXIMATE BUILDING HVAC AIR INTAKE LOCATION

STATE OF NEW YORK
MARK N. RAMSDELL
71627
LICENSED PROFESSIONAL ENGINEER

HALEY & ALDRICH

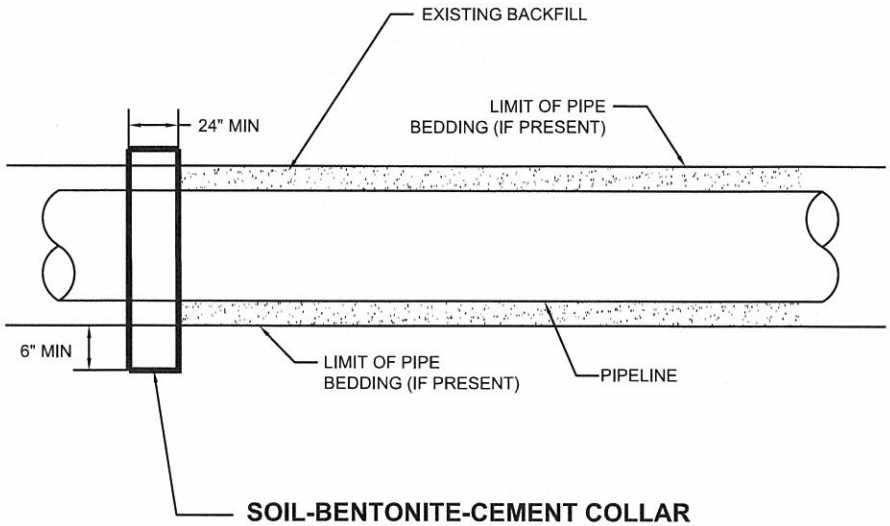
SUB-SLAB DEPRESSURIZATION SYSTEM
NORTH ROAD
SCOTTSVILLE, NEW YORK

RECORD DRAWING: SUB-SLAB DEPRESSURIZATION ROOF PLAN

SCALE: AS SHOWN
MAY 2010

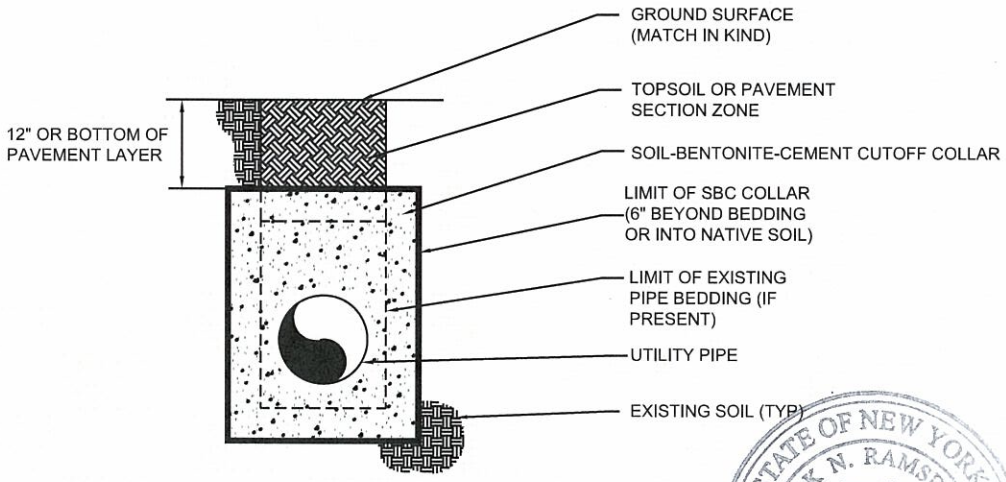
FIGURE 6

G:\PROJECTS\70665\014 - VCA CLOSEOUT - 2008-09\FINAL ENGINEERING REPORT\DRAWINGS\2010-0430_70665-014_SUB-SLAB DEPRESSURIZATION SYSTEM LAYOUT.DWG



COLLAR IN PLAN VIEW

NOT TO SCALE



COLLAR IN ELEVATION VIEW

NOTE:
SOIL-BENTONITE-CEMENT COLLAR MIXTURE CONTAINS APPROXIMATELY 3% BENTONITE, 8% DRY WEIGHT OF CEMENT, REMAINDER EXCAVATED SOIL.

HALEY & ALDRICH

COOPERVISION FACILITY
711 NORTH ROAD
SCOTTSVILLE, NEW YORK

RECORD DRAWING
TYPICAL SOIL-BENTONITE-CEMENT COLLAR

SCALE: NTS
MAY 2010

FIGURE 7

G:\PROJECTS\70665\014 - VCA CLOSEOUT - 2008-09\FINAL ENGINEERING REPORT\DRAWINGS\2010-0430_70665-014_TRENCH COLLAR AS BUILT.DWG

APPENDIX A

Deed Restrictions and Metes & Bounds

Spiga

2010 JUL 22 PM 2:13

MONROE COUNTY CLERK

DECLARATION OF COVENANTS AND RESTRICTIONS

THIS COVENANT is made the 22 day of July 2010, by CooperVision, Inc. ("CooperVision"), a corporation organized and existing under the laws of the State of Delaware and having an office for the transaction of business at 6140 Stoneridge Mall Road, Pleasanton, California:

R + R Claire Mondello 200 Town Centre Dr. Suite 2 Rochester, NY 14623

WHEREAS, CooperVision, and the New York State Department of Environmental Conservation (the "Department) have entered into the May 31, 2001 Agreement (Index Number B8-0532-98-06) regarding the property consisting of 5.4 acres and located at 711 North Road in the Village of Scottsville, New York 14546 and included on the Monroe County Tax Map as Parcel Nos. 187.17-1-18 and 187.17-1-18.1/EX (the "Site"); and being more particularly described on the map appended hereto as Appendix "A";

WHEREAS, Paragraph X of that May 31, 2001 Agreement requires that an instrument setting restrictions on the Site be recorded with the Monroe County Clerk to run with the land;

NOW, THEREFORE, CooperVision, for itself and its successors and/or assigns, covenants that:

First, the portion of the Site subject to this Declaration of Covenants and Restrictions consists of that area, the metes and bounds of which is set out on Appendix "B" (the "Subject Area") which is appended hereto.

Second, the owner of the Site shall prohibit the Subject Area from every being used for purposes other than for industrial or commercial uses without the express written waiver of such prohibition by the Department or, if the Department shall no longer exist, any New York State agency or agencies subsequently created to protect the environment of the State and the health of the State's citizens, hereinafter collectively referred to as the "Relevant Agency."

Third, owner of the Site shall prohibit the use of the groundwater underlying the Site without treatment rendering it safe for drinking water or industrial purposes, as appropriate, unless the user first obtains permission to do so from the Relevant Agency.

Fourth, CooperVision or the owner of the site shall not permit any disturbance of soil or fill at the property unless in accordance with the Relevant Agency approved Site Management Plan, unless a modification or exception to the Site Management Plan is approved by the Relevant Agency.

Fifth, CooperVision on behalf of itself and its successors and assigns, hereby consents to the enforcement by the Relevant Agency of these recorded restrictions, and hereby covenants not to contest such enforcement.

Sixth, Cooper Vision or the owner of the Site shall annually submit in accordance with 6 NYCRR Part 375-1.8(h)(3)(i),(ii), unless an alternate certification period is approved in writing

by the Relevant Agency, a written certification by a professional engineer, or such other qualified environmental professional as the Relevant Agency may find acceptable.

Seventh, CooperVision, its successors, and assigns shall continue in full force and affect those engineering and/or institutional controls required by the final CooperVision VCA Site Management Plan pertaining to the Site that CooperVision has agreed to implement.

Eighth, this Declaration is and shall be deemed a covenant that shall run with the land and shall be binding upon all future owners of the Property, and shall provide that the owner and its successors and assigns consent to enforcement by the Relevant Agency, of the prohibitions and restrictions that Paragraph X of the Agreement requires to be recorded, and hereby covenants not to contest the authority of the Relevant Agency to seek enforcement.

Ninth, any deed of conveyance including the Subject Area shall recite that said conveyance is subject to this Declaration of Covenants and Restrictions.

IN WITNESS WHEREOF, the undersigned has executed this instrument the day written below.

By: _____

Dated: 7/22/10 2010

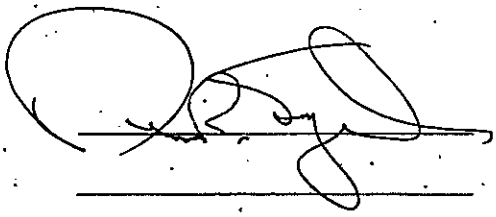
Dennis R. Snyder
VP Manufacturing.

_____

BONNIE M. MACLEOD
Notary Public, State of New York
Qualified in Livingston County
Reg. No. 01MA6002564
Commission Expires 02/09/2014

UNIFORM ACKNOWLEDGEMENT

Dated July 22, 2010



(signatures)

STATE OF NEW YORK)
COUNTY OF MONROE) ss.:
CITY OF ROCHESTER)

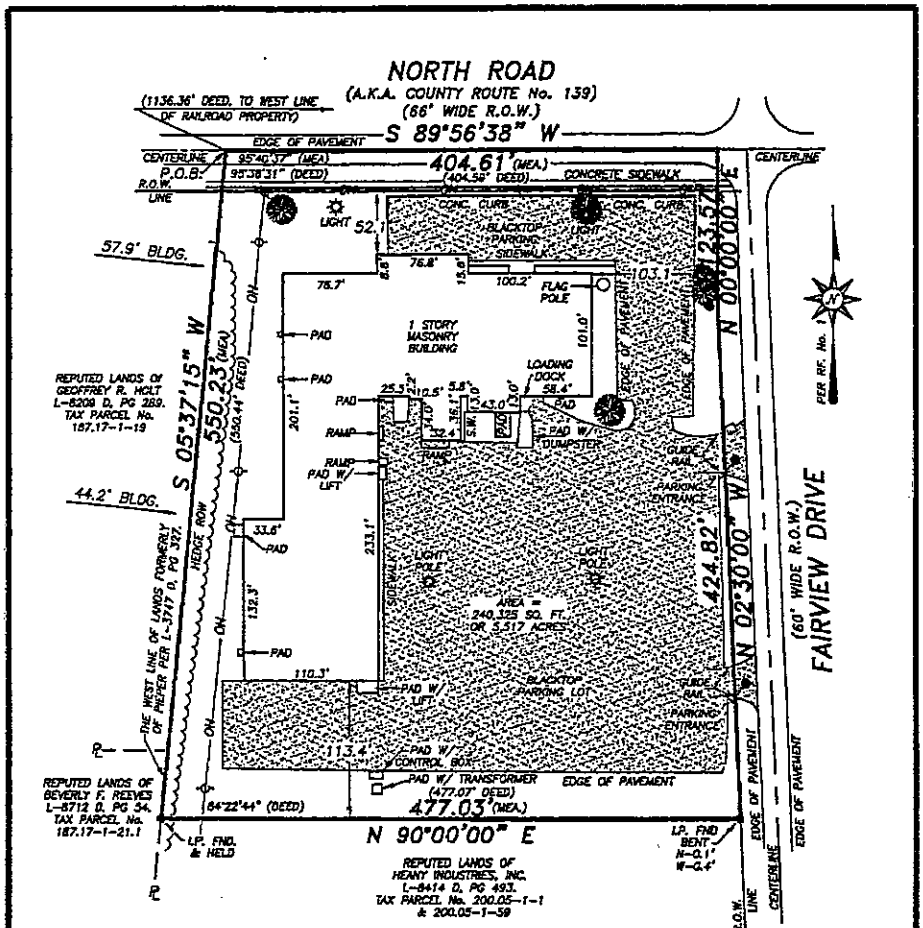
On the 22nd day of July in the year 2010 before me, the undersigned, a Notary Public in and for said State, personally appeared Dennis Snyder personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Bonnie M. MacLeod

Notary Public, State of New York/Commissioner of Deeds

Commission Expires: 2/9/14

BONNIE M. MACLEOD
Notary Public, State of New York
Qualified in Livingston County
Reg. No. 01MA6002564
Commission Expires 02/09/20 14



CERTIFICATION:

I, ANDREW M. HODGE, HEREBY CERTIFY TO:

-CAROL R. KAUFMAN (THE COOPER COMPANIES)

THAT THIS SURVEY WAS MADE ON APRIL 30, 2007 FROM NOTES OF AN INSTRUMENT SURVEY COMPLETED ON APRIL 27, 2007 AND REFERENCES LISTED HEREON.

STATE OF NEW YORK
ANDREW M. HODGE
049678
LAND SURVEYOR

N.Y.S.P.L.S. No. 049678
P.A.P.L.S.

DATE: 4/30/07

REFERENCES:

1.) LIBER 259 OF MAPS, PAGE 100.
2.) LIBER 56 OF MAPS, PAGE 9.
3.) LIBER 8542 OF DEEDS, PAGE 348.
4.) LIBER 8418 OF DEEDS, PAGE 493.

TITLE:

INSTRUMENT SURVEY MAP

711 NORTH ROAD
BEING PART OF LOT 61, TOWNSHIP 1, RANGE 1, SITUATE IN THE VILLAGE OF SCOTTSVILLE TOWN OF WHEATLAND, COUNTY OF MONROE, STATE OF NEW YORK

"UNAUTHORIZED ALTERATION OR ADDITION TO A SURVEY MAP BEARING A LICENSED LAND SURVEYOR'S SEAL IS A VIOLATION OF SECTION 7209, SUB-DIVISION 2, OF THE NEW YORK STATE EDUCATION LAW."

"ONLY COPIES FROM THE ORIGINAL OF THIS SURVEY MARKED WITH AN ORIGINAL OF THE LAND SURVEYOR'S RED INK SEAL SHALL BE CONSIDERED TO BE VALID TRUE COPIES."

"CERTIFICATIONS INDICATED HEREON SIGNIFY THAT THIS SURVEY WAS PREPARED IN ACCORDANCE WITH THE CURRENT CODE OF PRACTICE FOR LAND SURVEYS ADOPTED BY THE NEW YORK STATE ASSOCIATION OF PROFESSIONAL LAND SURVEYORS. SAID CERTIFICATIONS SHALL RUN ONLY TO THE PERSON FOR WHOM THE SURVEY IS PREPARED, AND ON HIS BEHALF TO THE TITLE COMPANY, GOVERNMENTAL AGENCY AND LENDING INSTITUTION LISTED HEREON, AND TO THE ASSIGNEES OF THE LENDING INSTITUTION. CERTIFICATIONS ARE NOT TRANSFERABLE TO ADDITIONAL INSTITUTIONS OR SUBSEQUENT OWNERS."

ATLANTIC SURVEYING & MAPPING
34 EAST AVENUE
LeROY NEW YORK, 14482
PHONE (585)-530-9359
FAX (866)-834-4834

SCALE:	TAX ACCOUNT:	JOS No:	DATE:
1" = 100'	187.170-1-18 & 187.170-1-18.1	005-07	APRIL 30, 2007

APPENDIX B

METES & BOUNDS DESCRIPTION
711 NORTH ROAD
BEING PART OF LOT 61, TOWNSHIP 1, RANGE 1,
VILLAGE OF SCOTTSVILLE, TOWN OF WHEATLAND,
COUNTY OF MONROE, STATE OF NEW YORK

ALL THAT CERTAIN PIECE OR PORTION OF LAND SITUATE IN THE VILLAGE OF SCOTTSVILLE, TOWN OF WHEATLAND, COUNTY OF MONROE, STATE OF NEW YORK, BOUNDED AND DESCRIBED, AS FOLLOWS, TO WIT:

BEGINNING AT A POINT ON THE CENTERLINE OF NORTH ROAD (A.K.A. COUNTY ROUTE No. 139, 66 FEET WIDE RIGHT OF WAY), AT THE WEST LINE OF LANDS FORMERLY OF PIEPER PER LIBER 3747 OF DEEDS, PAGE 327 AND FROM SAID POINT OF BEGINNING RUNNING, THENCE;

1. ALONG SAID WEST LINE OF PIEPER, SOUTH 05 DEGREES 37 MINUTES 15 SECONDS WEST, A DISTANCE OF 550.23 FEET;

2. THENCE ALONG THE NORTHERLY LINE OF HEANY INDUSTRIES, INC., NORTH 90 DEGREES 00 MINUTES 00 SECONDS EAST, A DISTANCE OF 477.03 FEET, TO A POINT ON THE WESTERLY LINE OF FAIRVIEW DRIVE (60 FEET WIDE RIGHT OF WAY);

3. THENCE ALONG THE WESTERLY LINE OF FAIRVIEW DRIVE (60 FEET WIDE RIGHT OF WAY), NORTH 02 DEGREES 30 MINUTES 00 SECONDS WEST, A DISTANCE OF 424.82 FEET;

4. THENCE CONTINUING ALONG THE WESTERLY LINE OF FAIRVIEW DRIVE (60 FEET WIDE RIGHT OF WAY), NORTH 00 DEGREES 00 MINUTES 00 SECONDS EAST, A DISTANCE OF 123.57 FEET, TO A POINT ON THE CENTERLINE OF NORTH ROAD (A.K.A. COUNTY ROUTE No. 139, 66 FEET WIDE RIGHT OF WAY);

5. THENCE ALONG THE CENTERLINE OF NORTH ROAD (A.K.A. COUNTY ROUTE No. 139, 66 FEET WIDE RIGHT OF WAY), SOUTH 89 DEGREES 56 MINUTES 38 SECONDS WEST, A DISTANCE OF 404.61 FEET, TO SAID POINT AND PLACE OF BEGINNING.

CONTAINING 240,325 SQUARE FEET OR 5.517 ACRES

THIS PROPERTY MAY BE SUBJECT TO RESTRICTIONS, COVENANTS AND/OR EASEMENTS, EITHER WRITTEN OR IMPLIED.

APPENDIX B

Example 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. 70665-014

Prepared by: Claire DeBergalis Date: 18 March 2008

Revised by: Claire DeBergalis Date: 31 July 2008

Revised by: _____ Date: _____

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

Michael G. Beikirch - Local H&S Coordinator — Date: 7.31.08

Susan L. Boyle - Site Project Manager — Date: 7.31.08

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

Date printed: 7/31/2008 at 10:49 AM

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

TABLE OF CONTENTS

1. PROJECT INFORMATION AND EMERGENCY RESOURCES

Project Name: CooperVision, Inc.	**H&A File No.: 70665-014**
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. Additional rounds of soil vapor sampling are anticipated to occur following installation of the utility trench collars. 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: Utility Trench Collar Installation: Up to five (5) locations along existing gas and water utility lines will be excavated on the Site property and along the eastern property boundary right of way, and bentonite/soil/cement/water trench collars will be installed in those excavations.

Task #5: 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	Soil Vapor Sampling Point Installation (if necessary)
Drilling/Excavation Subcontractor	Utility trench excavations and trench collar installations
Drilling Subcontractor	Well Decommissioning

Projected Start Date: April 2008

Projected Completion Date: To Be Determined

Estimated Number of Days to Complete Field Work:

Semi-Annual Groundwater Sampling/Soil Vapor Sampling: 3 to 7 days semiannually until completion of the project;

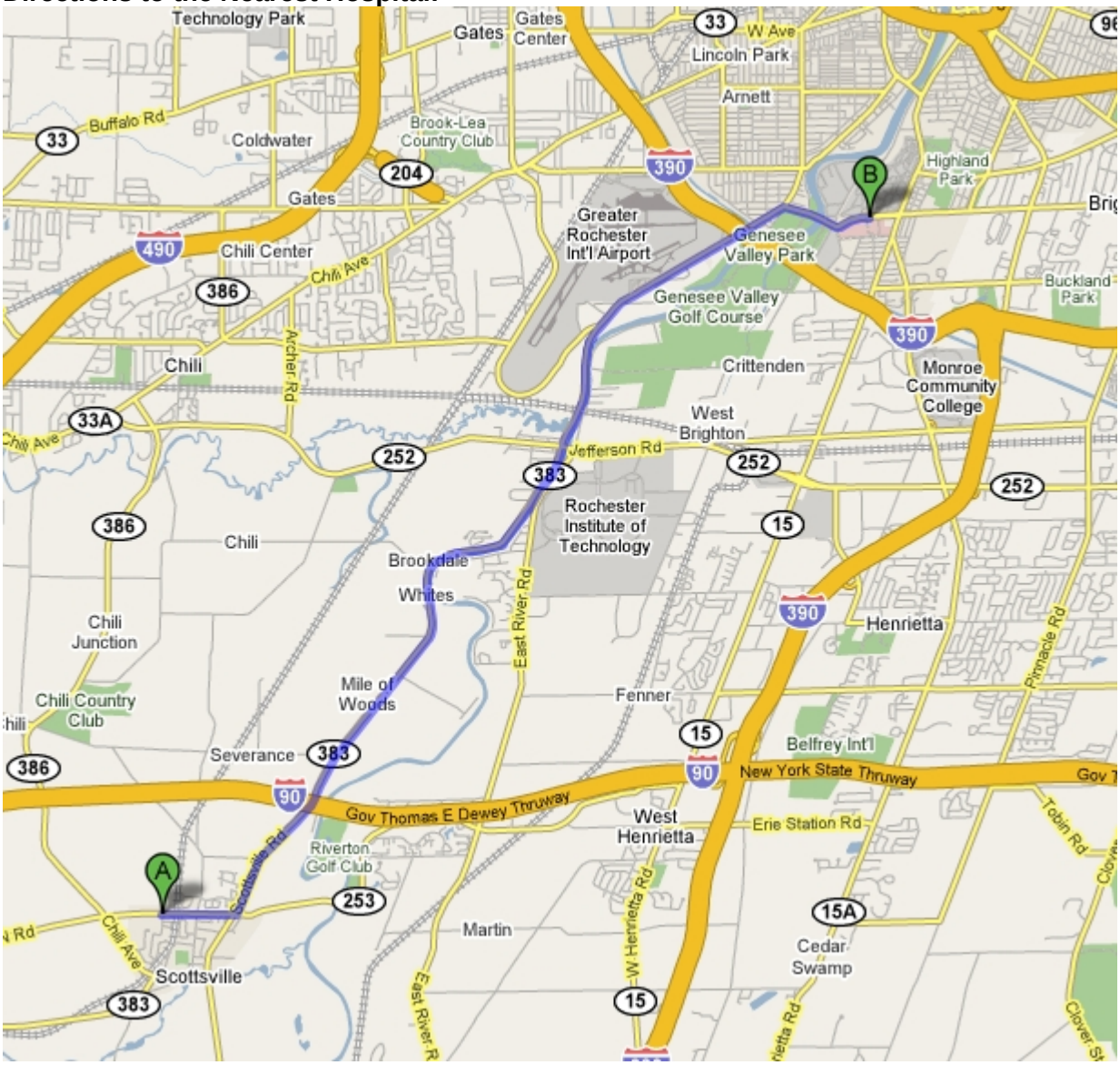
Soil Vapor Point Installation: 1 to 2 days

Periodic Soil Vapor Sampling: 1 to 2 days per event

Utility Trench Collar Installation: Approximately 2 weeks

Well Decommissioning: 2-3 days to decommission wells following project completion.

Directions to the Nearest Hospital:



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

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, 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, and the installation of utility trench collars intended to eliminate a potential preferential soil vapor pathway. 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, soil vapor sampling, and trench collar 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 from drill rigs and excavating equipment; 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 present during the installation of soil vapor points in the event that a direct push rig is required. An excavator hazard is present during excavation of utility lines during the installation of the trench collars. An additional 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. Trench Collar Locations – (outdoor locations)
   SBC-1: Immediate north of the bend at the gas line on the Site property.
   SBC-2: Immediate west of the main gas line/service gas line on the Site.
   SBC-3: Immediate east of the main gas line/service gas line on the adjacent eastern property.
   SBC-4: On the water line to the immediate south of SBC-3.
   SBC-5: Immediate north of the main water line/service water line to the southeast of the Site property.

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	Utility Trench Collar Installation	Two (2) H&A field Staff	Approximately 2 weeks
5	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. Additional rounds of soil vapor sampling are also anticipated to occur following installation of the utility trench collars. 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: Utility Trench Collar Installation: Up to five (5) locations along existing gas and water utility lines will be excavated on the Site property and along the eastern property boundary right of way, and bentonite/soil/cement/water trench collars will be installed in those excavations.

Task #5: 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 – 2300 ppbV in soil vapor ND - 0.2 ppm in soil
Soil Vapor Sampling	A	1,1,1-TCA, 1,1-DCA, 1,1-DCE, Chloroethene, VC	ND – 2300 ppbV in soil vapor ND - 0.2 ppm
Utility Trench Collar Installation	SO, A, GW	1,1,1-TCA, 1,1-DCA, 1,1-DCE, Chloroethene, VC	ND – 2300 ppbV in soil vapor ND - 0.2 ppm in soil ND – 400 ppm in GW
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 in soil

(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
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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
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**	**Task 2**	**Task 3**	**Task 5**	**Task 4**
	GW Sampling	SV Point Install.	SV Sampling	UTC Install.	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.

