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HALEY&
ALDRICH

1 October 2013
File No. 70665-118

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

Attention: Mr. Frank Sowers, P.E.

Subject: Remedial Action Work Plan – Well MW-202 Area
Emulsified Vegetable Oil Injection
CooperVision, Inc.
Scottsville, New York

Ladies and Gentlemen:

On behalf of CooperVision, Inc. ("CooperVision"), Haley & Aldrich of New York ("Haley & Aldrich") is submitting herewith a Remedial Action Work Plan (RAWP) consisting of procedure for injection of Emulsified Vegetable Oil at the above-referenced site. This document is submitted in accordance with the Voluntary Cleanup Agreement (VCA) for the Site #V00157-8 between the New York State Department of Environmental Conservation (NYSDEC) and CooperVision, and specifically in response to a NYSDEC letter to CooperVision dated July 31, 2013 approving a remedial approach for volatile organic compounds in groundwater upgradient of site well MW-202.

This work plan has been developed in accordance with the July letter, NYSDEC 6 NYCRR Part 375 regulations dated December 2006, the "Technical Guidance for Site Investigation and Remediation (DER-10)" dated May 2010, and other relevant NYSDEC technical and administrative guidance. If you have questions or comments regarding this document, please do not hesitate to contact us.

Sincerely yours,
HALEY & ALDRICH OF NEW YORK

Mark N. Ramsdell, P.E.
Senior Project Manager

Denis M. Conley
Senior Scientist

Vincent B. Dick
Senior Vice President

Enclosures

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New York State Department of Environmental Conservation
Division of Environmental Remediation, Region 8
6274 East Avon-Lima Road, Avon, New York 14414-9519
Phone: (585) 226-5353 • **Fax:** (585) 226-8139
Website: www.dec.ny.gov

Joe Martens
Commissioner

October 18, 2013

Christopher H. Marraro, Esq.
BakerHostetler
Washington Square
1050 Connecticut Avenue, N.W., Suite 1100
Washington, DC 20036-5304

Re: CooperVision, Inc
Remedial Action Work Plan – Well MW-202 Area
Emulsified Vegetable Oil Injection
Voluntary Cleanup Program, Site No. V00175
Village of Scottsville, Monroe County

Dear Mr. Marraro;

The Department has completed its review of the document entitled "*Remedial Action Work Plan – Well MW-202 Area Emulsified Vegetable Oil Injection"* dated October 1, 2013 (the Work Plan) and has determined that the Work Plan, with modifications, substantially addresses the requirements of the Voluntary Cleanup Agreement (VCA). The modifications are outlined as follows:

- The Department will be copied on all correspondence with USEPA associated with this Work Plan.

With the understanding that the above noted modifications are agreed to, the Work Plan is hereby approved. This letter shall be attached to the final Work Plan and a copy of the approved Work Plan is required to be kept in the document repository located at the Scottsville Free Library. Please also send two (2) bound hardcopies of the approved Work Plan to my attention prior to the start of field work.

Based upon the schedule in the approved Work Plan, field work is scheduled to begin by November 22, 2013. As required by the VCA, please notify me at least five working days in advance of any field activities to be conducted pursuant to this Work Plan.

If CooperVision chooses not to accept the modifications proposed by the Department, you are required to notify this office within 20 days after receipt of this letter.

Thank you for your cooperation in this matter and please contact me at 585-226-5357 if you have any questions.

Sincerely,

Frank Sowers

Frank Sowers, P.E.
Environmental Engineer 2

ec:
B. Putzig
J. Mahoney
J. Frazer
J. Kenney
V. Dick
M. Ramsdell
C. Rogers
B. Hallatt

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1. INTRODUCTION

1.1 Site Description

The CooperVision Site is located at 711 North Road in Scottsville, New York (Figure 1) (the "Site"). 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 contain certain volatile organic compounds (VOCs), primarily 1,1,1-trichloroethane (1,1,1-TCA). The Site has been used for manufacturing (fabrication of contact lenses) since the mid-1970s however site use of 1,1,1-TCA for lens release from molds was discontinued following CooperVision's acquisition of the Site.

1.2 Background

Soil and groundwater investigations were conducted at the Site between 1998 and 2000 as part of application for and acceptance into a 1998 investigation Voluntary Cleanup Agreement (VCA). Following investigation, a remedy was selected for the Site in 2001, which included the injection of hydrogen release compound (HRC) in the overburden soil and groundwater to stimulate enhanced bio-remediation of the VOCs. A sub-slab depressurization system (SSDS) was also installed in a portion of the Site building as a mitigative measure as part of an Interim Remedial Measure (IRM) in 2006.

A supplemental vapor intrusion investigation was conducted on the Site, in the right-of-way to the east of the Site, and the adjacent apartments/townhomes in 2008 and 2009. 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. In addition to the off-site soil vapor investigation, a second IRM was completed that consisted of installing soil-bentonite-cement (SBC) trench collars in five (5) locations along existing utilities located on the Site and within the adjacent eastern right-of-way. The purpose of the trench collars was to mitigate the potential for preferential pathways for vapors and/or groundwater migration from the Site.

Deed Restrictions were also included as part of the remedy to address administrative control requirements of the VCA, including, but not limited to continuing the industrial use of the property, preventing use of groundwater at the Site without prior approval, and other measures required by NYSDEC, such as adherence to a Site Management Plan (SMP) for long-term management of the Site to maintain protection of human health and the environment.

Following submittal and approval of a 29 July 2010 Site Management Plan (SMP) and 16 June 2010 Final Engineering Report (FER), the NYSDEC granted CooperVision a release from liability for the Site on 29 November 2010.

1.3 Purpose

The most recent periodic review report for the Site submitted to the Department on 23 May 2013 identified a potential increasing trend of VOCs concentration in a downgradient area well (MW-202) on the eastern portion of the Site (please see Figure 2). At the request of the Department, CooperVision prepared an Evaluation of Remedial Alternatives, which included an updated summary of a Conceptual

Site Model (CSM) and applicable remedial technologies. The evaluation concluded that the injection of a biological amendment (emulsified vegetable oil (EVO)) as the most appropriate remedy to address the VOCs detected in the downgradient area groundwater.

The Department accepted the approach in a letter dated 31 July 2013 (Appendix A) and requested a work plan to implement the recommended alternative that includes:

- A schedule for implementation, monitoring and a report documenting the remedial action,
- The methods for injection of the EVO including volume, depth and location,
- A summary of all necessary permits and notifications for federal, state and local authorities and utility clearance,
- Plans for the management of associated waste generated during the program, and,
- A project specific Health and Safety Plan including a Community Air Monitoring Plan.

This work plan provides the above elements.

2. DESCRIPTION OF SELECTED REMEDIAL TECHNOLOGY

The remedial technology selected for implementation to address the dissolved phase plume of VOCs identified to the east of the building includes the injection of an emulsified vegetable oil (EVO), in a barrier configuration upgradient of monitoring well MW-202 to stimulate further in-situ biodegradation. The EVO will provide a quickly-bioavailable carbon source (e.g., lactate), a slow-release carbon (e.g., soybean oil) and nutrients for the stimulation of intrinsic bacteria. In the presence of an adequate carbon source and nutrients, intrinsic anaerobic bacteria (e.g. dehalococcoides mccartyii) will promote the breakdown the VOCs via reductive dechlorination processes resulting in energy for growth and benign end products (e.g., ethane, ethene, and chloride ion).

2.1 Geologic Conditions

Subsurface soils in the injection area generally consist of glacial till with the upper layer of the till apparently modified by ice melt or similar reworking. The reworked till occurs generally from ground surface to approximately 10 ft. in depth, has medium density and consists of fine sand with trace coarse sand and gravel. The unmodified till (generally deeper than 10-ft) consists of fine sand with trace coarse sand but is more dense than the reworked material and extends to over 20 feet in depth. The highly dense nature of the unmodified till has been demonstrated in past difficulty encountered during the installation of monitoring wells and performance of past bioamendment injection at the Site using direct-push drilling methods.

Based on groundwater level data collected to-date, groundwater flow on the Site is generally towards the east-southeast with a low hydraulic conductivity (10^{-6} to 10^{-7} cm/sec range). Test Boring logs for the explorations conducted in the area of the proposed injection are provided in Appendix B.

2.2 Characteristics of Emulsified Vegetable Oil (EVO)

The emulsified vegetable oil (EVO) product selected for the barrier application is EOS® Pro (formerly EOS® 598B42) manufactured by EOS Remediation, Inc. EOS® Pro is a nutrient rich, food grade oil/water emulsion designed to quickly stimulate microbial activity and to also provide a long-term carbon source for the anaerobic bioremediation of chlorinated solvents.

Upon injection into the subsurface, the EOS® Pro emulsion forms small droplets that are easily transported through pore spaces and adhere to soil particles providing a carbon source that can persist for several years.

A material safety material data sheet (MSDS) for EOS® Pro is provided in Appendix B.

2.3 Design Criteria

Parameters critical to the design of the bioamendment barrier included the following criteria:

- Target treatment area dimensions,
- Groundwater flow rate / hydrogeologic site data,
- Desired contact time between the bioamendment and contaminants, and,

- Intrinsic demand from competing terminal electron acceptors such as dissolved sulfate (SO_4^{2-}) and nitrate (NO_3^{2-}).

Site specific data for each of the critical parameters shown above was input into the EOS® Barrier Design Worksheet, provided by EOS Remediation, Inc. (Appendix B). The results of the design worksheet calculations indicates that 110 gallons of EOS® Pro would be sufficient to achieve effective treatment of the low concentration of dissolved VOCs observed in the downgradient groundwater area.

Based on the observed performance of the prior bioamendment injection and the goal to achieve effective treatment for an extended period, a total of 110 gallons of EOS® Pro will be injected for the barrier installation.

2.4 Injection Point Locations

Seven (7) injection locations will be completed within an approximate 1200 square feet area oriented perpendicular to the apparent groundwater flow direction and approximately twenty (20) feet to the west of monitoring well MW-202 as shown on Figure 2. Each injection point will be advanced to approximately 20 feet below ground surface (BGS) which is approximately 5 feet below the static groundwater table in this area of the Site. Each point will be installed using a modified conventional drilling method. The previous injection program in 2001 initially utilized a direct–push Geoprobe® method and had very little success due to the very dense till within the target zone. Subsequent injection was completed using air rotary methods to advance an injection hole and subsequent addition of HRC. This project will engage the same driller and an injection point design and drilling process has been developed to manage the dense soils, allow injection of the design volume of amendment, and provide for a stable, trafficable parking lot surface following completion of site work. A design drawing for the temporary injection point is provided on Figure 3. The EVO will induce anaerobic conditions downgradient from each injection point extending vertically from 10 feet to 20 feet BGS.