Excavation Hazards

The contractor is required to follow all appropriate procedures and protocols as per its health and safety plan for removal and handling of soil during and after shallow excavation. Whenever Haley & Aldrich staff is not required to be near the excavation, they will maintain a safe distance (15 feet) from excavation edge. At all times Haley & Aldrich staff will be at least 5 feet away from the edge of the excavation. Haley & Aldrich staff will maintain a safe distance (minimum of 15 feet) from operating heavy equipment. While directing the collection of confirmation samples from the excavation, Haley & Aldrich staff will stand on the opposite side of the excavation at the minimum distance from the edge, as defined above. Under no circumstances will Haley & Aldrich staff enter an excavation. Soil samples will be brought to Haley & Aldrich at an appropriate safe distance (15 feet) from the excavation. Be aware of the potential for severe weather to develop this time of year which may change site conditions.

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	Task 5
	GW Sampling	SV Point Install.	SV Sampling	UTC Install.	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	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), utility trench collar installation, and site restoration (task 4) when personnel are present onsite.

A Community Air Monitoring Plan (CAMP) will be enacted during the tasks listed above. Refer to the generic New York State Department of Health CAMP attached to this HASP as Appendix C.

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. _____
3. _____

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

APPENDIX C
New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan (CAMP) Volatile Organic Compound (VOC) Monitoring

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and/or particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in established action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical-specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels that those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences of facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known of potential contaminants at each site, real-time air monitoring for volatile organic compounds (VOCs) and particulate levels at the perimeter of the exclusion zone or work area may be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate NYSDEC/NYDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. “Periodic” monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well camp or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some incidences, depending upon the proximity of potentially exposed

individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds t parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitored continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less – but in no case less than 20 feet, is below 5 ppm over background of the 15-minute average.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

All 15-minute readings must be recorded and available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

APPENDIX C

NYSDOH Generic Community Air Monitoring Plan

New York State Department of Health (NYSDOH)
Generic Community Air Monitoring Plan (CAMP)

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and/or particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical-specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences of facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for volatile organic compounds (VOCs) and particulate levels at the perimeter of the exclusion zone or work area may be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate NYSDEC/NYDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. “Periodic” monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some incidences, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less – but in no case less than 20 feet, is below 5 ppm over background of the 15-minute average.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

All 15-minute readings must be recorded and available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15-minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

All readings must be recorded and be available for State (DEC and DOH) personnel to review.

APPENDIX D

Groundwater Monitoring Well Logs

H&A OF NEW YORK
CONSULTING GEOTECHNICAL ENGINEERS
GEOLOGISTS AND HYDROGEOLOGISTS

OVERBURDEN GROUNDWATER MONITORING WELL REPORT

PROJECT: WELL INSTALLATION
LOCATION: SCOTTSVILLE, NEW YORK
CLIENT: COOPERVISION
CONTRACTOR: NOTHNAGLE DRILLING
DRILLER: K. BUSCH RIG TYPE: CME-75, TRUCK-MOUNT
INSTALLATION DATE: 7 JULY 1997

FILE NO.: 70665-002
WELL NO.: MW-202
LOCATION: SEE PLAN
SHEET: 1 OF 1
INSPECTOR: J. MARSCHNER

Survey Datum NGVD

Ground Elevation: 573.25

SUMMARIZE SOIL CONDITIONS

-CONCRETE- 1.0 ft.
-GLACIAL OUTWASH- 2.0 ft.
-BENTONITE/ CEMENT GROUT- 5.9 ft.
-BENTONITE PELLETS- 8.2 ft.
-GLACIAL TILL- 10.1 ft.
-QUARTZ SAND- 20.4 ft.

Depth below ground surface of protective casing.	0.0 ft.
Depth below ground surface of riser pipe.	0.7 ft.
Thickness of Surface Seal	1.0 ft.
Type of Surface Seal {indicated all seals showing depth, thickness and type}	Concrete
Type of Protective Casing	Roadway Box
Inside Diameter of Protective Casing	8.0 in.
Depth of Bottom of Protective Casing	1.0 ft.
Inside Diameter of Riser Pipe	2.0 in.
Type of Backfill Around Riser	Bentonite/Cement Grout
Diameter of Borehole	8.0 in. +/-
Type of coupling (threaded, welded, etc.)	Threaded
Depth of Bottom of Riser	10.1 ft.
Type of Wellscreen	PVC
Screen Slot Size	0.010 in.
Diameter of Wellscreen	2.0 in.
Type of Backfill Around Wellscreen	Quartz Sand
Depth of Bottom of Wellscreen	20.3 ft.
Depth of Bottom of Borehole	20.4 ft.

Remarks:

H&A OF NEW YORK
CONSULTING GEOTECHNICAL ENGINEERS
GEOLOGISTS AND HYDROGEOLOGISTS

OVERBURDEN GROUNDWATER MONITORING WELL REPORT

PROJECT: WELL INSTALLATION
LOCATION: SCOTTSVILLE, NEW YORK
CLIENT: COOPERVISION
CONTRACTOR: NOTHNAGLE DRILLING
DRILLER: K. BUSCH RIG TYPE: CME-75, TRUCK-MOUNT
INSTALLATION DATE: 8 JULY 1997

FILE NO.: 70665-002
WELL NO.: MW-203
LOCATION: SEE PLAN
SHEET: 1 OF 1
INSPECTOR: J. MARSCHNER

Survey Datum NGVD

Ground Elevation: 576.35

SUMMARIZE SOIL CONDITIONS

-CONCRETE- 1.0 ft.

-GLACIAL OUTWASH- 5.7 ft.

-BENTONITE/ CEMENT GROUT- 6.0 ft.

-BENTONITE PELLETS- 8.3 ft.

-GLACIAL TILL- 20.0 ft.

-QUARTZ SAND- 20.0 ft.

Depth below ground surface of protective casing.	0.0 ft.
Depth below ground surface of riser pipe.	0.5 ft.
Thickness of Surface Seal	12.0 ft.
Type of Surface Seal [indicated all seals showing depth, thickness and type]	Concrete
Type of Protective Casing	Roadway Box
Inside Diameter of Protective Casing	8.0 in.
Depth of Bottom of Protective Casing	1.0 ft.
Inside Diameter of Riser Pipe	2.0 in.
Type of Backfill Around Riser	Bentonite/Cement Grout
Diameter of Borehole	8.0 in. +/-
Type of coupling (threaded, welded, etc.)	Threaded
Depth of Bottom of Riser	9.8 ft.
Type of Wellscreen	PVC
Screen Slot Size	0.010 in.
Diameter of Wellscreen	2.0 in.
Type of Backfill Around Wellscreen	Quartz Sand
Depth of Bottom of Wellscreen	20.0 ft.
Depth of Bottom of Borehole	20.0 ft.

Remarks:

Well No. MW-203

H&A OF NEW YORK
CONSULTING GEOTECHNICAL ENGINEERS
GEOLOGISTS AND HYDROGEOLOGISTS

OVERBURDEN GROUNDWATER MONITORING WELL REPORT

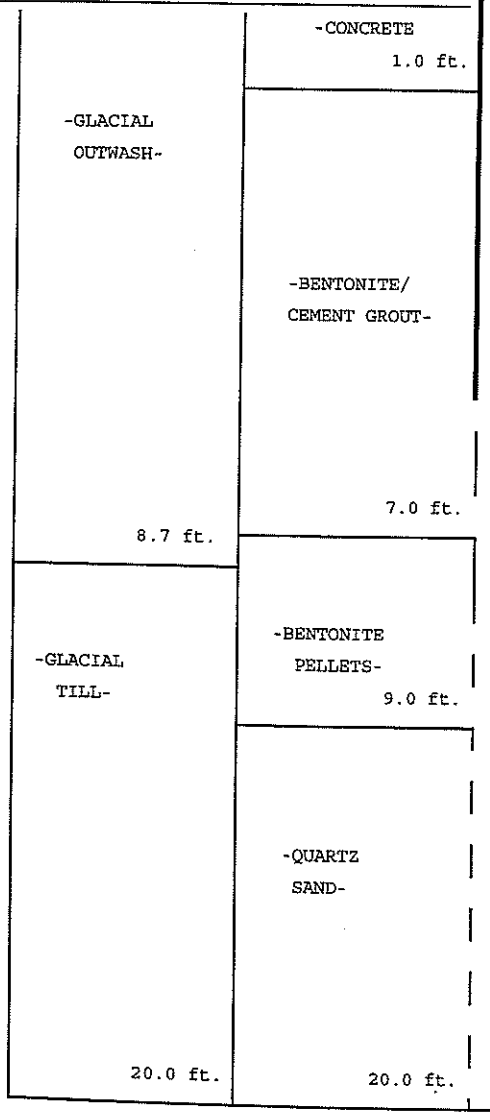
PROJECT: WELL INSTALLATION
LOCATION: SCOTTSVILLE, NEW YORK
CLIENT: COOPERVISION
CONTRACTOR: NOTHNAGLE DRILLING
DRILLER: K. BUSCH RIG TYPE: CME-75, TRUCK-MOUNT
INSTALLATION DATE: 8 JULY 1997

FILE NO.: 70665-002
WELL NO.: MW-204
LOCATION: SEE PLAN
SHEET: 1 OF 1
INSPECTOR: J. MARSCHNER

Survey Datum NGVD

Ground Elevation: 571.12

SUMMARIZE Soil Conditions



Depth below ground surface of protective casing.	0.0 ft.
Depth below ground surface of riser pipe.	0.5 ft.
Thickness of Surface Seal	1.0 ft.
Type of Surface Seal [indicated all seals showing depth, thickness and type]	Concrete
Type of Protective Casing	Roadway Box
Inside Diameter of Protective Casing	8.0 in.
Depth of Bottom of Protective Casing	1.0 ft.
Inside Diameter of Riser Pipe	2.0 in.
Type of Backfill Around Riser	Bentonite/Cement Grout
Diameter of Borehole	8.0 in. +/-
Type of coupling (threaded, welded, etc.)	Threaded
Depth of Bottom of Riser	9.8 ft.
Type of Wellscreen	PVC
Screen Slot Size	0.010 in.
Diameter of Wellscreen	2.0 in.
Type of Backfill Around Wellscreen	Quartz Sand
Depth of Bottom of Wellscreen	20.0 ft.
Depth of Bottom of Borehole	20.0 ft.

Remarks:

Well No. MW-204

H&A OF NEW YORK
CONSULTING GEOTECHNICAL ENGINEERS
GEOLOGISTS AND HYDROGEOLOGISTS

OVERBURDEN GROUNDWATER MONITORING WELL REPORT

PROJECT: WELL INSTALLATION
LOCATION: SCOTTSVILLE, NEW YORK
CLIENT: COOPERVISION
CONTRACTOR: NOTHNAGLE DRILLING
DRILLER: K. BUSCH RIG TYPE: CME-75, TRUCK-MOUNT
INSTALLATION DATE: 8 JULY 1997

FILE NO.: 70665-002
WELL NO.: MW-205
LOCATION: SEE PLAN
SHEET: 1 OF 1
INSPECTOR: J. MARSCHNER

Survey Datum NGVD

Ground Elevation: 578.03

SUMMARIZED SOIL CONDITIONS

-CONCRETE 1.5 ft.

-GLACIAL OUTWASH- 4.0 ft.

-BENTONITE/ CEMENT GROUT- 18.0 ft.

-BENTONITE PELLETS- 20.0 ft.

-GLACIAL TILL- 28.2 ft.

-QUARTZ SAND- 28.2 ft.

Depth below ground surface of protective casing.	0.0 ft.
Depth below ground surface of riser pipe.	0.5 ft.
Thickness of Surface Seal	1.5 ft.
Type of Surface Seal [indicated all seals showing depth, thickness and type]	Concrete
Type of Protective Casing	Roadway Box
Inside Diameter of Protective Casing	8.0 in.
Depth of Bottom of Protective Casing	19.4 ft.
Inside Diameter of Riser Pipe	2.0 in.
Type of Backfill Around Riser	Bentonite/Cement Grout
Diameter of Borehole	8.0 in. +/-
Type of coupling (threaded, welded, etc.)	Threaded
Depth of Bottom of Riser	21.2 ft.
Type of Wellscreen	PVC
Screen Slot Size	0.010 in.
Diameter of Wellscreen	2.0 in.
Type of Backfill Around Wellscreen	Quartz Sand
Depth of Bottom of Wellscreen	28.0 ft.
Depth of Bottom of Borehole	28.2 ft.

Remarks:

Well No. MW-205

OBSERVATION WELL INSTALLATION REPORT

HALEY & ALDRICH

Well No. OWS-302S

Boring No.

PROJECT	Monitoring Well Decommissioning/Replacement	**H&A FILE NO.**	70665-016
LOCATION	CooperVision, Inc., Scottsville, New York	**PROJECT MGR.**	M. Ramsdell
CLIENT	CooperVision, Inc.	**FIELD REP.**	D. Nostrant
CONTRACTOR	Nothnagle Drilling	**DATE INSTALLED**	3/31/2010
DRILLER	S. Loranty	**WATER LEVEL**	17.57

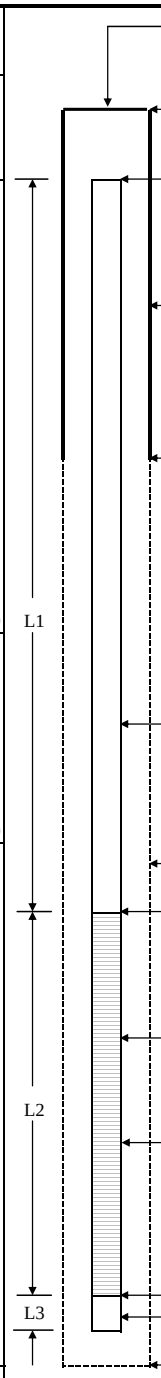
Ground El. ____ ft
El. Datum ____

Location 5 feet of abandoned well cluster
OWS-302

☐ **Guard Pipe**
☑ **Roadway Box**

SOIL/ROCK CONDITIONS	BOREHOLE BACKFILL
NOT OBSERVED	
	CEMENT-BENTONITE GROUT
9.0	
	BENTONITE
11.0	
	MORIE NO. 00N SILICA SAND
(Bottom of Exploration)	

(Numbers refer to depth from ground surface in feet)



(Not to Scale)

Type of protective cover/lock: Bolted Steel

Height of top of guard pipe/roadway box above ground surface: 0.0 ft

Height of top of riser pipe above ground surface: 0.3 ft

Type of protective casing: Flushmount Road Box
Length: 1.0 ft
Inside Diameter: 8.000 in

Depth of bottom of guard pipe/roadway box: ____ ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Concrete	0.1	0.9
Bentonite Seal	9.0	2.0

Type of riser pipe: PVC
Inside diameter of riser pipe: 2.0 in
Type of backfill around riser: See Diagram

Diameter of borehole: 8.0 + - in

Depth to top of well screen: 13.0 ft

Type of screen: Slotted PVC
Screen gauge or size of openings: 0.010 in
Diameter of screen: 2.0 in
Type of backfill around screen: Morie No. 00N Silica Sand

Depth of bottom of well screen: 17.8 ft

Bottom of Silt trap: 18.0 ft

Depth of bottom of borehole: 18.0 ft

____ ft (Riser Pay Length (L1)) + ____ ft (Length of screen (L2)) + ____ ft (Length of silt trap (L3)) = ____ ft (Pay length)

COMMENTS:

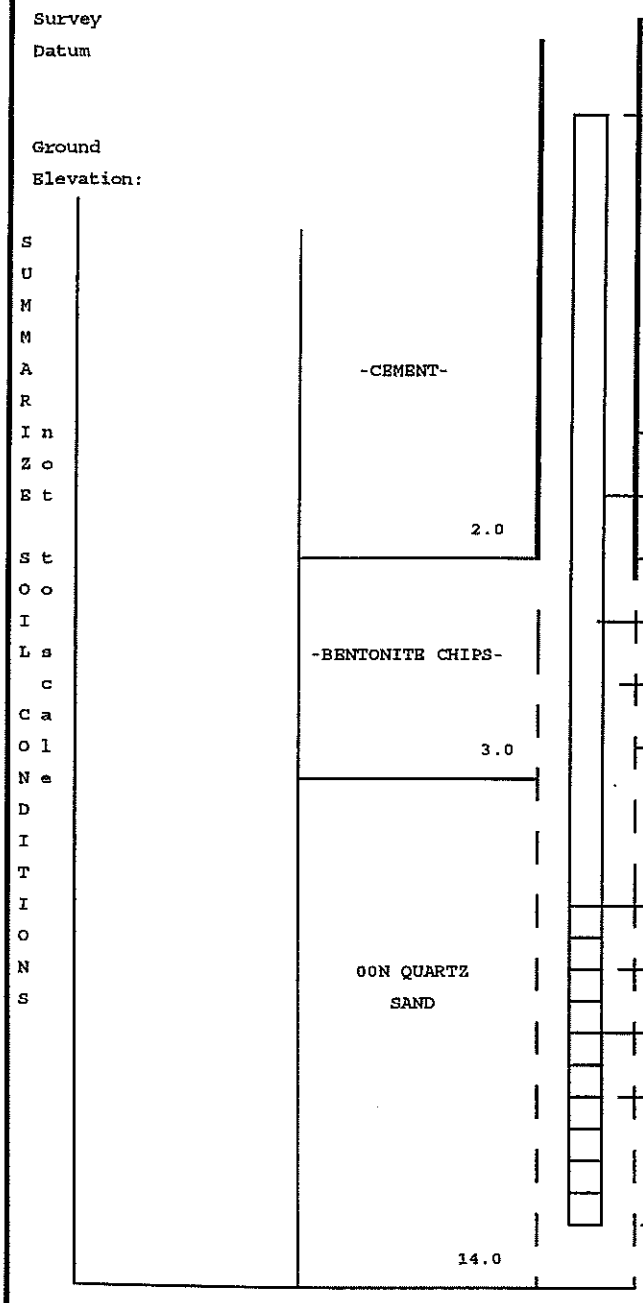
Form # 3010

H&A OF NEW YORK
CONSULTING GEOTECHNICAL ENGINEERS
GEOLOGISTS AND HYDROGEOLOGISTS

OVERBURDEN GROUNDWATER MONITORING WELL REPORT

PROJECT: COOPERVISION SITE INVESTIGATION
LOCATION: 711 NORTH ROAD, SCOTTSVILLE, NEW YORK
CLIENT: COOPERVISION, INC.
CONTRACTOR: NOTHNAGLE DRILLING
DRILLER: N. SHORT RIG TYPE: CME-75
INSTALLATION DATE: 23 MAY 1999

FILE NO.: 70665-005
WELL NO.: 306OW
LOCATION: SEE PLAN
SHEET: 1 OF 1
INSPECTOR: N. HOY



Depth/Stickup above/below ground surface of protective casing.	Flush
Depth/Stickup above/below ground surface of riser pipe.	0.2 ft.
Thickness of Surface Seal	2.0 ft.
Type of Surface Seal [indicated all seals showing depth, thickness and type]	See Left
Type of Protective Casing	Roadbox
Inside Diameter of Protective Casing	4.0 in.
Depth of Bottom of Protective Casing	1.0 ft.
Inside Diameter of Riser Pipe	1.0 in.
Type of Backfill Around Riser	See Left
Diameter of Borehole	6.0 in.
Type of coupling (threaded, welded, etc.)	Threaded
Depth of Bottom of Riser	4.0 ft.
Type of Wellscreen	PVC
Screen Slot Size	0.01 in.
Diameter of Wellscreen	1.0 in.
Type of Backfill Around Wellscreen	00N Quartz Sand
Depth of Bottom of Wellscreen	14.0 ft
Depth of Bottom of Borehole	14.0 ft.

Remarks:

Well No. 306OW

HALEY & ALDRICH

OBSERVATION WELL INSTALLATION REPORT

Well No. MW-501

Boring No.

PROJECT	COOPERVISION VCA/MNA PROJECT	H&A FILE NO.	70665-006
LOCATION	711 NORTH ROAD, SCOTTSVILLE, NEW YORK	PROJECT MGR.	V. DICK
CLIENT	COOPERVISION, INC.	FIELD REP.	N. CASE, A. BAUDO
CONTRACTOR	IPSI	DATE INSTALLED	7/20/2001
DRILLER	J. NERI	WATER LEVEL	

Ground El. _____ ft
El. Datum _____

Location SEE PLAN

☐ Guard Pipe
☑ Roadway Box

SOIL/ROCK CONDITIONS	BOREHOLE BACKFILL
	0.0 FT.
	CEMENT
2.0 FT.	
	HYDRATED BENTONITE
18.0 FT.	
	QUARTZ SAND
	25.0 FT.

(Bottom of Exploration)
(Numbers refer to depth from ground surface in feet

(Not to Scale)

Type of protective cover/lock: ROADBOX

Height/Depth of top of guard pipe/roadway box above/below ground surface: FLUSH ft

Height/Depth of top of riser pipe above/below ground surface: 0.3 ft

Type of protective casing: N/A

Length: N/A ft

Inside Diameter: N/A in

Depth of bottom of guard pipe/roadway box: 0.8 ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Concrete	0.0	2.0
Bentonite Seal	2.0	18.0

Type of riser pipe: PVC

Inside diameter of riser pipe: 1.5 in

Type of backfill around riser: SEE LEFT

Diameter of borehole: 8.0 in

Depth to top of well screen: 20.0 ft

Type of screen: PVC

Screen gauge or size of openings: 0.01 in

Diameter of screen: 1.5 in

Type of backfill around screen: QUARTZ SAND

Depth of bottom of well screen: 25.0 ft

Bottom of Silt trap: -- ft

Depth of bottom of borehole: 25.0 ft

Riser Pay Length (L1)	+	Length of screen (L2)	+	Length of silt trap (L3)	=	Pay length
ft		ft		ft		ft

COMMENTS: _____

Form # 3010

HALEY & ALDRICH

OBSERVATION WELL INSTALLATION REPORT

Well No. MW-502
Boring No.

PROJECT	COOPERVISION VCA/MNA PROJECT	H&A FILE NO.	70665-006
LOCATION	711 NORTH ROAD, SCOTTSVILLE, NEW YORK	PROJECT MGR.	V. DICK
CLIENT	COOPERVISION, INC.	FIELD REP.	N. CASE, A. BAUDO
CONTRACTOR	IPSI	DATE INSTALLED	7/19/2001
DRILLER	J. NERI	WATER LEVEL	

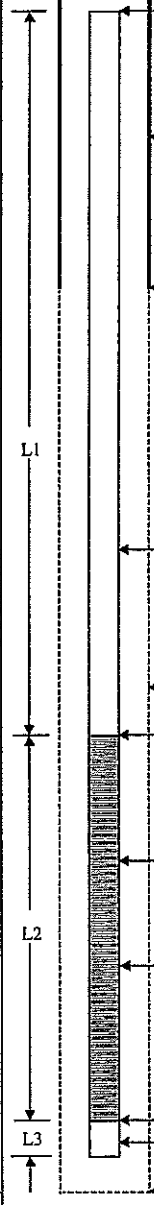
Ground El. _____ ft
El. Datum _____

Location: SEE PLAN

☐ Guard Pipe
☑ Roadway Box

SOIL/ROCK CONDITIONS	BOREHOLE BACKFILL
	0.0 FT.
	CEMENT
2.0 FT.	
	HYDRATED BENTONITE
	27.0 FT.
	30.0 FT. QUARTZ SAND
	35.0 FT.

(Bottom of Exploration)
(Numbers refer to depth from ground surface in feet)



(Not to Scale)

Type of protective cover/lock: ROADBOX
Height/Depth of top of guard pipe/roadway box above/below ground surface: FLUSH ft
Height/Depth of top of riser pipe above/below ground surface: 0.8 ft
Type of protective casing: N/A
Length: N/A ft
Inside Diameter: N/A in
Depth of bottom of guard pipe/roadway box: 0.8 ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Concrete	0.0	2.0
Bentonite Seal	2.0	27.0

Type of riser pipe: PVC
Inside diameter of riser pipe: 1.5 in
Type of backfill around riser: SEE LEFT
Diameter of borehole: 8.0 in
Depth to top of well screen: 30.0 ft
Type of screen: PVC
Screen gauge or size of openings: 0.01 in
Diameter of screen: 1.5 in
Type of backfill around screen: QUARTZ SAND
Depth of bottom of well screen: 35.0 ft
Bottom of Silt trap: -- ft
Depth of bottom of borehole: 35.0 ft

_____ ft (Riser Pay Length (L1)) + _____ ft (Length of screen (L2)) + _____ ft (Length of silt trap (L3)) = _____ ft (Pay length)

COMMENTS: _____

Form # 3010

APPENDIX E

Groundwater Sampling Forms

Groundwater Level Report

Location (Site/Facility Name): **CooperVision** Job Number:
Location (Address): **Scottsville, NY** Date:
Client: **CooperVision** Page: **/**
Weather: Temperature:

Well	Depth to Water (TOR)
MW-1	
MW-2	
MW-3	
MW-201	
MW-202	
MW-203	
MW-204	
MW-205	
OW-304	
MW-401	
MW-402	
MW-403	
MW-501	
MW-502	
OWD-302	Shallow:
	Deep:
OWS-302	Shallow:
	Deep:
OWS-303	Shallow:
	Deep:

Low-Flow Field Sampling Form

Location (Site/Facility Name): **CooperVision**

Job Number: _____
Well ID: _____
Field Crew: _____

Date: _____
Start Time: _____
Finished Time: _____
Sample Time: _____

Initial Depth to Water: _____
Well Depth: _____
Depth to top of screen: _____
Depth to bottom of screen: _____
Depth of Pump Intake: _____

Purging Device: _____
Tubing in well? _____
Tubing type: _____

Time Elapsed (minutes)	Depth to Water (TOR)	Pump Setting (gpm)	Purge Rate (mL per min.)	Cumulative Purge Volume (gallons)	Temperature (Celsius)	pH	Conductivity (ms/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	ORP/eH (mv)	Comments

Extra Parameters

CO_2 (mg/L): _____
Alkalinity: _____
Ferrous Iron (Fe+2): _____

Comments

APPENDIX F

Mann-Kendall Analysis Procedure & Example

APPENDIX F – Mann-Kendall Analysis Procedure
CooperVision, Inc.
Scottville, New York
VCA V00157-8

The following directions for implementation of the Mann-Kendall Statistical test are adapted from the following document:

"Guidance for Data Quality Assessment, Practical Methods for Data Analysis," EPA QA/G-9, QA00 Update, prepared by the United States Environmental Protection Agency, dated July 2000.