To enable the monitoring of subsurface conditions within the target treatment area, two additional micro-well points will be installed following the completion of the injection program for the collection of representative groundwater samples for evaluation of the groundwater geochemistry and in-situ biodegradation processes, and Bioaugmentation as needed (see below).

2.5 Bioaugmentation Point Locations

Two (2) microwell points, useable for bioaugmentation, will be installed following the injection of the EVO. The points will be used for monitoring of the in-situ groundwater conditions and if required to inject a consortium of microorganisms known to biodegrade the target Site VOCs when the groundwater conditions have been determined to be adequate to promote biological growth.

The points will be constructed with 1-inch PVC risers with 0.10 slotted well screens extending from 10 to 20 feet BGS. A design drawing for the bioaugmentation point is provided on Figure 3.

3. INSTALLATION OF REMEDIAL TECHNOLOGY

3.1 Site Preparation

An updated Health & Safety Plan (HASP) has been prepared for this project (Appendix C). Field personnel will obtain the appropriate personal protective equipment (PPE) consistent with HASP requirements prior to mobilizing to the Site. Upon arriving at the Site, several tasks will be performed prior to initiating injection activities.

These tasks will include:

- Conducting a Tailgate Safety Meeting with all field personnel,
- Set-up a controlled work area for managing field operations,
- Arrange Traffic Control with the assistance of Plant Personnel,
- Review Utility Location Stakeout (called in at least two business days prior to mobilization)

Brief details regarding these tasks are presented below:

3.1.1 Tailgate Safety Meeting

Tailgate Safety Meetings shall be held at the start of each day on-site. The meetings will discuss the current site activities and conditions and resolve the risks identified for worker health, safety, security and environmental concerns. An example tailgate safety meeting record is discussed further in the site specific Health and Safety Plan provided as Appendix C.

3.1.2 Decontamination/Exclusion Zone

The exclusion zone or zone that encompasses all known or suspected hazards for this project will include the area surrounding the proposed boring locations. Activities in the exclusion zone will include drilling, injection of EVO, and the installation of the well-points. A decontamination zone or contaminant reduction zone will be used to clean drilling and associated equipment. Only authorized personnel and vehicles will be permitted in the exclusion and decontamination zones.

3.1.3 Utility Location Stakeout

Prior to mobilization, Dig Safely NY will be notified to identify subsurface utilities in the area of the injection locations. The utilities will be confirmed with site personnel.

3.2 Injection of EVO

Details of injection points are provided on Figure 3. The construction of the injection points will be completed by an experienced environmental driller using a 6.25 inch interior diameter (ID) hollow stem auger advanced to a depth of approximately 10 feet BGS and the extension of the borehole to a depth of 20 feet BGS using a 5.8 inch (OD) air rotary driven soil roller bit. The borehole will be completed with pea gravel with a nominal size if >0.5 inch from approximately 10 feet to 20 feet BGS and a temporary 4 inch (ID) riser will be set into a cement/bentonite seal from approximately 8 to 10 BGS.

The remaining borehole annulus around the riser will be backfilled with the available soil cuttings. (Excess soil cuttings will be placed in drums for off-site disposal as discussed in Section 5 below) Each injection point will be completed with a traffic rated road box.

The EVO will be shipped by EOS Remediation, Inc. and received at the Plant prior to field mobilization of the drilling contractor and oversight personnel. The EVO will be delivered as a concentrate in 2 fifty –five gallon drums for a total of 110 gallons. The concentrate will be manually pumped into the injection points to approximately 1 feet (BGS) and measured using a water level indicator equipped with an audible alarm. The EVO will be allowed to drain into the target formation section via gravity. It is anticipated that each injection point up may require up to three (3) additions of the EVO mixture over an approximate 30 day period for the entire volume of bioamendment to be injected into the target treatment interval. The injection rate for each point will be determined by measuring the water level in each riser prior to each addition event so that an equivalent amount of the EVO mixture is added to each point. The total amount of EVO will be recorded for each injection point. This process will be repeated until the total amount of EVO is equally distributed among the injection points shown on Figure 2.

3.3 Biological Augmentation

Biological augmentation is the addition of active bacterial cultures comprising microbial species known to biodegrade the contaminants of concern at a Site. The goal of biological augmentation is to increase the population density of the anaerobic bacteria species (e.g. dehalococcoides mccartii) known to biodegrade the VOCs detected in the downgradient groundwater area including dichloroethene isomers (1,2-DCE; 1,1-DCE), dichloroethane (1,1-DCA) and vinyl chloride (VC).

3.3.1 Installation of Augmentation Locations

Following the injection of the EVO solution, two (2) bioaugmentation points will be installed to a depth of 20 feet BGS within the target treatment area. Each point will be constructed of a 1 inch (interior diameter (ID)) PVC riser and a 10 foot 0.01 inch slot PVC well screen. A construction detail of the bioaugmentation point is provided in Figure 3.

3.3.2 Application of Bacteria

BAC-9 developed by EOS Remediation, LLC is the bioaugmentation culture selected for the project site. The introduction of the bioaugmentation culture will proceed based on the results of the performance monitoring program to be conducted in conjunction with the injection and Semi-Annual groundwater quality sampling program to be completed in April 2014.

Target in-situ groundwater conditions for the introduction of the culture generally include: total organic carbon (TOC) greater than (>) 100 parts per million (ppm), dissolved oxygen (DO) concentration less than (<) 0.5 ppm and an oxidation reduction potential (ORP) measured at <-100 mV. Not all of these conditions need to be present for culture survival and growth, and professional judgment is exercised to determine if conditions are supportive for introduction of an augmentation culture.

4. POST INJECTION MONITORING

4.1 Groundwater Monitoring

Groundwater quality monitoring of the existing monitoring well MW-202 and the two (2) new 1-inch micro-wells will be used to assess the effectiveness of the injection program.

Performance monitoring will consist of collecting groundwater samples to be analyzed for the following analytes/parameters:

Analyte/Parameter	Method	Rationale
Ethane	EPA RSK175	Evidence of biodegradation
Ethene	EPA RSK17	
Methane	EPA RSK175	
Dissolved organic carbon	EPA 415.1	Injection Radius of Influence
Dissolved iron (Fe^{3+})	Hach Co. Field Test Kit	Assessment of in-situ geochemical conditions
Dissolved oxygen (DO)	Parameter measured in the field using direct reading instrument.	
Oxidation reduction potential (ORP)		
Temperature		Potential Bioactivity Inhibitor
pH		
Metabolic Acids	HPLC/UV	Evidence of biodegradation
Volatile Organic Compounds (VOC)	EPA 8260B	

Note: DO/ORP/pH/Temperature will be measured with a down-well probe.

In addition to the monitoring of geochemical parameters and groundwater quality, after the identification of the presence of EVO is determined, a Bio-Trap® will be deployed at MW-202 and retrieved for analysis of the microbial population to assess if bioaugmentation should be performed to fortify the microbial community with a consortium of microorganisms known to metabolize the VOC present in groundwater. Refer to Table 1 for sample container preservation requirements.

Site-wide groundwater samples will be collected during the regularly scheduled monitoring events in April and October 2014. Samples will be collected in accordance with the NYSDEC-approved Site Management Plan (SMP) dated 29 July 2010 and the performance of the remedial action will be evaluated and presented in the subsequent Periodic Review Report.

4.2 Quality Control/Quality Assurance (QA/QC)

Quality assurance and quality control (QA/QC) measures will be taken to ensure the samples will be collected and preserved in accordance with the requirements of the analytical method and transported under chain-of-custody to a NYSDOH -certified analytical laboratory for analysis. QA/QC measures implemented during the performance monitoring sampling events will include collection and analysis of duplicate samples, equipment blanks and trip blanks at the frequency specified in the Quality Assurance Project Plan (QAPP) provided as Appendix G in the approved SMP.

5. ADDITIONAL REQUIRED PROGRAM ELEMENTS

5.1 USEPA Underground Injection Code (UIC) Permit

The injection points to be installed for the remedial program are classified as Class 5X-26 Aquifer Remediation Wells by the USEPA Region II Office of Groundwater. Each well will be registered with the USEPA Region II office using a Class 5 injection well notification form. A copy of the completed form is provided in Appendix D.

5.2 Waste Management

5.2.1 Soil Cuttings

Soil cuttings will be containerized in drums or roll off containers, characterized for disposal according to landfill requirements, and disposed offsite. Documentation of waste removal will be included in the PRR.

5.2.2 Development and Purge Water

Purge and development water will be containerized and discharged to the sewer system under CooperVision facility sewer use permit per Section 2.5.8 of the NYSDEC-approved Site Management Plan.

5.3 Project Schedule

The remedial program will be initiated within 30 days of approval of this Work Plan. It is anticipated that the installation of the injection and bioaugmentation points will be completed over a 10 day period. The initial addition of EVO will be completed at least 48 hours after the installation of the last injection point to allow for setting of the cement/bentonite grout seals and re-saturation of the boreholes. The addition of the EVO will continue and is anticipated to require up to the next 30 days.

Representative groundwater samples will be collected from the bioaugmentation points and evaluated for the presence of the EVO:

- 30 days post injection
- 120 days post injection
- 1 year post injection

Groundwater samples will also be collected from MW-202 and analyzed for the expanded list of monitoring parameters listed in Section 3 above as part of the April 2014 and October 2014 semi-annual site-wide groundwater sampling events.

A description of the injection program including observed injection rates and the observations from the EVO addition and the results of the groundwater monitoring program will be incorporated into the 2014 Periodic Review Report.

5.4 Community Air Monitoring

Air monitoring is required in conformance with the Health & Safety Plan (HASP). In addition, the community air monitoring procedures set forth in the NYSDOH Generic Community Air Monitoring Plan (CAMP) will be followed during ground intrusive activities. A copy of the CAMP is attached to this document as Appendix E. 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 documented and will be provided to the NYSDEC and NYSDOH upon request.

5.5 Health & Safety Procedures

A site/project-specific Health & Safety Plan (HASP) for the work described herein is contained in Appendix C. The HASP will be provided to the drilling subcontractor to provide information that will facilitate development of their own project specific HASP.