Refer to Section 4.3.4.1 of the above referenced document for further information. The directions below use existing data from the CooperVision Site for 1,1,1-trichloroethane (1,1,1-TCA) for the fall sampling events from 2002 through 2009.

An Excel calculating spreadsheet can be provided upon request from Haley & Aldrich of New York.

DATA USAGE

The Mann-Kendall Test is to be used on a rolling basis for the 10 most recent seasonal data points beginning in 2002 for the following wells and the compounds 1,1,1-trichloroethane (1,1,1-TCA), 1,1-dichloroethane (1,1-DCA), and 1,1-dichloroethene (1,1-DCE) as shown in the matrix below:

Compound	Source	Mid-Gradient			Down-Gradient	
	MW-205	MW-3	MW-501	MW-502	MW-202	MW-204
1,1,1-TCA	x	x	x	x	x	x
1,1-DCA	x	x	x	x	x	x
1,1-DCE		x	x	x	x	x

Each compound should be analyzed by season (spring & fall) separately to account for seasonal variation in trend.

ANALYTICAL PROCESS

The analytical process described below is for the Mann-Kendall Trend Test for Small Sample Sizes. This can only be used for sample sizes less than or equal to 10 (n=10).

** Note that the directions below use existing data from the CooperVision Site for 1,1,1-TCA for the spring sampling events from 2002 through 2009 as an example. The example below uses a sample size of 8 instead of 10 because as of the date of this report, 10 samples have not yet been collected seasonally (spring/fall) since 2002.*

Step 1: List the data in the order collected over time. Assign a value of half the detection limit (DL/2) to values reported as below the detection limit (DL). Construct the data in a "data matrix" as shown in the example below.

Step 2: Compute the sign of all possible differences. Place a negative sign in the matrix where the value along the x-axis of the matrix is less than the value along the y-axis, and a positive sign where the opposite is true.

Example:

Date	MW-205
Spring 2002	300
Spring 2003	320
Spring 2004	140
Spring 2005	76
Spring 2006	57
Spring 2007	41
Spring 2008	42
Spring 2009	48

Mann-Kendall Trend: MW-205 Spring

Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	300	320	140	76	57	41	42	48
300		+	-	-	-	-	-	-
320			-	-	-	-	-	-
140				-	-	-	-	-
76					-	-	-	-
57						-	-	-
41							+	+
42								+
48								

Step 3: Compute the Mann-Kendall Statistic "S," which is the number of positive signs minus the number of negative signs in the triangular table:

S= (number of + signs) – (number of - signs).

Example:

Number of - signs: 24
Number of + signs: 4

S = 4 - 24 = -20

Step 4: Calculate the probability "p" using the sample size "n" and the absolute value of "S" by comparing the values to the table (Table A) below.

Table A: Probabilities for the Small-Sample Mann Kendall Test for Trend

S	n				S	n		
	4	5	8	9		6	7	10
0	0.625	0.592	0.548	0.540	1	0.500	0.500	0.500
2	0.375	0.408	0.452	0.460	3	0.360	0.386	0.431
4	0.167	0.242	0.360	0.381	5	0.235	0.281	0.364
6	0.042	0.117	0.274	0.306	7	0.136	0.191	0.300
8		0.042	0.199	0.238	9	0.068	0.119	0.242
10		0.0083	0.138	0.179	11	0.028	0.068	0.190
12			0.089	0.130	13	0.0083	0.035	0.146
14			0.054	0.090	15	0.0014	0.015	0.108
16			0.031	0.060	17		0.0054	0.078
18			0.016	0.038	19		0.0014	0.054
20			0.0071	0.022	21		0.00020	0.036
22			0.0028	0.012	23			0.023
24			0.00087	0.0063	25			0.014
26			0.00019	0.0029	27			0.0083
28			0.000025	0.0012	29			0.0046
30				0.00043	31			0.0023
32				0.00012	33			0.0011
34				0.000025	35			0.00047
36				0.0000028	37			0.00018
					39			0.000058
					41			0.000015
					43			0.0000028
					45			0.00000028

Example:

n = 8
S = -20
p = 0.0071

Step 5: Compare the results from step 3 and 4 to the null hypotheses at the 95% confidence interval (α=0.05).

Null Hypotheses:

- **No trend with respect to an upward trend (H_1).**
  Reject H_1 if S>0, and if p<α (increasing trend).

- **No trend with respect to a downward trend (H_2).**
  Reject H_2 if S<0, and if p<α (decreasing trend).

Example:

For 1,1,1-TCA at MW-205:

S<0 (-20)
p<α (0.0071)

Therefore, reject H_2. 1,1,1-TCA is decreasing in MW-205 at the 95% confidence interval.

Mann-Kendall Analysis: Results
CooperVision, Inc.
Scottsville, New York
VCA V00157-8

	2002-2009	
	Spring	Fall
Source Area		
MW-205		
1,1,1-TCA	**Decreasing**	**Decreasing**
1,1-DCA	**Decreasing**	**No Trend**
1,1-DCE	**N/A**	**N/A**
Mid-Gradient Area		
MW-2		
1,1,1-TCA	**Decreasing**	**No Trend**
1,1-DCA	**Decreasing**	**No Trend**
1,1-DCE	**Decreasing**	**No Trend**
MW-3		
1,1,1-TCA	**Decreasing**	**Decreasing**
1,1-DCA	**Decreasing**	**Decreasing**
1,1-DCE	**Decreasing**	**Decreasing**
MW-501		
1,1,1-TCA	**No Trend**	**No Trend**
1,1-DCA	**Decreasing**	**Decreasing**
1,1-DCE	**No Trend**	**No Trend**
MW-502		
1,1,1-TCA	**No Trend**	**No Trend**
1,1-DCA	**No Trend**	**Decreasing**
1,1-DCE	**No Trend**	**No Trend**
Down-Gradient Area		
MW-202		
1,1,1-TCA	**No Trend**	**No Trend**
1,1-DCA	**No Trend**	**No Trend**
1,1-DCE	**No Trend**	**No Trend**
MW-204		
1,1,1-TCA	**No Trend**	**No Trend**
1,1-DCA	**No Trend**	**No Trend**
1,1-DCE	**Decreasing**	**No Trend**

Notes:
1. This analysis uses the Mann-Kendall test for trend. The test indicates whether or not a set of data is increasing or decreasing at a 95% degree of confidence.
2. A result of "No Trend" is an indication that the data set is not increasing or decreasing signficantly at the degree of confidence evaluated. It may indicate a stable trend, or it may indicate that the data is not sufficient to establish trend.

References:
1. EPA Practical Methods for Data Analysis, EPA QA/G-9 QA00 UPDATE, July 2000.

Mann-Kendall Analysis: Data Entry
CooperVision, Inc.
Scottsville, New York
VCA V00157-8

1,1,1-Trichloroethane

Date	MW-205	MW-2	MW-3	MW-501	MW-502	MW-202	MW-204
Spring 2002	300	2.7	8.5	*0.125 U*	*0.0125 U*	*0.0025 U*	0.01
Fall 2002	260	1.1	3.4	*0.025 U*	*0.0065 U*	*0.0025 U*	0.011
Spring 2003	320	0.29	*0.125 U*	*0.125 U*	*0.25 U*	*0.0025 U*	*0.0025 U*
Fall 2003	250	0.032	0.23	*0.0125 U*	*0.25 U*	*0.0025 U*	0.006
Spring 2004	140	*0.0125 U*	0.9	*0.0125 U*	*0.0125 U*	*0.0025 U*	0.006
Fall 2004	100	0.006	0.42	*0.0125 U*	*0.25 U*	*0.0025 U*	*0.0025 U*
Spring 2005	76	*0.0025 U*	0.23	*0.0125 U*	*0.125 U*	*0.0025 U*	*0.0025 U*
Fall 2005	80	0.067	0.17	*0.0125 U*	*0.25 U*	*0.0025 U*	*0.0025 U*
Spring 2006	57	0.0069	*0.05 U*	*0.025 U*	*0.025 U*	*0.0025 U*	*0.0025 U*
Fall 2006	62	0.032	*0.05 U*	*0.005 U*	*0.0025 U*	*0.0025 U*	0.097
Spring 2007	41	*0.0025 U*	0.14	*0.005 U*	*0.125 U*	*0.0025 U*	0.03
Fall 2007	84	*0.0025 U*	*0.05 U*	*0.0125 U*	*0.125 U*	*0.0025 U*	*0.0025 U*
Spring 2008	42	*0.0025 U*	*0.05 U*	*0.0125 U*	*0.125 U*	*0.0025 U*	*0.0025 U*
Fall 2008	57	*0.0025 U*	*0.05 U*	*0.0065 U*	*0.125 U*	*0.0025 U*	*0.0025 U*
Spring 2009	48	0.0059	*0.05 U*	*0.0125 U*	*0.125 U*	*0.0025 U*	*0.0025 U*
Fall 2009	99	*0.0125 U*	*0.05 U*	*0.0065 U*	*0.125 U*	*0.0025 U*	*0.0025 U*

1,1-Dichloroethane

Date	MW-205	MW-2	MW-3	MW-501	MW-502	MW-202	MW-204
Spring 2002	290	0.26	2.4	9.9	0.82	*0.0025 U*	0.01
Fall 2002	260	4.9	3.9	2.2	11	*0.0025 U*	0.01
Spring 2003	290	0.8	8.4	7	13	*0.0025 U*	0.006
Fall 2003	210	0.33	0.56	0.4	1.5	*0.0025 U*	0.008
Spring 2004	200	0.46	1	0.56	0.52	*0.0025 U*	0.006
Fall 2004	230	0.0088	3.1	0.6	*0.25 U*	*0.0025 U*	*0.0025 U*
Spring 2005	240	0.028	0.68	0.79	6.8	*0.0025 U*	0.0068
Fall 2005	230	0.21	1	0.49	*0.25 U*	*0.0025 U*	0.0053
Spring 2006	220	0.011	0.34	0.48	*0.025 U*	*0.0025 U*	*0.0025 U*
Fall 2006	270	0.035	0.51	0.29	0.016	*0.0025 U*	0.18
Spring 2007	230	*0.0025 U*	0.93	0.31	0.054	*0.0025 U*	0.074
Fall 2007	390	0.095	0.22	0.24	*0.125 U*	0.0064	0.007
Spring 2008	200	0.023	0.36	0.15	*0.125 U*	0.0053	0.0056
Fall 2008	200	0.014	0.36	0.09	*0.125 U*	*0.0025 U*	0.006
Spring 2009	200	0.0041	0.38	0.17	*0.125 U*	0.0093	0.0056
Fall 2009	200	0.11	0.21	0.11	*0.125 U*	0.011	0.0063

Mann-Kendall Analysis: Data Entry
CooperVision, Inc.
Scottsville, New York
VCA V00157-8

1,1-Dichloroethene

Date	MW-205	MW-2	MW-3	MW-501	MW-502	MW-202	MW-204
Spring 2002	--	0.38	2	*0.0125 U*	*0.0125 U*	*0.0025 U*	0.007
Fall 2002	--	0.88	1.4	*0.025 U*	*0.014*	*0.0025 U*	0.008
Spring 2003	--	0.17	1.2	*0.125 U*	*0.25 U*	*0.0025 U*	0.005
Fall 2003	--	0.047	0.57	*0.0125 U*	*0.25 U*	*0.0025 U*	0.005
Spring 2004	--	0.12	0.33	*0.0125 U*	*0.14 U*	*0.0025 U*	0.006
Fall 2004	--	*0.0025 U*	0.36	*0.0125 U*	*0.25 U*	*0.0025 U*	*0.0025 U*
Spring 2005	--	*0.0025 U*	0.099	*0.0125 U*	*0.125 U*	*0.0025 U*	*0.0025 U*
Fall 2005	--	*0.0125 U*	0.1	*0.0125 U*	*0.25 U*	*0.0025 U*	*0.0025 U*
Spring 2006	--	*0.0025 U*	*0.05 U*	*0.025 U*	*0.025 U*	*0.0025 U*	*0.0025 U*
Fall 2006	--	*0.0025 U*	*0.05 U*	*0.005 U*	*0.0025 U*	*0.0025 U*	0.009
Spring 2007	--	*0.0025 U*	*0.05 U*	*0.005 U*	*0.125 U*	*0.0025 U*	*0.0025 U*
Fall 2007	--	*0.0025 U*	*0.05 U*	*0.0125 U*	*0.125 U*	0.0056	0.0067
Spring 2008	--	*0.0025 U*	*0.05 U*	*0.0125 U*	*0.125 U*	*0.0025 U*	*0.0025 U*
Fall 2008	--	*0.0025 U*	*0.05 U*	*0.0065 U*	*0.125 U*	*0.0025 U*	*0.0025 U*
Spring 2009	--	*0.0025 U*	*0.05 U*	*0.0125 U*	*0.125 U*	0.005	*0.0025 U*
Fall 2009	--	*0.0125 U*	*0.05 U*	*0.0065 U*	*0.125 U*	0.0078	0.0067

Mann-Kendall Analysis: 1,1,1-TCA (2002-2009)
CooperVision, Inc.
Scottsville, New York
VCA V00157-8

Degree of Confidence (Alpha): **0.05**

MW-205

S Value

Neg	Pos
24	4
S Value	-20
n	8
P Value	0.0071
Evaluation	**Decreasing**

Mann-Kendall Trend: Spring

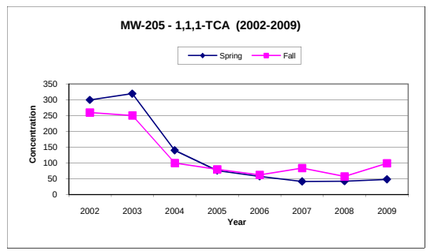
Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	300	320	140	76	57	41	42	48
300		20	-160	-224	-243	-259	-258	-252
320			-180	-244	-263	-279	-278	-272
140				-64	-83	-99	-98	-92
76					-19	-35	-34	-28
57						-16	-15	-9
41							1	7
42								6
48								

S Value

Neg	Pos
22	6
S Value	-16
n	8
P Value	0.031
Evaluation	**Decreasing**

Mann-Kendall Trend: Fall

Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	260	250	100	80	62	84	57	99
260		-10	-160	-180	-198	-176	-203	-161
250			-150	-170	-188	-166	-193	-151
100				-20	-38	-16	-43	-1
80					-18	4	-23	19
62						22	-5	37
84							-27	15
57								42
99								



MW-2

S Value

Neg	Pos
21	4
S Value	-17
n	8
P Value	0.031
Evaluation	**Decreasing**

Mann-Kendall Trend: Spring

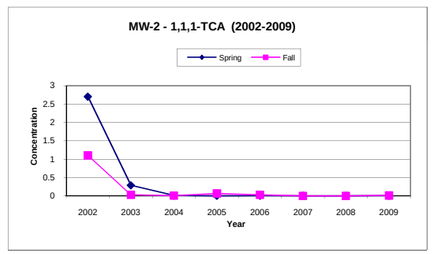
Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	2.7	0.29	0.0125	0.0025	0.0069	0.0025	0.0025	0.0059
2.7		-2.41	-2.6875	-2.6975	-2.6931	-2.6975	-2.6975	-2.6941
0.29			-0.2775	-0.2875	-0.2831	-0.2875	-0.2875	-0.2841
0.0125				-0.01	-0.0056	-0.01	-0.01	-0.0066
0.0025					0.0044	0	0	0.0034
0.0069						-0.0044	-0.0044	-0.001
0.0025							0	0.0034
0.0025								0.0034
0.0059								

S Value

Neg	Pos
20	6
S Value	-14
n	8
P Value	0.054
Evaluation	**No Trend**

Mann-Kendall Trend: Fall

Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	1.1	0.032	0.006	0.067	0.032	0.0025	0.0025	0.0125
1.1		-1.068	-1.094	-1.033	-1.068	-1.0975	-1.0975	-1.0875
0.032			-0.026	0.035	0	-0.0295	-0.0295	-0.0195
0.006				0.061	0.026	-0.0035	-0.0035	0.0065
0.067					-0.035	-0.0645	-0.0645	-0.0545
0.032						-0.0295	-0.0295	-0.0195
0.0025							0	0.01
0.0025								0.01
0.0125								



MW-3

S Value

Neg	Pos
21	4
S Value	-17
n	8
P Value	0.031
Evaluation	**Decreasing**

Mann-Kendall Trend: Spring

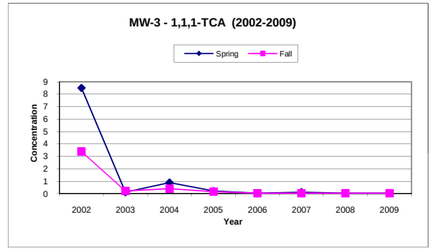
Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	8.5	0.125	0.9	0.23	0.05	0.14	0.05	0.05
8.5		-8.375	-7.6	-8.27	-8.45	-8.36	-8.45	-8.45
0.125			0.775	0.105	-0.075	0.015	-0.075	-0.075
0.9				-0.67	-0.85	-0.76	-0.85	-0.85
0.23					-0.18	-0.09	-0.18	-0.18
0.05						0.09	0	0
0.14							-0.09	-0.09
0.05								0
0.05								

S Value

Neg	Pos
21	1
S Value	-20
n	8
P Value	0.0071
Evaluation	**Decreasing**

Mann-Kendall Trend: Fall

Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	3.4	0.23	0.42	0.17	0.05	0.05	0.05	0.05
3.4		-3.17	-2.98	-3.23	-3.35	-3.35	-3.35	-3.35
0.23			0.19	-0.06	-0.18	-0.18	-0.18	-0.18
0.42				-0.25	-0.37	-0.37	-0.37	-0.37
0.17					-0.12	-0.12	-0.12	-0.12
0.05						0	0	0
0.05							0	0
0.05								0
0.05								



MW-501

S Value

Neg	Pos
17	4
S Value	-13
n	8
P Value	0.089
Evaluation	**No Trend**

Mann-Kendall Trend: Spring

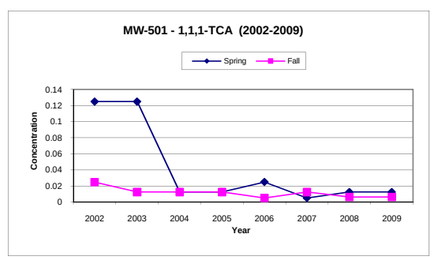
Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	0.125	0.125	0.0125	0.0125	0.025	0.005	0.0125	0.0125
0.125		0	-0.1125	-0.1125	-0.1	-0.12	-0.1125	-0.1125
0.125			-0.1125	-0.1125	-0.1	-0.12	-0.1125	-0.1125
0.0125				0	0.0125	-0.0075	0	0
0.0125					0.0125	-0.0075	0	0
0.025						-0.02	-0.0125	-0.0125
0.005							0.0075	0.0075
0.0125								0
0.0125								

S Value

Neg	Pos
18	3
S Value	-15
n	8
P Value	0.054
Evaluation	**No Trend**

Mann-Kendall Trend: Fall

Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	0.025	0.0125	0.0125	0.0125	0.005	0.0125	0.0065	0.0065
0.025		-0.0125	-0.0125	-0.0125	-0.02	-0.0125	-0.0185	-0.0185
0.0125			0	0	-0.0075	0	-0.006	-0.006
0.0125				0	-0.0075	0	-0.006	-0.006
0.0125					-0.0075	0	-0.006	-0.006
0.005						0.0075	0.0015	0.0015
0.0125							-0.006	-0.006
0.0065								0
0.0065								



Mann-Kendall Analysis: 1,1,1-TCA (2002-2009)
CooperVision, Inc.
Scottsville, New York
VCA V00157-8

MW-502

S Value

Neg	Pos
7	14
S Value	7
n	8
P Value	0.274
Evaluation	**No Trend**

Mann-Kendall Trend: Spring

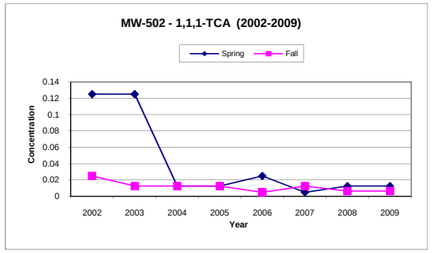
Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	0.0125	0.25	0.0125	0.125	0.025	0.125	0.125	0.125
0.0125		0.2375	0	0.1125	0.0125	0.1125	0.1125	0.1125
0.25			-0.2375	-0.125	-0.225	-0.125	-0.125	-0.125
0.0125				0.1125	0.0125	0.1125	0.1125	0.1125
0.125					-0.1	0	0	0
0.025						0.1	0.1	0.1
0.125							0	0
0.125								0
0.125								

S Value

Neg	Pos
18	3
S Value	-15
n	8
P Value	0.054
Evaluation	**No Trend**

Mann-Kendall Trend: Fall

Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	0.025	0.0125	0.0125	0.0125	0.005	0.0125	0.0065	0.0065
0.025		-0.0125	-0.0125	-0.0125	-0.02	-0.0125	-0.0185	-0.0185
0.0125			0	0	-0.0075	0	-0.006	-0.006
0.0125				0	-0.0075	0	-0.006	-0.006
0.0125					-0.0075	0	-0.006	-0.006
0.005						0.0075	0.0015	0.0015
0.0125							-0.006	-0.006
0.0065								0
0.0065								



MW-202

S Value

Neg	Pos
0	0
S Value	0
n	8
P Value	0.548
Evaluation	**No Trend**

Mann-Kendall Trend: Spring

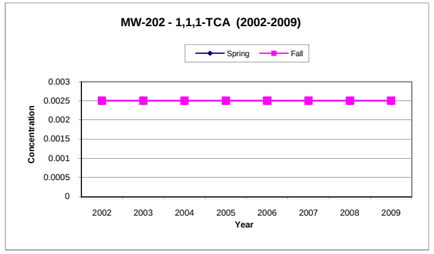
Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
0.0025		0	0	0	0	0	0	0
0.0025			0	0	0	0	0	0
0.0025				0	0	0	0	0
0.0025					0	0	0	0
0.0025						0	0	0
0.0025							0	0
0.0025								0
0.0025								

S Value

Neg	Pos
0	0
S Value	0
n	8
P Value	0.548
Evaluation	**No Trend**

Mann-Kendall Trend: Fall

Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
0.0025		0	0	0	0	0	0	0
0.0025			0	0	0	0	0	0
0.0025				0	0	0	0	0
0.0025					0	0	0	0
0.0025						0	0	0
0.0025							0	0
0.0025								0
0.0025								



MW-204

S Value

Neg	Pos
12	6
S Value	-6
n	8
P Value	0.274
Evaluation	**No Trend**

Mann-Kendall Trend: Spring

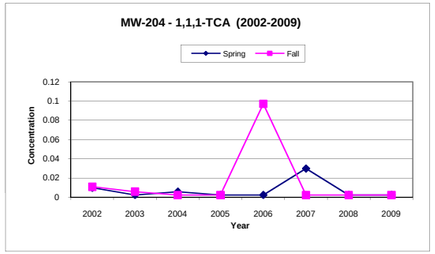
Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	0.01	0.0025	0.006	0.0025	0.0025	0.03	0.0025	0.0025
0.01		-0.0075	-0.004	-0.0075	-0.0075	0.02	-0.0075	-0.0075
0.0025			0.0035	0	0	0.0275	0	0
0.006				-0.0035	-0.0035	0.024	-0.0035	-0.0035
0.0025					0	0.0275	0	0
0.0025						0.0275	0	0
0.03							-0.0275	-0.0275
0.0025								0
0.0025								

S Value

Neg	Pos
14	4
S Value	-10
n	8
P Value	0.138
Evaluation	**No Trend**

Mann-Kendall Trend: Fall

Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	0.011	0.006	0.0025	0.0025	0.097	0.0025	0.0025	0.0025
0.011		-0.005	-0.0085	-0.0085	0.086	-0.0085	-0.0085	-0.0085
0.006			-0.0035	-0.0035	0.091	-0.0035	-0.0035	-0.0035
0.0025				0	0.0945	0	0	0
0.0025					0.0945	0	0	0
0.097						-0.0945	-0.0945	-0.0945
0.0025							0	0
0.0025								0
0.0025								