6. PROFESSIONAL ENGINEER'S CERTIFICATION

I, Mark N. Ramsdell, P.E., CHMM certify that I am currently a NYS registered professional engineer ad defined in 6 NYCRR Part 375 and that this Remedial Action Work Plan – Emulsified Vegetable Oil Injection was prepared in accordance with all applicable statues and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

Mark N. Ramsdell

10/1/13

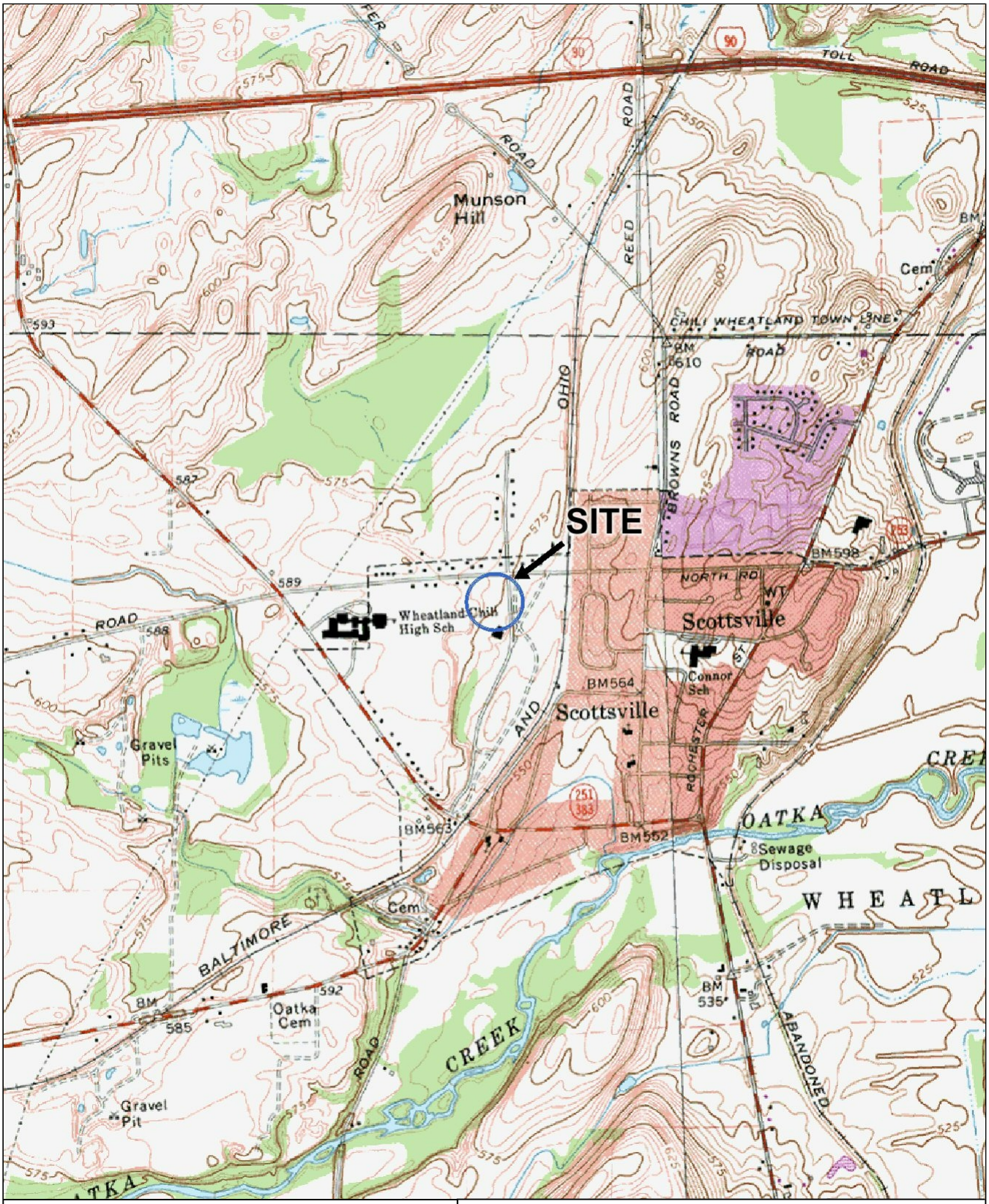
Mark N. Ramsdell, P.E., CHMM
Senior Project Manager

Date

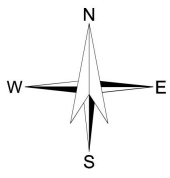
TABLE 1
SAMPLE CONTAINER PRESERVATIVE AND HANDLING REQUIREMENTS
Remedial Action Work Plan - EVO Injection Monitoring
Cooper Vision Facility
Scottsville, New York

Parameter[1,2]	Analytical Method	Sample Volume (Minimum)	Containers (Number, size & type)	Preservation Requirements	Holding Time[3]
Ferrous Iron (Fe^{2+}) (F)	Hach Field Test	50 mL	1 x 250 mL amber glass	4 ± 2ºC	24 hours
Chloride (L)	EPA 300	50 mL	1 x 125 mL HDPE		28 days
Nitrogen, Nitrate (NO_3^-) (L)	EPA 300	50 mL			28 Days
Sulfate (SO_4^{2-}) (L)	EPA 300	50 mL			28 days
Total Organic Carbon (L)	EPA 415.1	150 mL	1 x 250 mL amber glass	H_2SO_4 pH > 2	28 days
Total VOC (L)	EPA 8160B	40 mL	3 x 40 mL VOA vials	HCl pH >2	14 days
Ethene, Ethane, Methane	RSK 175	150 mL	2 x 125 mL Amber Glass	HCl pH >2	14 days
Metabolic Acids	HPLC/UV	250 mL	1 x 500 mL Amber Glass	H_3PO_4	28 days

[1] - Indicate field analysis parameter using a Hach Kit with "F".
[2] - Indicate off-site laboratory parameter with "L".
[3] - Holding time is determined from the time of sample collection to the time of sample preparation or analysis.



SITE COORDINATES:43°1'39"N 77°45'27"W



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

HALEY & ALDRICH

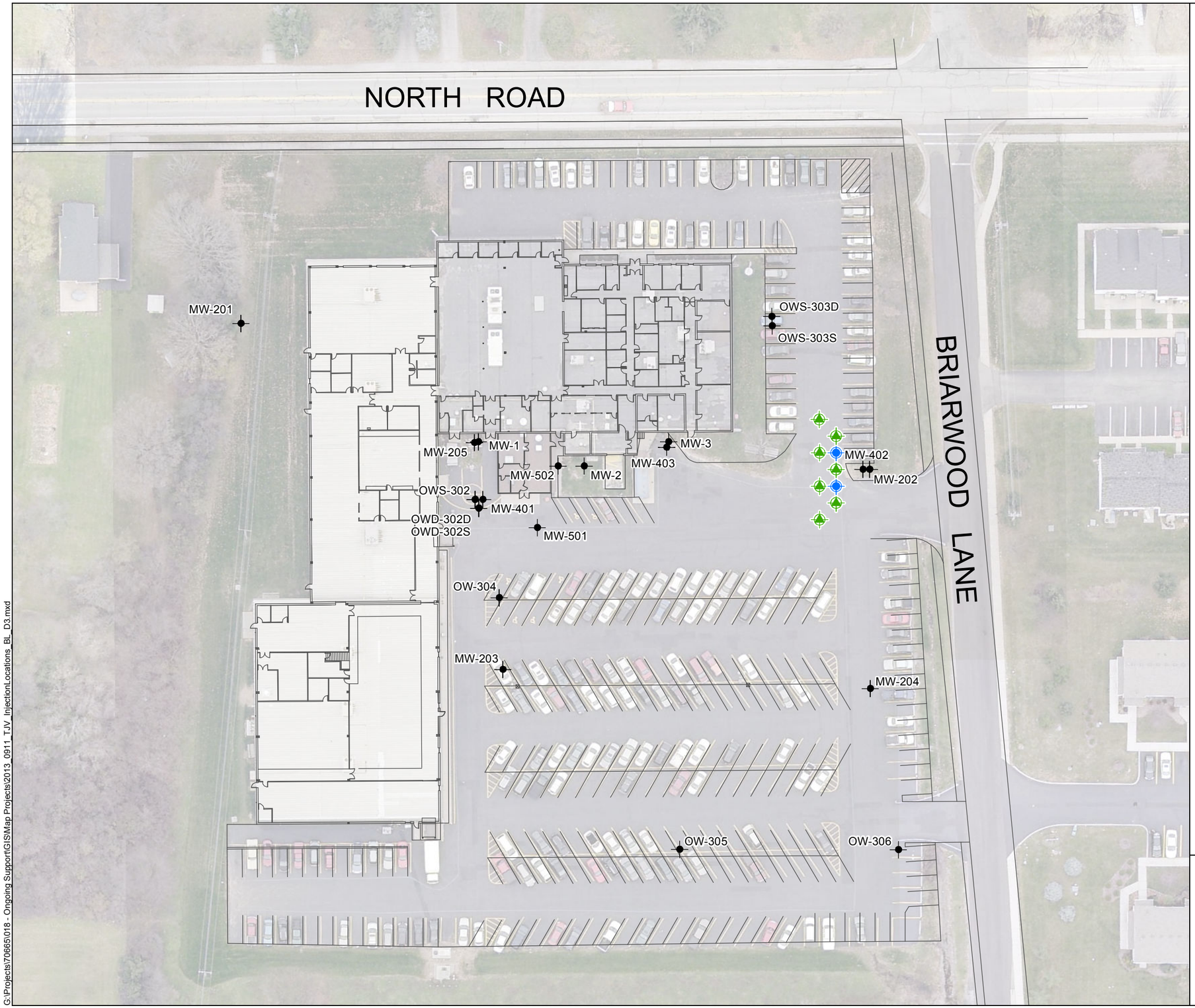
COOPERVISION, INC.
SCOTTSVILLE, NEW YORK

PROJECT LOCUS

SCALE: 1:24,000
SEPTEMBER 2013

FIGURE 1

70665-014 1.PDF



LEGEND

- AUGMENTATION POINT (2)
- INJECTION POINT (7)
- MONITORING WELL LOCATION

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. EXPLORATION LOCATIONS ARE APPROXIMATE.

N
W E
S

0 60 120
SCALE IN FEET

HALEY & ALDRICH

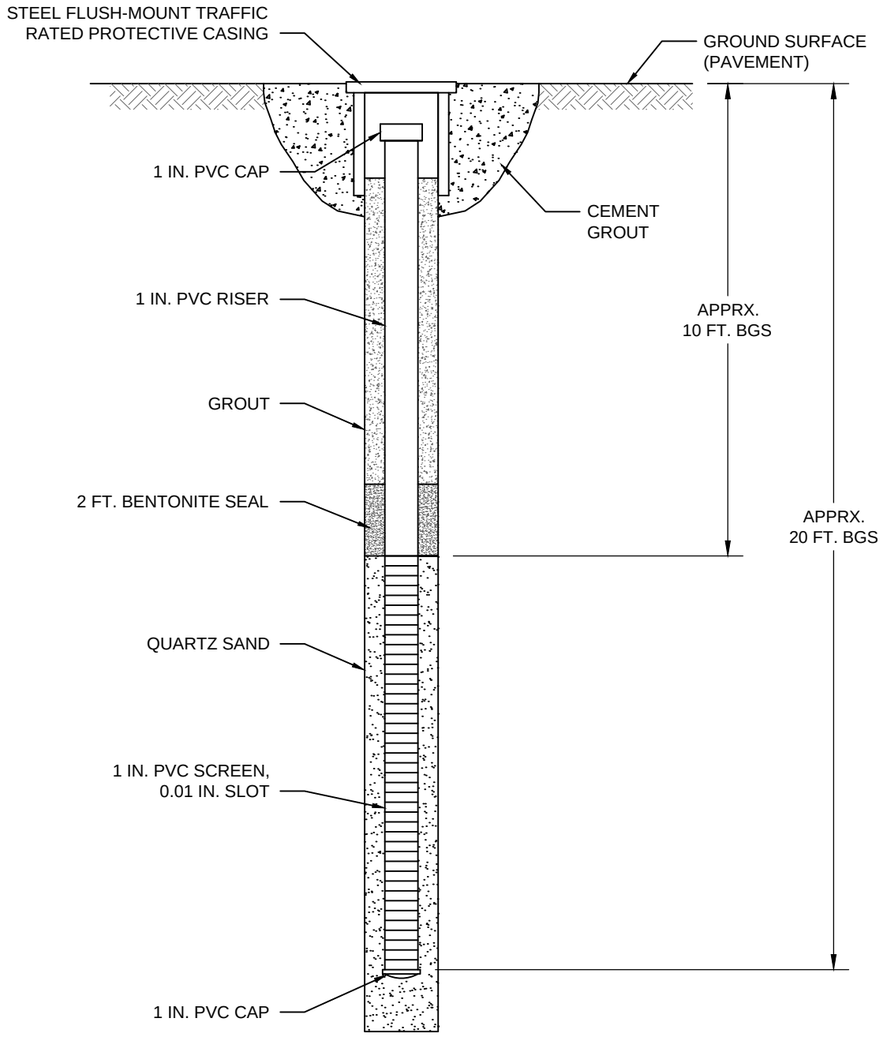
COOPERVISION FACILITY INVESTIGATION
711 NORTH ROAD
SCOTTSVILLE, NEW YORK

INJECTION OF CARBON SUBSTRATE AND/OR BIO-AUGMENTATION

SCALE: AS SHOWN
SEPTEMBER 2013

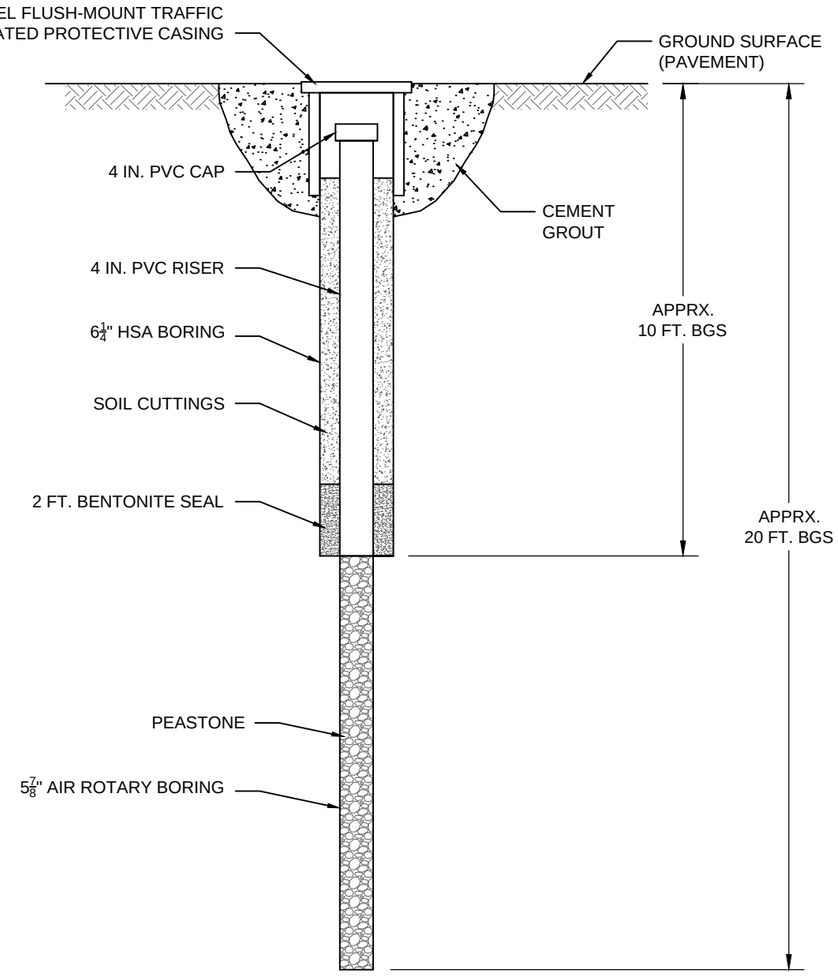
FIGURE 2

G:\Projects\70665\018 - Ongoing Support\GIS\Map Projects\2013_0911_TJV_InjectionLocations_BL_D3.mxd



TYPICAL BIO-AUGMENTATION POINT DETAIL

NOT TO SCALE



TEMPORARY INJECTION POINT

NOT TO SCALE

HALEY & ALDRICH

COOPERVISION FACILITY
711 NORTH ROAD
SCOTTSVILLE, NEW YORK

DETAILS

NOT TO SCALE
SEPTEMBER 2013

FIGURE 3

G:\70665\018\CAD\DRAWINGS\70665-018-DETAILS.DWG

APPENDIX A

Regulatory Correspondence

New York State Department of Environmental Conservation
Division of Environmental Remediation
6274 East Avon-Lima Road, Avon, New York 14414
Phone: (585) 226-2466
Fax: 585-226-8139
Website: www.dec.ny.gov

Joe Martens
Commissioner

July 31, 2013

Christopher H. Marraro, Esq.
BakerHostetler
Washington Square
1050 Connecticut Avenue, N.W., Suite 1100
Washington, DC 20036-5304

Re: CooperVision, Inc.
Report on Evaluation of Alternatives, July 18, 2013
Voluntary Cleanup Program, Site No.: V00175
Village of Scottsville, Monroe County

Dear Mr. Marraro:

The New York State Department of Environmental Conservation (NYSDEC) has completed its review of the Report on Evaluation of Alternatives (the Report) dated July 18, 2013 and prepared by Haley & Aldrich of New York for the CooperVision site in the Village of Scottsville, Monroe County. NYSDEC has determined that the Report is acceptable for the purpose of evaluating the remedial alternatives presented in the Report. Based upon the information and representations given in the Report, NYSDEC accepts the recommendation to implement the in-situ groundwater treatment alternative that includes emulsified vegetable oil (EVO) injection and bioaugmentation to create a barrier between the source area treatment zone and MW-202.

Please provide a Work Plan by **October 4, 2013** to implement the recommended alternative. Please include the following items in the Work Plan:

- A certification in accordance with DER-10 Section 1.5(b)1 that is signed and stamped by a Professional Engineer registered in the State of New York;
- A schedule for implementing the Work Plan and providing a report documenting the remedial action;
- The planned injection method and injection depths;
- The volume of EVO and, if known, bioaugmentation material planned to be injected at each point and methods for documenting the actual volume injected;
- A plan to contain and clean up any materials that blow back to the surface;
- Decontamination procedures;
- A plan to manage soils, decontamination water, and other wastes generated during the project;
- A summary of any permits/notifications needed to conduct the work, including notifications required by the EPA Underground Injection Control Program and underground utility stakeouts;
- Material Safety Data sheets for the injected materials;
- Drawing of an augmentation point;
- Health and Safety Plan with a Community Air Monitoring Plan; and
- Any other applicable information from DER-10 Section 5.3.

Thank you for your cooperation in this matter and please contact me at 585-226-5357 or e-mail: flsowers@gw.dec.state.ny.us if you have any questions.

Sincerely,

Frank Sowers
Project Manager

ec:

Julia Kenney, DOH Project Manager
Bart Putzig, RHWRE
James Mahoney - DEC Attorney
Mark Ramsdel – H&A
Vince Dick – H&A
Bernie Hallatt - CooperVision, Inc
Chuck Rogers - CooperVision, Inc.

APPENDIX B

EVO Injection Design Calculations / MSDS
Test Boring Logs

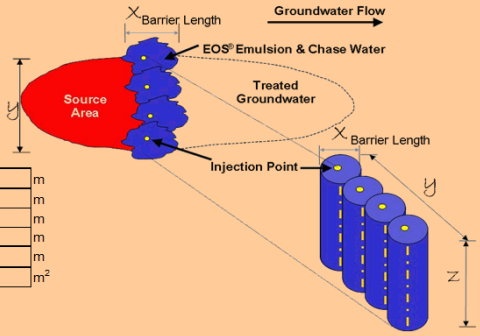
EOS Remediation, Inc.

EOS® BARRIER DESIGN WORKSHEET

U.S. Version 2.1a, Rev. Date: September 25, 2007
www.EOSRemediation.com

Help

Site Name:	Coopervision
Location:	Rochester, NY
Project No.:	70665-018



Step 1: Select a Substrate from the EOS® Family of Bioremediation Products

Substrate Selected (pick from drop down list): EOS® 598B42 (Preferred for Chlorinateds)
For Product Literature Click Here

Step 2: EOS® Consumption During Contaminant Biodegradation / Biotransformation

Section A: Treatment Area Dimensions

Length of treatment area parallel to groundwater flow, "x"	20	ft	6.1	m
Width of treatment area perpendicular to groundwater flow, "y"	60	ft	18.3	m
Minimum depth to contamination	10	ft	3.0	m
Maximum depth of contamination	20	ft	6.1	m
Treatment thickness, "z"	10	ft	3.0	m
Treatment zone cross-sectional area, A = y * z	600	ft^2	55.7	m^2

Section B: Groundwater Flow Rate / Site Data

Soil Characteristics

Nominal Soil Type (pick from drop down list)	Enter Site Data			
Total Porosity (accept default or enter *n*)	0.30	(decimal)		
Effective Porosity (accept default or enter n_e)	0.10	(decimal)		
Soil bulk density; (1-n)*2.65 g/cc (accept calculated or enter dry bulk density)	1.50	g/cc	94	lbs / ft^3

Hydraulic Characteristics

Hydraulic Conductivity (accept default or enter *K*)	0.027	ft/day	9.5E-06	cm/sec
Hydraulic Gradient (accept default or enter *i*)	0.005	ft/ft		

Note: Since the hydraulic gradient ($i = dh/dx$) is negative, we ask you to enter $-i$ in the EOS® Design Tool so that you can enter a positive number for convenience.