Mann-Kendall Analysis: 1,1-DCA (2002-2009)
CooperVision, Inc.
Scottsville, New York
VCA V00157-8

Degree of Confidence (Alpha): **0.05**

MW-205

S Value

Neg	Pos
20	4
S Value	-16
n	8
P Value	0.031
Evaluation	**Decreasing**

Mann-Kendall Trend: Spring

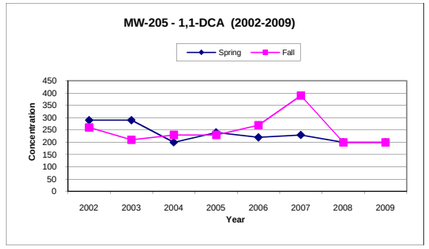
Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	290	290	200	240	220	230	200	200
290		0	-90	-50	-70	-60	-90	-90
290			-90	-50	-70	-60	-90	-90
200				40	20	30	0	0
240					-20	-10	-40	-40
220						10	-20	-20
230							-30	-30
200								0
200								

S Value

Neg	Pos
15	11
S Value	-4
n	8
P Value	0.36
Evaluation	**No Trend**

Mann-Kendall Trend: Fall

Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	260	210	230	230	270	390	200	200
260		-50	-30	-30	10	130	-60	-60
210			20	20	60	180	-10	-10
230				0	40	160	-30	-30
230					40	160	-30	-30
270						120	-70	-70
390							-190	-190
200								0
200								



MW-2

S Value

Neg	Pos
23	5
S Value	-18
n	8
P Value	0.016
Evaluation	**Decreasing**

Mann-Kendall Trend: Spring

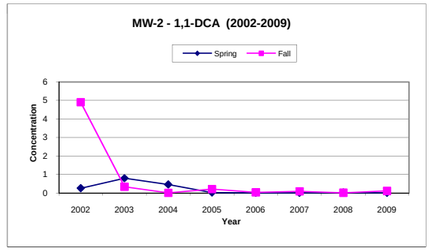
Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	0.26	0.8	0.46	0.028	0.011	0.0025	0.023	0.0041
0.26		0.54	0.2	-0.232	-0.249	-0.2575	-0.237	-0.2559
0.8			-0.34	-0.772	-0.789	-0.7975	-0.777	-0.7959
0.46				-0.432	-0.449	-0.4575	-0.437	-0.4559
0.028					-0.017	-0.0255	-0.005	-0.0239
0.011						-0.0085	0.012	-0.0069
0.0025							0.0205	0.0016
0.023								-0.0189
0.0041								

S Value

Neg	Pos
19	9
S Value	-10
n	8
P Value	0.138
Evaluation	**No Trend**

Mann-Kendall Trend: Fall

Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	4.9	0.33	0.0088	0.21	0.035	0.095	0.014	0.11
4.9		-4.57	-4.8912	-4.69	-4.865	-4.805	-4.886	-4.79
0.33			-0.3212	-0.12	-0.295	-0.235	-0.316	-0.22
0.0088				0.2012	0.0262	0.0862	0.0052	0.1012
0.21					-0.175	-0.115	-0.196	-0.1
0.035						0.06	-0.021	0.075
0.095							-0.081	0.015
0.014								0.096
0.11								



MW-3

S Value

Neg	Pos
22	6
S Value	-16
n	8
P Value	0.031
Evaluation	**Decreasing**

Mann-Kendall Trend: Spring

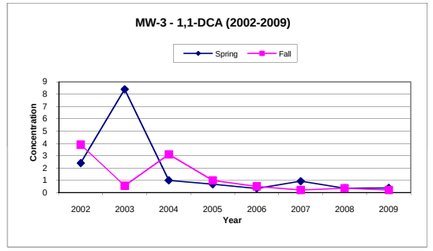
Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	2.4	8.4	1	0.68	0.34	0.93	0.36	0.38
2.4		6	-1.4	-1.72	-2.06	-1.47	-2.04	-2.02
8.4			-7.4	-7.72	-8.06	-7.47	-8.04	-8.02
1				-0.32	-0.66	-0.07	-0.64	-0.62
0.68					-0.34	0.25	-0.32	-0.3
0.34						0.59	0.02	0.04
0.93							-0.57	-0.55
0.36								0.02
0.38								

S Value

Neg	Pos
25	3
S Value	-22
n	8
P Value	0.0028
Evaluation	**Decreasing**

Mann-Kendall Trend: Fall

Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	3.9	0.56	3.1	1	0.51	0.22	0.36	0.21
3.9		-3.34	-0.8	-2.9	-3.39	-3.68	-3.54	-3.69
0.56			2.54	0.44	-0.05	-0.34	-0.2	-0.35
3.1				-2.1	-2.59	-2.88	-2.74	-2.89
1					-0.49	-0.78	-0.64	-0.79
0.51						-0.29	-0.15	-0.3
0.22							0.14	-0.01
0.36								-0.15
0.21								



MW-501

S Value

Neg	Pos
26	2
S Value	-24
n	8
P Value	0.00087
Evaluation	**Decreasing**

Mann-Kendall Trend: Spring

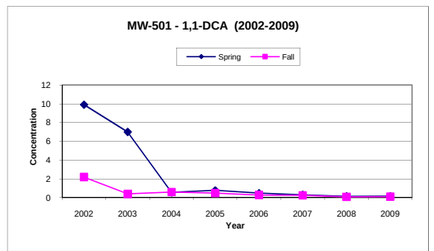
Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	9.9	7	0.56	0.79	0.48	0.31	0.15	0.17
9.9		-2.9	-9.34	-9.11	-9.42	-9.59	-9.75	-9.73
7			-6.44	-6.21	-6.52	-6.69	-6.85	-6.83
0.56				0.23	-0.08	-0.25	-0.41	-0.39
0.79					-0.31	-0.48	-0.64	-0.62
0.48						-0.17	-0.33	-0.31
0.31							-0.16	-0.14
0.15								0.02
0.17								

S Value

Neg	Pos
25	3
S Value	-22
n	8
P Value	0.0028
Evaluation	**Decreasing**

Mann-Kendall Trend: Fall

Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	2.2	0.4	0.6	0.49	0.29	0.24	0.09	0.11
2.2		-1.8	-1.6	-1.71	-1.91	-1.96	-2.11	-2.09
0.4			0.2	0.09	-0.11	-0.16	-0.31	-0.29
0.6				-0.11	-0.31	-0.36	-0.51	-0.49
0.49					-0.2	-0.25	-0.4	-0.38
0.29						-0.05	-0.2	-0.18
0.24							-0.15	-0.13
0.09								0.02
0.11								



Mann-Kendall Analysis: 1,1-DCA (2002-2009)
CooperVision, Inc.
Scottsville, New York
VCA V00157-8

MW-502

S Value

Neg	Pos
19	8
S Value	-11
n	8
P Value	0.138
Evaluation	**No Trend**

Mann-Kendall Trend: Spring

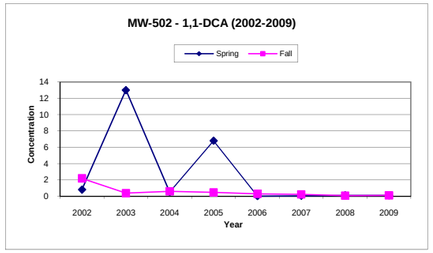
Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	0.82	13	0.52	6.8	0.025	0.054	0.125	0.125
0.82		12.18	-0.3	5.98	-0.795	-0.766	-0.695	-0.695
13			-12.48	-6.2	-12.975	-12.946	-12.875	-12.875
0.52				6.28	-0.495	-0.466	-0.395	-0.395
6.8					-6.775	-6.746	-6.675	-6.675
0.025						0.029	0.1	0.1
0.054							0.071	0.071
0.125								0
0.125								

S Value

Neg	Pos
25	3
S Value	-22
n	8
P Value	0.0028
Evaluation	**Decreasing**

Mann-Kendall Trend: Fall

Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	2.2	0.4	0.6	0.49	0.29	0.24	0.09	0.11
2.2		-1.8	-1.6	-1.71	-1.91	-1.96	-2.11	-2.09
0.4			0.2	0.09	-0.11	-0.16	-0.31	-0.29
0.6				-0.11	-0.31	-0.36	-0.51	-0.49
0.49					-0.2	-0.25	-0.4	-0.38
0.29						-0.05	-0.2	-0.18
0.24							-0.15	-0.13
0.09								0.02
0.11								



MW-202

S Value

Neg	Pos
0	13
S Value	13
n	8
P Value	0.089
Evaluation	**No Trend**

Mann-Kendall Trend: Spring

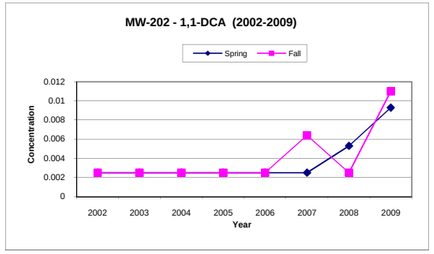
Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0053	0.0093
0.0025		0	0	0	0	0	0.0028	0.0068
0.0025			0	0	0	0	0.0028	0.0068
0.0025				0	0	0	0.0028	0.0068
0.0025					0	0	0.0028	0.0068
0.0025						0	0.0028	0.0068
0.0025							0.0028	0.0068
0.0053								0.004
0.0093								

S Value

Neg	Pos
1	12
S Value	11
n	8
P Value	0.138
Evaluation	**No Trend**

Mann-Kendall Trend: Fall

Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	0.0025	0.0025	0.0025	0.0025	0.0025	0.0064	0.0025	0.011
0.0025		0	0	0	0	0.0039	0	0.0085
0.0025			0	0	0	0.0039	0	0.0085
0.0025				0	0	0.0039	0	0.0085
0.0025					0	0.0039	0	0.0085
0.0025						0.0039	0	0.0085
0.0064							-0.0039	0.0046
0.0025								0.0085
0.011								



MW-204

S Value

Neg	Pos
17	9
S Value	-8
n	8
P Value	0.199
Evaluation	**No Trend**

Mann-Kendall Trend: Spring

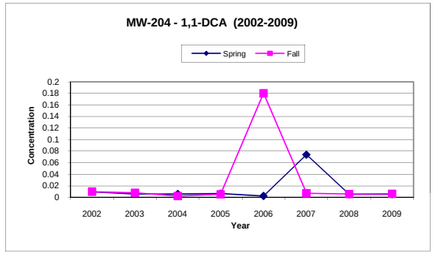
Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	0.01	0.006	0.006	0.0068	0.0025	0.074	0.0056	0.0056
0.01		-0.004	-0.004	-0.0032	-0.0075	0.064	-0.0044	-0.0044
0.006			0	0.0008	-0.0035	0.068	-0.0004	-0.0004
0.0068				0.0008	-0.0035	0.068	-0.0004	-0.0004
0.0025					-0.0043	0.0672	-0.0012	-0.0012
0.074						0.0715	0.0031	0.0031
0.0056							-0.0684	-0.0684
0.0056								0

S Value

Neg	Pos
16	12
S Value	-4
n	8
P Value	0.36
Evaluation	**No Trend**

Mann-Kendall Trend: Fall

Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	0.01	0.008	0.0025	0.0053	0.18	0.007	0.006	0.0063
0.01		-0.002	-0.0075	-0.0047	0.17	-0.003	-0.004	-0.0037
0.008			-0.0055	-0.0027	0.172	-0.001	-0.002	-0.0017
0.0025				0.0028	0.1775	0.0045	0.0035	0.0038
0.0053					0.1747	0.0017	0.0007	0.001
0.18						-0.173	-0.174	-0.1737
0.007							-0.001	-0.0007
0.006								0.0003
0.0063								



Mann-Kendall Analysis: 1,1-DCE (2002-2009)
CooperVision, Inc.
Scottsville, New York
VCA V00157-8

Degree of Confidence (Alpha): **0.05**

MW-205

S Value

Neg	Pos
0	0
S Value	0
n	0
P Value	#VALUE!
Evaluation	**#VALUE!**

Mann-Kendall Trend: Spring

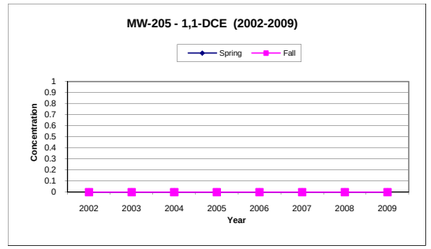
Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0
			0	0	0	0	0	0
				0	0	0	0	0
					0	0	0	0
						0	0	0
							0	0
								0

S Value

Neg	Pos
0	0
S Value	0
n	0
P Value	#VALUE!
Evaluation	**#VALUE!**

Mann-Kendall Trend: Fall

Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0
			0	0	0	0	0	0
				0	0	0	0	0
					0	0	0	0
						0	0	0
							0	0
								0



MW-2

S Value

Neg	Pos
18	0
S Value	-18
n	8
P Value	0.016
Evaluation	**Decreasing**

Mann-Kendall Trend: Spring

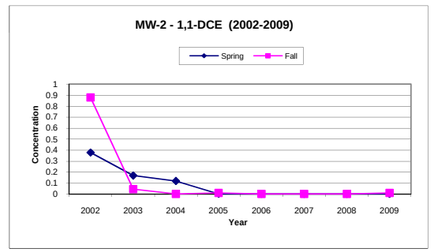
Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	0.38	0.17	0.12	0.0025	0.0025	0.0025	0.0025	0.0025
0.38		-0.21	-0.26	-0.3775	-0.3775	-0.3775	-0.3775	-0.3775
0.17			-0.05	-0.1675	-0.1675	-0.1675	-0.1675	-0.1675
0.12				-0.1175	-0.1175	-0.1175	-0.1175	-0.1175
0.0025					0	0	0	0
0.0025						0	0	0
0.0025							0	0
0.0025								0
0.0025								

S Value

Neg	Pos
16	5
S Value	-11
n	8
P Value	0.138
Evaluation	**No Trend**

Mann-Kendall Trend: Fall

Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	0.88	0.047	0.0025	0.0125	0.0025	0.0025	0.0025	0.0125
0.88		-0.833	-0.8775	-0.8675	-0.8775	-0.8775	-0.8775	-0.8675
0.047			-0.0445	-0.0345	-0.0445	-0.0445	-0.0445	-0.0345
0.0025				0.01	0	0	0	0.01
0.0125					-0.01	-0.01	-0.01	0
0.0025						0	0	0.01
0.0025							0	0.01
0.0025								0.01
0.0125								



MW-3

S Value

Neg	Pos
22	0
S Value	-22
n	8
P Value	0.0028
Evaluation	**Decreasing**

Mann-Kendall Trend: Spring

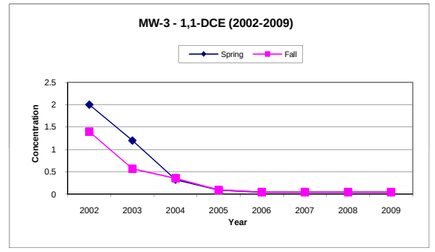
Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	2	1.2	0.33	0.099	0.05	0.05	0.05	0.05
2		-0.8	-1.67	-1.901	-1.95	-1.95	-1.95	-1.95
1.2			-0.87	-1.101	-1.15	-1.15	-1.15	-1.15
0.33				-0.231	-0.28	-0.28	-0.28	-0.28
0.099					-0.049	-0.049	-0.049	-0.049
0.05						0	0	0
0.05							0	0
0.05								0
0.05								

S Value

Neg	Pos
22	0
S Value	-22
n	8
P Value	0.0028
Evaluation	**Decreasing**

Mann-Kendall Trend: Fall

Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	1.4	0.57	0.36	0.1	0.05	0.05	0.05	0.05
1.4		-0.83	-1.04	-1.3	-1.35	-1.35	-1.35	-1.35
0.57			-0.21	-0.47	-0.52	-0.52	-0.52	-0.52
0.36				-0.26	-0.31	-0.31	-0.31	-0.31
0.1					-0.05	-0.05	-0.05	-0.05
0.05						0	0	0
0.05							0	0
0.05								0
0.05								



MW-501

S Value

Neg	Pos
12	6
S Value	-6
n	8
P Value	0.274
Evaluation	**No Trend**

Mann-Kendall Trend: Spring

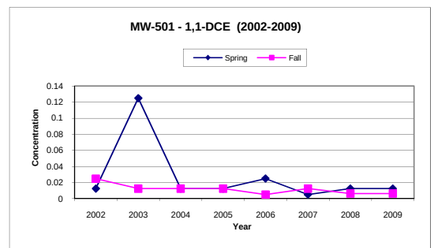
Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	0.0125	0.125	0.0125	0.0125	0.025	0.005	0.0125	0.0125
0.0125		0.1125	0	0	0.0125	-0.0075	0	0
0.125			-0.1125	-0.1125	-0.1	-0.12	-0.1125	-0.1125
0.0125				0	0.0125	-0.0075	0	0
0.0125					0.0125	-0.0075	0	0
0.025						-0.02	-0.0125	-0.0125
0.005							0.0075	0.0075
0.0125								0
0.0125								

S Value

Neg	Pos
18	3
S Value	-15
n	8
P Value	0.054
Evaluation	**No Trend**

Mann-Kendall Trend: Fall

Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	0.025	0.0125	0.0125	0.0125	0.005	0.0125	0.0065	0.0065
0.025		-0.0125	-0.0125	-0.0125	-0.02	-0.0125	-0.0185	-0.0185
0.0125			0	0	-0.0075	0	-0.006	-0.006
0.0125				0	-0.0075	0	-0.006	-0.006
0.0125					-0.0075	0	-0.006	-0.006
0.005						0.0075	0.0015	0.0015
0.0125							-0.006	-0.006
0.0065								0
0.0065								



Mann-Kendall Analysis: 1,1-DCE (2002-2009)
CooperVision, Inc.
Scottsville, New York
VCA V00157-8

MW-502

S Value

Neg	Pos
12	10
S Value	-2
n	8
P Value	0.452
Evaluation	**No Trend**

Mann-Kendall Trend: Spring

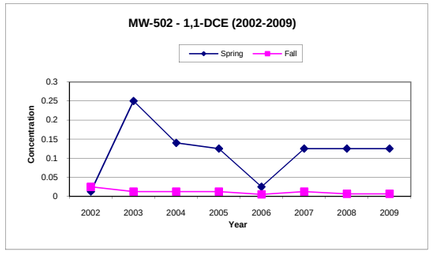
Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	0.0125	0.25	0.14	0.125	0.025	0.125	0.125	0.125
0.0125		0.2375	0.1275	0.1125	0.0125	0.1125	0.1125	0.1125
0.25			-0.11	-0.125	-0.225	-0.125	-0.125	-0.125
0.14				-0.015	-0.115	-0.015	-0.015	-0.015
0.125					-0.1	0	0	0
0.025						0.1	0.1	0.1
0.125							0	0
0.125								0
0.125								

S Value

Neg	Pos
18	3
S Value	-15
n	8
P Value	0.054
Evaluation	**No Trend**

Mann-Kendall Trend: Fall

Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	0.025	0.0125	0.0125	0.0125	0.005	0.0125	0.0065	0.0065
0.025		-0.0125	-0.0125	-0.0125	-0.02	-0.0125	-0.0185	-0.0185
0.0125			0	0	-0.0075	0	-0.006	-0.006
0.0125				0	-0.0075	0	-0.006	-0.006
0.0125					-0.0075	0	-0.006	-0.006
0.005						0.0075	0.0015	0.0015
0.0125							-0.006	-0.006
0.0065								0
0.0065								



MW-202

S Value

Neg	Pos
0	7
S Value	7
n	8
P Value	0.274
Evaluation	**No Trend**

Mann-Kendall Trend: Spring

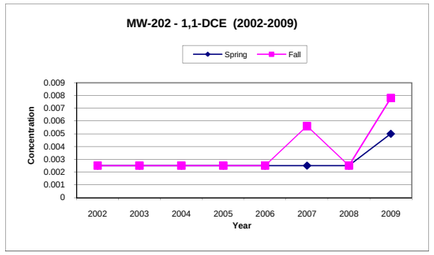
Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.005
0.0025		0	0	0	0	0	0	0.0025
0.0025			0	0	0	0	0	0.0025
0.0025				0	0	0	0	0.0025
0.0025					0	0	0	0.0025
0.0025						0	0	0.0025
0.0025							0	0.0025
0.0025								0.0025
0.005								

S Value

Neg	Pos
1	12
S Value	11
n	8
P Value	0.138
Evaluation	**No Trend**

Mann-Kendall Trend: Fall

Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	0.0025	0.0025	0.0025	0.0025	0.0025	0.0056	0.0025	0.0078
0.0025		0	0	0	0	0.0031	0	0.0053
0.0025			0	0	0	0.0031	0	0.0053
0.0025				0	0	0.0031	0	0.0053
0.0025					0	0.0031	0	0.0053
0.0025						0.0031	0	0.0053
0.0056							-0.0031	0.0022
0.0025								0.0053
0.0078								



MW-204

S Value

Neg	Pos
17	1
S Value	-16
n	8
P Value	0.031
Evaluation	**Decreasing**

Mann-Kendall Trend: Spring

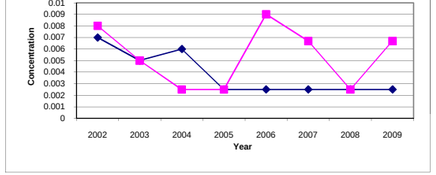
Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	0.007	0.005	0.006	0.0025	0.0025	0.0025	0.0025	0.0025
0.007		-0.002	-0.001	-0.0045	-0.0045	-0.0045	-0.0045	-0.0045
0.005			0.001	-0.0025	-0.0025	-0.0025	-0.0025	-0.0025
0.006				-0.0035	-0.0035	-0.0035	-0.0035	-0.0035
0.0025					0	0	0	0
0.0025						0	0	0
0.0025							0	0
0.0025								0
0.0025								

S Value

Neg	Pos
13	11
S Value	-2
n	8
P Value	0.452
Evaluation	**No Trend**

Mann-Kendall Trend: Fall

Year	2002	2003	2004	2005	2006	2007	2008	2009
Data	0.008	0.005	0.0025	0.0025	0.009	0.0067	0.0025	0.0067
0.008		-0.003	-0.0055	-0.0055	0.001	-0.0013	-0.0055	-0.0013
0.005			-0.0025	-0.0025	0.004	0.0017	-0.0025	0.0017
0.0025				0	0.0065	0.0042	0	0.0042
0.0025					0.0065	0.0042	0	0.0042
0.009						-0.0023	-0.0065	-0.0023
0.0067							-0.0042	0
0.0025								0.0042
0.0067								



APPENDIX G

Quality Assurance Project Plan

QUALITY ASSURANCE PROJECT PLAN

COOPERVISION INCORPORATED FACILITY
711 NORTH ROAD
SCOTTSVILLE, NEW YORK

by

Haley & Aldrich of New York
Rochester, New York

for

CooperVision, Inc.
Scottsville, New York

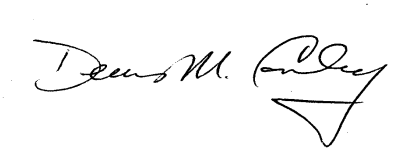
File No. 70665-017
May 2010

Quality Assurance Project Plan

TITLE: Quality Assurance Project Plan

Prepared By/Date: Claire L. Mondello/May 2010

Approved By/Date:



6/16/2010

Haley & Aldrich QA Officer — Date

6/16/2010

Haley & Aldrich, Project Manager — Date

Section	Revision	Date
1	2	06/2010
2	1	05/2010
3	1	05/2010
4	1	05/2010
5	1	05/2010
6	1	05/2010
7	1	05/2010
8	1	05/2010
9	2	06/2010
10	1	05/2010
11	1	05/2010
12	1	05/2010
13	1	05/2010
14	1	05/2010

Date of Issue: June 2010

Supersedes No.: ALL Copy #:

EXECUTIVE SUMMARY

This Quality Assurance Project Plan (QAPP) presents the organization, objectives, planned activities, and specific quality assurance / quality control (QA/QC) procedures for the ongoing groundwater monitoring conducted in accordance with the New York State Department of Environmental Conservation (NYSDEC) approved Site Management Plan (SMP) for the CooperVision Inc. facility located at 711 North Road, Scottsville, New York ("the Site") .

Protocols for sample collection, sample handling and storage, chain-of-custody procedures, and laboratory and field analyses are described or specifically referenced to NYSDEC approved related investigation documents.

This QAPP incorporates the QA/QC elements prescribed by the New York Code of Rules and Regulations (6 NYCRR) Part 375 Environmental Remediation Programs, 14 December 2006; and NYSDEC Division of Environmental Remediation, DRAFT DER-10 Technical Guidance for Site Investigation and Remediation, 25 December 2002. The QA/QC procedures described in this QAPP have also been developed to be consistent with current NYSDEC technical and administrative guidance memoranda (TAGM).