Non-reactive Transport Velocity, $V_x = -(K \times i) / n_e$	LESS THAN	0.01	ft/day	LESS THAN	0.003 m/day
Groundwater flow rate through treatment zone, $Q = -KiA$		0.61	gallons/day		16.99 L/day

Section C: Calculated Contact Length

Contact time (τ) between oil and contaminants (accept default or enter τ)		180	typical values 60 to 180 days, see comment
Calculated Contact Length (x) = τ * V_x	Suggested Minimum	5.0	ft

Treatment zone volume	12,000	ft^3	340	m^2
Treatment zone groundwater volume (volume * effective porosity)	8,976	gallons	33,980	L

Section D: Design Lifespan For One Application

	5	year(s)	typical values 5 to 10 years
Estimated total groundwater volume treated over design life	10,082	gallons	64,987 L

Section E: Electron Acceptors

Inputs	Typical Value	GW Conc. (mg/L)	MW (g/mole)	e^- equiv./ mole	Stoichiometry *Contaminant/H2* (wt/wt H_2)	Hydrogen Demand (g H_2)
Dissolved Oxygen (DO)	0 to 8	2.3	32.0	4	7.94	18.83211764
Nitrate Nitrogen (NO_3^- - N)	1 to 10	1	62.0	5	12.30	5.281885909
Sulfate (SO_4^{2-})	10 to 500	10	96.1	8	11.91	54.55107062
Tetrachloroethene (PCE), C_2Cl_4			165.8	8	20.57	
Trichloroethene (TCE), C_2HCl_3			131.4	6	21.73	
cis-1,2-dichloroethene (c-DCE), $C_2H_2Cl_2$			96.9	4	24.05	
Vinyl Chloride (VC), C_2H_3Cl		0.15	62.5	2	31.00	0.314409235
Carbon tetrachloride, CCl_4			153.8	8	19.08	
Chloroform, $CHCl_3$			119.4	6	19.74	
sym-tetrachloroethane, $C_2H_2Cl_4$			167.8	8	20.82	
1,1,1-Trichloroethane (TCA), CH_3CCl_3			133.4	6	22.06	
1,1-Dichloroethane (DCA), CH_2CHCl_2		0.05	99.0	4	24.55	0.132378388
Chloroethane, C_2H_5Cl		0.95	64.9	2	32.18	1.918468736
Perchlorate, ClO_4^-			99.4	8	12.33	
Hexavalent Chromium, Cr[VI]			52.0	3	17.20	
User added: 1,1-Dichloroethene		0.05	96.9	4	24.04	0.135192077
User added						
User added						

Section F: Additional Hydrogen Demand and Carbon Losses

Generation (Potential Amount Formed)	Typical Value	GW Conc. (mg/L)	MW (g/mole)	e^- equiv./ mole	Stoichiometry *Contaminant / H_2 (wt/wt H_2)*	Hydrogen Demand *(g H_2)*	DOC Released *(moles)*
Estimated Amount of $Fe2^+$ Formed	10 to 100	50	55.8	1	55.41	58.6449651	
Estimated Amount of Manganese (Mn^{2+}) Formed		5	54.9	2	27.25	11.92263306	
Estimated Amount of CH_4 Formed	5 to 20	10	16.0	8	1.99	326.6331468	
Target Amount of DOC to Release	60 to 100	100	12.0				541.06

Calculations assume:
1.) all reactions go to completion during passage through emulsified edible oil treated zone; and,
2.) perfect reaction stoichiometry.

EOS® Requirement Calculations Based on Hydrogen Demand and Carbon Losses

Stoichiometric Hydrogen Demand	1	pounds
DOC Released	31	pounds

EOS® Requirement Based on Hydrogen Demand and Carbon Loss

1 drums

Step 3: EOS® Requirement Based on Attachment by Aquifer Material

Soil Characteristics

Effective treatment thickness, "z_e" (typically less than 40%) 0.25

For Additional Information on Effective Thickness, Click Here

Weight of sediment to be treated 280,926 lbs

Adsorptive Capacity of Soil (accept default or enter site specific value) 0.0020 lbs EOS® / lbs sediment

EOS® Attachment by Aquifer Material[1]

- Fine sand with some clay 0.001 to 0.002 lbs EOS® / lbs soil
- Sand with higher silt/clay content 0.002 to 0.004 lbs EOS® / lbs soil

[1]Default values provided based on laboratory studies completed by NCSU

For Additional Data, Click Here

EOS® Requirement Based on Oil Entrapment by Aquifer Material

2

Summary – How much EOS® do you need?

Suggested Quantity of EOS® for Your Project 2 drums

EOS Remediation, LLC

MATERIAL SAFETY DATA SHEET

EOS PRO, EOS LS, EOS 450, EOS XR

1. MANUFACTUER AND EMERGENCY CONTACT

Manufacturer:

EOS Remediation, LLC
1101 Nowell Road
Raleigh, NC 27607
www.EOSRemediation.com
Phone: 919-873-2204
Fax: 919-873-1074

24-Hour Emergency Contact:

ChemTel Inc.
Phone: 1-800-255-3924
International
Phone: 813-248-0585

Date of Preparation:
January 9, 2013

2. HAZARDOUS INGREDIENTS / IDENTITY INFORMATION

COMPONENT(S)	% by WEIGHT	CAS NO.	EXPOSURE LIMITS		
			OSHA PEL-TWA	ACGIH TLV-TWA	NIOSH REL-TWA
Soybean Oil	45 - 60*	8001-22-7	Mist: 15 mg/m^3 (total) 5 mg/m^3 (respirable)	NE	Mist: 10 mg/m^3 (total) 5 mg/m^3 (respirable)
Emulsifiers Trade Secret [1,2]	1 - 10	Proprietary	NE	NE	NE
Soluble Substrates Trade Secret [1,2]	4 - 8	Proprietary	Mist: 15 mg/m^3 (total) 5 mg/m^3 (respirable)	Mist: 10 mg/m^3	NE
Organic Substrate Trade Secret [1]	0 - 10	Proprietary	NE	Mist: 10 mg/m^3	NE
Food Additives / Preservatives Trade Secret [1]	0.1 - 1	Proprietary	NE	NE	NE
Nutrients / Extracts Trade Secret [1,2]	0 - 1	Proprietary	NE	NE	NE
Water	Balance	7732-18-5	NE	NE	NE

NE - Not established

1 - The precise composition of this product is proprietary information. A more complete disclosure will be provided to a physician in the event of a medical emergency.

2 - The soluble substrates and emulsifiers are generally recognized as safe for food contact.

* - Percentage of soybean oil varies by product.

3. PHYSICAL / CHEMICAL CHARACTERISTICS

pH:	Neutral
Boiling Point:	212°F
Specific Gravity:	0.96-0.98; 0.92 (pure oil phase)
Vapor Pressure:	Not established
Melting Point:	Liquid at room temperature
Percent Volatile by Volume (%):	25 - 48 (as water)
Vapor Density:	Heavier than air
Evaporation Rate:	Not established
Solubility in Water:	Dispersible
Appearance and Odor:	White liquid with vegetable oil odor

4. FIRE AND EXPLOSION HAZARD DATA

Flash Point:	>300°F
Flammable Limits:	Not established
Extinguishing Media:	CO_2, foam, dry chemical Note: Water, fog and foam may cause frothing and spattering.
Special Fire Fighting Procedures:	Wear self-contained breathing apparatus and chemical resistant clothing. Use water spray to cool fire exposed containers.
Unusual Fire Hazards:	Burning will cause oxides of carbon.
Unusual Explosion Hazards:	None

5. REACTIVITY DATA

Stability:	Stable
Incompatibility:	Strong acids and oxidizers
Hazardous Decomposition Products:	Thermal decomposition may produce oxides of carbon.
Hazardous Polymerization:	Will not occur
Conditions to Avoid:	None known

6. HEALTH HAZARD DATA

Routes of Entry:	Ingestion, dermal
Health Hazards:	
Acute:	Potential eye and skin irritant
Chronic:	None known
Carcinogenicity:	
N.T.P:	No
IARC:	No
OSHA:	No
Signs and Symptoms of Exposure:	None known
Medical Conditions Aggravated by Exposure:	None known

Emergency First Aid Procedures:

Inhalation:	Remove to fresh air.
Eyes:	Flush with water for 15 minutes; if irritation persists see a physician.
Skin:	Wash with mild soap and water.
Ingestion:	Product is non-toxic. If nausea occurs, induce vomiting and seek medical attention.

7. PRECAUTIONS FOR SAFE HANDLING AND USE

Handling and Storage:	Do not store near excessive heat or oxidizers.
Other Precautions:	None
Spill Response:	Soak up with dry absorbent and flush area with large amounts of water.
Waste Disposal Methods:	Dispose of according to Federal and local regulations for non-hazardous waste.

8. CONTROL MEASURES

Respiratory Protection:	Not normally required.
Ventilation:	Local exhaust
Protective Gloves:	Recommended
Eye Protection:	Recommended
Other Protective Clothing or Equipment:	None

9. TRANSPORTATION INFORMATION

UN Hazard Class: N/A

10. ADDITIONAL INFORMATION

The information contained herein is based on available data and is believed to be correct. However, EOS Remediation, LLC makes no warranty, expressed or implied, regarding the accuracy of this data or the results to be obtained thereof. This information and product are furnished on the condition that the person receiving them shall make his/her own determination as to the suitability of the product for his/her particular purpose.

H&A OF NEW YORK, ROCHESTER, NEW YORK Consulting Geotechnical Engineers, Geologists and Hydrogeologists	TEST BORING REPORT	BORING NO. B-402

PROJECT: COOPERVISION DRILLING PROGRAM
CLIENT: COOPERVISION
CONTRACTOR: NOTHNAGLE DRILLING

FILE NO. 70665-000
SHEET NO. 1 OF 2
LOCATION: See Plan

ITEM	CASING	DRIVE SAMPLER	CORE BARREL
TYPE	AUGERS	SS	--
INSIDE DIAMETER (IN)	4-1/4	1-3/8	--
HAMMER WEIGHT (LB)	--	140	--
HAMMER FALL (IN)	--	30	--

DRILLING EQUIPMENT & PROCEDURES

RIG TYPE: CME-75
BIT TYPE: AUGERS
DRILL MUD: NONE
OTHER: Advanced augers to 30 ft. w/o sampling. Continuously sampled from 18-44 ft.