TABLE OF CONTENTS

LIST OF TABLES

1. INTRODUCTION

This Quality Assurance Project Plan (QAPP) has been prepared on behalf of CooperVision, Inc. (CooperVision). The QAPP is a component of the NYSDEC Site Management Plan (SMP) that also includes a Sampling and Analysis Plan (SAP) and a Site-Specific Health and Safety Plan (HASP).

1.1 Project Objectives

The primary objectives for data collection activities include:

- Monitor and evaluate the areal and vertical extent of contaminants in groundwater at or potentially emanating from the Site;
- Evaluate the surface and subsurface characteristics of the Site, including depth to groundwater;
- Evaluate soil quality for potential removal and disposition offsite.

Associated specific objectives for field and laboratory data collection are discussed in Section 1.4 of this plan.

1.1.1 Project Status/Phase

The project status and approach are presented in the Site Management Plan. The objectives of the ongoing Site monitoring include the following:

- Monitor the stability of the groundwater impacted by chlorinated solvents down gradient of the Site,
- Monitor the degradation of chlorinated solvents in the source area of the Site, and;
- If necessary, evaluate soil quality for removal and disposition offsite, and/or quality of offsite backfill for placement onsite.

1.1.2 QAPP Preparation Guidelines

This QAPP was prepared in accordance with guidance provided by:

- NYSDEC 6 NYCRR Part 375 Environmental Remediation Programs, 14 December 2006,
- NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, 3 May 2010, and:
- QA/QC procedures described in relevant NYSDEC Technical and Administrative Guidance Memoranda.

1.2 Site Description

The general Site description is provided in Section 1.2.1 of the Site Management Plan (SMP) and is incorporated herein by reference.

Site Location	SMP Figure 1
Site Plan	SMP Figure 2

1.3 Site History

The Site history is provided in Section 1.2.2 of the SMP and incorporated herein by reference.

Site History SMP Section 1.2.2

1.4 Project Objectives and Intended Data Use

The objective and intended data uses include:

1.4.1 Target Parameter List

The investigative program includes the sampling and analysis of environmental media for the presence of volatile organic compounds (VOCs) and/or enhanced bioremediation parameters based on current and historical operations at the Site. The field and laboratory parameters are summarized below and presented in Table 1.

1.4.1.1 Laboratory Parameters

The laboratory parameters for groundwater analysis will include target compound list (TCL) volatile organic compounds (VOC), dissolved gases (methane, ethane, and ethene), anions (sulfate, sulfide, nitrate, nitrite, chloride, and alkalinity), cations (ferrous and total iron), and metabolic acids (lactic, acetic, pyruvic, butyric, and propionic).

The basis for the laboratory parameters is provided in Section 3 of the SMP. In addition evaluation procedures for the enhanced bioremediation parameters to be collected from selected monitoring well locations is described in Section 3.3.2 of the SMP:

The laboratory parameters for analysis of off-site soil for use as backfill on-site include TCL VOCs, TCL semi-volatile organic compounds, target analyte list (TAL) metals, total PCBs, and pesticides, the basis for which is provided in Section 2.5.11 of the SMP. The laboratory parameters for analysis of on-site soil for removal and offsite disposal will be prescribed by the requirements of the receiving facility.

1.4.1.2 Field Parameters

Concurrent with sample collection, several field parameters will be determined by the field sampling personnel.

For soils and solid matrices, the field parameters will include visual observations, odor identification, and VOC screening using handheld monitoring equipment (i.e. Photo-ionization Detector [PID]). For groundwater samples, at a minimum, pH, specific conductivity, and temperature will be determined with field testing equipment.. Additionally, turbidity, dissolved oxygen (DO), and oxidation/reduction potential (ORP) will be collected during low-flow parameters groundwater sampling at selected monitoring well locations.

1.5 Sampling Locations

The SMP provides a summary and rationale for the monitoring locations of the collection of groundwater samples at the Site. Sampling locations may be adjusted depending on the encountered field conditions. The Field Project Coordinator will be responsible for making such decisions as described in Section 2 of this QAPP. Any change of the sampling procedures will be implemented after approval is received from the NYSDEC Project Manager.

1.6 Project Schedule

The groundwater monitoring schedule is described in Section 3.3.2 of the SMP. Implementation of the groundwater monitoring program will continue until the NYSDEC or other relevant regulatory agency approves a written request for termination of the program.

1.7 Data Quality Objectives (DQO)

Preliminary Data Quality Objectives (DQO) were identified to ensure that the data generated during the groundwater monitoring program will be of adequate quality and sufficient quantity for decision making purposes relative to the above objectives. Data quality objectives have been specified for each data collection activity or investigation.

The analytical levels for the project are defined as follows:

- Field Screening

  This level is characterized by the use of field instruments and field chemical kits that can provide real-time data to assist in the optimization of sampling point locations and for health and safety support. This data can be used in refining sampling plans and determining the extent or presence or absence of chemical constituents at a site. Field screening will also be used in the analysis of groundwater parameters to assess equilibration to fresh aquifer conditions during purging of a well prior to sampling and for evaluation of conditions relative to the potential for natural attenuation of contaminants. Groundwater field parameters assessed using field screening includes pH, dissolved oxygen, oxidation-reduction potential, conductivity, turbidity, alkalinity, carbon dioxide, and temperature.

- Laboratory Analysis Using NYSDEC Approved Methods and Protocols

  This level involves the use of a) New York State Department of Health (NYSDOH) Analytical Services Protocol (ASP) methods and protocols for the analysis of environmental media, and b)

U.S. EPA methods promulgated in the Test Methods for Evaluating Solid Waste (SW-846) or other standard methods of analysis approved by the NYSDEC. ASP Category B Deliverables are typically used for site characterization, environmental monitoring, and to support engineering feasibility studies. For this project, ASP Category B deliverables will only be collected upon NYSDEC request, as required to define the nature and extent of contamination and to verify the completion of Site remediation (i.e. – prior to cessation of the groundwater monitoring program).

- Laboratory Analysis Using Methods and Protocols Other Than ASP

This level involves the use of standard EPA SW-846 approved methods. Methods are generally equivalent to ASP methods, but may have different QA/QC protocols. This level of data will be reported without the extended-deliverables requirements of ASP Category B. Semi-annual monitoring sample analysis, and soil confirmation sample analysis will be conducted at this level unless otherwise requested by the NYSDEC.

- Non-Standard Methods

Analyses may require method modification and/or development. Non-Standard Methods are used to provide data that cannot be obtained through the use of standard methods. Analysis of samples at this level may involve research, development, and documentation of a new method or the modification of an existing method of analysis.

1.7.1 Groundwater Monitoring Program

1.7.1.1 Data Uses

The groundwater monitoring program is designed to generate hydrogeologic and water quality data to support the following evaluations:

1. Evaluate groundwater quality at the Site.

2. Evaluate the groundwater and surface flow directions and hydraulic conditions at the Site.

The groundwater data will also be used to assess trends associated with chemical constituents detected in the groundwater samples and to evaluate remedial effectiveness and alternatives, if necessary.

1.7.1.2 Data Types

Hydrogeologic and water quality data are required to meet the objectives of the groundwater monitoring program. Hydrogeologic data will consist of water level information from monitoring wells. Water quality data will consist of field parameters, including: pH, temperature, conductivity, ORP and DO, and laboratory parameters including VOC, inorganic constituents (i.e ferrous iron). QA/QC samples such as trip blanks (VOC only), matrix spike/matrix spike duplicates (MS/MSD), field blanks, and field duplicate samples will be collected if requested by the NYSDEC Project Manager.

1.7.1.3 Data Deliverables

Standard laboratory reports with batch QC sample analyses (i.e. Method Blanks and LCS) will be used for the off-site laboratory analysis of groundwater samples. NYSDEC ASP Category B deliverables will be provided upon NYSDEC request, and to verify the success of remediation (i.e. – prior to cessation of the monitoring program).

Field screening will be used for the groundwater elevation measurements and water quality field parameters.

1.7.1.4 Sample Quality

The monitoring program will include the collection of groundwater elevation measurements and representatives samples from existing monitoring wells. The quantity of groundwater samples to be collected for the monitoring program is identified in the SMP. QA/QC samples such as trip blanks, matrix spike/matrix spike duplicates (MS/MSD), field blanks, and duplicates will not be collected unless requested by the NYSDEC.

1.7.1.5 Sampling and Analytical Methods

The groundwater level measurement procedures, water quality measurement procedures, and groundwater sampling procedures are described in Section 3.3 of the SMP. The laboratory analytical methods for groundwater samples are listed in Table 1 of this QAPP.

1.7.1.6 PARCCS Parameters

Data representativeness is addressed by the SMP. Data comparability is achieved through the use of standard USEPA/NYSDEC-approved methods, which are presented in Table 1. Data completeness will be assessed in yearly Periodic Review Reports submitted to the NYSDEC.

1.7.2 Soil Sampling and Analysis

1.7.2.1 Data Uses

The soil sampling program is designed to generate data to support the following evaluations:

1. Determine the presence and concentration of chemical constituents in excavated soils intended for offsite disposal.

2. Determine the presence and concentration of chemical constituents in soils intended for use as onsite backfill and/or cover material.

1.7.2.2 Data Types

The soil sampling and analysis program will include the collection and analysis of samples for compounds of interest to classify excavated soils for offsite disposal and/or for use onsite as backfill/cover. The SMP describes the rationale for the chemical analysis parameters. QA/QC samples such as trip blanks, matrix spike/matrix spike duplicates (MS/MSD), field blanks, and duplicates will be collected if requested by the NYSDEC. Visual examination and PID/FID screening of soil samples will also be conducted to select soil samples for laboratory analysis as described in the SMP.

1.7.2.3 Data Deliverables

Standard laboratory reports with batch QC sample analyses (i.e. Method Blanks and LCS) will be used for the off-site laboratory analysis of soil samples. NYSDEC ASP Category B deliverables will be provided upon NYSDEC request, and to verify the success of remediation (i.e. – prior to cessation of the monitoring program).

Field Screening will be used for soil sample quality measurements.

1.7.2.4 Sample Quality

The quantity of soil samples to be collected will be determined as described in the SMP based on the intended use of the soil, landfill requirements, and source material. QA/QC samples such as trip blanks, matrix spike/matrix spike duplicates (MS/MSD), field blanks, and duplicates will be collected unless requested by the NYSDEC.

1.7.2.5 Sampling and Analytical Methods

Section 2 of the SMP contains a description of the soil sampling procedures to be employed during Site activities.

1.7.2.6 PARCCS Parameters

Data representativeness is addressed by the SMP. Data comparability is achieved through the use of standard USEPA/NYSDEC-approved methods, which are presented in Table I. Data completeness will be assessed in yearly Periodic Review Reports submitted to the NYSDEC.

2. PROJECT ORGANIZATION AND RESPONSIBILITIES

This section defines the roles and responsibilities of the individuals who will perform the site monitoring activities. The CooperVision Project Manager will have the primary responsibility for implementation of the SMP. The selected analytical laboratory will perform the analyses of environmental samples collected at the Site.

2.1 Management Responsibilities

Project direction and oversight will be provided by CooperVision personnel. Haley & Aldrich of New York ("Consultant"), on behalf of CooperVision, will have overall responsibility for the SMP activities to be implemented at the Site. Consultant personnel will perform the groundwater, soil investigation, and sub-slab vapor evaluations, and interim remedial activities as necessary. In addition, the Consultant will be responsible for evaluating field and laboratory data and preparing the Periodic Review Reports as specified in the SMP. The key project personnel are as follows.

Project Title	Company/Organization	Name	Phone Number
CooperVision Project Manager	CooperVision, Inc.	Bernie Hallatt	(585) 264-3222
Project Officer (Consultant)	Haley & Aldrich of New York	Vincent B. Dick	(585) 321-4207
Project Manager	Haley & Aldrich of New York	Mark Ramsdell	(585) 321-4262

2.1.1 Task Managers

The staff performing the investigations and engineering activities of the SMP site monitoring will be directed by representatives of the Consultant. The personnel responsible for each of the monitoring tasks are as follows:

Project Title	Company/Organization	Name	Phone Number
Soil Evaluation Task Manager	Haley & Aldrich of New York	Mark Ramsdell	(585) 321-4262
Groundwater Monitoring Task Manager	Haley & Aldrich of New York	Mark Ramsdell	(585) 321-4262
Health and Safety Manager	Haley & Aldrich of New York	Margaret Holt	(585) 321-4214

2.1.2 Analytical Laboratory Services

Laboratory analytical services for environmental samples associated with the monitoring program will be provided by Columbia Analytical Services, Inc., an NYSDOH ELAP approved environmental laboratory located in Rochester, New York.

Title	Company/Organization	Name	Phone Number
Laboratory Project Manager	Columbia Analytical Services	Karen Bunker	(585) 288-5380

2.1.3 Quality Assurance Staff

The quality assurance staff is site-specific and will be determined prior to implementing the site monitoring activities.

Title	Company/Organization	Name	Phone Number
Quality Assurance Officer (Consultant)	Haley & Aldrich of NY	Denis Conley	(585) 321-4245
Quality Assurance Officer (Analytical Laboratory)	Columbia Analytical Services	TBD	TBD

2.2 Team Member Responsibilities

This section of the QAPP discussed the responsibilities and duties of the project team members.

2.2.1 CooperVision, Inc.

- Project Manager

Responsibilities and duties include:

1. Overall direction of the site monitoring activities.
2. Direction of the Consultant
3. Review of the Consultant's work products, including data, memoranda, letters, and reports.

2.2.2 Consultant

- Project Officer

Responsibilities and duties include:

1. Oversight of the Consultant's site monitoring and SMP work products
2. Provide the Consultant's approval for major project deliverables

- Project Manager

Responsibilities and duties include:

1. Management and coordination of all aspects of the project as defined in the site-specific SMP with an emphasis on adhering to the objectives of the SMP
2. Review the Periodic Review Reports and all documents prepared by the Consultant
3. Assure corrective actions are taken for deficiencies cited during audits of SMP activities

- Task Managers

The site monitoring will be managed by Task Managers. Responsibilities and duties of each Task Manager include:

1. Manage day-to-day relevant SMP activities
2. Develop, establish, and maintain files on relevant SMP activities
3. Review data reductions from the relevant SMP activities
4. Perform final data review of field data reductions and reports on relevant SMP activities
5. Assure corrective actions are taken for deficiencies cited during audits of relevant SMP activities
6. Overall QA/QC of the relevant portions of the SMP activities.
7. Review all relevant field records and logs
8. Instruct personnel working on relevant SMP activities
9. Coordinate field and laboratory schedules pertaining to relevant SMP activities
10. Request sample bottles from the laboratory
11. Review the field instrumentation, maintenance, and calibration to meet quality objectives
12. Prepare sections of the Periodic Review Report pertaining to relevant SMP activities
13. Maintain field and laboratory files of notebooks and logs, data reduction and calculations, and transmit originals to the Project Manager

- Field Personnel

Responsibilities and duties include:

1. Perform field procedures associated with the soil, groundwater, and subsurface structure investigations as set forth in the SMP.
2. Perform field analyses and collect samples
3. Calibrate, operate, and maintain field equipment
4. Collect field data and environmental media for laboratory analysis
5. Maintain sample custody
6. Prepare field records and logs

- Quality Assurance officer (QAO)

Responsibilities and duties include:

1. Review laboratory data packages
2. Oversee and interface with the analytical laboratory
3. Coordinate field QA/QC activities with task managers, including audits of sampling activities, concentrating on field analytical measurements and practices to meet data quality objectives
4. Review field reports
5. Prepare audit reports
6. Prepare interim QA/QC compliance reports
7. Prepare QA/QC report which includes an evaluation of field and laboratory data and data validation reports

2.2.3 Analytical Laboratory

General responsibilities and duties of the analytical laboratory include:

1. Perform sample analyses and associated laboratory QA/QC procedures
2. Supply sampling containers and shipping cartons
3. Maintain laboratory custody of sample
4. Strictly adhere to all protocols in the SMP/QAPP

- Project Manager

Responsibilities and duties include:

1. Serve as primary communication link between the Consultant and laboratory technical staff
2. Monitor work loads and ensure availability of resources
3. Oversee preparation of analytical reports
4. Supervise in-house chain-of-custody

- Quality Assurance Officer

Responsibilities and duties include:

1. Supervise the group which reviews and inspects all project-related laboratory activities
2. Conduct audits of all laboratory activities

- Sample Custodian

Responsibilities and duties include:

1. Receive all samples

2. Maintain custody of the samples and all documentation

- Laboratory Data Reviewer

Responsibilities and duties include:

1. Verify final analytical data prior to transmittal to the Consultant

2.2.4 Subcontractor (If Required)

General responsibilities and duties include:

1. Performance of repairs to the Site groundwater monitoring wells in accordance with the protocols stated in the SMP.
2. Decontamination of drilling equipment.

3. QUALITY ASSURANCE OBJECTIVES FOR MEASURABLE DATA

The SMP and associated QAPP are designed to produce data of the quality necessary to achieve the project objectives and meet or exceed the minimum standard requirements for field and analytical methods. The QAPP program will include the following:

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

The following section is a general discussion of the criteria used to measure the field and laboratory analytical data quality.

3.1 Precision

Precision is a measure of the reproducibility of sample results. The goal is to maintain a level of analytical precision consistent with the objectives of the SMP. To maximize precision, all work for the SMP will adhere to established protocols presented in this QAPP and the SMP. Checks for analytical precision will include the analysis of matrix spike, matrix spike duplicates, laboratory duplicates, and field duplicates. Checks for field measurement precision will include obtaining duplicate field measurements.

3.2 Accuracy

Accuracy is a measure of how close a measured result is to the true value. Both field and analytical accuracy will be monitored through initial and continuing calibration of instruments. In addition, reference standards, laboratory control samples (LCS), and surrogate compounds will be used to assess the accuracy of the analytical data. Site-specific QA/QC samples such as trip blanks, matrix spike/matrix spike duplicates (MS/MSD), field blanks, and duplicates will be collected if requested by the NYSDEC.

3.3 Representativeness

Representativeness is the degree to which sampling data accurately and precisely represent site conditions, and is dependent on sampling and analytical variability and the variability of environmental media at the Site. The SMP will be designed to assess the presence of the chemical constituents at the time of sampling. The SMP will present the rationale for sample quantities and location. The SMP and this QAPP present field sampling methodologies and laboratory analytical methodologies, respectively. The use of the prescribed field and laboratory analytical methods with associated holding times and preservation requirements are intended to provide representative data.

3.4 Completeness

Completeness is defined as a measure of the amount of valid data obtained from an event and/or investigation compared to the total amount that was obtained. This will be determined upon final assessment of the analytical results, as discussed in this QAPP.

3.5 Comparability

Comparability is the degree of confidence with which one data set can be compared to another. Comparability between phases of the SMP will be maintained through consistent use of the sampling and analytical methodologies set forth in this QAPP and the SMP, as well as through the use of established QA/QC procedures; and the utilization of appropriately trained personnel.

3.6 Decision Rules

3.6.1 Definition

The decision rule is a statement that prescribes a course of action or non-action to be taken, based on assumptions to test its logical and empirical consequences.

3.7 Level of Quality Control Effort

Equipment rinse, trip and method blank samples; field and laboratory duplicate samples; and laboratory control and matrix spike samples may be prepared and analyzed to determine the data quality provided by the sampling and analysis activities conducted during execution of the SMP monitoring program. With the exception of trip blanks, the QA/QC samples listed above will be collected or analyzed upon request by the NYSDEC.A trip blank will be prepared and analyzed during groundwater monitoring events.

Equipment rinse blanks may be prepared by field personnel and submitted for analysis of target parameters. Equipment rinse blank samples will be analyzed to check for contamination of equipment used during sampling events at the Site. One (1) equipment rinseate will be collected for each type of non-dedicated field equipment used for sampling.

Trip blanks are used to assess the potential for contamination during sample storage and shipment. The trip blank consists of organic-free water and provided by the laboratory with the sample containers to be used for the sampling and analysis of volatile organic compounds (VOC). Trip blanks will be preserved and handled in the same manner as the investigation samples. One (1) trip blank will be included with each sample cooler containing project samples to be analyzed for VOC.

Method blank samples will be prepared by the laboratory and analyzed concurrently with all project samples to assess potential contamination introduced during the analytical process.

Laboratory control and/or matrix spike samples provide information to assess the precision and accuracy of the analysis of the target parameters within the environmental media collected at the Site.

One (1) MS/MSD may be collected for every twenty (20) or fewer investigative samples per sample matrix. Soil MS/MSD samples require a triple (3X) sample volume for VOC. Aqueous MS/MSD samples require triple the normal sample volume for VOC analysis and double (2X) the volume for the remaining parameters. If requested by the NYSDEC, laboratory control samples (LCS) will be prepared and analyzed by the laboratory as part of each analytical batch. The results of LCS analyses performed concurrently with the project samples will be evaluated to qualify the reported sample results.

Field duplicate samples are analyzed to check for sampling and analytical reproducibility. One (1) field duplicate may be collected for each matrix per sampling event.

4. SAMPLING PROCEDURES

Soil and groundwater samples will be collected as described in the SMP. Section 2.5 – Excavation Plan and Section 3.3 – Groundwater Monitoring Program contain detailed procedures for: measuring groundwater levels; performing field measurements; collection of samples; and handling, packing, and shipping of samples.

5. CUSTODY PROCEDURES

Custody is one of several factors necessary for the integrity of environmental data. Custody procedures help to satisfy the two major requirements for assuring sample integrity: relevance and authenticity. Sample custody is addressed in three parts: field sample collection, laboratory analysis and final project files. Final project files, including all originals of laboratory reports, are maintained under document control in a secure area.

Custody of a sample begins when it is collected by or transferred to an individual and ends when that individual relinquishes or disposes of the sample. A sample or project file is under your custody if:

1. the item is in actual possession of a person;

2. the item is in the view of the person after being in actual possession of the person;

3. the item was in actual possession but is stored to prevent tampering; or

4. the item is in a designated and identified secure area.

5.1 Field Custody Procedures

Field personnel will keep written records of field activities on applicable preprinted field forms. The written records provide the means of recording data collecting activities. These records will be written legibly in ink and will contain pertinent field data and observations. Entry errors or changes will be crossed out with a single line, dated and initialed by the person making the correction. Field forms and notebooks will be periodically reviewed by the Project Manager and/or Quality Assurance (QA) Officer.

Preprinted field form will contain the following information:

- Date
- Start time
- Weather
- Names of field personnel (including subcontractors)
- Level of personal protection used at the Site
- Names of all visitors and the purpose of their visit.

For each measurement and sample collected the following will be recorded:

- Detailed description of sample point
- Equipment used to collect sample or make measurement and the date equipment was last calibrated if applicable
- Time sample was collected
- Sample description
- Depth sample was collected
- Volume and number of containers

- Sampler identification

5.1.1 Field Procedures

The data quality can be affected by sample collection activities. If the integrity of collected samples is questionable, the data, regardless of its analytical quality, will also be questionable. The following procedure describes the process to maintain the integrity of the samples:

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

- Samples will be assigned a unique sample number and will be affixed to a sample label.

- Samples will be properly and appropriately preserved by field personnel in order to minimize loss of the constituent(s) of interest due to physical, chemical or biological mechanisms. Sample aliquots that require preservation (pH adjustment) will be checked with pH paper at the time of sample receipt by the laboratory. If required, additional preservative will be added at the laboratory. Samples for VOC analysis will be collected in pre-preserved containers.

Appropriate volumes will be collected to ensure that the Target Quantification Limit (TQL) can be successfully achieved and that the required QC Sample Analyses can be completed.

5.1.2 Transfer of Custody and Shipment Procedures

- A chain-of-custody (COC) record will be completed at the time of sample collection and will accompany each shipment identifying the contents of the shipment. The COC record will accompany the samples to the laboratory. The field personnel collecting the samples will be responsible for the custody of the samples until the samples are relinquished to the laboratory. Sample transfer will require the individuals relinquishing and receiving the samples to sign, date and note the time of sample transfer on the COC record.

- Samples will be shipped or delivered in a timely fashion to the laboratory so that holding-times and/or analysis times as prescribed by the methodology can be met.

- Samples will be transported in containers (coolers) which will maintain the refrigeration temperature for those parameters for which refrigeration is required in the prescribed preservation protocols. Samples will be packaged for shipment and shipped to the appropriate laboratory for analysis with a separate signed chain-of-custody record enclosed in a zip top bag in each sample cooler.

- Water VOC samples will be placed in bubble wrap bags that contain three containers per bag while soil VOC samples will be placed in sealed sample jars. The remaining samples in glass containers will be wrapped in bubble wrap and placed in the sample cooler.

- Samples in polyethylene containers will be placed upright directly in the sample cooler. All samples will be placed in an upright position and limited to one layer of samples per each cooler. Additional bubble wrap or packaging material will be added to fill the cooler. Shipping containers will be secured with strapping tape for shipment to the laboratory.

- If samples are shared with the NYSDEC representatives, a separate chain-of-custody will be prepared for the samples and marked to indicate with whom the samples are being shared. The person relinquishing the samples to the NYSDEC will require the representative's signature acknowledging sample receipt.

- If samples are sent by a commercial carrier, a bill of lading will be used. A copy of the bill of lading will be retained as part of permanent documentation. Commercial carriers are not required to sign the custody record as long as the custody record is sealed inside the sample cooler and the custody tape remains intact.

- Samples will be picked up by a laboratory courier or mailed overnight the same day they are collected unless collected on a weekend or holiday. In these cases, the samples will be stored in a secure location until delivery to the lab. Additional ice will be added to the cooler as needed to maintain proper preservation temperatures.

5.2 Laboratory Chain of Custody Procedures

A full-time sample custodian will be assigned the responsibility of sample control. It will be the responsibility of the sample custodian to receive all incoming samples. Once received, the custodian will document that the custody tape on the coolers is intact, that each sample is received in good condition (i.e., unbroken, cooled, etc.) and that the associated paperwork, such as chain-of-custody forms have been completed correctly. The custodian will sign the chain-of-custody forms. The custodian will also document that sufficient sample volume has been received to complete the analytical program. The sample custodian will then place the samples into secure, limited access storage (refrigerated storage, if required). The sample custodian will assign a unique number to each incoming sample for use in the laboratory. The unique number will then be entered into the sample-receiving log. The laboratory date of receipt will also be noted.

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

5.3 Storage of Samples

Empty sample bottles will be returned to secure and limited access storage after the available volume has been consumed by the analysis. Upon completion of the entire analytical work effort, samples will be disposed of by the sample custodian. The length of time that samples are held will be at least thirty (30) days after final reports have been issued. Disposal of remaining samples will be completed in compliance with all Federal, State and local requirements.

Laboratory custody procedures and document control for those samples analyzed by the project laboratory will be carried out using the laboratory's standard operating procedures.

5.4 Final Project Files Custody Procedures

The final project file will be the central repository for all documents with information relevant to sampling and analysis activities as described in this QAPP. The Haley & Aldrich Project Manager will be the custodian of the project file. The project files for the SMP, including all relevant records, reports, logs, field notebooks, pictures, subcontractor reports and data reviews will be maintained in a secured, limited access area and under custody of the Project Director or his designee.

The final project file will include the following:

- Project plans and drawings
- Field data records
- Sample identification documents and soil boring/monitoring well logs
- All chain-of-custody documentation
- Correspondence
- References, literature
- Laboratory data deliverables
- Data validation and assessment reports
- Progress reports, QA reports
- Final report

The laboratory will be responsible for maintaining analytical logbooks, laboratory data and sample chain of custody documents. Raw laboratory data files and copies of hard copy reports will be inventoried and maintained by the laboratory for a period of six (6) years at which time the laboratory will contact the Haley & Aldrich Project Manager regarding the disposition of the project related files.

6. CALIBRATION PROCEDURES AND FREQUENCY

6.1 Field Instrument Calibration Procedures

Several field instruments will be used for both on-site screening of samples and for health and safety air monitoring, as described in the Health and Safety Plan (HASP). Soil samples will be pre-screened during groundwater well installation with a Photoionization Detector (PID). Procedures utilized for performing and documenting calibration and maintenance for the field equipment used to measure conductivity, temperature, dissolved oxygen, pH, groundwater level, surface water flow rates, and organic vapors are followed according to manufactures specifications. Calibration checks will be performed daily when measuring conductivity, temperature, dissolved oxygen, pH, and total organic vapors. Field instruments will be calibrated at the beginning of each day and checked at least once during field activities to verify performance. Instrument specific calibration procedures are performed in accordance with the instrument manufacturer's requirements.

6.2 Laboratory Instrument Calibration Procedures

Instrument calibration will follow the specifications provided by the instrument manufacturer or specific analytical method used. The analytical methods for chemical constituents are identified in the section below.

7. ANALYTICAL PROCEDURES

Field analytical procedures will include the measurement of temperature, conductivity, dissolved oxygen, pH, turbidity, organic vapors, and groundwater levels. Specific field measurement protocols are provided in the SMP.

7.1 Field Analytical Procedures

Field analytical procedures include the measurement of pH/temperature, specific conductivity, oxidation/reduction potential, dissolved oxygen, and turbidity during sampling of groundwater, and the qualitative measurement of Volatile Organic Compounds (VOCs) in soil samples.

7.2 Laboratory Analytical Procedures

Laboratory analyses will include the measurement of OLM 4.2 Target Compound List (TCL) VOCs, metabolic acids, dissolved gases, anions (sulfate, sulfide, nitrate, nitrite, chloride, alkalinity), and cations (ferrous and total iron) in groundwater. Soil samples being analyzed for offsite disposition will be analyzed based on the applicable disposal requirements. Soil samples being analyzed for onsite use will be analyzed for VOCs, semi-volatile organic compounds (SVOCs), metals, cyanide, polychlorinated biphenyls (PCBs), and pesticides. Refer to the SMP for sampling and analysis requirements. Laboratory analysis will be based on the U.S. EPA methodology requirements promulgated in:

- "Test Methods for Evaluating Solid Waste," SW-846 Third Edition, EPA Office of Solid Waste, and promulgated updates, 1986.
- "Analytical Services Protocol," New York State Department of Environmental Conservation, 1989 with applicable revisions and promulgated updates.

The target quantitation limits (TQLs) and associated method detection limits (MDLs) for the target analytes and compounds for the environmental media to be analyzed as part of the investigation will be determined based on EPA requirements and can be provided upon request.

7.2.1 List of Project Target Compounds and Laboratory Detection Limits

Laboratory detection limits have been experimentally determined by the project laboratory using the method provided in 40 CFR Part 136 Appendix B. A complete list of project target compounds and project quantitation limits for each analyte group can be provided upon request from the laboratory.

7.2.2 List of Method Specific Quality Control (QC) Criteria

The laboratory SOPs include a section that presents the minimum QC requirements for the project analyses. Laboratory SOPs by the laboratory will be provided upon request by the NYSDEC Project Manager.

8. INTERNAL QUALITY CONTROL CHECKS

This section presents the internal quality control checks that will be employed for field and laboratory measurements.

8.1 Field Quality Control

8.1.1 Equipment Rinsate Blanks

Internal quality control checks may include analysis of equipment blanks to validate successful equipment cleaning activities. Whenever possible, dedicated equipment will be employed to reduce the possibility of cross-contamination of samples.

Equipment rinse blanks will not be collected unless requested by the NYSDEC. If required, one (1) equipment rinse sample will be prepared for each type of non-dedicated field equipment used on which decontamination procedures have been performed for the sampling event.

8.1.2 Trip Blanks

Trip blanks samples will be prepared by the project laboratory using ASTM Type II or equivalent water placed within pre-cleaned 40 milliliter (ml) VOC vials equipped with teflon septa. Trip blanks will accompany each sample delivery group (SDG) of environmental samples collected for analysis of VOC.

Trip blank samples will be placed in each cooler that stores and transports project samples that are to be analyzed for VOC.

8.2 Laboratory Procedures

Procedures which contribute to maintenance of overall laboratory quality assurance and control include appropriately cleaned sample containers, proper sample identification and logging, applicable sample preservation, storage and analysis within prescribed holding times, and use of controlled materials.

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

8.2.1 Field Duplicate Samples

The precision or reproducibility of the data generated will be monitored through the use of field duplicate samples. Field duplicate samples will not be collected unless requested by the NYSDEC. If required, field duplicate analysis will be performed at a frequency of one duplicate per 10 investigative samples of each sample matrix.

Precision will be measured in terms of the absolute value of the relative percent difference (RPD) as expressed by the following equation:

$$RPD = \frac{\left| \frac{R1 - R2}{(R1 + R2)} \right|}{2} X100\%$$

Acceptance criteria for duplicate analyses performed on solid matrices will be 50 % and aqueous matrices will be 30%. RPD values outside these limits will require an evaluation of the sampling and/or analysis procedures by the project QA Officer and/or laboratory QA Director. Corrective actions may include re-analysis of additional sample aliquots and/or qualification of the data for use in the site monitoring findings.

8.2.2 Matrix Spike Samples

Matrix spike samples will not be collected unless requested by the NYSDEC. If required, ten percent of each project sample matrix for each analytical method performed will be spiked with known concentrations of the specific target compounds/analytes.

The amount of the compound recovered from the sample compared to the amount added will be expressed as a percent recovery. The percent recovery of an analyte is an indication of the accuracy of an analysis within the site specific sample matrix. Percent recovery will be calculated for MS/MSD using the following equation.

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

If the quality control value falls outside the control limits (UCL or LCL) due to sample matrix effects, the results will be reported with appropriate data qualifiers. To determine the effect non-compliant MS recoveries have on the reported results, the recovery data will be evaluated as part of the validation process.

8.2.3 Laboratory Control Sample (LCS) Analyses

The laboratory will perform LCS analyses prepared from Standard Reference Materials (SRMs). The SRMs will be supplied from an independent manufacturer and traceable to NIST materials with known concentrations of each target analyte to be determined by the analytical methods performed. In cases where an independently supplied SRM is not available, the LCS may be prepared by the laboratory from a reagent lot other than that used for instrument calibration.

The laboratory will evaluate LCS analyses in terms of percent recovery using the most recent laboratory generated control limits. LCS recoveries that do not meet acceptance criteria will be evaluated further. Corrective actions will be initiated by the Haley & Aldrich QA Officer and/or

laboratory QA officer to investigate the problem. The analytical anomaly will be noted in the sample delivery group (SDG) Case Narrative and reviewed by the independent data validator. The data validator will confirm that appropriate corrective actions were implemented and recommend the applicable use of the affected data.

8.2.4 Surrogate Compound/Internal Standard Recoveries

For VOC analyses, surrogates will be added to each sample prior to analysis to establish purge and trap efficiency. The recovery of surrogate compounds and internal standards will be monitored by laboratory personnel to assess possible site-specific matrix effects on instrument performance.

Method specific quality control (QC) limits are provided in the attached laboratory method SOPs. Surrogate compound/internal standard recoveries that do not fall within accepted QC limits for the analytical methodology performed will have the analytical results flagged with data qualifiers as appropriate by the laboratory and will not noted in the laboratory report Case Narrative.

To ascertain the effect non-compliant surrogate compound/internal standard recoveries may have on the reported results, the recovery data will be evaluated as part of the validation process. The data validator will provide recommendations for corrective actions including but not limited to additional data qualification.

8.2.5 Calibration Verification Standards

Calibration verification (CV) standards will be utilized to confirm instrument calibrations and performance throughout the analytical process. CV standards will be prepared as prescribed by the respective analytical protocols. Continuing calibration will be verified by compliance with method-specific criteria prior to additional analysis of project samples. Non-compliant analysis of CV standards will require immediate corrective action by the project laboratory QA officer and/or designated personnel. Corrective action may include re-analysis of each affected project sample, a detailed description of the problem, the corrective action undertaken, the person who performed the action, and the resolution of the problem.

8.2.6 Laboratory Method Blank Analyses

Method blank sample analysis will be performed as part of each analytical batch for each methodology performed. If target compounds are detected in the method blank samples, the reported results will be flagged by the laboratory in accordance with standard operating procedures. The data validator will provide recommendations for corrective actions including but not limited to additional data qualification.

9. DATA REDUCTION, VALIDATION AND REPORTING

All data generated through field activities or by the laboratory operation shall be reduced and validated prior to reporting in accordance with the following procedures:

9.1 Data Reduction

9.1.1 Field Data Reduction Procedures

Field data reduction procedures will be minimal in scope compared to those implemented in the laboratory setting. Only direct read instrumentation will be employed in the field. The pH, conductivity, temperature, oxidation/reduction potential, dissolved oxygen, turbidity and PID readings collected in the field will be generated from direct read instruments following calibration per manufacturer's recommendations. Alkalinity, ferrous iron (Fe^{2+}), and carbon dioxide (CO_2) will be measured using applicable field kits utilized in accordance with manufacture's recommendations. Such data will be written into field forms immediately after measurements are taken. If errors are made, results will be legibly crossed out, initialed and dated by the field member, and corrected in a space adjacent to the original entry.

9.1.2 Laboratory Data Reduction Procedures

Quality control data (e.g., laboratory duplicates, surrogates, matrix spikes, and matrix spike duplicates), if requested by the NYSDEC, will be compared to the method acceptance criteria. Data considered to be acceptable will be entered into the laboratory computer system. Data summaries will be sent to the Laboratory QA Officer for review. If approved, data are logged into the project database format. Unacceptable data shall be appropriately qualified in the project report.

9.2 Data Validation

Data validation procedures shall be performed for both field and laboratory operations as described below:

9.2.1 Procedures Used to Evaluate Field Data

Procedures to evaluate field data for this project will include review of field forms and checking for transcription errors to project specific documents. This task will be the responsibility of the QAO/Project Manager.

9.2.2 Procedures to Validate Laboratory Data

Validation of the analytical data will be performed by the Haley & Aldrich QA Officer or designee using the following documents as guidance for the review process:

- USEPA National Functional Guidelines for Low Concentration Organic Data Review

(EPA 540-R-00-006),

- USEPA National Functional Guidelines for Inorganic Data Review (EPA 540-R-04-004), and
- USEPA Guidance on Environmental Data Verification and Data Validation (EPA QA/G-8).

The specific data qualifiers used will be as presented and defined in the National Functional Guidelines. Validation will be performed by qualified personnel at the direction of the Haley & Aldrich QA Officer. The completeness of each data package will be evaluated by the Data Validator.

At a minimum, deliverables will include sample chain-of-custody forms and analytical results.

9.3 Data Reporting

Data reporting procedures shall be carried out for field and laboratory operations as indicated below:

9.3.1 Field Data Reporting

Field data reporting shall be conducted principally through the transmission of report sheets containing tabulated results of all measurements made in the field and documentation of all field calibration activities.

9.3.2 Laboratory Data Reporting

The laboratory data reporting package will be sufficient to perform data validation in accordance with protocols described in Section 9.2.2.

The laboratory Project Manager will perform a final review of the QC data summary packages and case narratives to determine whether the report meets the project requirements. The lab report will include the chain of custody. A QC Summary package and Sample Data Package as prescribed by the New York State Department of Conservation Analytical Services Protocol Category B is not required unless requested by the NYSDEC.

Results of data validation will be included in the Periodic Review Reports as referenced in Section 2.7 of the Site Management Plan. Validation of data deliverables other than those prepared as prescribed by the ASP Category B will be provided in a Data Assessment Report. In the event that ASP Category B deliverables are requested, validation results will be provided in a Data Usability Summary Report (DUSR) consistent with NYSDEC DER-10.

10. PERFORMANCE AND SYSTEM AUDITS

A performance audit is an independent quantitative comparison with data routinely obtained in the field or the laboratory. Performance audits include two separate, independent parts: internal and external audits.

10.1 Field Performance and System Audits

10.1.1 Internal Field Audit Responsibilities

Internal audits of field activities include the review of sampling and field measurements conducted by the Project Manager or designee. The audits verify that procedures prescribed in the SMP are being followed. Internal field audits will be conducted during each phase of the sampling project. The audits include examination of the following:

- Field sampling records, screening results, instrument operating records
- Sample collection
- Handling and packaging in compliance with procedures
- Maintenance of QA procedures
- Chain-of-custody reports

Follow up audits may be conducted to correct deficiencies and to verify that procedures are maintained throughout the investigation.

10.1.2 External Field Audit Responsibilities

External audits may be conducted by the Project Coordinator at any time during the field operations. These audits may or may not be announced and are at the discretion of the NYSDEC. The external field audits can include (but are not limited to) the following:

- Sampling equipment decontamination procedures
- Sample bottle preparation procedures
- Sampling procedures
- Examination of health and safety plans
- Procedures for verification of field duplicates
- Field screening practices

10.2 Laboratory Performance and System Audits

10.1.3 Internal Laboratory Audit Responsibilities

The laboratory system audits may be conducted by the Project QA Officer or designee and performed on an annual basis. Laboratory performance audits may be conducted prior to field activities or on an annual basis, depending on the duration of the project. The performance audits

include submittal of blind performance evaluation samples. The Project QA Officer will evaluate the analytical results to ensure the laboratory is maintaining acceptable QC performance.

System audits, as opposed to performance audits, are strictly qualitative and consist of an on-site review of a laboratory's quality assurance system and physical facilities for calibration and measurement.

The system audit includes an examination of laboratory documentation including: sample receiving logs, sample storage, chain-of-custody procedures, sample preparation and analysis and instrument operating records.

At the conclusion of internal or external system audits, reports may be provided to the laboratory's operating divisions for appropriate comment and remedial/corrective action where necessary. The Laboratory QA Officer will maintain written response to internal as well as external audits.

10.1.4 External Laboratory Audit Responsibilities

External audits may be conducted as required, by appropriate QA personnel of NYSDEC.

External audits may include any of the following:

- Review of laboratory analytical procedures
- Laboratory on-site visits
- Submission of performance evaluation samples for analysis

11. PREVENATIVE MAINTENANCE

11.1 Field Instrument Preventive Maintenance

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

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

The maintenance responsibilities for field equipment will be assigned to the task leaders in charge of specific field operations. Field personnel will be responsible for daily field checks and calibrations and for reporting any problems with the equipment. The maintenance schedule will follow the manufacturer's recommendations. In addition, the field personnel will be responsible for determining that critical spare parts are included with the field equipment. An adequate inventory of spare parts will be maintained. The inventory will primarily contain parts that are subject to frequent failure, have limited useful lifetimes and/or cannot be obtained in a timely manner.

11.2 Laboratory Instrument Preventive Maintenance

Analytical instruments at the laboratory will undergo routine and/or preventive maintenance. The extent of the preventive maintenance will be a function of the complexity of the equipment.

Generally, annual preventive maintenance service will involve cleaning, adjusting, inspecting and testing procedures designed to deduce instrument failure and/or extend useful instrument life. Between visits, routine operator maintenance and cleaning will be performed according to manufacturer's specifications by laboratory personnel.

Maintenance records will be placed on file at the laboratory and can be made available upon request.

12. SPECIFIC ROUTINE PROCEDURES USED TO ASSESS DATA PRECISION, ACCURACY, AND COMPLETENESS

12.1 Field Measurements

Field generated information such as pH and specific conductance data will be reviewed for validity. The review will be performed by the Project Manager or QA Officer and typically include bound forms, data entry and calculation checks. The accuracy of pH and specific conductance will be assessed using daily instrument calibration, calibration check, and blank data. Accuracy will be measured by determining the percent recovery of calibration check standards. Precision of the measurements will be assessed on the basis of the reproducibility of duplicate readings of a single sample and will be measured by determining the relative percent difference (RPD) of the readings.

12.2 Laboratory Data

Surrogate, internal standard and matrix spike recoveries will be evaluated so trends in data quality can be monitored. The laboratory quality assurance/quality control program will include the following elements:

- Precision, in terms of relative percent difference (RPD), will be determined by relative sample analysis at a frequency of one duplicate analysis for each batch of ten (10) project samples or a frequency of 10 percent (10%). RPD is defined as the absolute difference of duplicate measurements divided by the mean of these analyses normalized to percentage.

- Accuracy, in terms of percent recovery (recovery of known constituent additions or surrogate recoveries), will be determined by the analysis of spiked and unspiked samples. MS/MSD will be used to determine analytical accuracy. The frequency of MS/MSD analyses will be one project sample MS/MSD per set of twenty project samples.

- One method blank will be prepared and analyzed with each batch of project samples.

- Standard Reference Materials (SRMs) will be used for each analysis. SRM sources include the U.S. EPA, CRADA certified vendors and/or laboratory solutions. SRMs will be processed and analyzed on a frequency of one per set of samples.

- Completeness is the evaluation of the amount of valid data generated versus the total set of data produced from a particular sampling and analysis event. Valid data is determined by independent confirmation of compliance with method-specific and project-specific data quality objectives. The calculation of data set completeness will be performed by the following equation:

$$\frac{Number\ of\ Validated\ Sample\ Results}{Total\ Number\ of\ Sample\ Results\ Reported}\ X\ 100 = \%\ Complete$$

13. CORRECTIVE ACTION

13.1 Field Corrective Action

Corrective action is intended to address problems that arise by identification, recommendation, approval and implementation of measures that counter unacceptable procedures or deficient quality control performance. The Project Coordinator and Field QA Officer will be responsible for ensuring the quality of the sampling procedures and environmental data and as such, will be responsible for initiating corrective action when appropriate.

The corrective action procedures will be as follows:

- Identify/define the problem.
- Assign responsibility for investigating the problem.
- Investigate/determine the cause of the problem.
- Determine an appropriate corrective action to eliminate the problem.
- Implement the corrective action.
- Evaluate the effectiveness of the corrective action.
- Verify that the corrective action has eliminated the problem.
- Prepare a written record detailing the problem, corrective action utilized and solution of the problem.
- Submit the Corrective Action Record (CAR) to the Task Coordinator who initiated the corrective action and the Project QA Officer and Project Manager.

The above procedures may be implemented through the use of the Systems Audit as described previously. Any Field Team member of the project may initiate corrective action procedures by reporting in writing the nature of the suspected problem to the Project Coordinator, Project Manager or Project QA Officer. The Project Coordinator will begin corrective action by relating the problem to appropriate personnel.

13.2 Laboratory Corrective Action

The following paragraphs define the corrective action decision process relative to possible non-compliant events encountered during laboratory analysis of the project samples. Corrective actions will be initiated by the laboratory QA personnel and will be implemented by laboratory staff chemists under the oversight of the laboratory QA personnel. As with field corrective actions, the laboratory QA personnel will document the problem, the corrective action undertaken and the resolution of the problem. The corrective actions will be performed prior to release of the data from the laboratory.

Documentation will be provided to the laboratory QA officer, Haley & Aldrich QA Officer, and Project Manager.

13.3 Corrective Action During Data Validation and Data Assessment

The Haley & Aldrich QA Officer may identify the need for corrective action during either the data validation or data assessment processes. Potential types of corrective action may include re-sampling by the field team or re-analysis of samples by the laboratory (if possible).

These actions are dependent upon the ability to mobilize the field team, whether the data to be collected is necessary to meet the required quality assurance objectives (e.g., the holding time for samples is not exceeded). When the Haley & Aldrich QA Officer identifies a corrective action situation, the Project Manager will be responsible for approving the implementation of corrective action, including re-sampling, during data assessment. All corrective actions will be documented by the Haley & Aldrich Project Manager.

14. QUALITY ASSURANCE (QA) REPORTS

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

QA reports to management include:

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

QA/QC corrective action reports will be prepared by the Haley & Aldrich QA Officer when appropriate and presented to the project and/or laboratory management personnel so that performance criteria can be monitored for all analyses from each analytical department. The updated trend/QA charts prepared by the laboratory QA personnel will be distributed and reviewed by various levels of the laboratory management.

15. REFERENCES

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United States Environmental Protection Agency (1991). Preparation Aids for the Development of Category I Quality Assurance Project Plans. U.S. EPA/600/8-91/003, Risk Reduction Engineering Laboratory, Office of Research and Development, Cincinnati, Ohio, February 1991.

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United States Environmental Protection Agency. U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review. U.S. EPA 540/R-94-013.

United States Environmental Protection Agency. Test Methods for Evaluating Solid Waste, Office of Solid Waste, U.S. EPA, SW-846, November 1986, with updates.