ELEVATION:
DATUM:
START: 10/2/99
FINISH:
DRILLER: B. Barton
H&A REP: N. Hoy

DEPTH (FT)	PID (PPM)	SAMPLER BLOWS PER 6 IN	SAMPLE NUMBER & RECOVERY	SAMPLE DEPTH (FT)	STRATA CHANGE (FT)	VISUAL CLASSIFICATION AND REMARKS
						Augered without sampling to 18 ft. below ground surface.
18	ND	100/5"	S1 5"/5"	18.0 20.0		Very dense brown sandy SILT, trace coarse sand, dry. Gray weathered rock (boulder) in bottom of spoon.
20	ND	47 94 100/4"	S2 16"/16"	20.0 22.0		Same.
		77 100/5"	S3 11"/11"	22.0 24.0		Same as above.
25						

WATER LEVEL DATA						SAMPLE IDENTIFICATION	SUMMARY	
DATE	TIME	ELAPSED TIME (HR)	DEPTH (FT) TO: BOTTOM OF CASING	DEPTH (FT) TO: BOTTOM OF HOLE	DEPTH (FT) TO: WATER	O Open End Rod T Thin Wall Tube U Undisturbed Sample S Split Spoon	OVERBURDEN (LIN FT):	44.4
							ROCK CORED (LIN FT):	--
							SAMPLES:	14S
							BORING NO.	B-402

H&A OF NEW YORK, ROCHESTER, NEW YORK Consulting Geotechnical Engineers, Geologists and Hydrogeologists	TEST BORING REPORT	BORING NO. B-402 FILE NO. 70665-000 SHEET NO. 2 OF 2

DEPTH (FT)	CASING BLOWS PER FT	SAMPLER BLOWS PER 6 IN	SAMPLE NUMBER & RECOVERY	SAMPLE DEPTH (FT)	STRATA CHANGE (FT)	VISUAL CLASSIFICATION AND REMARKS
						20-24 ft. samples and descriptions on Page 1.
25	ND	79 100/4"	S4 10"/10"	24.0 26.0		Very dense brown sandy SILT, trace coarse sand, dry.
		32 100/1"	S5 7"/7"	26.0 28.0		Same as above.
		67 100/3"	S6 9"/9"	28.0 30.0		Same as above.
30		36 70 100/5"	S7 17"/17"	30.0 32.0		Same as above.
		41 100/4"	S8 10"/10"	32.0 34.0	32.0	Brown silty fine SAND, trace coarse sand, moist, rock in bottom of spoon.
35		36 57 72 91	S9 24"/24"	34.0 36.0		Same as above, except damp.
		28 53 67 55	S10 76"/24"	36.0 38.0	36.0	Very dense sandy SILT, trace coarse sand, damp.
		14 38 49 39	S11 22"/24"	38.0 40.0		Same as above, except moist.
40		41 50 49 47	S12 18"/24"	40.0 42.0		Same as above.
		73 100/5"	S13 11"/11"	42.0 44.0		Same as above, except dry.
45		100/4"	S14 4"/4"	44.0 46.0		Weathered rock in spoon.
						End of Exploration at 46.0 ft.
50						Notes: 1. All samples field screened with microfid. 2. A 2.0 in. PVC well was set in completed borehole. See Well Installation Report for OW-402.
55						

H&A OF NEW YORK, ROCHESTER, NEW YORK Consulting Geotechnical Engineers, Geologists and Hydrogeologists	TEST BORING REPORT	BORING NO. B-202

PROJECT: WELL INSTALLATION
CLIENT: COOPERVISION, SCOTTSVILLE, NEW YORK
CONTRACTOR: NOTHNAGLE DRILLING COMPANY

FILE NO. 70665-002
SHEET NO. 1 OF 1
LOCATION: See Plan

ITEM	CASING	DRIVE SAMPLER	CORE BARREL
TYPE	Augers	SS	--
INSIDE DIAMETER (IN)	4-1/4	1-3/8	--
HAMMER WEIGHT (LB)	--	140	--
HAMMER FALL (IN)	--	30	--

DRILLING EQUIPMENT & PROCEDURES

RIG TYPE: CME-75, Truck Mount
BIT TYPE: --
DRILL MUD: --
OTHER: --

ELEVATION:
DATUM:
START: 7 July 1997
FINISH: 7 July 1997
DRILLER: K. Busch
H&A REP: J. Marschner

DEPTH (FT)	MICRO-TIP READING	SAMPLER BLOWS PER 6 IN	SAMPLE NUMBER & RECOVERY	SAMPLE DEPTH (FT)	STRATA CHANGE (FT)	VISUAL CLASSIFICATION AND REMARKS
	ND	6 15 21 15	S1 7"/24"	0.0 2.0	2.0	Dense brown SILT, trace gravel and sand, damp. -GLACIAL OUTWASH-
	ND	9 7 8 8	S2 14"/24"	2.0 4.0		Medium dense brown medium to fine SAND, trace gravel and silt, dry. -GLACIAL TILL-
5	ND	8 8 4 4	S3 4"/24"	4.0 6.0		Same.
	--	8 10 8 12	S4 NR	6.0 8.0		No Recovery. Very dense brown SAND, trace gravel and silt, wet.
	ND	69 60 23 45	S5 18"/24"	8.0 10.0	8.4	Very dense brown SILT, trace gravel and sand, wet. -GLACIAL TILL-
10	ND	21 50 58 45	S6 20"/24"	10.0 12.0		Same.
	ND	6 18 45 23	S7 10"/24"	12.0 14.0		Same. -GLACIAL TILL-
15	ND	9 20 100/.5	S8 10"/18"	14.0 15.5		Same.
	ND	100/.5	S9 6"/6"	16.0 16.5		Same.
	ND	100/.4	S10 2"/4"	18.0 18.4		Same. -GLACIAL TILL-
20						Bottom of Boring at 20.4 ft.
25						Notes: 1. Each sample screened using Photovac Microtip 2020 for organic vapor concentrations. 2. ND = Not Dectected. 3. Installation monitoring well in completed borehole. See Groundwater Monitoring Well Installation Report.

WATER LEVEL DATA

DATE	TIME	ELAPSED TIME (HR)	DEPTH (FT) TO: BOTTOM OF CASING	DEPTH (FT) TO: BOTTOM OF HOLE	DEPTH (FT) TO: WATER
7/8/97	1445	-22 hrs.	19.63	--	16.25

SAMPLE IDENTIFICATION

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon

SUMMARY

OVERBURDEN (LIN FT):	20.4
ROCK CORED (LIN FT):	--
SAMPLES:	10S
BORING NO.	B-202

APPENDIX C

Health & Safety Plan

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

For

CooperVision, Inc.

711 North Road, Scottsville, New York

Project/File No. 70665-018

Prepared by: Claire L. Mondello Date: 20 August 2013

Revised by: Mark N. Ramsdell Date: 11 September 2013

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

Margaret B. Holt - Local H&S Coordinator	Date
Mark N. Ramsdell - Site Project Manager	Date
Brian Fitzpatrick – Corporate Director H&S (Only required per request of LHSCs)	Date

Date printed: 9/16/2013 at 4:50 PM

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.: 70665-018**
Location: 711 North Road, Scottsville, New York	
Client/Site Contact: Phone Number: Emergency Phone Number:	Chuck Rogers/ John Hogan 585-385-6810 x.3254/ 585-264-3226 757-617-2062
H&A Project Manager: Phone Number: Emergency Phone Number:	Mark N. Ramsdell, P.E. 585-321-4262 585-370-6597
Local Health & Safety Coordinator: Emergency Phone Number:	Margaret B. Holt 585-321-4214 585-721-2426
Nearest Hospital: Address: (see map on next page) Phone Number:	Strong Memorial Hospital 601 Elmwood Avenue Rochester, New York 14624 585-275-4551
Nearest Occ. Health Clinic: http://www.talispoint.com/liberty/ext/ Address: (see map on next page) Phone Number	Strong Outpatient Occupational Therapy 4901 Lac De Ville Boulevard Building D, Suite 250 585-341-9000
Liberty Mutual Claim Policy	**WC2-Z11-254100-032**
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 includes:

Task #1: Field Oversight of the EVO Injection & Well Installation: A grid of points for the injection of emulsified vegetable oil will be installed using modified conventional drilling methods on the eastern side of the property adjacent to the Briarwood Drive right-of-way. In addition, two (2) small diameter wells for the potential future installation of bacteria will be installed within these points.

Task #2: Bio-augmentation: If required, bacteria will be placed within the two small-diameter points to enhance reductive dechlorination activities on the eastern side of the property.

Task #3: Semi-annual Groundwater Monitoring: Nine (9) onsite groundwater monitoring wells will be sampled using Waterra tubing and low-flow techniques during the Spring and Fall of each calendar year.

Task #4: SSDS System Monitoring: Vacuum test points within the building will be monitored using a handheld manometer during the Spring and Fall of each calendar year.

Task #5: Well Decommissioning and Site Restoration: Following completion of site monitoring, or when the points are deemed no longer necessary, with Department approval, the existing 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:

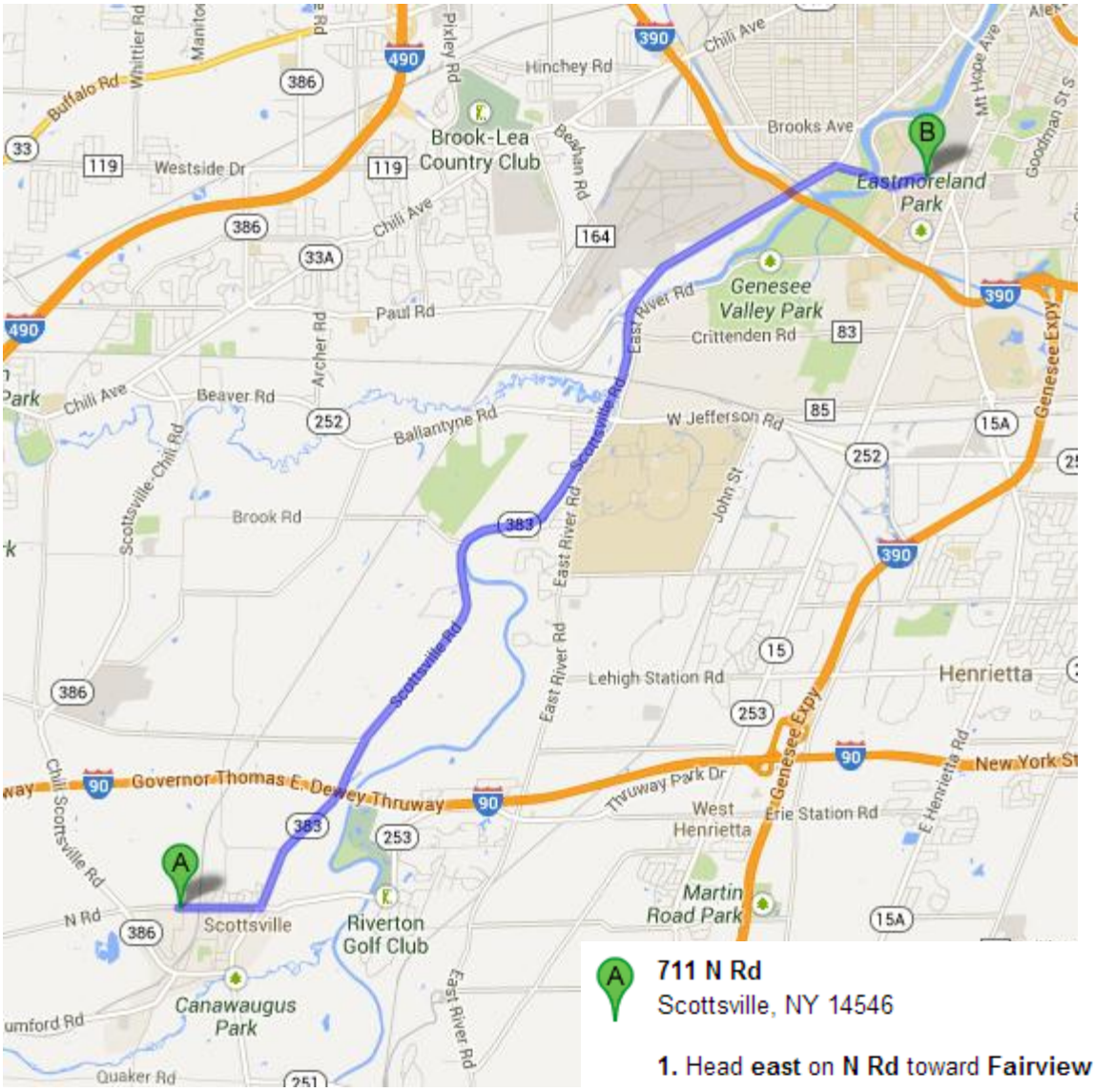
Firm Name	Work Activity
TBD	Injection of EVO
TBD	Installation of small-diameter bio-augmentation points.

Projected Start Date: November 2013

Projected Completion Date: Ongoing

Estimated Number of Days to Complete Field Work: Ongoing

Directions to the Nearest Hospital:



A **711 N Rd**
Scottsville, NY 14546

1. Head **east** on **N Rd** toward **Fairview Rd**
0.7 mi

2. Turn left onto **NY-383 N/Scottsville Rd**
9.1 mi

3. Continue onto **Elmwood Ave**
Destination will be on the right
0.8 mi

B **Strong Memorial Hospital**
601 Elmwood Ave
Rochester, NY 14642

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 square feet. 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 installation of emulsified vegetable oil (EVO) as a substrate and subsequent biological augmentation as necessary. Also included are ongoing monitoring activities include groundwater monitoring and sub-slab depressurization (SSDS) monitoring. In the future, the project will be expanded to include decommissioning of the onsite groundwater monitoring wells and soil vapor sampling points.

Overview of Hazards:

Site hazards include:

- Traffic hazards from working within in active parking lot
- Noise hazards from an air handling unit located proximate to one of the monitoring points.
- Chemical hazards from impacted media
- Potential impact/pinch hazards during installation activities.
- Drilling hazards during drilling installation activities.

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 manufacturing facility. Operations occur at the site in three shifts, 24-hours per day, 7-days per 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. EVO Injection Area:
   On the eastern portion of the site proximate to the eastern boundary of the property near the northernmost parking lot entrance off of Briarwood Lane.

2. Groundwater Monitoring Locations:
   MW-3, MW-202, MW-203, MW-204, MW-205, OWS-302S, OW-306, MW-501, MW-502: Located throughout the parking lot to the south and west of the building.

3. SSDS Monitoring Locations:
   Various points located throughout the interior of the site building.

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	Field Oversight of EVO Injection and Augmentation Points	TBD (1)	1-2 Weeks
2	Bio-Augmentation	TBD (1)	1-2 Days as necessary
3	Semi-Annual Groundwater Sampling	TBD (2)	3 days semi-annually
4	SSDS Monitoring	TBD (1)	1 day Semi-annually
5	Well Decommissioning & Site Restoration	TBD (1)	1-2 weeks

Task #1: Field Oversight of the EVO Injection & Well Installation: A grid of points for the injection of emulsified vegetable oil will be installed using modified conventional drilling methods on the eastern side of the property adjacent to the Briarwood Drive right-of-way. In addition, two (2) small diameter wells for the potential future installation of bacteria will be installed within these points.

Task #2: Bio-augmentation: If required, bacteria will be placed within the two small-diameter points to enhance reductive dechlorination activities on the eastern side of the property.

Task #3: Semi-annual Groundwater Monitoring: Nine (9) onsite groundwater monitoring wells will be sampled using Waterra tubing and low-flow techniques during the Spring and Fall of each calendar year.

Task #4: SSDS System Monitoring: Vacuum test points within the building will be monitored using a handheld manometer during the Spring and Fall of each calendar year.

Task #5: Well Decommissioning and Site Restoration: Following completion of site monitoring, or when the points are deemed no longer necessary, with Department approval, the existing 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
EVO Injection & Augmentation Point Install	SO, A, GW	1,1,1-TCA, 1,1-DCA, 1,1-DCE, Chloroethene, VC	SO : ND-0.2 ppm A: ND-2300 ppbV GW: ND-20 ppm
Bio-Augmentation	A, GW	1,1,1-TCA, 1,1-DCA, 1,1-DCE, Chloroethene, VC	A: ND-2300 ppbV GW: ND-20 ppm
Groundwater Sampling	A, GW	1,1,1-TCA, 1,1-DCA, 1,1-DCE, Chloroethene, VC	A: ND-2300 ppbV GW: ND-400 ppm
SSDS Monitoring	N/A	N/A	N/A
Well Decommissioning & Site Restoration	SO, A, GW	1,1,1-TCA, 1,1-DCA, 1,1-DCE, Chloroethene, VC	SO : ND-0.2 ppm A: ND-2300 ppbV GW: ND-400 ppm

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

Chemicals of Concern:

1,1,1 Trichloroethane

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

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

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

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

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

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

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

Vinyl Chloride (VC)

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

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

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

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

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

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

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

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

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

Chloroethane

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

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

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

TABLE 1
OCCUPATIONAL EXPOSURE LIMITS (CONCENTRATIONS IN AIR)

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

CHEMICAL	ROUTES OF EXPOSURE	IDLH	Ceiling	STEL	PEL	TLV	REL	PID (IP eV)	FID	ODOR THRES-HOLD	IRRITATION THRESHOLD	ODOR DESCRIPTION
VAPORS & GASES												
Acetone	R, I, C	2500	-	750 [ACGIH]	1000	500	250	9.69	60	13	-	fragrent, mint-like
Ammonia	R, I, C	300	-	35 [NIOSH, 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 2 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 [aryl]	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 (cristobalite, 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** EVO Injection	**Task 2** Bio-Aug.	**Task 3** GW Sampling	**Task 4** SSDS Mon.	**Task 5** 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: Specify					

***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
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 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. Excavations in progress will not be left unattended at any time. 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 non-work hours. The monitoring wells and soil vapor points will be closed and not accessible during non-work hours.

Weather Related Hazards

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

5. PROTECTIVE MEASURES

Personal Protective Equipment Requirements:

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

Required PPE	Task 1	Task 2	Task 3	Task 4	Task 5
	EVO Injection	Bio-Aug.	GW Sampling	SSDS Mon.	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: Enter type here					
P-100 (HEPA) filters					
Face shield					
Personal Flotation Device (PFD)					
High-Visibility Safety Vest	✓	✓	✓		✓
Other:					
Level of protection required [C or D]:	D	D	D	N/A	D

* 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

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.

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.

Perimeter Dust Monitoring:

Task Number:	1,5	Frequency	Continuous	times per	All day during task activities

Perimeter VOC Monitoring:

Task Number:	1,5	Frequency	Continuous	times per	All day during task activities

Work Site VOC Monitoring:

Task Number:	1, 3, 5	Frequency	Continuous	times per	All day during task activities

A Community Air Monitoring Plan (CAMP) will be enacted during tasks 1 and 5 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	Level D Protection
		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.	Upgrade to Level C - site evacuation may be necessary for specific compounds
		50 ppm over background, unless lower values required due to respirator protection factors	Cease work; upgrade to Level B[3] may be required
Explosimeter[4] (LEL)	Flammable/Explosive Atmosphere	<10% Scale Reading	Proceed with work
		10-15% Scale Reading	Monitor with extreme caution
		>15% Scale Reading	Evacuate site
0xygen Meter[5]	Oxygen-Deficient Atmosphere	19.5% - 23.5% 0_2	Normal - Continue work
		< 19.5% 0_2	Evacuate site; oxygen deficient
		> 23.5% 0_2	Evacuate site; fire hazard
Radiation Meter[6]	Ionizing Radiation	0.1 Millirem/Hour	If > 0.1, radiation sources may be present[7]
		> 1 Millirem/Hour	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
9. Remove inner gloves

Location of Decontamination Station:

N/A

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 disposal.

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 goggles 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.

Standard 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. Contaminated materials must be segregated into liquids or solids and drummed separately for offsite disposal. Any additional requirements are listed under Specific Disposal Methods for Contaminated Materials below.

Specific Disposal Methods for Contaminated Materials:

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.

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 reported to the PM and to HP at hpinjuryreporting@haleyaldrich.com and documented using the Incident Reporting Form. This form is available on HANK.

- 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. _____

2. _____

Site Safety Officer Roles and Responsibilities:

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

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

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

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

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

Health and Safety Training Requirements:

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

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

40-Hour Health and Safety Training

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

8-hour Annual Refresher Training

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

8-Hour Supervisor Training

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

Additional Training for Specific Projects

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

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

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 D

USEPA UIC Notification Form

Type or print all information. See reverse for instructions. OMB No. 2040-0042 Approval Expires 11/30/2014

INVENTORY OF INJECTION WELLS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF GROUND WATER AND DRINKING WATER

(This information is collected under the authority of the Safe Drinking Water Act)

1. DATE PREPARED *(Year, Month, Day)*: 13-10-01

2. FACILITY ID NUMBER:

PAPERWORK REDUCTION ACT NOTICE

The public reporting burden for this collection of information is estimated at about 0.5 hour per response including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, includingsuggestions for reducing this burden, Director, Collection Strategies Division (2822), U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue, NW, Washington, DC 20460, and to the Office of Management and Budget, Paperwork Reduction Project, Washington, DC20503.

3. TRANSACTION TYPE *(Please mark one of the following)*

- [ ] Deletion
- [x] First Time Entry
- [ ] Entry Change
- [ ] Replacement

4. FACILITY NAME AND LOCATION

A. NAME *(last, first, and middle initial)*: CooperVision, Inc.

B. STREET ADDRESS/ROUTE NUMBER: 711 North Road

C. LATITUDE

DEG	MIN	SEC
43	1	39 .

D. LONGITUDE

DEG	MIN	SEC
-77	45	27 .

E. TOWNSHIP/RANGE

TOWNSHIP	RANGE	SECT	1/4 SECT

F. CITY/TOWN: Scottsville

G. STATE: NY

H. ZIP CODE: 14546

I. NUMERIC COUNTY CODE: Mon

J. INDIAN LAND *(mark "x")*: [ ] Yes [ ] No

5. LEGAL CONTACT:

A. TYPE *(mark "x")*: [x] Owner [ ] Operator

B. NAME *(last, first, and middle initial)*: Rogers, Chuck

C. PHONE *(area code and number)*: (585) 385-6810

D. ORGANIZATION: CooperVision, Inc.

E. STREET/P.O. BOX: 711 North Road

F. CITY/TOWN: Scottsville

G. STATE: NY

H. ZIP CODE: 14546

I. OWNERSHIP *(mark "x")*

- [x] PRIVATE
- [ ] PUBLIC
- [ ] SPECIFY OTHER
- [ ] STATE
- [ ] FEDERAL

6. WELL INFORMATION:

A. CLASS AND TYPE		B. NUMBER OF WELLS COMM	B. NUMBER OF WELLS NON-COMM	C. TOTAL NUMBER OF WELLS	D. WELL OPERATION STATUS UC	AC	TA	PA	AN
5	X	7		7		7			
				0					
				0					
				0					
				0					
				0					
				0					

COMMENTS *(Optional)*:

This is an injection program for the remediaiton of groundwater contamination using emulsified vegetable oil to actively stimulate microbial activitiy.

KEY:

DEG = Degree
MIN = Minute
SEC = Second
SECT = Section
1/4 SECT = Quarter Section

COMM = Commercial
NON-COMM = Non-Commercial
AC = Active
UC = Under Construction
TA = Temporarily Abandoned
PA = Permanently Abandoned and Approved by State
AN = Permanently Abandoned and not Approved by State

SECTION 1. DATE PREPARED: Enter date in order of year, month, and day.

SECTION 2. FACILITY ID NUMBER: In the first two spaces, insert the appropriate U.S. Postal Service State Code. In the third space, insert one of the following one letter alphabetic identifiers:

D - DUNS Number,
G - GSA Number, or
S - State Facility Number.

In the remaining spaces, insert the appropriate nine digit DUNS, GSA, or State Facility Number. For example, A Federal facility (GSA - 123456789) located in Virginia would be entered as : VAG123456789.

SECTION 3. TRANSACTION TYPE: Place an "x" in the applicable box. See below for further instructions.

Deletion. Fill in the Facility ID Number.

First Time Entry. Fill in all the appropriate information.

Entry Change. Fill in the Facility ID Number and the information that has changed.

Replacement.

SECTION 4. FACILITY NAME AND LOCATION:

A. Name. Fill in the facility's official or legal name.

B. Street Address. Self Explanatory.

C. Latitude. Enter the facility's latitude (all latitudes assume North Except for American Samoa).

D. Longitude. Enter the facility's longitude (all longitudes assume West except Guam).

E. Township/Range. Fill in the complete township and range. The first 3 spaces are numerical and the fourth is a letter (N,S,E,W) specifying a compass direction. A township is North or South of the baseline, and a range is East or West of the principal meridian (e.g., 132N, 343W).

F. City/Town. Self Explanatory.

G. State. Insert the U.S. Postal Service State abbreviation.

H. Zip Code. Insert the five digit zip code plus any extension.

SECTION 4. FACILITY NAME & LOCATION (CONT'D.):

I. Numeric County Code. Insert the numeric county code from the Federal Information Processing Standards Publication (FIPS Pub 6-1) June 15, 1970, U.S. Department of Commerce, National Bureau of Standards. For Alaska, use the Census Division Code developed by the U.S. Census Bureau.

J. Indian Land. Mark an "x" in the appropriate box (Yes or No) to indicate if the facility is located on Indian land.

SECTION 5. LEGAL CONTACT:

A. Type. Mark an "x" in the appropriate box to indicate the type of legal contact (Owner or Operator). For wells operated by lease, the operator is the legal contact.

B. Name. Self Explanatory.

C. Phone. Self Explanatory.

D. Organization. If the legal contact is an individual, give the name of the business organization to expedite mail distribution.

E. Street/P.O. Box. Self Explanatory.

F. City/Town. Self Explanatory.

G. State. Insert the U.S. Postal Service State abbreviation.

H. Zip Code. Insert the five digit zip code plus any extension.

I. Ownership. Place an "x" in the appropriate box to indicate ownership status.

SECTION 6. WELL INFORMATION:

A. Class and Type. Fill in the Class and Type of injection wells located at the listed facility. Use the most pertinent code (specified below) to accurately describe each type of injection well. For example, 2R for a Class II Enhanced Recovery Well, or 3M for a Class III Solution Mining Well, etc.

B. Number of Commercial and Non-Commercial Wells. Enter the total number of commercial and non-commercial wells for each Class/Type, as applicable.

C. Total Number of Wells. Enter the total number of injection wells for each specified Class/Type.

D. Well Operation Status. Enter the number of wells for each Class/Type under each operation status (see key on other side).

CLASS I Industrial, Municipal, and Radioactive Waste Disposal Wells used to inject waste below the lowermost Underground Source of Drinking Water (USDW).

TYPE	**1I**	Non-Hazardous Industrial Disposal Well.
	1M	Non-Hazardous Municipal Disposal Well.
	1H	Hazardous Waste Disposal Well injecting below the lowermost USDW.
	1R	Radioactive Waste Disposal Well.
	1X	Other Class I Wells.

CLASS II Oil and Gas Production and Storage Related Injection Wells.

TYPE	**2A**	Annular Disposal Well.
	2D	Produced Fluid Disposal Well.
	2H	Hydrocarbon Storage Well.
	2R	Enhanced Recovery Well.
	2X	Other Class II Wells.

CLASS III Special Process Injection Wells.

TYPE	**3G**	*In Situ* Gasification Well
	3M	Solution Mining Well.

CLASS III (CONT'D.)

TYPE	**3S**	Sulfur Mining Well by Frasch Process.
	3T	Geothermal Well.
	3U	Uranium Mining Well.
	3X	Other Class III Wells.

CLASS IV Wells that inject hazardous waste into/above USDWs.

TYPE	**4H**	Hazardous Facility Injection Well.
	4R	Remediation Well at RCRA or CERCLA site.

CLASS V Any Underground Injection Well not included in Classes I through IV.

TYPE	**5A**	Industrial Well.
	5B	Beneficial Use Well.
	5C	Fluid Return Well.
	5D	Sewage Treatment Effluent Well.
	5E	Cesspools (non-domestic).
	5F	Septic Systems.
	5G	Experimental Technology Well.
	5H	Drainage Well.
	5I	Mine Backfill Well.
	5J	Waste Discharge Well.

PAPERWORK REDUCTION ACT The public reporting and record keeping burden for this collection of information is estimated to average 0.5 hours per response. Burden means the total time, effort, or financial resource expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal Agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to the collection of information; search data sources; complete and review the collection of information; and, transmit or otherwise disclose the information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques to Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822), 1200 Pennsylvania Ave., NW., Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed forms to this address.

USEPA REGION II SUPPLEMENTAL INSTRUCTIONS FOR COMPLETING INVENTORY OF INJECTION WELLS

EPA FORM 7520-16 (Rev. 8-01)

SECTION 2. FACILITY ID NUMBER: Leave blank. EPA will assign an ID number.

SECTION 3. TRANSACTION TYPE: Check either First Time Entry or Entry Change. If this is the first time you have submitted this form for your injection wells(s), check First Time Entry and fill in all the appropriate information. If you are modifying information you sent in before, check Entry Change, fill in the Facility Name and Location and fill in the information that has changed. (Note: If the facility name has changed, in the blank space in the upper left hand corner write the prior facility name under which the form was first submitted, and the date it was submitted.)

SECTION 4. FACILITY NAME AND LOCATION: If you know the latitude and longitude of your facility, fill in line 4C and 4D. You do not need to fill in 4E, Township/Range. If you know the Numeric County Code, fill in line 4I, otherwise just write in the name of the County.

SECTION 5. LEGAL CONTACT: Under 5A, if the Legal Contact you are identifying owns the land, check Owner. If the Legal Contact owns and/or operates the business but someone else owns the land, check Operator. Under 5I, "Private" means privately owned. "Public" means owned by local/municipal government. "State" and Federal" mean owned by state/federal government.

SECTION 6. WELL INFORMATION: Under 6A CLASS AND TYPE, use the attached table "USEPA Region II List of Class V Injection Well Types" to determine the **CLASS V** "TYPE". Enter the appropriate Type Code in 6A (the Type Code does not have to fit within the two boxes on the Inventory Form). Select the Class V well type(s) that most accurately fit the well(s) at your facility. When reviewing the attached table and making your determination, be sure to consider all of the fluids entering the well or having the potential to enter the well. For example, Storm Water Drainage Wells located in industrial areas which are susceptible to spills, leaks or other chemical discharges are inventoried as Industrial Drainage Wells. If Cesspools and Septic Systems are receiving fluids other than sanitary waste (human excreta), that should be noted in the Additional Information below.

IMPORTANT: ADDITIONAL INFORMATION

In order to ensure that the **Class V** Well(s) at your facility are accurately inventoried you must also submit on a separate piece of paper: (1) a brief description characterizing your facility and the types of activities conducted; (2) a brief description of what you use each of your injection well(s) for; (3) a brief description of the types of fluids that enter, or have the potential to enter, each of your injection well(s). (Note: wells with the same information may be grouped).

If you require assistance, please contact EPA Region II at (212) 637-3093.

APPENDIX E

Community Air Monitoring Plan

New York State Department of Health
Generic Community Air Monitoring Plan

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and 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 or 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/or particulate levels at the perimeter of the exclusion zone or work area will 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/NYSDOH staff.

Continuous monitoring will be required for all <u>ground intrusive</u> 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 instances, 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 for 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 be 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.

June 20, 2000

P:\Bureau\Common\CommunityAirMonitoringPlan (CAMP)\GCAMPR1.DOC