TABLE 1
SUMMARY OF FIELD AND ANALYTICAL PARAMETERS
CooperVision
Scottsville, New York

Task Name	Sample Matrix		Field Parameters	Laboratory Parameters	Sample Container Volume	Sample Preservation	Sample Holding Time	Investigative Samples	Equipment Rinseate Blanks	Field Duplicates	Matrix Spikes/Matrix Spike Duplicates (1)	Total
	Soil	Ground-water										
Groundwater Sampling (ongoing semi-annual site monitoring)		✓	pH, dissolved oxygen, temperature, conductivity, and oxidation/reduction potential using a water quality meter and flow-through cell; alkalinity, total iron, and carbon dioxide using field test kits.	TCL VOCs 8260B; Metabolic Acids; Dissolved Gasses (methane, ethane, ethene); Anions (sulfate, sulfide, nitrate, nitrite, chloride, and alkalinity); Cations (ferrous and total iron).	VOCs & Dissovled Gasses: 3 - 40ml Teflon-lined septum vials per analysis (fill completely) Anions & Cations: 4 - 16 oz. Plastic Bottles Metabolic Acids: 1 - 250 cc Amber Bottle	VOCs & Dissolved Gasses: Cool, 4°C; HCL Anions & Cations except Total Iron & Sulfide: Cool, 4°C Total Fe: Cool, 4°C, HNO_3 Sulfide: Cool, 4°C, NaOH Metabolic Acids: Cool, 4°C, H_3PO_4	14 days	9 sample locations (refer to matrix Table VII in SMP)	only upon request	only upon request	only upon request	9
Soil Sampling (as needed based on soil excavation and/or backfill)	✓		PID VOC Screen	TCL VOCs; TCL SVOCs; TAL Metals; PCBs; Pesticides	As provided by the laboratory based analysis requirements.	Cool, 4°C	30 days	As needed for disposal or backfill	only upon request	only upon request	only upon request	n/a

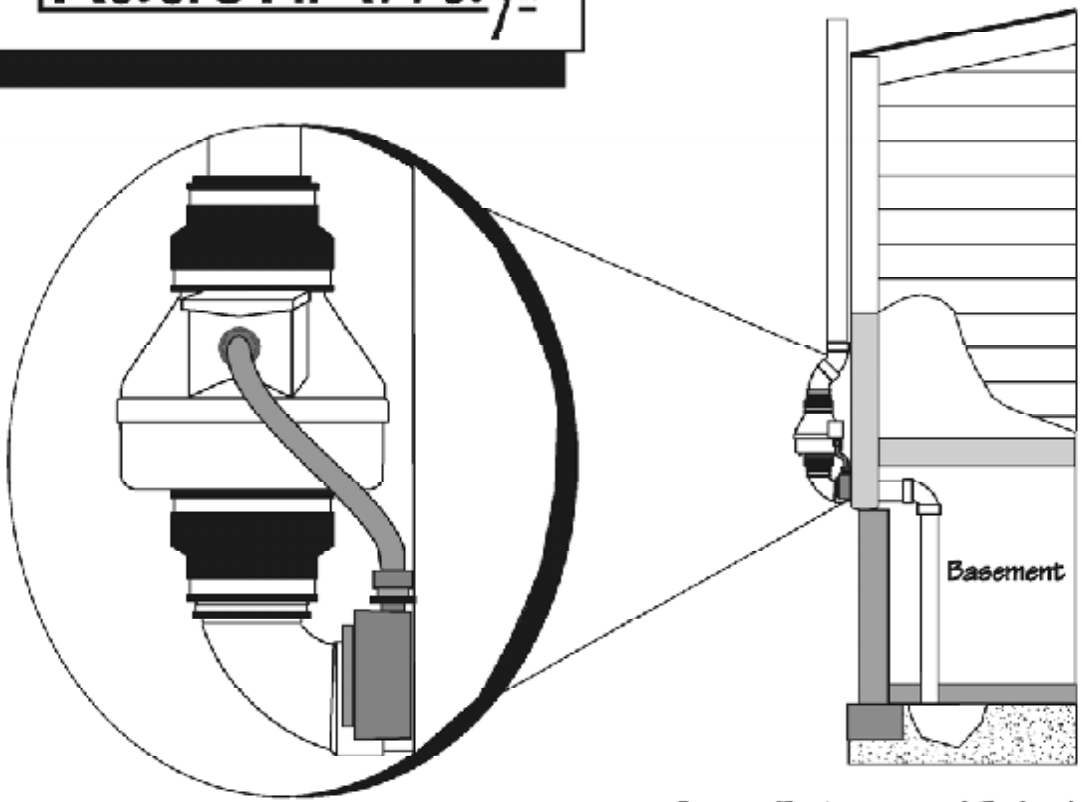
Note:
1. Matrix Spike/Matrix Spike Duplicate (MS/MSD) samples are two separate samples (i.e. - 1 MS/MSD = 2 samples).
2. The Equipment Rinsate Blank for Soil is a water sample (refer to the sample container volume, and preservation information for groundwater samples).

APPENDIX H

Sub-Slab Depressurization System Equipment Cut Sheets

RP Series Installation Instructions

By RadonAway™



Spruce Environmental Technologies, Inc.
Ward Hill, MA P/N IN020 Rev F

RadonAway™

Series Fan Installation Instructions

Please Read and Save These Instructions.

DO NOT CONNECT POWER SUPPLY UNTIL FAN IS COMPLETELY INSTALLED.
MAKE SURE ELECTRICAL SERVICE TO FAN IS LOCKED IN "OFF" POSITION.
DISCONNECT POWER BEFORE SERVICING FAN.

1. **WARNING!** Do not use fan in hazardous environments where fan electrical system could provide ignition to combustible or flammable materials.

2. **WARNING!** Do not use fan to pump explosive or corrosive gases.

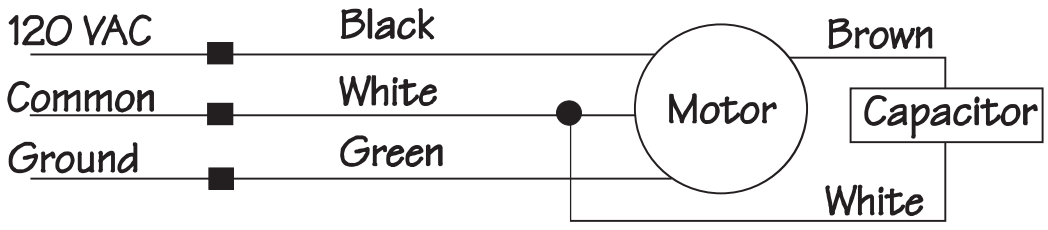
3. **WARNING!** Check voltage at the fan to insure it corresponds with nameplate.

4. **WARNING!** Normal operation of this device may affect the combustion airflow needed for safe operation of fuel burning equipment. Check for possible backdraft conditions on all combustion devices after installation.

5. **NOTICE!** There are no user serviceable parts located inside the fan unit. **Do NOT attempt to open.** Return unit to the factory for service.

6. All wiring must be in accordance with local and national electrical codes.

DynaVac RP Series Fan Wiring Diagram



1.0 SYSTEM DESIGN CONSIDERATIONS

1.1 INTRODUCTION

The DynaVac RP Series Radon Fans are intended for use by trained, professional Radon mitigators. The purpose of this instruction is to provide additional guidance for the most effective use of a DynaVac Fan. This instruction should be considered as a supplement to EPA standard practices, state and local building codes and state regulations. In the event of a conflict, those codes, practices and regulations take precedence over this instruction.

1.2 ENVIRONMENTALS

The RP Series Fans are designed to perform year-round in all but the harshest climates without additional concern for temperature or weather. For installations in an area of severe cold weather, please contact RadonAway for assistance. When not in operation, the fan should be stored in an area where the temperature is never less than 32 degrees F. or more than 100 degrees F.

1.3 ACOUSTICS

The RP Series Fan, when installed properly, operates with little or no noticeable noise to the building occupants. The velocity of the outgoing air should be considered in the overall system design. In some cases the "rushing" sound of the outlet air may be disturbing. In these instances, the use of a RadonAway Exhaust Muffler is recommended.

1.4 GROUND WATER

In the event that a temporary high water table results in water at or above slab level, water may be drawn into the riser pipes thus blocking air flow to the RP Series Fan. The lack of cooling air may result in the fan cycling on and off as the internal temperature rises above the thermal cutoff and falls upon shutoff. Should this condition arise, it is recommended that the fan be turned off until the water recedes allowing for return to normal operation.

1.5 SLAB COVERAGE

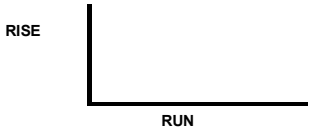
The RP Series Fan can provide coverage up to 2000+ sq. ft. per slab penetration. This will primarily depend on the sub-slab material in any particular installation. In general, the tighter the material, the smaller the area covered per penetration. Appropriate selection of the RP Series Fan best suited for the sub-slab material can improve the slab coverage. The RP140/145/155 are best suited for general purpose use. The RP260 can be used where additional airflow is required and the RP265/380 is best suited for large slab, high airflow applications. Additional suction points can be added as required. It is recommended that a small pit (5 to 10 gallons in size) be created below the slab at each suction hole.

1.6 CONDENSATION & DRAINAGE

Condensation is formed in the piping of a mitigation system when the air in the piping is chilled below its dew point. This can occur at points where the system piping goes through unheated space such as an attic, garage or outside. The system design must provide a means for water to drain back to a slab hole to remove the condensation. The RP Series Fan **MUST** be mounted vertically plumb and level, with the outlet pointing up for proper drainage through the fan. Avoid mounting the fan in any orientation that will allow water to accumulate inside the fan housing. The RP Series Fans are **NOT** suitable for underground burial.

For RP Series Fan piping, the following table provides the minimum recommended pipe diameter and pitch under several system conditions.

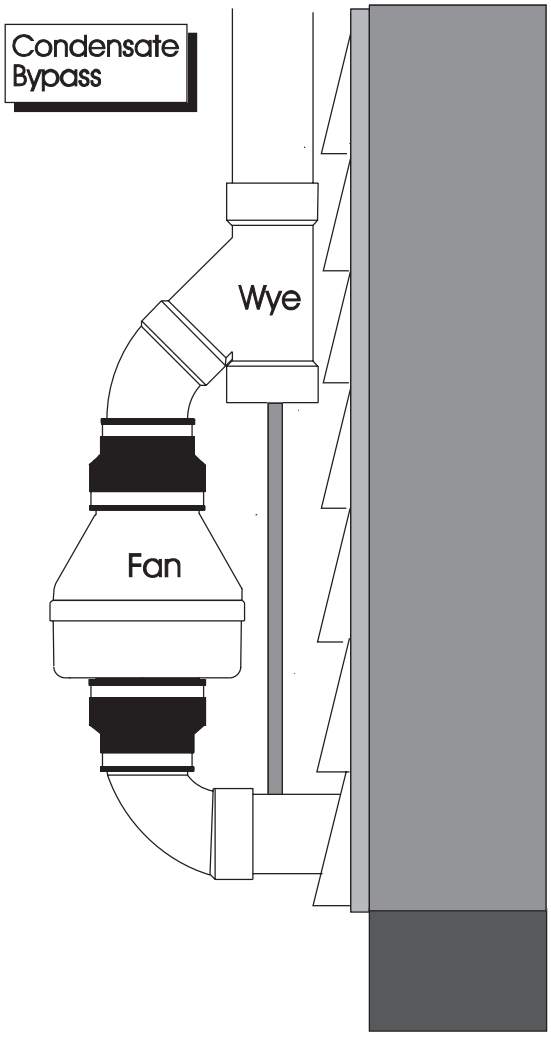
Pipe Dia.	Minimum Rise per Ft of Run*				
	@25 CFM	@50 CFM	@100 CFM	@200 CFM	@300 CFM
6"	-	3/16	1/4	3/8	3/4
4"	1/8	1/4	3/8	2 3/8	-
3"	1/4	3/8	1 1/2	-	-



*Typical RP1xx/2xx Series Fan operational flow rate is 25 - 90 CFM 0n 3" and 4" pipe. (For more precision, determine flow rate by measuring Static Pressure, in WC, and correlate pressure to flow in the performance chart in the addendum.)

Under some circumstances in an outdoor installation a condensate bypass should be installed in the outlet ducting as shown. This may be particularly true in cold climate installations which require long lengths of outlet ducting or where the outlet ducting is likely to produce large amounts of condensation because of high soil moisture or outlet duct material. Schedule 20 piping and other thin-walled plastic ducting and Aluminum downspout will normally produce much more condensation than Schedule 40 piping.

The bypass is constructed with a 45 degree Wye fitting at the bottom of the outlet stack. The bottom of the Wye is capped and fitted with a tube that connects to the inlet piping or other drain. The condensation produced in the outlet stack is collected in the Wye fitting and drained through the bypass tube. The bypass tubing may be insulated to prevent freezing.



1.7 "SYSTEM ON" INDICATOR

A properly designed system should incorporate a "System On" Indicator for affirmation of system operation. A manometer, such as a U-Tube, or a vacuum alarm is recommended for this purpose.

1.8 ELECTRICAL WIRING

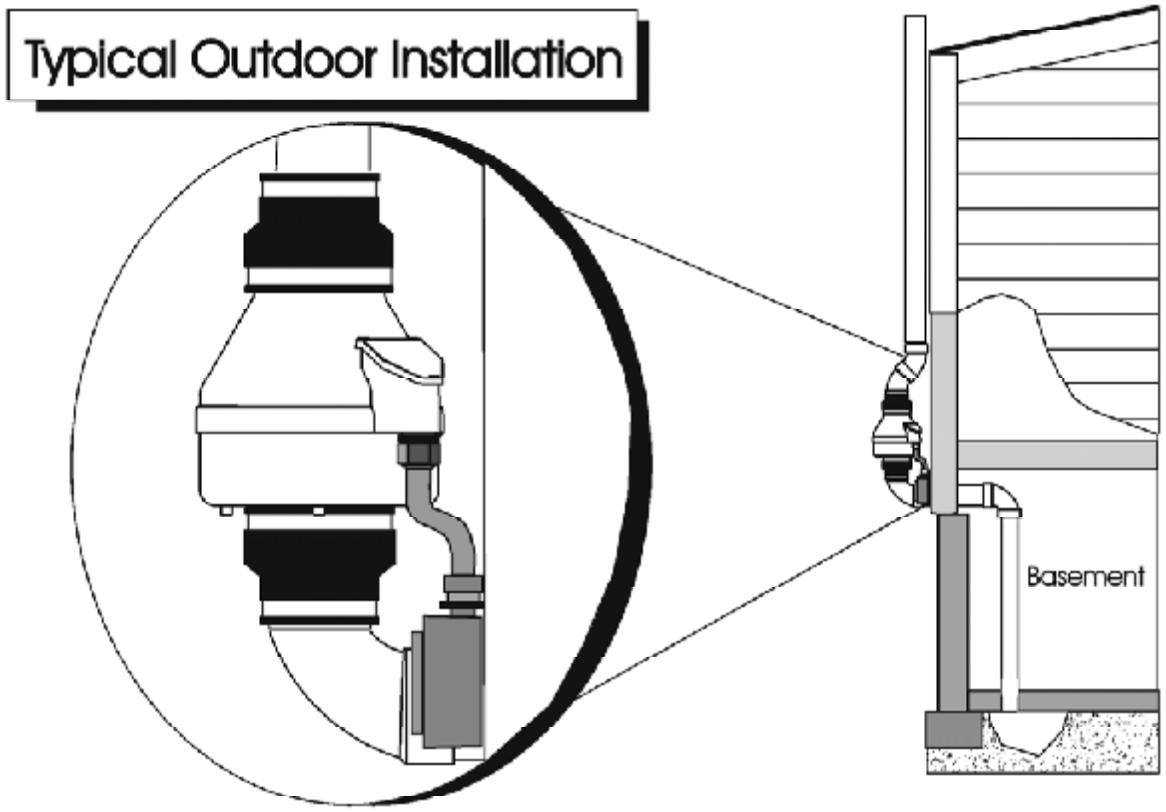
The RP Series Fans operate on standard 120V 60 Hz. AC. All wiring must be performed in accordance with the National Electrical Code and state and local building codes. All electrical work should be performed by a qualified electrician. Outdoor installations require the use of a U.L. listed watertight conduit.

1.9 SPEED CONTROLS

The RP Series Fans are rated for use with electronic speed controls ,however , they are generally not recommended.

2.0 INSTALLATION

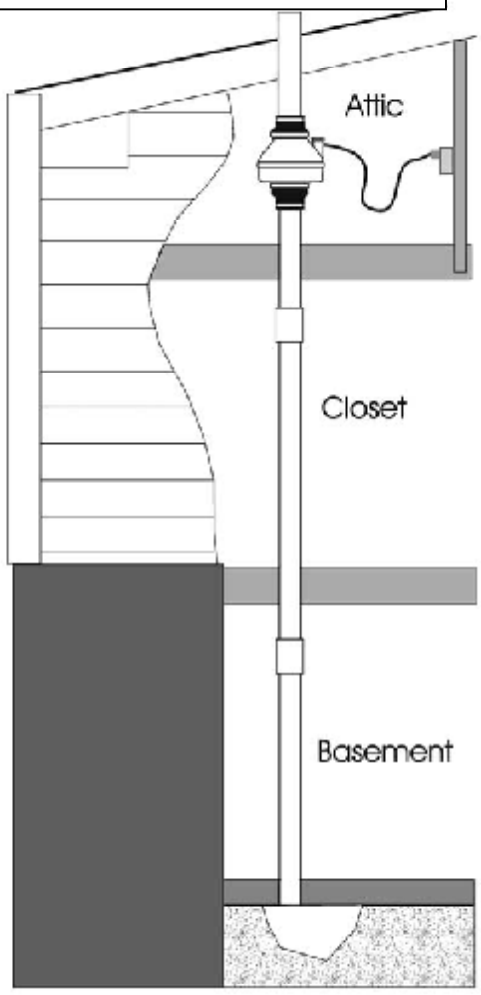
The RP Series Fan can be mounted indoors or outdoors. (It is suggested that EPA recommendations be followed in choosing the fan location.) The RP Series Fan may be mounted directly on the system piping or fastened to a supporting structure by means of optional mounting bracket.



2.1 MOUNTING

Mount the RP Series Fan vertically with outlet up. Insure the unit is plumb and level. When mounting directly on the system piping assure that the fan does not contact any building surface to avoid vibration noise.

Typical Indoor Installation



2.2 MOUNTING BRACKET (optional)

The RP Series fan may be optionally secured with the RadonAway P/N 25007-2 (25033 for RP385) mounting bracket. Foam or rubber grommets may also be used between the bracket and mounting surface for vibration isolation.

2.3 SYSTEM PIPING

Complete piping run, using flexible couplings as means of disconnect for servicing the unit and vibration isolation.

2.4 ELECTRICAL CONNECTION

Connect wiring with wire nuts provided, observing proper connections:

Fan Wire	Connection
Green	Ground
Black	AC Hot
White	AC Common

2.5 VENT MUFFLER (optional)

Install the muffler assembly in the selected location in the outlet ducting. Solvent weld all connections. The muffler is normally installed at the end of the vent pipe.

2.6 OPERATION CHECKS

_____ **Verify** all connections are tight and **leak-free**.

_____ **Insure** the RP Series Fan and all ducting is secure and vibration-free.

_____ **Verify** system vacuum pressure with manometer. **Insure** vacuum pressure is **less than** maximum recommended operating pressure

(Based on sea-level operation, at higher altitudes reduce by about 4% per 1000 Feet.)

(Further reduce Maximum Operating Pressure by 10% for High Temperature environments)

See Product Specifications. If this is exceeded, increase the number of suction points.

_____ **Verify Radon levels by testing to EPA protocol.**

RP SERIES PRODUCT SPECIFICATIONS

The following chart shows fan performance for the RP Series Fan:

Typical CFM Vs Static Pressure "WC									
	0"	.25"	.5"	.75"	1.0"	1.25"	1.5"	1.75"	2.0"
RP140	134	101	68	10	-	-	-	-	-
RP145	173	152	132	115	94	73	55	37	-
RP155	185	161	137	115	94	73	55	37	-
RP260	275	225	180	140	105	70	20	-	-
RP265	327	302	260	230	207	176	139	101	57
RP380*	420	375	330	260	220	170	130	70	30

* Tested with 6" inlet and discharge pipe.

Power Consumption 120 VAC, 60Hz 1.5 Amp Maximum		Maximum Recommended Operating Pressure* (Sea Level Operation)**	
RP140	14 - 20 watts	RP140	0.8" W.C.
RP145	37 - 71 watts	RP145	1.7" W.C.
RP155	37 - 75 watts	RP155	1.7" W.C.
RP260	52 - 72 watts	RP260	1.5" W.C.
RP265	86 - 140 watts	RP265	2.2" W.C.
RP380	95 - 152 watts	RP380	2.2" W.C.

**Reduce by 10% for High Temperature Operation*

***Reduce by 4% per 1000 feet of altitude*

	Size	Weight	Inlet/Outlet
RP140	8.5H" x 9.7" Dia.	5.5 lbs.	4.5" OD (4.0" PVC Sched 40 size compatible)
RP145	8.5H" x 9.7" Dia.	5.5 lbs.	4.5" OD (4.0" PVC Sched 40 size compatible)
RP155	8.5H" x 9.7" Dia.	5.5 lbs.	5.0" OD
RP260	8.6H" x 11.75" Dia.	5.5 lbs.	6.0" OD
RP265	8.6H" x 11.75" Dia.	6.5 lbs.	6.0" OD
RP380	10.53H" x 13.41" Dia.	11.5 lbs.	8.0" OD

Recommended ducting: 3" or 4" RP1xx/2xx, 6" RP380, Schedule 20/40 PVC Pipe

Mounting: Mount on the duct pipe or with optional mounting bracket.

Storage temperature range: 32 - 100 degrees F.

Normal operating temperature range: -20 - 120 degrees F.

Maximum inlet air temperature: 80 degrees F.

Continuous Duty

Class B Insulation

Thermally protected

3000 RPM

Rated for Indoor or Outdoor Use

LISTED Electric Fan ETL® Tested to UL Std. 507

77728

IMPORTANT INSTRUCTIONS TO INSTALLER

Inspect the GP/XP/XR/RP Series Fan for shipping damage within 15 days of receipt. Notify **RadonAway of any damages immediately**. Radonaway is not responsible for damages incurred during shipping. However, for your benefit, Radonaway does insure shipments.

There are no user serviceable parts inside the fan. **Do not attempt to open.** Return unit to factory for service.

Install the GP/XP/XR/RP Series Fan in accordance with all EPA standard practices, and state and local building codes and state regulations.

WARRANTY

Subject to any applicable consumer protection legislation, RadonAway warrants that the GPX01/XP/XR/RP Series Fan (the "Fan") will be free from defects in materials and workmanship for a period of 90 days from the date of purchase (the "Warranty Term").

RadonAway will replace any Fan which fails due to defects in materials or workmanship. The Fan must be returned (at Owner's cost) to the RadonAway factory. Any Fan returned to the factory will be discarded unless the Owner provides specific instructions along with the Fan when it is returned regardless of whether or not the Fan is actually replaced under this warranty. Proof of purchase must be supplied upon request for service under this Warranty.

This Warranty is contingent on installation of the Fan in accordance with the instructions provided. This Warranty does not apply where any repairs or alterations have been made or attempted by others, or if the unit has been abused or misused. Warranty does not cover damage in shipment unless the damage is due to the negligence of RadonAway.

5 YEAR EXTENDED WARRANTY WITH PROFESSIONAL INSTALLATION.

RadonAway will extend the Warranty Term of the fan to 5 years from date of manufacture if the Fan is installed in a professionally designed and professionally installed radon system or installed as a replacement fan in a professionally designed and professionally installed radon system. Proof of purchase and/or proof of professional installation may be required for service under this warranty. Outside the Continental United States and Canada the extended Warranty Term is limited to one (1) year from the date of manufacture.

RadonAway is not responsible for installation, removal or delivery costs associated with this Warranty.

EXCEPT AS STATED ABOVE, THE GPx01/XP/XR/RP SERIES FANS ARE PROVIDED WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

IN NO EVENT SHALL RADONAWAY BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES ARISING OUT OF, OR RELATING TO, THE FAN OR THE PERFORMANCE THEREOF. RADONAWAY'S AGGREGATE LIABILITY HEREUNDER SHALL NOT IN ANY EVENT EXCEED THE AMOUNT OF THE PURCHASE PRICE OF SAID PRODUCT. THE SOLE AND EXCLUSIVE REMEDY UNDER THIS WARRANTY SHALL BE THE REPAIR OR REPLACEMENT OF THE PRODUCT, TO THE EXTENT THE SAME DOES NOT MEET WITH RADONAWAY'S WARRANTY AS PROVIDED ABOVE.

For service under this Warranty, contact RadonAway for a Return Material Authorization (RMA) number and shipping information. No returns can be accepted without an RMA. If factory return is required, the customer assumes all shipping cost to and from factory.

RadonAway
3 Saber Way
Ward Hill, MA 01835
TEL. (978) 521-3703
FAX (978) 521-3964

Record the following information for your records:

Serial No._____
Purchase Date_____

RadonAway Ward Hill, MA IN014 Rev E

XP/GP/XR Series Fan Installation Instructions

Please Read And Save These Instructions.

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1. **WARNING!** Do not use fan in hazardous environments where fan electrical system could provide ignition to combustible of flammable materials.

2. **WARNING!** Do not use fan to pump explosive or corrosive gases.

3. **WARNING!** Check voltage at the fan to insure it corresponds with nameplate.

4. **WARNING!** Normal operation of this device may affect the combustion airflow needed for safe operation of fuel burning equipment. Check for possible backdraft conditions on all combustion devices after installation.

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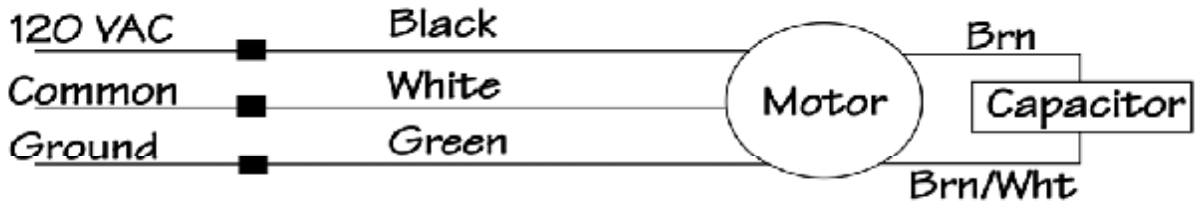
DynaVac GP/XP/XR/RP Series Fan Wiring Diagram



INSTALLATION INSTRUCTION IN014 Rev E

DynaVac - XP/XR Series		DynaVac - GP Series	
XP101	p/n 23008-1,-2	GP201	p/n 23007-1
XP151	p/n 23010-1,-2	GP301	p/n 23006-1,-2
XP201	p/n 23011-1,-2	GP401	p/n 23009-1
XR161	p/n 23018-1,-2	GP501	p/n 23005-1,-2
XR261	p/n 23019-1,-2		

1.0 SYSTEM DESIGN CONSIDERATIONS

1.1 INTRODUCTION

The DynaVac GP/XP/XR Series Radon Fans are intended for use by trained, professional Radon mitigators. The purpose of this instruction is to provide additional guidance for the most effective use of a DynaVac Fan. This instruction should be considered as a supplement to EPA standard practices, state and local building codes and state regulations. In the event of a conflict, those codes, practices and regulations take precedence over this instruction.

1.2 ENVIRONMENTALS

The GP/XP/XR Series Fans are designed to perform year-round in all but the harshest climates without additional concern for temperature or weather. For installations in an area of severe cold weather, please contact RadonAway for assistance. When not in operation, the fan should be stored in an area where the temperature is never less than 32 degrees F. or more than 100 degrees F.

1.3 ACOUSTICS

The GP/XP/XR Series Fan, when installed properly, operates with little or no noticeable noise to the building occupants. The velocity of the outgoing air should be considered in the overall system design. In some cases the "rushing" sound of the outlet air may be disturbing. In these instances, the use of a RadonAway Exhaust Muffler is recommended.

1.4 GROUND WATER

In the event that a temporary high water table results in water at or above slab level, water may be drawn into the riser pipes thus blocking air flow to the GP/XP/XR Series Fan. The lack of cooling air may result in the fan cycling on and off as the internal temperature rises above the thermal cutoff and falls upon shutoff. Should this condition arise, it is recommended that the fan be turned off until the water recedes allowing for return to normal operation.

1.5 SLAB COVERAGE

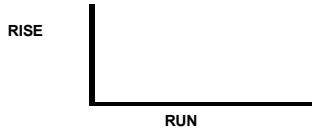
The GP/XP/XR Series Fan can provide coverage up to 2000+ sq. ft. per slab penetration. This will primarily depend on the sub-slab material in any particular installation. In general, the tighter the material, the smaller the area covered per penetration. Appropriate selection of the GP/XP/XR Series Fan best suited for the sub-slab material can improve the slab coverage. The GP & XP series have a wide range of models to choose from to cover a wide range of subslab material. The higher static suction fans are generally used for tighter subslab materials. The XR Series is specifically designed for high flow applications such as stone/gravel and drain tile. Additional suction points can be added as required. It is recommended that a small pit (5 to 10 gallons in size) be created below the slab at each suction hole.

1.6 CONDENSATION & DRAINAGE

Condensation is formed in the piping of a mitigation system when the air in the piping is chilled below its dew point. This can occur at points where the system piping goes through unheated space such as an attic, garage or outside. The system design must provide a means for water to drain back to a slab hole to remove the condensation. The GP/XP/XR Series Fan **MUST** be mounted vertically plumb and level, with the outlet pointing up for proper drainage through the fan. Avoid mounting the fan in any orientation that will allow water to accumulate inside the fan housing. The GP/XP/XR Series Fans are **NOT** suitable for underground burial.

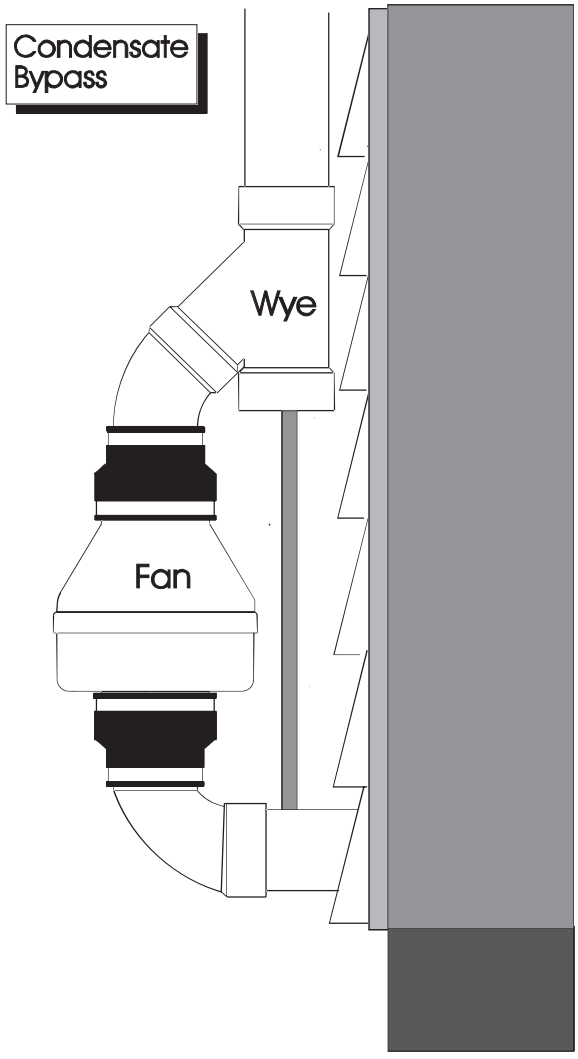
For GP/XP/XR Series Fan piping, the following table provides the minimum recommended pipe diameter and pitch under several system conditions.

Pipe Dia.	Minimum Rise per Foot of Run* @25 CFM	@50 CFM	@100 CFM
4″	1/8″	1/4″	3/8″
3"	1/4"	3/8"	1 1/2"



*Typical GP/XP/XR Series Fan operational flow rate is 25 - 90 CFM. (For more precision, determine flow rate by using the chart in the addendum.)

Under some circumstances in an outdoor installation a condensate bypass should be installed in the outlet ducting as shown. This may be particularly true in cold climate installations which require long lengths of outlet ducting or where the outlet ducting is likely to produce large amounts of condensation because of high soil moisture or outlet duct material. Schedule 20 piping and other thin-walled plastic ducting and Aluminum downspout will normally produce much more condensation than Schedule 40 piping.



The bypass is constructed with a 45 degree Wye fitting at the bottom of the outlet stack. The bottom of the Wye is capped and fitted with a tube that connects to the inlet piping or other drain. The condensation produced in the outlet stack is collected in the Wye fitting and drained through the bypass tube. The bypass tubing may be insulated to prevent freezing.

1.7 "SYSTEM ON" INDICATOR

A properly designed system should incorporate a "System On" Indicator for affirmation of system operation. A manometer, such as a U-Tube, or a vacuum alarm is recommended for this purpose.

1.8 ELECTRICAL WIRING

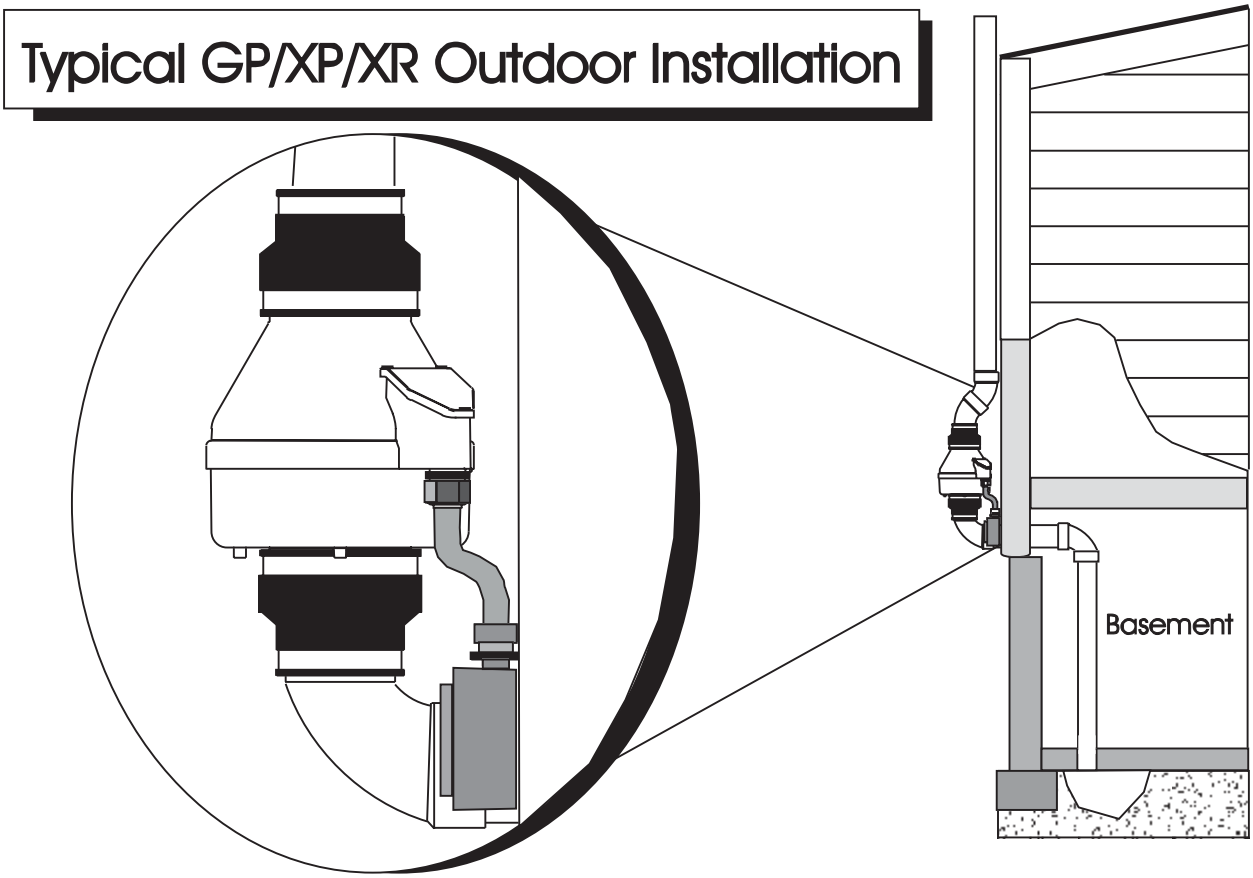
The GP/XP/XR Series Fans operate on standard 120V 60 Hz. AC. All wiring must be performed in accordance with the National Electrical Code and state and local building codes. All electrical work should be performed by a qualified electrician. Outdoor installations require the use of a U.L. listed watertight conduit.

1.9 SPEED CONTROLS

The GP/XP/XR Series Fans are rated for use with electronic speed controls ,however, they are generally not recommended.

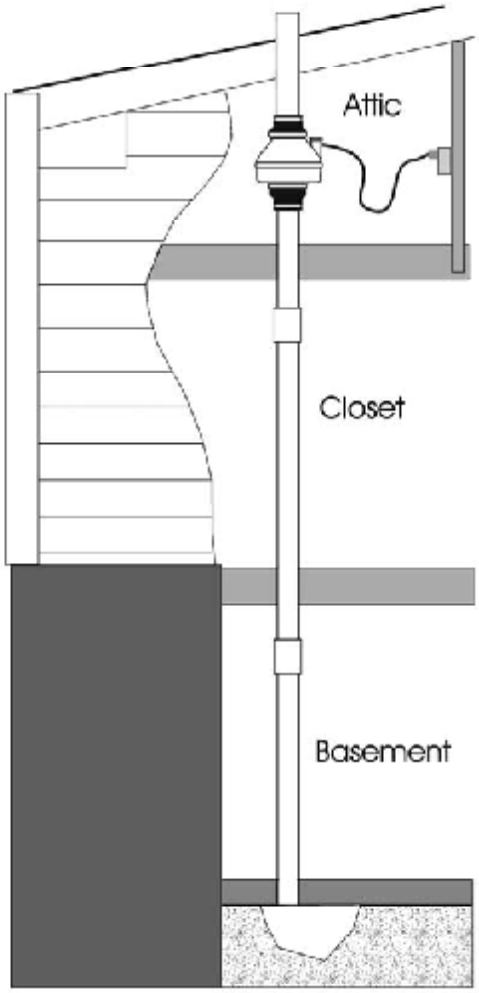
2.0 INSTALLATION

The GP/XP/XR Series Fan can be mounted indoors or outdoors. (It is suggested that EPA recommendations be followed in choosing the fan location.) The GP/XP/XR Series Fan may be mounted directly on the system piping or fastened to a supporting structure by means of optional mounting bracket.



2.1 MOUNTING

Mount the GP/XP/XR Series Fan vertically with outlet up. Insure the unit is plumb and level. When mounting directly on the system piping assure that the fan does not contact any building surface to avoid vibration noise.



2.2 MOUNTING BRACKET (optional)

The GP/XP/XR Series fan may be optionally secured with the integral mounting bracket on the GP Series fan or with RadonAway P/N 25007-2 mounting bracket for an XP/XR Series fan. Foam or rubber grommets may also be used between the bracket and mounting surface for vibration isolation.

2.3 SYSTEM PIPING

Complete piping run, using flexible couplings as means of disconnect for servicing the unit and vibration isolation.

2.4 ELECTRICAL CONNECTION

Connect wiring with wire nuts provided, observing proper connections:

Fan Wire	Connection
Green	Ground
Black	AC Hot
White	AC Common

2.5 VENT MUFFLER (optional)

Install the muffler assembly in the selected location in the outlet ducting. Solvent weld all connections. The muffler is normally installed at the end of the vent pipe.

2.6 OPERATION CHECKS

_____ **Verify** all connections are tight and **leak-free**.

_____ **Insure** the GP/XP/XR Series Fan and all ducting is secure and vibration-free.

_____ **Verify** system vacuum pressure with manometer. **Insure** vacuum pressure is **less than** maximum recommended operating pressure

(*Based on sea-level operation, at higher altitudes reduce by about 4% per 1000 Feet.)*

(Further reduce Maximum Operating Pressure by 10% for High Temperature environments)

See Product Specifications. If this is exceeded, increase the number of suction points.

_____ **Verify Radon levels by testing to EPA protocol.**

XP/XR SERIES PRODUCT SPECIFICATIONS

The following chart shows fan performance for the XP & XR Series Fan:

Typical CFM Vs Static Suction "WC	0"	.25"	.5"	.75"	1.0"	1.25"	1.5"	1.75"	2.0"
XP101	125	118	90	56	5	-	-	-	-
XP151	180	162	140	117	78	46	10	-	-
XP201	150	130	110	93	74	57	38	20	-
XR161	215	175	145	105	75	45	15	-	-
XR261	250	215	185	150	115	80	50	20	-

Maximum Recommended Operating Pressure*		
XP101	0.9" W.C.	(Sea Level Operation)**
XP151	1.3" W.C.	(Sea Level Operation)**
XP201	1.7" W.C.	(Sea Level Operation)**
XR161	1.3" W.C.	(Sea Level Operation)**
XR261	1.6" W.C.	(Sea Level Operation)**

**Reduce by 10% for High Temperature Operation*
***Reduce by 4% per 1000 feet of altitude*

Power Consumption @ 120 VAC	
XP101	40 - 49 watts
XP151	45 - 60 watts
XP201	45 - 66 watts
XR161	48 - 75 watts
XR261	65 - 105 watts

XP Series Inlet/Outlet: 4.5" OD (4.0" PVC Sched 40 size compatible)

XR Series Inlet/Outlet: 5.875" OD

Mounting: Mount on the duct pipe or with optional mounting bracket.

Recommended ducting: 3" or 4" Schedule 20/40 PVC Pipe

Storage temperature range: 32 - 100 degrees F.

Normal operating temperature range: -20 - 120 degrees F.

Maximum inlet air temperature: 80 degrees F.

Size: 9.5H" x 8.5" Dia. **Weight**: 6 lbs. (XR261 - 7 lbs)

Continuous Duty **Thermally protected**

Class B Insulation **3000 RPM**

Residential Use Only **Rated for Indoor or Outdoor use**

LISTED Electric Fan ETL® Tested to UL Std. 507
77728

GP SERIES PRODUCT SPECIFICATIONS

The following chart shows fan performance for the GPx01 Series Fan:

Typical CFM Vs Static Suction "WC	1.0"	1.5"	2.0"	2.5"	3.0"	3.5"	4.0"
GP501	95	87	80	70	57	30	5
GP401	93	82	60	38	12	-	-
GP301	92	77	45	10	-	-	-
GP201	82	58	5	-	-	-	-

Maximum Recommended Operating Pressure*		
GP501	3.8" W.C.	(Sea Level Operation)**
GP401	3.0" W.C.	(Sea Level Operation)**
GP301	2.4" W.C.	(Sea Level Operation)**
GP201	1.8" W.C.	(Sea Level Operation)**

**Reduce by 10% for High Temperature Operation*
***Reduce by 4% per 1000 feet of altitude*

Power Consumption @ 120 VAC	
GP501	70 - 140 watts
GP401	60 - 110 watts
GP301	55 - 90 watts
GP201	40 - 60 watts

Inlet/Outlet: 3.5" OD (3.0" PVC Sched 40 size compatible)

Mounting: Fan may be mounted on the duct pipe or with integral flanges.

Weight: 12 lbs.

Size: 13H" x 12.5" x 12.5"

Recommended ducting: 3″ or 4" Schedule 20/40 PVC Pipe

Storage temperature range: 32 - 100 degrees F.

Normal operating temperature range: -20 - 120 degrees F.

Maximum inlet air temperature: 80 degrees F.

Continuous Duty

Class B Insulation

3000 RPM

Thermally protected

Rated for Indoor or Outdoor Use

GP301C / GP501C Rated for Commercial Use

LISTED Electric Fan ETL® Tested to UL Std. 507
77728

IMPORTANT INSTRUCTIONS TO INSTALLER

Inspect the GPx01/XP/XR Series Fan for shipping damage within 15 days of receipt. Notify RadonAway of any damages immediately. Radonaway is not responsible for damages incurred during shipping. However, for your benefit, Radonaway does insure shipments.

There are no user serviceable parts inside the fan. **Do not attempt to open.** Return unit to factory for service.

Install the GPx01/XP/XR Series Fan in accordance with all EPA standard practices, and state and local building codes and state regulations.

WARRANTY

Subject to any applicable consumer protection legislation, RadonAway warrants that the GPX01/XP/XR/RP Series Fan (the "Fan") will be free from defects in materials and workmanship for a period of 90 days from the date of purchase (the "Warranty Term").

RadonAway will replace any Fan which fails due to defects in materials or workmanship. The Fan must be returned (at Owner's cost) to the RadonAway factory. Any Fan returned to the factory will be discarded unless the Owner provides specific instructions along with the Fan when it is returned regardless of whether or not the Fan is actually replaced under this warranty. Proof of purchase must be supplied upon request for service under this Warranty.

This Warranty is contingent on installation of the Fan in accordance with the instructions provided. This Warranty does not apply where any repairs or alterations have been made or attempted by others, or if the unit has been abused or misused. Warranty does not cover damage in shipment unless the damage is due to the negligence of RadonAway.

5 YEAR EXTENDED WARRANTY WITH PROFESSIONAL INSTALLATION.

RadonAway will extend the Warranty Term of the fan to 5 years from date of manufacture if the Fan is installed in a professionally designed and professionally installed radon system or installed as a replacement fan in a professionally designed and professionally installed radon system. Proof of purchase and/or proof of professional installation may be required for service under this warranty. Outside the Continental United States and Canada the extended Warranty Term is limited to one (1) year from the date of manufacture.

RadonAway is not responsible for installation, removal or delivery costs associated with this Warranty.

EXCEPT AS STATED ABOVE, THE GPx01/XP/XR/RP SERIES FANS ARE PROVIDED WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

IN NO EVENT SHALL RADONAWAY BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES ARISING OUT OF, OR RELATING TO, THE FAN OR THE PERFORMANCE THEREOF. RADONAWAY'S AGGREGATE LIABILITY HEREUNDER SHALL NOT IN ANY EVENT EXCEED THE AMOUNT OF THE PURCHASE PRICE OF SAID PRODUCT. THE SOLE AND EXCLUSIVE REMEDY UNDER THIS WARRANTY SHALL BE THE REPAIR OR REPLACEMENT OF THE PRODUCT, TO THE EXTENT THE SAME DOES NOT MEET WITH RADONAWAY'S WARRANTY AS PROVIDED ABOVE.

For service under this Warranty, contact RadonAway for a Return Material Authorization (RMA) number and shipping information. No returns can be accepted without an RMA. If factory return is required, the customer assumes all shipping cost to and from factory.

RadonAway
3 Saber Way
Ward Hill, MA 01835
TEL. (978) 521-3703
FAX (978) 521-3964

Record the following information for your records:

Serial No._____
Purchase Date_____

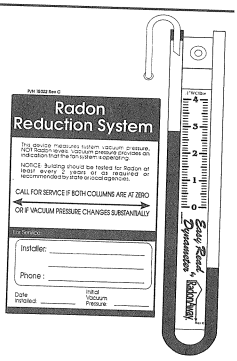
Dynameter™ Vacuum Gauge P/N 50006-1

INSTALLATION INSTRUCTIONS:

1. Select location on the vertical suction pipe where the vacuum gauge is to be mounted. Pipe surface should be clean and dry.
2. Remove end caps from both tube ends. Hold gauge upright to prevent loss of gauge fluid.
   Warning: Do not ingest gauge fluid.
   Caution: Gauge fluid will stain if spilt.
3. Remove protective backing from the foam tape on the back of the unit and firmly press into place on piping.
4. Allow fluid to settle in gauge for several minutes and then zero the gauge by sliding the tube until the tops of both columns align with the zero mark on the pressure scale.
   The gauge may be fixed in this position using the mounting screw provided.
5. Drill a 3/16" hole in piping 2 inches below the top of the gauge.

   Positioning the hole below the top of the gauge will prevent condensation from potentially collecting in the u-tube gauge.

6. Insert vinyl tubing into either opening in gauge tube and push firmly.
7. Install end of the tubing into drilled hole.
   Apply caulking for airtight connection.
8. Fill out label using an indelible marker.
9. Remove backing and position label next to vacuum gauge ensuring the arrow is lined up with the gauge zero.



WARRANTY

Subject to any applicable consumer protection legislation, RadonAway warrants that the Dynameter Vacuum Gauge(the "Gauge) will be free from defects in materials and workmanship for a period of five (5) years from the date of manufacture (the "Warranty Term"). Outside the Continental United States and Canada the Warranty Term is one (1) year from the date of manufacture.

RadonAway will replace any Gauge which fails due to defects in materials or workmanship. The Gauge must be returned (at owner's cost) to the RadonAway factory. Proof of purchase must be supplied upon request for service under this Warranty.

This Warranty is contingent on installation of the Gauge in accordance with the instructions provided. This Warranty does not apply where any repairs or alterations have been made or attempted by others, or if the unit has been abused or misused. Warranty does not include damage in shipment unless the damage is due to the negligence of RadonAway.

RadonAway is not responsible for installation, removal or delivery costs associated with this Warranty.

EXCEPT AS STATED ABOVE, THE GAUGE IS PROVIDED WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

IN NO EVENT SHALL RADONAWAY BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES ARISING OUT OF, OR RELATING TO, THE GAUGE OR THE PERFORMANCE THEREOF. RADONAWAY'S AGGREGATE LIABILITY HEREUNDER SHALL NOT IN ANY EVENT EXCEED THE AMOUNT OF THE PURCHASE PRICE OF SAID PRODUCT. THE SOLE AND EXCLUSIVE REMEDY UNDER THIS WARRANTY SHALL BE THE REPAIR OR REPLACEMENT OF THE PRODUCT, TO THE EXTENT THE SAME DOES NOT MEET WITH RADONAWAY'S WARRANTY AS PROVIDED ABOVE.

For service under this Warranty, contact RadonAway for a Return Material Authorization (RMA) number and shipping information. No returns can be accepted without an RMA. If factory return is required, the customer assumes all shipping cost to and from factory.

RadonAway 3 Saber Way Ward Hill, MA 01835 TEL. (978) 521-3703 FAX (978) 521-3964

Record the following information for your records:

Purchase Date_____

Rev. 08/05 A

APPENDIX I

Sub-Slab Depressurization System Photographs

Vacuum Monitoring – Digital Manometer

SSD – Typical Stack to Roof with Warning Device and Label

Roof – Typical SSD Exhaust

Roof – Typical Roof Penetration

Typical Crack Sealing (using urethane caulk)

SSD – Typical Penetration (sealed with urethane caulk)

APPENDIX J

Sub-Slab Depressurization System Monitoring Forms

SUB - SLAB **DEPRESSURIZATION SYSTEM** **READING ARE** **IN INCHES OF WATER** **LOCATION NUMBERS**

Date	Location by #	Manometer readings	Preformed By	
				Cafeteria is # 1
				Compressor room is # 2
				Utility Room is # 3
				Back room in Molding is # 4
				Main switch gear room is # 5
				Chemistry Hallway is # 6

Note: # 4 & # 5 are on the same system

Annual SSD System Monitoring

Location (Site/Facility Name): **CooperVision** Date:
Location (Address): **Scottsville, NY** Performed By:
Client: **CooperVision** Job Number:

Test Point	Vacuum Reading ("WC)
T-1	
T-2	**
T-3	
T-4	
T-5	
T-6	
T-7	
T-8	
T-9	
T-10	
T-11	
T-12	
T-13	
T-14	
T-15	
T-16	
T-17	
T-18	

Suction Point	Vacuum Reading ("WC)
S-1	
S-2	
S-3	
S-4/5	
S-6	
S-7	

** T-2 is not a valid test point

Visual Inspection of System:
Recommendation Actions:
Description of Past Year Activities: