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

Denise M. Sheehan
Commissioner

September 15, 2006

Mr. Antonio Gabrielle
1214 Lake Road
Webster, New York 14580

Mr. Joseph Ognibene
3875 North Byron Road
Byron, New York 14020

Dear Messrs. Gabriele and Ognibene:

Re: Churchville Ford Site # V00658-8
Voluntary Cleanup Program Work Plan; August 2006
Village of Churchville, Monroe County

The Department of Environmental Conservation (DEC) has reviewed the August 2006 Voluntary Cleanup Program Work Plan (August 2006 Work Plan) prepared by Lu Engineers for the Churchville Ford site and has determined that it is substantively equivalent to the DEC approved December 9, 2005 Revised Work Plan Addendum prepared by Entrix with the following modifications and clarifications:

1. Per Page 4 of the December 9, 2005 Revised Work Plan Addendum, the location of all utility line runs on the property will be identified to the extent possible. The underground utility information will be used to evaluate any preferential pathways for constituents to migrate along. The information will also be compared with utility line markings prior to monitoring well installation for verification purposes.

2. Section 3.2, first paragraph: The final well locations and well depths will be determined in the field subject to the approval of the DEC project manager.

3. Section 3.2, first paragraph: The depths of the existing wells will be measured prior to well installation.

4. Section 3.2, first paragraph: The location of any wells on the adjacent property to the north will be identified prior to installation of well MW-JCL-3.

5. Section 3.2, first paragraph: The March 2004 Investigation Work Plan indicated that split spoon samples could be collected every 5-ft for the Voluntary Cleanup Program (VCP) Phase II well installations. However, since the boring logs for the VCP Phase I well installations are not currently available, split spoon samples will be collected and logged continuously.

6. Section 3.2, second paragraph: All investigation derived wastes will be logged and managed in accordance with the March 2004 Investigation Work Plan. As specified in SOP 21 of the March 2004 Investigation Work Plan, all investigation derived wastes will be placed in drums; the drums will be labeled, inventoried, and stored in a secure location; the waste material will be properly and promptly characterized and disposed of off-site. The drum inventory, waste characterizations and disposal documentation will be included in the final investigation report.

7. Section 3.2, third paragraph: The soil samples collected for laboratory analysis will not be "representative", rather the soil samples will be collected from the most contaminated areas based on field screening. If contamination is not indicated by field screening methods, then the soil sample will be collected from just above the water table. Additionally, the soil and groundwater analytical data may not be sufficient to properly characterize the waste material as the material sampled is not necessarily representative of the waste material in the drums.

8. Section 3.2, third paragraph: Nitric acid solution will not be used for decontamination.

9. Table 3.3.1 and Section 3.3.2: As specified in the DEC approved December 9, 2005 Revised Work Plan Addendum and noted in the September 13, 2006 Progress Report, soil samples will also be analyzed for TAL metals.

10. Section 3.3.1, first paragraph: Per SOP 13 of the March 2004 Investigation Work Plan, the wells will be allowed to set for at least seven (7) days between development and sampling.

11. Section 4: The final investigation report will be consistent with the requirements of the Voluntary Cleanup Agreement and section 3.14 of the of the document entitled "Draft DER-10 Technical Guidance For Site Investigation and Remediation," (DER-10) dated December 2002 and subsequent updates.

12. Section 4: Site-specific contaminant levels will be compared to DEC TAGM 4046 guidance values or other guidance values which may be applicable at the time that the investigation report is prepared.

13. Coordinates for all sample locations will be provided in meters using the NAD 83 UTM Zone 18 (NYTM) coordinate system. Well elevations will be provided in feet using the NAVD 88 coordinate system.

14. Data Usability Summary Reports (DUSRs) will be completed. Please provide the qualifications of the person completing the DUSRs.

15. The DEC approved December 9, 2005 Revised Work Plan Addendum specified four groundwater sampling events. Two sampling events during seasonal low groundwater conditions and two sampling events during seasonal high groundwater conditions. The August 2006 Work Plan changes this requirement to two groundwater sampling events. One sampling event will be completed during seasonal low groundwater conditions (Fall 2006) and one sampling event during seasonal high groundwater conditions (Spring 2007). This revision is consistent with DEC guidance and is not considered a substantive change. The sample results will be evaluated to determine if additional data are necessary, including additional rounds of groundwater sampling, additional wells, etc.

16. As discussed in the December 9, 2005 Revised Work Plan Addendum, the recently submitted Indoor Air Quality Questionnaire and Building Inventory will be reviewed to determine what, if any, additional information is needed to evaluate vapor intrusion at the site. At this time, it is anticipated that additional vapor intrusion sampling, to be completed soon after the start of the 2006 heating season (typically November 15), will be requested.

17. Field activities will be completed by the end April 2007. The final investigation report will be submitted by the end of June 2007 unless significant additional investigation activities are needed.

18. All sampling/testing, QA/QC samples (such as equipment rinseate blanks, duplicate samples, etc.), operating procedures, the community air monitoring plan, and other requirements included in the March 2004 Investigation Work Plan are included in the August 2006 Work Plan by reference.

19. Two additional hardcopies and an electronic copy of the August 2006 Work Plan will be submitted to DEC by October 16, 2006. The electronic copy will be submitted on CD as a searchable Adobe Acrobat file. One hardcopy and one electronic copy will also be sent to the following:

    Matt Forcucci
    NYSDOH
    584 Delaware Avenue
    Buffalo, NY 14202

Joseph Albert
Monroe County Health Department
111 Westfall Road - PO Box 90832
Rochester, NY 14692

Please include Matt and Joe on **all** future correspondence.

DEC understands that field work is scheduled to begin on Monday September 18, 2006. Please contact me at (585) 226-5357 if this schedule changes or if you have any questions.

Sincerely,

Frank Sowers, P.E.
Environmental Engineer 2

cc:
Greg Andrus (Lu Engineers)
John Campbell (Okar Equipment)
Benjamin Bonarigo (Bonarigo & McCutcheon)

ec:
E. Belmore
B. Putzig
M. Forcucci
J. Albert
J. Hausbeck

LU ENGINEERS
CIVIL AND ENVIRONMENTAL

2230 PENFIELD ROAD
PENFIELD, NEW YORK 14526
(585) 377-1450 FAX: (585) 377-1266

LETTER OF TRANSMITTAL

DATE: 08/31/06	JOB NO.: 5701-11
ATTENTION: Frank Sowers, P.E.	
RE: Fmr. Churchville Ford Site VCP Work Plan	

TO: New York State Department of Environmental Conservation
6274 East Avon-Lima Road
Avon, New York 14414

WE ARE SENDING YOU:

[X] Attached [ ] Under Separate Cover Via _____ the following items
[ ] Shop Drawings [ ] Prints
[ ] Samples [ ] Specifications [ ] Plans
[ ] Change Order [ ] Report [ ] Copy of Letter

COPIES	DATE	NO.	DESCRIPTION
1	08/06		Former Churchville Ford Site VCP Investigation Work Plan

THESE ARE TRANSMITTED AS CHECKED BELOW:

[X] For Approval [ ] Approved as Submitted [ ] Resubmit _____ Copies for Approval
[ ] For Your Use [ ] Approved as Noted [ ] Submit _____ Copies for Distribution
[ ] As Requested [ ] Returned for Correction [ ] Return _____ Corrected Prints
[ ] For Review and Comment [ ] Prints Returned After Loan to Us
[ ] For Bids Due _____ [ ] _____

REMARKS: Please review and comment at your earliest convenience. Field work is tentatively scheduled for the Week of September 18, 2006.

Please call or e-mail with any questions or comments.

Thank you,

COPY TO: John Campbell - Okar
5701-11 file

SIGNED: _____

Gregory L. Andrus, CHMM

VOLUNTARY CLEANUP PROGRAM WORK PLAN

FOR A SUBSURFACE INVESTIGATION AT
FORMER CHURCHVILLE FORD
111 SOUTH MAIN STREET
TOWN OF CHURCHVILLE, NEW YORK
NYSDEC Site # V00658-8

Prepared For:

Okar Equipment Company, Inc.
754 Brooks Avenue
Rochester, NY 14619

Prepared By:

2230 Penfield Road
Penfield, New York 14526

August 2006

Project 5701-11

Voluntary Cleanup Program Work Plan
Subsurface Investigation
Former Churchville Ford

TABLE OF CONTENTS

1.0 BACKGROUND

The Site is located at 111 South Main Street, in the Town of Churchville, Monroe County, New York. It consists of a 9.8-acre parcel that contains two buildings including a small wood barn and a masonry vehicle service building and showroom. Adjacent properties include a newly constructed roadway and Interstate I-490 to the south; a party house to the north; a recreational vehicle sales facility to the west; and South Main Street and residential property to the east. A Site Location Map is provided as Figure 1.

The Site was first evaluated with respect to subsurface conditions in 2002. Concentrations that exceeded New York State Department of Environmental Conservation (NYSDEC) recommended soil cleanup objectives for several contaminants were identified in soil and groundwater samples obtained as part of a "Phase II Environmental Site Assessment performed in August 2002. Additional work was conducted in July 2004 that also indicated the presence of elevated contaminant concentrations in soil and groundwater. Okar Equipment Company, Inc. (Okar) has requested that Lu Engineers conduct additional subsurface investigation to evaluate the nature and extent of compounds identified in subsurface soils and groundwater at the Site. This work will be completed under a Voluntary Cleanup Agreement in compliance with the NYSDEC's DER-10 guidance document.

1.1 Comprehensive Summary of Previous Investigations

Three (3) previous investigations have been conducted on the property. The first two reports were prepared by Sear Brown for Meyers Campers and included a Phase I Environmental Site Assessment conducted in July 2002, and a Phase II Environmental Site Assessment conducted in August 2002. Analytical results, boring logs and maps indicating sample locations can be referenced in the Phase II Environmental Site Assessment Report. Entrix Environmental Consultants completed an additional Site investigation in July 2004 and prepared a Status Report on July 21, 2005.

History reviews have found two past property uses for the Site. The Site existed as agricultural land until 1986, when an automobile dealership was constructed. The Site property includes two buildings, the automobile dealership building and a wooden storage building located to the west. The dealership building contains business offices and an automobile maintenance facility. The storage building was used for new parts storage. The facility began operations in 1987 as Gabriele Ford.

The current and past uses of surrounding properties were found to be primarily residential. North of the Site is a Party House (former residence); south of the Site is a recently constructed roadway and Interstate I-490; east of the Site is South Main Street, followed by residential housing; and west of the Site is a recreational vehicle sales facility.

Findings from the previous environmental assessments are summarized below.

1.1.1 Automobile Dealership Building

The Automobile Dealership Building is a single-story block structure (see Figure 1) that includes business offices and an automobile maintenance facility. Subsurface investigations have identified petroleum products and chlorinated solvents in the soils and groundwater at the Site. The impacted soils appear to be limited to the southwest portion of this Site building (see Figure 1).

Historically, aboveground storage tanks containing gasoline (1,000-gallon AST outside southwest corner of building), virgin oil and waste oil were operated on site. A variety of other products including virgin and used antifreeze, part washing solvents, automobile cleaners and waxes were also used on site and were containerized in 55-gallon or smaller containers (Sear Brown, August 2002).

Previous investigations concluded that no underground storage tanks have ever been installed at the Site. A geophysical survey, which was completed in August 2002, on the north side of the main Site building, revealed no anomalies and indicated that no USTs appeared to be present in this area.

Floor drains within this Site building were also evaluated during previous investigations. It was determined that these drains empty into an oil/water separator before discharging to the municipal sanitary sewer system.

An area of stained asphalt was observed during the July 2002 Phase I ESA on the west side of the building exterior, in the vicinity of a former aboveground waste oil storage tank. This area was investigated in August 2002 by the installation of soil borings and monitoring wells. The location of these borings/wells can be found on Figure 2 of the August 2002 Phase II report.

Fourteen (14) small diameter soil borings and four (4) temporary groundwater monitoring wells were installed during the August 2002 Phase II investigation. Four of these borings (GP-6 through GP-9) were installed inside the Site building in the area of the former parts washers, the oil/water separator and the degreasing solvent storage area. GP-7 and GP-9 were advanced to a total depth of 4 feet, while GP-6 and GP-8 were advanced to 8 feet due to the apparent presence of petroleum impacted soils (Sear Brown, August 2002).

The remaining 10 soil borings were installed outside of the building footprint and were advanced to a depth of 12 feet, except for borings GP-11, GP-13 and GP-14. GP-11 was advanced to 8 feet in the vicinity of the former 1,000-gallon gasoline AST where no apparent contaminant impacts were observed. GP-13 was installed down gradient of the former waste-oil AST, the solvent storage area, and used antifreeze area and was advanced to 8 feet with petroleum impacts observed between 2 and 6 feet. GP-14 was installed on the south side of the compressor

shed and advanced to a depth of 4 feet where no impacts were noted (Sear Brown, August 2002). Borings GP-1, GP-3, GP-6, and GP-10 exhibited elevated PID readings and/or odors indicative of contaminant-impacted soil. Soil samples were analyzed for TCL and STARS VOCs, SVOCs (B/Ns), TICs and glycols in 2002.

Soil samples from borings GP-1, GP-3, GP-6, GP-10, and GP-13 revealed VOCs related to petroleum products and degreasing solvents at levels exceeding NYSDEC Allowable Soil Concentrations. The highest concentrations of contaminants were found nearest the southwest corner of the Site building. Soil samples from GP-1, GP-10 and GP-13 revealed one or more STARS-list SVOCs (B/Ns) that exceeded allowable soil concentrations. Petroleum-related TICs were detected in all soil samples analyzed, except in boring GP-13. No glycols were detected at or above the detection limits in any of the soil samples analyzed (Sear Brown, August 2002).

Borings GP-1, GP-3, GP-6 and GP-13 were completed as temporary monitoring wells. Analytical results from the August 2002 investigation are summarized in Table 9 of the Phase II Investigation Report. VOC analysis of the groundwater samples indicated that one or more constituents related to petroleum products and/or degreasing solvents exceeded the respective NYSDEC Class GA groundwater standards in all four of the wells installed and sampled (Sear Brown, August 2002). The highest concentrations of chlorinated VOCs were detected in MW-3 in the former solvent storage area, while the highest concentrations of petroleum-related VOCs were in well MW-1 that also contained a 0.3-0.5 foot thick layer of free petroleum product on the water table. MW-13 exhibited concentrations slightly exceeding guidance values for one solvent-related VOC as well as one petroleum-related VOC. MW-6, installed near the oil/water separator, revealed three solvent-related constituents that exceeded standards, indicating residual impacts to groundwater on site from the former waste oil AST, the former solvent storage area, and the oil/water separator in the service area (Sear Brown, August 2002).

The soil sampling conducted by Entrix in July 2005 revealed elevated levels of SVOCs exceeding allowable soil concentrations south of the Site building, in a debris pile on the northwest portion of the Site property as well as in the storm water retention basin south of the Site. A total of 32 sediment and shallow soil samples were collected during this Phase II investigation. Analytical results can be found in the summary table attached to the report.

Entrix collected eight (8) soil vapor samples beneath the concrete floor of the Site building as noted in the July 2005 Status Report. Trichloroethene exceeded the NYSDOH guidance values in five of the eight samples (SG-1, SG-2, SG-4, SG-7, and SG-8). All five of these samples were located either near the former solvent storage areas of the building or the oil-sand trap and trench drains. Tetrachloroethene values exceeded the NYSDOH guidance values in samples SG-1, SG-2, SG-4 and SG-5.

Entrix's Phase II Status Report indicates that groundwater exceedences appear to be confined to the western half of the Site building, near former solvent storage areas and the oil-sand trap.

Entrix's investigation work concluded that biodegradation of chlorinated solvents is occurring on the Site in both soil and groundwater. Additional information is expected from Entrix that will more completely document site investigation findings to date.

2.0 PURPOSE

As a result of the preliminary environmental investigations for the Site, discussions with staff at the NYSDEC Region 8 Office in Avon, New York, and the objectives specified by the Volunteers, the scope of the investigation shall be focused on the area of impacted soil and groundwater located at the west end of the main building, as well as an evaluation of soil conditions in and around the storm water system on site. The scope of work shall include the completion of three (3) subsurface soil borings; installation of three (3) monitoring wells in the boring locations; collection of two (2) sets of water samples from the six existing wells and three newly installed wells; collection of three sediment samples from the storm water drainage inlets; two (2) surface samples from the ditch located north of the Site entrance and five (5) surface soil samples from the drainage basin south of the Site.

The work described herein is intended to delineate the nature and extent of contamination at the Site. The data generated by additional sampling and testing at the Site will be used to further define the horizontal and vertical extent and concentration of inorganic contaminants in the soil and groundwater. The additional hydrogeologic and soils data will provide a means of determining how contaminants attained their present distribution in the environment, and what changes in contaminant distribution may be likely to occur due to groundwater flow and other processes.

Once the extent of contamination and hydrogeologic information has been analyzed, potential environmental exposure pathways will be examined. The identification of significant Site characteristics, extent of contamination, and exposure pathways (if completed exposure pathways are indicated) will provide basis for determining whether remedial measures are necessary.

3.0 FIELD ACTIVITES

Soil borings and monitoring well installations will be used to evaluate the conditions in the vicinity of the impacted soil and groundwater, as well as conditions up gradient and down gradient of this area. Surface soil and sediment samples will be collected from the ditch north of the site entrance, storm water drainage inlets and the storm water drainage basin.

The investigation will include the following primary tasks:

- Install a total of three standard and continuously sampled soil borings to approximately 35 feet below grade. These borings will be converted to two-inch groundwater monitoring wells.
- Collect one representative soil sample for laboratory analysis from each of the three well bores.
- Obtain groundwater samples from each of the three new monitoring wells and the six existing wells for a total of nine samples plus a MS/MSD sample for each groundwater sampling round (eleven total samples per round).
- Collect three sediment samples from the storm water drainage inlets, two surface soil samples from the ditch located north of the Site entrance, five surface soil samples from the storm water drainage basin and a MS/MSD sample for QA/QC purposes.
- Obtain depth to water measurements for the three new wells and six existing wells.
- Determine the location of active groundwater wells located within an approximate 1/10 mile radius of the subject site.
- Following well installations, mobilize a survey crew to verify the horizontal and vertical location of all previously surveyed site features, as well as the location and elevation of the three new wells and six previously installed wells.
- A total of five wells, including both new and existing, will be tested to determine hydraulic conductivity values for the site.

The three soil samples collected from the well bores will be analyzed for VOCs, SVOCs, TICs and TOC (by EPA method 415.1). The eleven (11) groundwater samples will be analyzed for VOCs, SVOCs and TICs by an ASP-certified laboratory. Two rounds of groundwater sampling will be conducted for this project, bringing the total number of required groundwater samples to 22, including MS/MSDs. The sediment and surface soil samples will be analyzed for VOCs, SVOCs and TICs. The certified laboratory will use ASP methods with Category "B" deliverables for the samples obtained. Proposed well locations are indicated on Figure 1. Plans will be modified as necessary for report preparation based on measurements taken in the field. Data validation is not considered necessary for this project at the present time.

All field activities will be completely documented in a Site-specific field logbook. Photographic documentation of all project field activities will also be provided.

3.1 Field Screening and Health and Safety Monitoring

Monitoring of the work area and screening of soil and groundwater will be conducted throughout the duration of field activities to assure the safety of on-site workers. A copy of the Site-Specific Health and Safety Plan is provided as Attachment 2.

Air monitoring of the work areas will be conducted using the following (or equivalent) instrumentation:

- An explosimeter

- A PID equipped with a 10.2 eV lamp (or equivalent)

Prior to beginning subsurface sampling and testing, the Underground Facilities Protective Organization (UFPO) will be contacted to determine the locations of underground utilities within the study area. It may be necessary to alter the proposed location of the soil boring and well installations. Any such modifications will be made at the discretion of the field team leader in consultation with the Volunteers and NYSDEC staff, as appropriate.

3.2 Soil Boring and Monitoring Well Installation

The installation of three soil borings is proposed for this Site. Each boring will be advanced using 4.25 ID hollow-stem augers to a depth of approximately 35 feet below grade. Split spoon sampling will be standard to 15 feet and continuous to greater depths. The samples will be collected using a standard 2-inch outer diameter (OD) split-spoon driven by a 140-pound drill rig hammer. Blow counts will be recorded for each split-spoon sample.

Drill cuttings and water generated during drilling will be handled in accordance with all applicable protocols. The Volunteers will be responsible for proper staging and disposal of all investigation-derived wastes under the Volunteers' solid and hazardous waste management plans. Final disposal of soils and water will also be dependent on the results of the soil and groundwater analyses to be conducted during this investigation.

All split spoon samples will be logged by a geologist and recorded for reference. Split spoon samples will be screened using a PID. A representative soil sample will be collected for laboratory analysis from each of the three well bores. Split spoons will be appropriately decontaminated prior to each use. Decontamination will involve three steps:

1) Removal of gross debris in an alconox solution;
2) A triple rinse in a 10% nitric acid solution; and
3) A triple rinse with distilled water.

The drill rig and associated tooling will be decontaminated using steam-cleaning methods at a designated location. All decontamination residues will be collected in a decontamination pool lined with 6-mil polyethylene sheeting. Prior to completion of the project, all decontamination wastes will be transferred into drums for appropriate staging and disposal by the Volunteers as previously described.

These three soil borings will be converted to groundwater monitoring wells.

All groundwater monitoring wells will be constructed according to the following specifications: 10 feet of 2-inch Schedule 40 polyvinyl chloride (PVC) machine-slotted screen (0.010-inch slot) installed from the bottom of the hole up to 5 feet

above the top of the water table to account for potential seasonal water level fluctuations. Two-inch ID Schedule 40 PVC riser casing will be used to complete the wells to grade. A sand filter pack composed of chemically inert, coarse-grained sand will be placed from the bottom of the hole to 1 to 2 feet above the top of the screen. A 2-foot thick bentonite seal will be placed above the sand, followed by Portland cement/5% bentonite grout to surface.

It is assumed that all wells will be finished with flush-to-grade curb boxes and fitted with lockable vented J-plugs upon completion. No glue will be used for completion of the wells. A typical monitoring well construction schematic diagram is provided as Attachment 3.

3.2.1 Monitoring Well Development

After construction of each well is complete, each well will be developed using a peristaltic Geopump until pH, specific conductivity and temperature have stabilized and turbidity of the discharge is 50 nephelometric turbidity units (NTU) or less. All field instrument measurements made during development will be recorded. The wells will initially be surged in order to draw sediments out of the sand pack and into the well for removal. If significant effort does not attain the proposed goal of 50 NTU, the well will be considered as developed if all other parameters have stabilized.

3.3 Sample Collection

All samples will be obtained, handled and characterized in accordance with NYSDEC Analytical Services Protocol methods. Samples will be relinquished to Lu Engineers' subcontracted laboratory, Upstate Laboratories, Inc., an accredited and appropriately (NYSDEC ELAP CLP) certified analytical laboratory. All chain of custody requirements will be strictly adhered to for designated analyses.

The NYSDEC Division of Environmental Remediation *Guidance for the Development of Quality Assurance Plans and Data Usability Summary Reports* will be followed. Lu Engineers' Project Manager/Quality Assurance Officer for this project will be Greg Andrus. Eric Detweiler will be the Field Team Leader for this project. Category B deliverables will be required for all analytical reporting in order to provide the necessary documentation to be reviewed to evaluate the usability of the data and to provide calibration data needed to verify results, as necessary. Data validation will not be conducted for this project.

One matrix spike (MS) and matrix spike duplicate (MSD) sample will be collected for the sediment/surface soil samples, as well as for each round of groundwater samples. One trip blank will be relinquished to the contract laboratory for the designated analyses; therefore, a total of 15 soil samples and 22 groundwater samples will be obtained and analyzed during this investigation. Table 3.3.1 identifies all samples and laboratory analytical procedures required to complete this project.

Table 3.3.1 Summary of Sampling and Laboratory Analyses						
Type	**Analyses**	**# Field Samples**	**Field Duplicates**	**MS**	**MSD**	**Total**
Sediment/Surface Soils	VOCs, SVOCs, TICs	**10**	**-**	**1**	**1**	**12**
Groundwater	VOCs, SVOCs, TICs	**9**	**-**	**1**	**1**	**11(per round)**
Well Bore Soils	VOCs, SVOCs, TICs, TOC	**3**	**-**	**-**	**-**	**3**
Trip Blanks	VOCs	**-**	**-**	**-**	**-**	**1 (per round)**

3.3.1 Groundwater Sampling

At least 24 hours after well development has been completed, groundwater samples will be obtained from each of the three locations. Groundwater sampling will be conducted by means of dedicated disposable polyethylene bailers attached to new polyethylene twine.

Prior to sampling, the water level at each well will be measured with reference to the casing elevation and recorded. The static volume of water will be determined for each location. At a minimum, three volumes will be bailed (purged) from each well. Field parameters including turbidity, pH, conductivity, and temperature will be measured periodically and recorded prior to collecting the samples. If groundwater turbidity levels do not fall below 50 NTU, low-flow purge and sampling methods will be used. Once these parameters have stabilized (and at least 3 well volumes have been purged), the well will be sampled. Purge and development water will be containerized pending appropriate disposal.

The wells will be sampled and analyzed for volatiles, semivolatiles and TICs following ASP 2000 (CLP) methods. Volatile organic samples will be containerized in 40-ml-sized VOA vials with Teflon-backed septa. Once obtained, samples will be immediately labeled and stored on ice in a cooler. The vials provided by the laboratory will be pre-preserved with hydrochloric acid. The containers will be filled in such a way as to prevent the occurrence of any air or gas bubbles from remaining in the sample.

Semi-volatile samples will be placed in 80-ounce glass amber bottles with Teflon lined caps. All samples will be placed on ice in a cooler in preparation for delivery to the contract laboratory.

3.3.2 Soil and Sediment Sampling

One representative soil sample will be collected from each of the three newly installed wells for a total of three (3) well bore soil samples. These three samples

will be analyzed for VOCs, SVOCs, TICs and TOC. Three (3) sediment samples will be collected from the storm water drainage inlets and will be analyzed for VOCs, SVOCs, and TICs. Two (2) surface soil samples will be collected from the ditch located to the north of the Site entrance and analyzed for VOCs, SVOCs and TICs. Five (5) surface soil samples will be collected from the drainage basin located south of the Site and analyzed for VOCs, SVOCs and TICs. All soil samples will be analyzed using ASP methods and will include Category "B" deliverables. These samples will be collected using a dedicated precleaned, stainless steel spoon or trowel to transfer the soil into the appropriate sample containers. The surface soil samples will be collected from a depth of 0 to 2 inches below the ground surface at each location.

3.3.3 Aquifer Testing

Electronic data logging will be used to conduct slug tests on a minimum of three site wells including both new and existing to be selected at the discretion of the field team leader. Rising head slug testing will be the method employed unless it is determined that falling head methods are more appropriate based on well construction, recharge times and related factors. All data will be imported electronically into the groundwater modeling program Aqtesolve® for determination of hydraulic conductivities. Apparent groundwater gradients and attenuation factors will then be used to evaluate potential contaminant migration.

4.0 REPORT

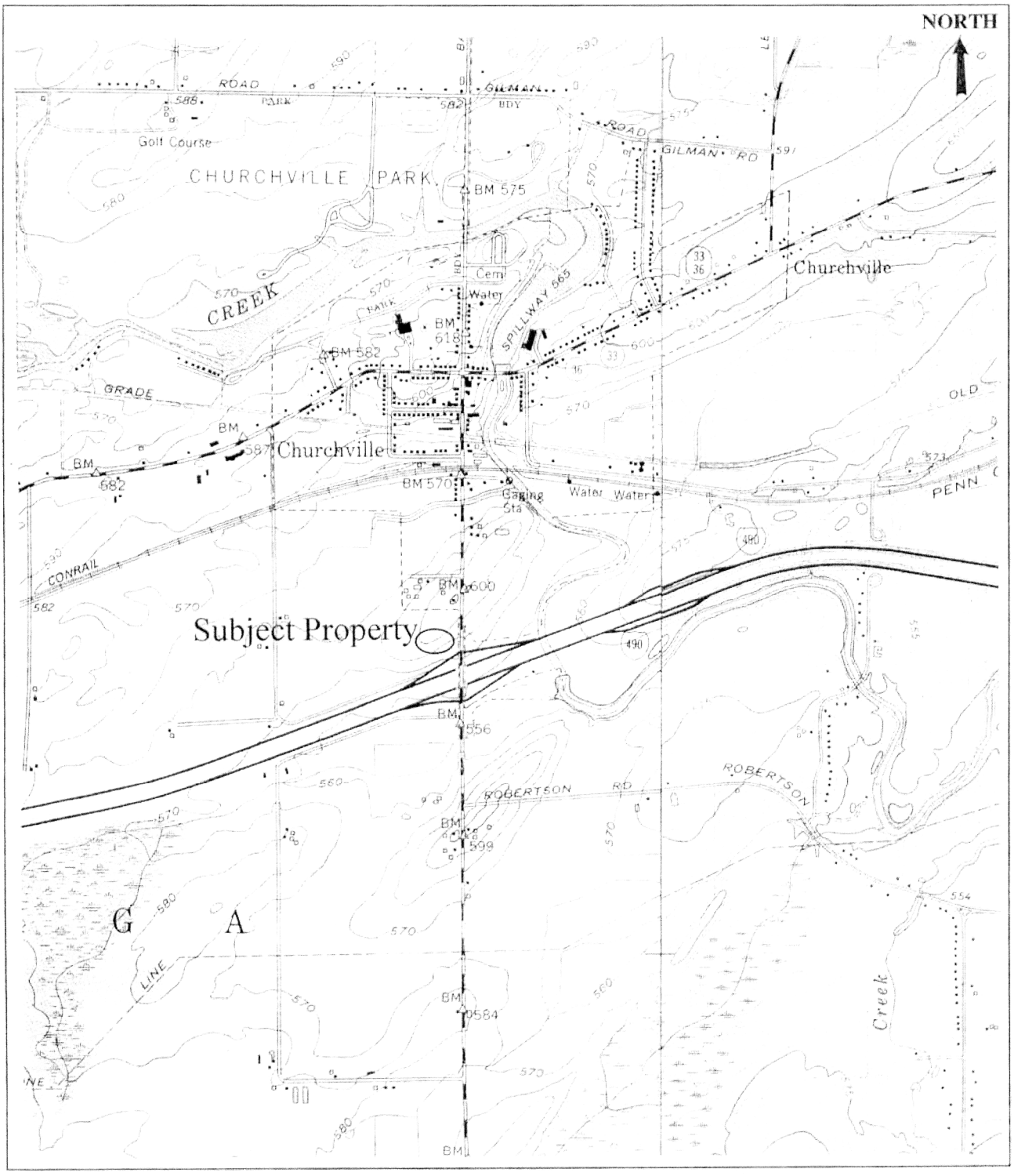
Once the contract laboratory has provided all analytical data and hydrogeologic information has been evaluated, Lu Engineers will develop a report on the findings of the subsurface investigation. The report will be prepared as indicated by the following outline:

1.0 SUMMARY OF FIELD ACTIVITES
2.0 CONTAMINATION EVALUATION
  2.1 Findings
  2.2 Regulatory Review
  2.3 Exposure Pathways
3.0 CONCLUSIONS AND RECOMMENDATIONS
4.0 ANALYSIS OF REMEDIAL ALTERNATIVES
5.0 CERTIFICATION

The report will carefully document all findings of the subsurface investigation and will be supplemented with photographic documentation, subsurface soil logs, study area plans that indicate groundwater flow direction, and sub-aerial contaminant distribution. Future use(s) of the Site will be considered. Site-specific contaminant levels will be compared to DEC TAGM 4046 guidance standards.

To the extent possible, attempts will be made to define the apparent extent of subsurface contamination and the likelihood of the existence of completed exposure pathways. Recommendations for conducting any additional investigation or remediation that appear to be warranted by the findings of the subsurface investigation will also be provided.

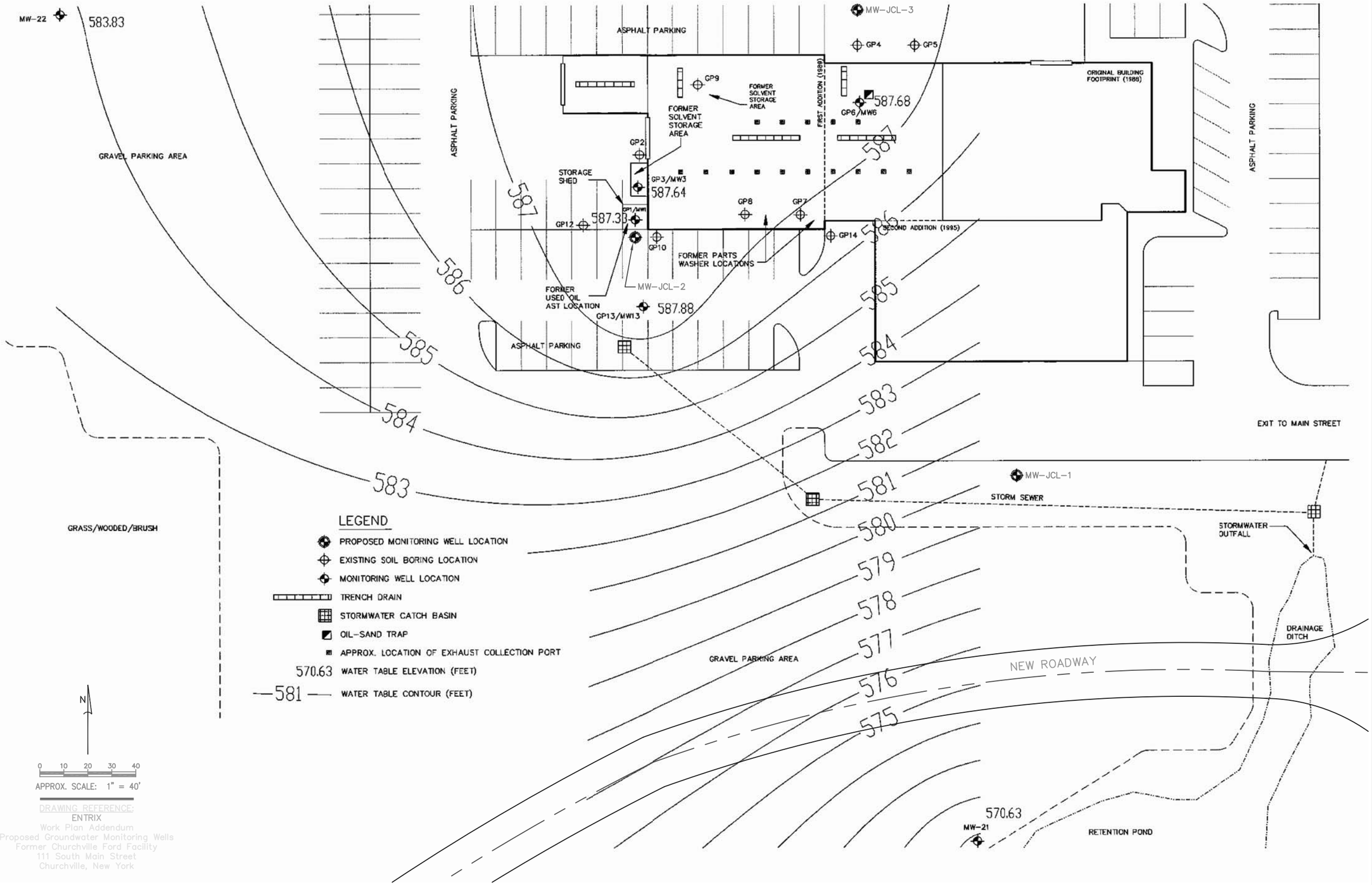
Attachment 1 - Figures



Site Location Map

USGS 7.5-Minute Quadrangle
Clifton, New York
Churchville, New York

Contour Interval = 10'
Scale: 1: 24,000



DRAWING REFERENCE:
ENTRIX
Work Plan Addendum
Proposed Groundwater Monitoring Wells
Former Churchville Ford Facility
111 South Main Street
Churchville, New York

DATE: AUGUST 2006
SCALE: 1" = 40'
DESIGNED BY GLA
DRAWN BY: DLS

FIGURE 1.
VOLUNTARY INVESTIGATION WORK PLAN
PROPOSED WELL LOCATIONS

OKAR
CHURCHVILLE FORD
CHURCHVILLE, NEW YORK

LU ENGINEERS
Civil and Environmental
JOSEPH C. LU ENGINEERING AND LAND
2230 PENFIELD ROAD, PENFIELD, NEW YORK 14526
PHONE: 585.377.1450 FAX: 585.377.1266

Attachment 2 – Site Specific Health & Safety Plan

CHURCHVILLE FORD
TOWN OF CHURCHVILLE
MONROE COUNTY, NEW YORK
NYSDEC Site # V00658-8

HEALTH AND SAFETY PLAN

REMEDIAL INVESTIGATION

Prepared By:

Lu Engineers
2230 Penfield Road
Penfield, New York 14526

August 2006

Project No. 5701-11

CHURCHVILLE FORD
REMEDIAL INVESTIGATION

HEALTH AND SAFETY PLAN

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LU ENGINEERS
SITE SAFETY PLAN

A. GENERAL INFORMATION

Project Title: Churchville Ford Remedial Investigation

Project No. 5701-11

Project Manager: Greg Andrus

Project Director: Robert Elliott, P.E.

Location: 111 South Main Street
Town of Churchville, Monroe County, New York

Prepared by: Staff

Date Prepared: August 2006

Approved by: _____

Date Approved: _____

Site Engineer Review: _____

Date Reviewed: _____

Scope/Objective of Work: Installation and sampling of three soil borings with conversion into groundwater monitoring wells; groundwater, surface soil & sediment sampling; surveying.

Proposed Date of Field Activities: September, 2006

Background Information: [X] Complete [ ] Preliminary

Overall Chemical Hazard: [ ] Serious [ ] Moderate
[X] Low [ ] Unknown

Overall Physical Hazard: [ ] Serious [ ] Moderate
[X]Low [ ] Unknown

B. SITE/WASTE CHARACTERISTICS

Waste Type(s):

[X] Liquid [X] Solid [ ] Sludge [X] Gas/Vapor

Characteristic(s):

[ ] Flammable/Ignitable [X] Volatile [ ] Corrosive [ ] Acutely Toxic

[ ] Explosive (moderate) [ ] Reactive [X] Carcinogen [ ] Radioactive

Other: _____

Physical Hazards:

[X] Overhead [ ] Confined Space [ ] Below Grade [X] Trip/Fall

[X] Puncture [ ] Burn [X] Cut [ ] Splash

[X] Noise [X] Other: Heat Stress/Cold Stress

Site History/Description and Unusual Features:
The Churchville Ford Site is located at 111 South Main Street in the Town of Churchville, Monroe County. The Site is situated on 9+ acres in a primarily residential use area (Figure 1). The property consists of an automobile dealership building, a wooden storage building and a paved parking lot.

Myers Campers currently operates a Recreational Vehicle Sales and Service Center at this facility. High concentrations of chlorinated solvents (TCE, Tetrachloroethene, cis-1,2-Dichloroethene, benzenes, Toluene, Xylene and Napthalene) were detected in sub-surface soils and groundwater at the site. These contaminants were detected in areas associated with a former 1,000 gallon gasoline AST, a former waste oil tank, solvent storage area, and an oil-water separator.

Locations of Chemicals/Wastes: Soil and groundwater.

Estimated Volume of Chemicals/Wastes: Unknown.

Site Currently in Operation: [X] Yes [ ] No [ ] Not Applicable

C. HAZARD EVALUATION

Hazard	Hazard Control Measures
Biological (flora, fauna, etc.)	• Establish site-specific procedures for working around identified hazards.
Cold Stress/Heat Stress	• Provide warm/cool break areas and adequate breaks. • Provide warm/cool non-caffeinated beverages. • Promote cold/heat stress awareness. • See Appendix A.
Confined Space	• Ensure compliance with 29 CFR 1910.146. • Additional documentation is required.
Drilling	• Hard hats, eye protection, steel-toed boots, ear protection. • Keep safe distance from equipment.
Fire and Explosion	• Inform personnel of the location(s) of potential fire/explosion hazards.
	• Establish site-specific procedures for working around flammables.
	• Ensure that appropriate fire suppression equipment and systems are available and in good working order. • Define requirements for intrinsically safe equipment. • Identify special monitoring needs.
	• Remove ignition sources from flammable atmospheres.
	• Coordinate with local fire-fighting groups regarding potential fire/explosion situations.
	• Establish contingency plans and review daily with team members.
Heavy Equipment Operation	• Define equipment routes, traffic patterns, and site-specific safety measures.
	• Ensure that operators are properly trained and equipment has been properly inspected and maintained. Verify back-up alarms.
	• Ensure that ground spotters are assigned and informed of proper hand signals and communication protocols.
	• Identify special PPE and monitoring needs.
	• Ensure that field personnel do not work in close proximity to operating equipment.
	• Ensure that lifting capacities, load limits, etc., are not exceeded.
	• Other: Overhead obstructions and falling objects.
Noise	• Establish noise level standards for on-site equipment/operations.
	• Inform personnel of hearing protection requirements.
	• Define site-specific requirements for noise monitoring.
Overhead Obstructions	• Wear hard hat. • Other: Safety Glasses.
Power Tools	• Ensure compliance with 29 CFR 1910 Subpart P.
Sunburn	• Apply sunscreen.
	• Wear hats/caps and long sleeves.
Utility Lines	• Identify/locate existing utilities prior to work.
	• Ensure overhead utility lines are at least 25 feet away from project activities.
	• Contact utilities to confirm locations, as necessary.

Hazard	Hazard Control Measures
Weather Extremes	• Potential hazards: High wind or Heavy rains.
	• Establish site-specific contingencies for severe weather situations.
	• Provide for frequent weather broadcasts.
	• Weatherize safety gear, as necessary (e.g., ensure eye wash units cannot freeze, etc.)

	• Identify special PPE needs.
	• Discontinue work during severe weather.
	• Drink plenty of fluids.
	• Other: Take frequent breaks on high humidity days.

Physical Hazard Evaluation: Basic health and safety protection (steel-toed boots, work clothes, and safety glasses or goggles) will be worn by all personnel at all times. Personnel should be made aware of area flora and fauna. Snakes and other endemic wildlife should be avoided at all times. Any encounters that result in bites or scratches should be reported to the Site Safety Officer immediately. All allergies should be reported to the Site Safety Officer prior to the start of the project.

Special Site-Specific Considerations: This facility is currently active; extra precautions should be made during drilling operations to ensure that unauthorized personnel do not enter the work zone and maintain a safe distance from drilling activities.

CHEMICAL HAZARD EVALUATION										
	Compound	**Exposure Limits (TWA)**			**Dermal Hazard (Y/N)**	**Route(s) of Exposure**	**Acute Symptoms**	**Odor Threshold/ Description**	**PID**	
		PEL	**REL**	**TLV**					**Correction Factor****	**Ioniz. Poten. (eV)**
	Cis-1,2-Dichloroethene	260 ppm	---	262 ppm	Y	Inh, Abs, Ing, Con	Irritation to eyes, skin, mucous membranes and GI, headache, vertigo, fatigue, giddiness, tremors, vomiting, nausea, may burn skin, visual disturbance, paresthesia, cardiac arrhythmias	Colorless liquid, aromatic odor	0.5	9.25
	Ethylbenzene	100 ppm	---	100 ppm	Y	Inh, Ing, Con	Irritation to eyes, skin, mucous membranes; dermatitis, narcosis, , trouble breathing, paralysis, headache, nausea, headache, dizziness, coma	Colorless liquid, aromatic odor	0.5	8.77
	Naphthalene	10 ppm	---	10 ppm	Y	Inh, Ing, Abs, Con	Irritation to eyes; headache, confusion, excitement, nausea, vomiting, abdominal pain, irritation to bladder, profuse sweating, jaundice, corneal injury, blurred vision, renal shutdown	Colorless to brown solid/crystals, moth ball odor	0.4	8.12
	Tetrachloroethylene (PCE)	50 ppm	---	25 ppm	Y	Inh, Abs, Ing, Con	Irritation to eyes, nose, upper respiratory tract, throat; skin, flush face, dizziness, giddiness, headache, intoxication, nausea, vomiting, abdominal pain, diarrhea, systemic effects	Colorless liquid, mild chloroform odor	---	9.32
	Toluene	200 ppm	---	50 ppm	Y	Inh, Con, Abs, Ing	Irritation to eyes, skin, nose; upper respiratory tract, fatigue, weak, confusion, dizziness, headache, drowsiness, abdominal spasms, dilated pupils, euphoria	Colorless liquid, sweet pungent, benzene like odor	0.5	8.82
	Trichloroethene (TCE)	100 ppm (per 6/97 NIOSH Pocket Guide)			Y	Inh, Abs, Ing, Con	Irritation to eyes, skin, mucous membranes and GI, headache, vertigo, fatigue, giddiness, tremors, vomiting, nausea, may burn skin, visual disturbance, paresthesia, cardiac arrhythmias	Colorless liquid, sometimes dyed blue, chloroform odor	---	9.45

CHEMICAL HAZARD EVALUATION										
	Compound	**Exposure Limits (TWA)**			**Dermal Hazard (Y/N)**	**Route(s) of Exposure**	**Acute Symptoms**	**Odor Threshold/ Description**	**PID**	
		PEL	**REL**	**TLV**					**Correction Factor****	**Ioniz. Poten. (eV)**
	Xylene(s)	100 ppm	---	100 ppm	Y	Inh, Ing, Abs, Con	Irritation to eyes, nose, throat, skin; nausea, vomiting, headache, ringing in ears, severe breathing difficulties (that may be delayed in onset), substernal pain, coughing hoarseness, dizziness, excited, burning in mouth, stomach, dermatitis (removes oils from skin), corneal burns	Colorless liquid, aromatic odor (solid below 56 F)	.5	8.44

KEY:

PEL = Permissible Exposure Limit (OSHA)
REL = Recommended Exposure Limit (NIOSH)
TLV = Threshold Limit Value (ACGIH)
ppm = Parts per million

Inh = Inhalation
Ing = Ingestion
^{sk} = Skin Notation
GI = Gastrointestinal

Abs = Skin Absorption
Con = Skin and/or eye Contact
mg/m^3 = Milligrams per cubic meter

--- = Information not available

NR = No Response

N/A = Not Available, Not Listed

* = Chemical is a known or suspected carcinogen
** = Correction factors applicable only to MiniRAE^{2000} PID using 10.6 eV lamp. (8/22/00)

D. SITE SAFETY WORK PLAN

Site Control:

Perimeter Identified? [Y] **Site Secured? [N]**

Work Areas Designated? [Y] **Zone(s) of contamination identified? [N]**

Anticipated Level of Protection:

Required: D Available: C

All site work will be performed at Level D (steel-toed boots, work clothes, eye protection and hard hats) unless monitoring indicates otherwise.
See Appendices A, B and C for specific site safety requirements.

Air Monitoring*:

Contaminant	Monitoring Device	Frequency
Organic Vapors	PID	As Necessary

Action Level:

PID readings of **1 to 5 ppm** above background at breathing zone and sustained for 1 minute
ACTION: upgrade to Level C protection, continuous air monitoring.

PID readings **5 to 300 ppm** above background at breathing zone and sustained for 1 minute
ACTION: Upgrade to Level B, continuous air monitoring.

PID readings **> 300ppm** above background at breathing zone and sustained for 1 minute
ACTION: Stop work, evacuate work zone and evaluate with continuous air monitoring.

Decontamination Solutions and Procedures for Equipment, Sampling Gear, etc.

Specified in work plan.

Personnel Decon Protocol

Soap, water and paper towels or baby wipes will be available for all personnel and will be used before eating, drinking or leaving the site. Personnel will shower upon return to home or hotel. Disposable PPE will be rendered unusable and disposed of as stated in work plan.

Decon Solution Monitoring Procedures, if Applicable

Contractor's controlled/ decon waste container.

Special Site Equipment, Facilities or Procedures
(Sanitary Facilities and Lighting Must Meet 29CFR 1910.120)

N/A

Site Entry Procedures and Special Considerations

Level D will be used based on the results of previous investigations. Level C will be available, and used when indicated by PID readings of 1 ppm or greater above ambient air sustained for one minute or more.

Work Limitations (time of day, weather conditions, etc.) and Heat/Cold Stress Requirements

All work will be completed during daylights hours. Heavy equipment will not be used during electrical storms.

General Spill Control, if Applicable

N/A

Investigation Derived Material (i.e., Expendables, Decon Waste, Cuttings) Disposal

N/A

Sampling Handling Procedures Including Protective Wear

N/A

Team Member*	**Responsibility**
Eric Detweiler	Day to Day Field Site Geologist
Rebecca May	Alternate
Greg Andrus	Project Manager

* All entries into the work zone require "Buddy System" use. All Lu Engineers field staff participate in a medical monitoring program and have completed applicable training per 29CFR 1910.120. Respiratory protection program meets requirements of 29CFR 1910.134.

E. EMERGENCY INFORMATION

LOCAL RESOURCES

Ambulance	911
Hospital Emergency Room	Lakeside Memorial Hospital (585) 637-3131 156 West Avenue Brockport, New York 14420
Poison Control Center	911 or 1-800-222-1222
Police (include local, county sheriff, state)	911
Fire Department	911
Airport	N/A
Local Laboratory	N/A
UPS/Federal Express	N/A

SITE RESOURCES

Site Emergency Evaluation Alarm Method	• One long blast: Evacuate the area by nearest emergency exit. • Two short blasts: Localized problem (not dangerous to workers. • Two long blasts: All clear
Water Supply Source	Located in Site building
Telephone Location, Number	TBD
Cellular Phone, if Available	TBD
Radio	TBD
Other	TBD

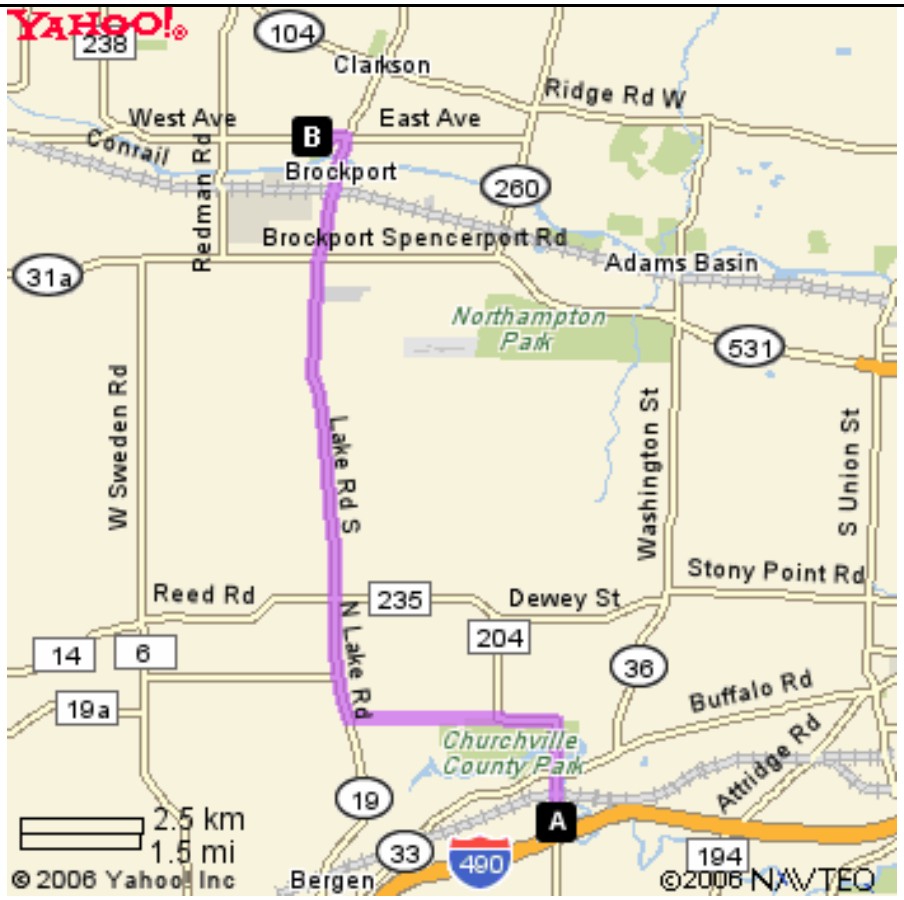
EMERGENCY CONTACTS

1.	Fire/Police	911
2.	Lu Engineers, Safety Director	(585) 377-1450, Ext. 235 (office)

EMERGENCY ROUTES

(Note: Field team must know route(s) prior to start of work.)

Directions from the site to LAKESIDE MEMORIAL HOSPITAL (include map):
Go north on Main St. 1.3 miles; turn left on Kendall Rd., go 2.6 miles; turn right on Lake Rd. (Rte. 19), go 7.3 miles; turn left on West Ave., go 0.4 miles, hospital is on right



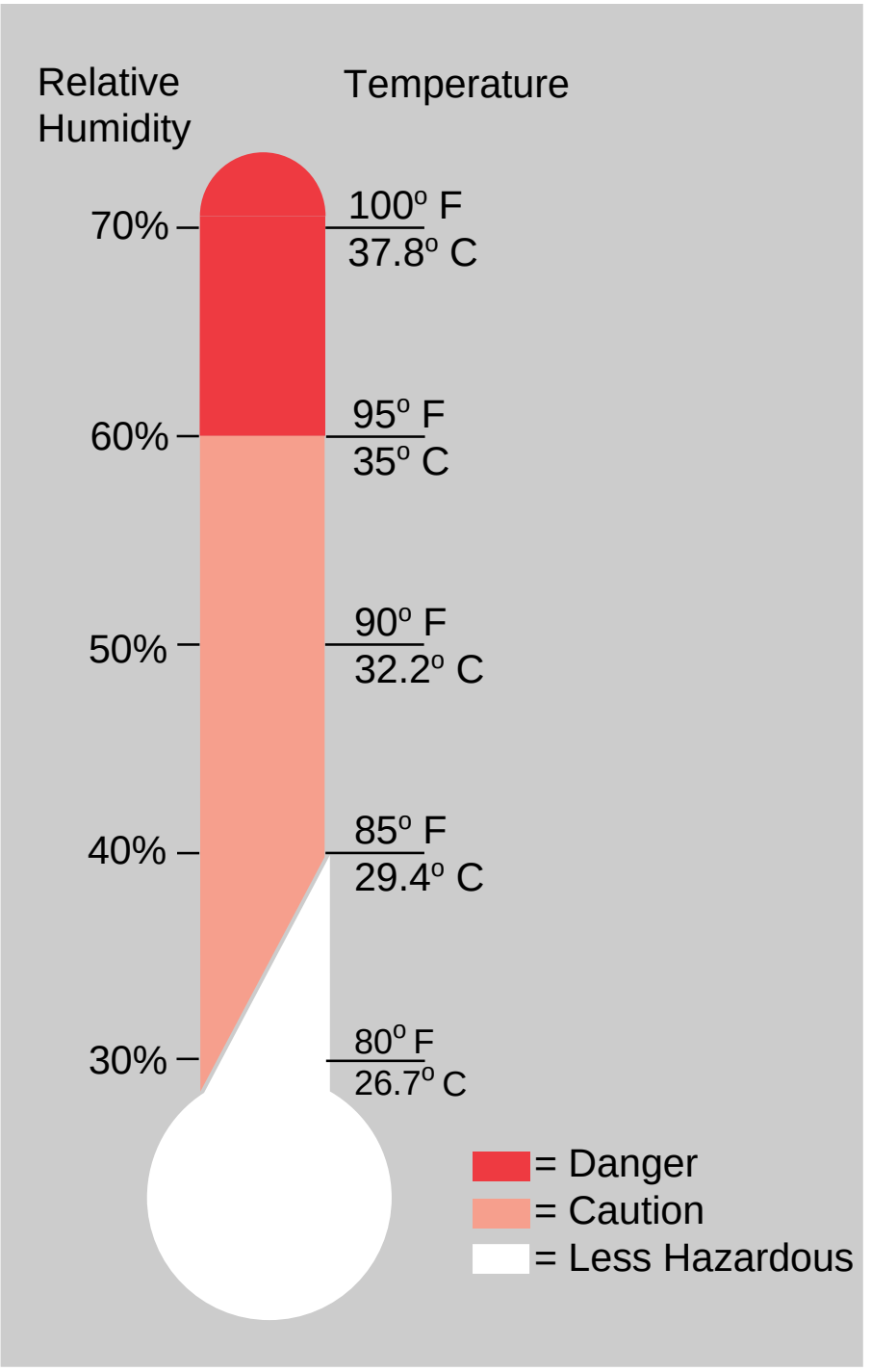
APPENDIX A

HEAT STRESS AND COLD EXPOSURE

THE HEAT EQUATION

HIGH TEMPERATURE + HIGH HUMIDITY + PHYSICAL WORK = HEAT ILLNESS

When the body is unable to cool itself through sweating, **serious** heat illnesses may occur. The most severe heat-induced illnesses are **heat exhaustion** and **heat stroke**. If actions are not taken to treat heat exhaustion, the illness could progress to heat stroke and possible **death**.



U.S. Department of Labor
Occupational Safety and Health Administration
OSHA 3154
1998

HEAT EXHAUSTION

What Happens to the Body:

HEADACHES, DIZZINESS/LIGHT HEADEDNESS, WEAKNESS, MOOD CHANGES (irritable, or confused/can't think straight), FEELING SICK TO YOUR STOMACH, VOMITING/THROWING UP, DECREASED and DARK COLORED URINE, FAINTING/PASSING OUT, and PALE CLAMMY SKIN.

What Should Be Done:

- Move the person to a cool shaded area to rest. Don't leave the person alone. If the person is dizzy or light headed, lay them on their back and raise their legs about 6-8 inches. If the person is sick to their stomach lay them on their side.
- Loosen and remove any heavy clothing.
- Have the person drink some cool water (a small cup every 15 minutes) if they are not feeling sick to their stomach.
- Try to cool the person by fanning them. Cool the skin with a cool spray mist of water or wet cloth.
- If the person does not feel better in a few minutes call for emergency help (Ambulance or Call 911).

(If heat exhaustion is not treated, the illness may advance to heat stroke.)

HEAT STROKE—A MEDICAL EMERGENCY

What Happens to the Body:

DRY PALE SKIN (no sweating), HOT RED SKIN (looks like a sunburn), MOOD CHANGES (irritable, confused/not making any sense), SEIZURES/FITS, and COLLAPSE/PASSED OUT (will not respond).

What Should Be Done:

- Call for emergency help (Ambulance or Call 911).
- Move the person to a cool shaded area. Don't leave the person alone. Lay them on their back and if the person is having seizures/fits remove any objects close to them so they won't strike against them. If the person is sick to their stomach lay them on their side.
- Remove any heavy and outer clothing.
- Have the person drink some cool water (a small cup every 15 minutes) if they are alert enough to drink anything and not feeling sick to their stomach.
- Try to cool the person by fanning them. Cool the skin with a cool spray mist of water, wet cloth, or wet sheet.
- If ice is available, place ice packs under the arm pits and groin area.

How to Protect Workers

- Learn the signs and symptoms of heat-induced illnesses and what to do to help the worker.
- Train the workforce about heat-induced illnesses.
- Perform the heaviest work in the coolest part of the day.
- Slowly build up tolerance to the heat and the work activity (usually takes up to 2 weeks).
- Use the buddy system (work in pairs).
- Drink plenty of cool water (one small cup every 15-20 minutes)
- Wear light, loose-fitting, breathable (like cotton) clothing.
- Take frequent short breaks in cool shaded areas (allow your body to cool down).
- Avoid eating large meals before working in hot environments.
- Avoid caffeine and alcoholic beverages (these beverages make the body lose water and increase the risk for heat illnesses).

Workers Are at Increased Risk When

- They take certain medication (check with your doctor, nurse, or pharmacy and ask if any medicines you are taking affect you when working in hot environments).
- They have had a heat-induced illness in the past.
- They wear personal protective equipment (like respirators or suits).

APPENDIX B

ADDITIONAL POTENTIAL PHYSICAL AND CHEMICAL HAZARDS

ADDITIONAL POTENTIAL PHYSICAL AND CHEMICAL HAZARDS	
POTENTIAL PHYSICAL HAZARDS	**CONTROL METHODS**
Overhead Hazards/Falling Objects	Overhead hazards will be identified prior to each task (i.e., building structure). Hard hats will be required for all site work.
Contact with Utilities	Prior to initiating site activities, all utilities will be located by the appropriate utility company and will be marked and/or barricaded to minimize the potential of accidental contact. A minimum distance of 25 feet between the derrick and overhead power lines must be maintained at all times.
Noise Exposure	Areas of potentially high sound pressure levels (>85 dBA) will be restricted to authorized personnel only. Engineering controls will be used to the extent possible. Hearing protection will be made available to all workers on site. Exposure to time-weighted average levels in excess of 85 dBA is not anticipated.
POTENTIAL CHEMICAL HAZARDS	**GENERAL CONTROL METHODS**
Contaminant Inhalation	Direct reading instruments will be used to monitor airborne contaminants. Established Lu Engineers' action levels will limit exposure to safe levels. Respiratory protection will be used as appropriate.
Contaminant Ingestion	Standard safety procedures such as restricting eating, drinking, and smoking to the support zone and utilizing proper personal decontamination procedures will minimize ingestion as a potential route of exposure.
Dermal Contaminant Contact	The proper selection and use of personal protective clothing and decontamination procedures will minimize dermal contaminant contact.
Potential contact with lower concentration waste and naturally occurring contaminants (i.e., methane)	Dermal contact with contaminants will be minimized by proper use of the following PPE: • Tyvex coveralls • Neoprene gloves • Booties (latex) or over-boots.

APPENDIX C

EQUIPMENT CHECKLIST

EQUIPMENT CHECKLIST

PROTECTIVE GEAR			
LEVEL A	**N/A**	**LEVEL B**	**N/A**
SCBA		SCBA	
SPARE AIR TANKS		SPARE AIR TANKS	
ENCAPSULATING SUITE (Type)		PROTECTIVE COVERALL (Type)	
SURGICAL GLOVES		RAIN SUIT	
NEOPRENE SAFETY BOOTS		BUTYL APRON	
BOOTIES		SURGICAL GLOVES	
GLOVES (Type)		GLOVES (Type)	
OUTER WORK GLOVES		OUTER WORK GLOVES	
HARD HAT		NEOPRENE SAFETY BOOTS	
CASCADE SYSTEM		BOOTIES	
5-MINUTE COOLING VEST		HARD HAT WITH FACE SHIELD	
		CASCADE SYSTEM	
		MANIFOLD SYSTEM	
LEVEL C		**LEVEL D**	
ULTRA-TWIN RESPIRATOR		ULTRA-TWIN RESPIRATOR (available)	
POWER AIR PURIFYING RESPIRATOR		CARTRIDGES (Type GMC-H)(available)	
CARTRIDGES (Type GMC-H)		5-MINUTE ESCAPE MASK (available)	
5-MINUTE ESCAPE MASK		PROTECTIVE COVERALL (Type Tyvek/Saranax)	
PROTECTIVE COVERALL (Type Tyvek/Saranax)		RAIN SUIT (available)	
RAIN SUIT		NEOPRENE SAFETY BOOTS	
BUTYL APRON		BOOTIES (available)	
SURGICAL GLOVES		NITRILE (glove)	X
GLOVES (Type: Nitrite/Neoprene)		HARD HAT WITH FACE SHIELD (available)	X
OUTER WORK GLOVES		SAFETY GLASSES	X
NEOPRENE SAFETY BOOTS		GLOVES (Type: Surgical)	
HARD HAT WITH FACE SHIELD		WORK GLOVES (Type: Neoprene/Nitrile)(available)	
BOOTIES		SAFETY BOOTS (steel toe)	X
HARD HAT		BLAZE ORANGE VEST	

X = Supplied by Lu Engineers.

EQUIPMENT CHECKLIST

INSTRUMENTATION	NO.	FIRST AID EQUIPMENT	NO.
OVA		FIRST AID KIT	
THERMAL DESORBER		OXYGEN ADMINISTRATOR	
O_2/EXPLOSIMETER W/CAL.KIT (Drilling)		STRETCHER	
MiniRAE 2000		PORTABLE EYE WASH	
HNu (Probe 10.2)		BLOOD PRESSURE MONITOR	
MAGNETOMETER		FIRE EXTINGUISHER	
PIPE LOCATOR			
WEATHER STATION		**DECON EQUIPMENT**	
DRAEGER PUMP, TUBES ( )		WASH TUBS	
BRUNTON COMPASS		BUCKETS	
MONITOX CYANIDE		SCRUB BRUSHES	
HEAT STRESS MONITOR		PRESSURIZED SPRAYER	
NOISE EQUIPMENT		DETERGENT (Type: Alconox) = TSP	
PERSONAL SAMPLING PUMPS		SOLVENT (HEXANE)	
MINI-RAM (Particulates) (Drilling)		PLASTIC SHEETING	
		TARPS AND POLES	
		TRASH BAGS	
RADIATION EQUIPMENT		TRASH CANS	
DOCUMENTATION FORMS		MASKING TAPE	
PORTABLE RATEMETER		DUCT TAPE	
SCALER/RATEMETER		PAPER TOWELS	
NaI Probe		FACE MASK	
ZnS Probe		FACE MASK SANITIZER	
GM Pancake Probe		FOLDING CHAIRS	
GM Side Window Probe		STEP LADDERS	
MICRO R METER		DISTILLED WATER	
ION CHAMBER			
ALERT DOSIMETER			
MINI-RAD			

EQUIPMENT LIST

SAMPLING EQUIPMENT	NO.	MISCELLANEOUS (cont.)	NO.
8-OZ BOTTLES		BUNG WRENCH	
HALF GALLON BOTTLES		SOIL AUGER	
VOA BOTTLES		PICK	
SOIL SAMPLING (CORING) TOOL		SHOVEL	
SOIL VAPOR PROBE		CATALYTIC HEATER	
THIEVING RODS WITH BULBS		PROPANE GAS	
SPOONS		BANNER TAPE	
GENERAL TOOL KIT		SURVEYING METER STICK	
FILTER PAPER		CHAINING PINS AND RING	
PERSONAL SAMPLING PUMP SUPPLIES		TABLES	
4-OZ JARS		WEATHER RADIO	
		BINOCULARS	
VAN EQUIPMENT		MEGAPHONE	
TOOL KIT		PORTABLE RADIOS (4)	
HYDRAULIC JACK		BUG SPRAY	
LUG WRENCH			
TOW CHAIN			
VAN CHECK OUT			
GAS		**SHIPPING EQUIPMENT**	
OIL		COOLERS	
ANTIFREEZE		PAINT CANS WITH LIDS, 7 CMIPS EACH	
BATTERY		VERMICULITE	
WINDSHIELD WASH		SHIPPING LABELS	
TIRE PRESSURE		DOT LABELS: “DANGER”, “UP”;	
		“INSIDE CONTAINER COMPLIES...”;	
MISCELLANEOUS		“HAZARD GROUP”	
PITCHER PUMP		STRAPPING TAPE	
SURVEYOR’S TAPE		BOTTLE LABELS	
100 FIBERGLASS TAPE		BAGGIES	
300 NYLON ROPE		CUSTODY SEALS	
NYLON STRING		CHAIN-OF-CUSTODY FORMS	
SURVEYING FLAGS		FEDERAL EXPRESS FORMS	
FILM		CLEAR PACKING TAPE	
WHEEL BARROW			

APPENDIX D

WEST NILE VIRUS EXPOSURE

CDC
Workplace Safety and Health

Recommendations for

Protecting Outdoor Workers from West Nile Virus Exposure

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health

NIOSH

Cover photograph courtesy of William Brogdon,
Centers for Disease Control and Prevention (CDC)

Recommendations for

Protecting Outdoor Workers from West Nile Virus Exposure

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health

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Introduction

The West Nile virus (WNV) is most often spread to humans from the bite of an infected mosquito. The virus may also be transmitted in other ways—through organ transplants, blood transfusions, and breast milk, and from mother to fetus. But the risk of such transmission is very low. WNV was first reported in the United States in 1999, and occupational exposures have been documented. By 2004, the virus was reported throughout the continental United States.

WNV is spread to humans from the bite of an infected mosquito. *Photograph courtesy of Jim Gathany, Centers for Disease Control and Prevention (CDC).*

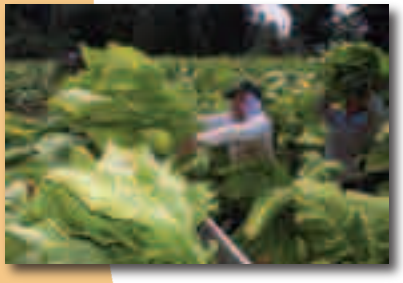
Most human infections with WNV (about 80%) cause no symptoms, and about 20% cause flu-like symptoms, including fever, fatigue, headache, and muscle or joint pain. Fewer than 1% of humans infected with WNV become severely ill. Severe symptoms include high fever, stiff neck, disorientation, tremors, muscle weakness, and paralysis. Severely affected persons may develop encephalitis (inflammation of the brain) or meningitis (inflammation of the membranes of the brain or spinal cord). Severe cases may be fatal. People of all ages and conditions may be affected. However, those who are above age 50 or who have had an organ transplant are at increased risk of severe illness.

Frequently Asked Questions

Which workers may be exposed to WNV?

Outdoor workers may be exposed to WNV whenever mosquitoes are biting. Outdoor workers at risk include farmers, foresters, landscapers,

Outdoor workers are at risk of WNV infection.



Anyone who works where there are infected mosquitoes is at risk of WNV infection. *Photograph courtesy of Ken Hammond, U.S. Department of Agriculture (USDA).*

groundskeepers and gardeners, painters, roofers, pavers, construction workers, laborers, mechanics, and other outdoor workers. Entomologists and other field workers are also at risk while conducting surveillance and other research outdoors. All outdoor workers should follow the recommendations in this brochure to reduce their potential for WNV exposure.

In addition to outdoor workers, laboratory workers are at risk of WNV infection if their skin is penetrated or cut while performing necropsies or handling WNV-infected tissues or fluids.

Who is at risk of WNV infection?

Anyone who lives or works in an area where there are WNV-infected mosquitoes is at risk of WNV infection. People of all ages are at risk of the flu-like symptoms of this infection. Although people usually recover, the symptoms may be severe enough to result in lost workdays for extended periods.

People above age 50 and those who have had organ transplants are known to have the highest risk of severe illness from WNV infection. Others with compromised immune systems are also likely to be at high risk. However, people of all ages and conditions can become severely ill. Therefore, ALL workers should be careful to follow the recommendations listed in this brochure to reduce their potential for exposure to WNV.

Have any outdoor workers been infected with WNV on the job?

Workers were infected with WNV at a turkey breeder farm in 2002 and an alligator farm in 2004. Although it is uncertain how these workers were infected, it may have been through mosquito bites, contact of cut or scraped skin with infected feces, swallowing or being splashed in the eyes or mouth with contaminated material, or inhaling airborne virus from infected feces.

It is likely that more outdoor workers have been infected with WNV when bitten by infected mosquitoes, but information about workers' occupations may not be collected when cases are reported. Many cases have occurred in rural areas where people work in farming and other outdoor occupations.

Outdoor workers should be trained about the risks of WNV exposure and infection.

When are outdoor workers at greatest risk of WNV exposure?

Outdoor workers are at risk of WNV exposure any time infected mosquitoes are biting. Most WNV infections occur from July through September. Many mosquitoes are most active from dusk to dawn. However, some are active during the day. If possible, avoid working outdoors during peak activity times for mosquitoes. When you must work at such times, pay special attention to the use of personal protection such as protective clothing and insect repellent to reduce the potential for exposure.

Many mosquitoes are most active from dusk to dawn. *Photograph courtesy of USDA.*

Tires provide breeding sites for mosquitoes. *Photograph courtesy of Graham Heid and Harry D. Pratt, CDC.*

Where are mosquitoes most commonly found?

Mosquitoes develop in any standing body of water that persists for more than 4 days. Stagnant pools, ponds, watering troughs, irrigation ditches, rain barrels, manure lagoons, and other stagnant bodies of water increase mosquito populations. Weedy, bushy, and wooded work environments may also have mosquito populations. Emptying containers of stagnant water every 4 to 5 days or treating these breeding sites with larvicides can help to reduce mosquito populations.

When pregnant workers are outside, they should avoid mosquitoes, wear protective clothing, and use an effective repellent. *Photograph courtesy of CDC.*

How does WNV affect a woman's pregnancy?

The Centers for Disease Control and Prevention (CDC) has followed a number of women who became ill with WNV during pregnancy. Most of these women delivered apparently healthy babies with no evidence of WNV infection. Although some of the babies born to WNV-infected mothers did have health problems, it is unknown whether the WNV infection caused these problems. Because of the limited number of cases studied so far, it is not yet possible to determine what percentage of WNV infections during pregnancy result in infection of the fetus or medical problems in newborns. More research is needed to understand the possible effects of WNV on pregnancy.

When pregnant workers are outside, they should follow the recommendations at the end of this brochure

to reduce their risk for WNV infection. These recommendations include avoiding mosquitoes; wearing protective clothing; using repellents containing DEET (N,N-diethyl-m-toluamide), picaridin, or oil of lemon eucalyptus on the skin; and spraying clothes with one of these repellents or permethrin. Always follow label instructions for repellents. Pregnant women who become ill should see their health care providers.

Wear gloves if you must handle dead animals.

What should I do if I must handle dead animals?

Avoid handling dead animals when possible. If you must handle them, avoid direct contact and wear gloves that provide a protective barrier. See additional recommendations at the end of this brochure.

What should I do if I develop symptoms of WNV infection?

Tell your supervisor about any symptoms that might be caused by WNV infection. If you develop severe symptoms such as high fever, stiff neck, disorientation, tremors, muscle weakness, or paralysis, seek medical attention immediately. Be sure to tell your health care provider that you work outdoors. The period between receiving the infected bite and having symptoms is 3 to 14 days.

Testing for WNV infection is available. No vaccine is currently available to prevent WNV infection in humans.

Visit your health care provider if you develop WNV symptoms.

Removing tires from worksites helps to reduce mosquito populations. *Photograph courtesy of CDC.*

Recommendations for Employers of Outdoor Workers

Employers should protect their workers from WNV exposure by taking the following steps:

- Provide training that describes how WNV is transmitted and reinforces knowledge about the risks of WNV exposure and infection.
- Stress to workers the importance of reporting all work-related injuries and illnesses in a timely manner.
- Provide a medical surveillance system that monitors, records, and assesses the symptoms and absenteeism associated with WNV infection.
- Provide workers with protective clothing (long-sleeved shirts, long pants, and socks) and repellents to use on skin and clothing:
  - — Use repellents containing DEET (more than 20% DEET for longer protection), picaridin, or oil of lemon eucalyptus on both skin and clothing.
  - — Use permethrin on clothing only.
- Reduce worker exposure to mosquitoes by taking the following steps:
  - — Avoid having workers outdoors when mosquitoes are most active and biting (most often from dusk to dawn).

— Recommend that outdoor workers wear long-sleeved shirts, long pants, and socks when possible.

— If worker uniforms are provided, include long-sleeved shirts and long pants as options.

- Eliminate as many sources of standing water from the worksite as possible to decrease mosquito populations:

  — Change the water every 4 to 5 days in animal drinking troughs, birdbaths, and other water containers.

  — Scrub the sides of water containers to dislodge eggs.

  — Add an aerator to ponds and water gardens to keep the water circulating, or add fish that will eat the mosquito larvae or adults.

  — Remove discarded tires or keep them dry and under cover.

  — Turn over, cover, store, or remove equipment such as tarps, buckets, barrels, wheelbarrows, and containers to prevent standing water.

  — Place drain holes in containers that collect water and cannot be discarded.

  — Clean out rain gutters.

Preventing standing water helps to reduce mosquito populations. *Photograph courtesy of Graham Heid and Harry D. Pratt, CDC.*

Using an effective insect repellent helps prevent mosquito bites. *Photograph courtesy of CDC/PHPPO/DPDE/CAB/PhotoServices.*

Long-sleeved shirts, long pants, and socks will help prevent mosquito bites. *Photograph courtesy of Joe Larson, USDA.*

— Remove debris (leaves, twigs, trash) from ditches.

— Fill in ruts and other areas that collect standing water.

Recommendations for Workers

Outdoor workers can reduce their risk of WNV exposure by taking the following steps:

- Use insect repellent if you work outdoors when mosquitoes are biting:
  - — Apply insect repellent containing DEET (more than 20% DEET for longer protection), picaridin, or oil of lemon eucalyptus to exposed skin and to clothing.
  - — Use permethrin on clothing only.
  - — Carefully follow label directions for repellent use.
  - — Do not apply pump or aerosol products directly to the face. Instead, spray these products onto the hands and carefully rub them over the face, avoiding the eyes and mouth.
  - — Use a repellent that provides protection for the amount of time that you will be outdoors and reapply it as needed. The percentage of active ingredient in the repellent determines the length of protection.

— Wash skin treated with insect repellent with soap and water after returning indoors.

- Use protective clothing if you work outdoors when mosquitoes are biting:
  - — Wear long-sleeved shirts, long pants, and socks.
  - — Spray clothing with products containing DEET, picaridin, oil of lemon eucalyptus, or permethrin, as mosquitoes may penetrate thin clothing.
  - — Use permethrin repellents on clothing as directed; do not apply them directly to skin.
  - — Wash clothing treated with insect repellent before wearing it again.
  - — Do not apply repellent to skin that is covered by clothing.
- Avoid handling dead animals when possible. If you must handle them, take the following precautions:
  - — Use tools such as shovels to avoid direct contact with the animals.
  - — Wear medical examination gloves that provide a protective barrier between your skin and blood or other body fluids:
    - Wear two pairs of gloves if one pair alone might tear.

- Wear the medical examination gloves as the inner pair.
- Make sure that any latex gloves used are reduced-protein, powder-free gloves to reduce workers' exposure to allergy-causing proteins.
- Wear cotton or leather work gloves as the outer pair when heavy work gloves are needed.
- Discard both inner and outer gloves immediately after use.
- Remember that cotton, leather, and other absorbent gloves are not protective when worn alone.

— If gloves are not available, use a plastic bag, which may act as a protective barrier between the animal and your skin.

Additional Resources

For more comprehensive information about WNV, contact the Division of Vector-Borne Infectious Diseases, National Center for Infectious Diseases, Centers for Disease Control and Prevention at

www.cdc.gov/westnile

For further information about other occupational safety and health topics, contact the National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention at

www.cdc.gov/niosh

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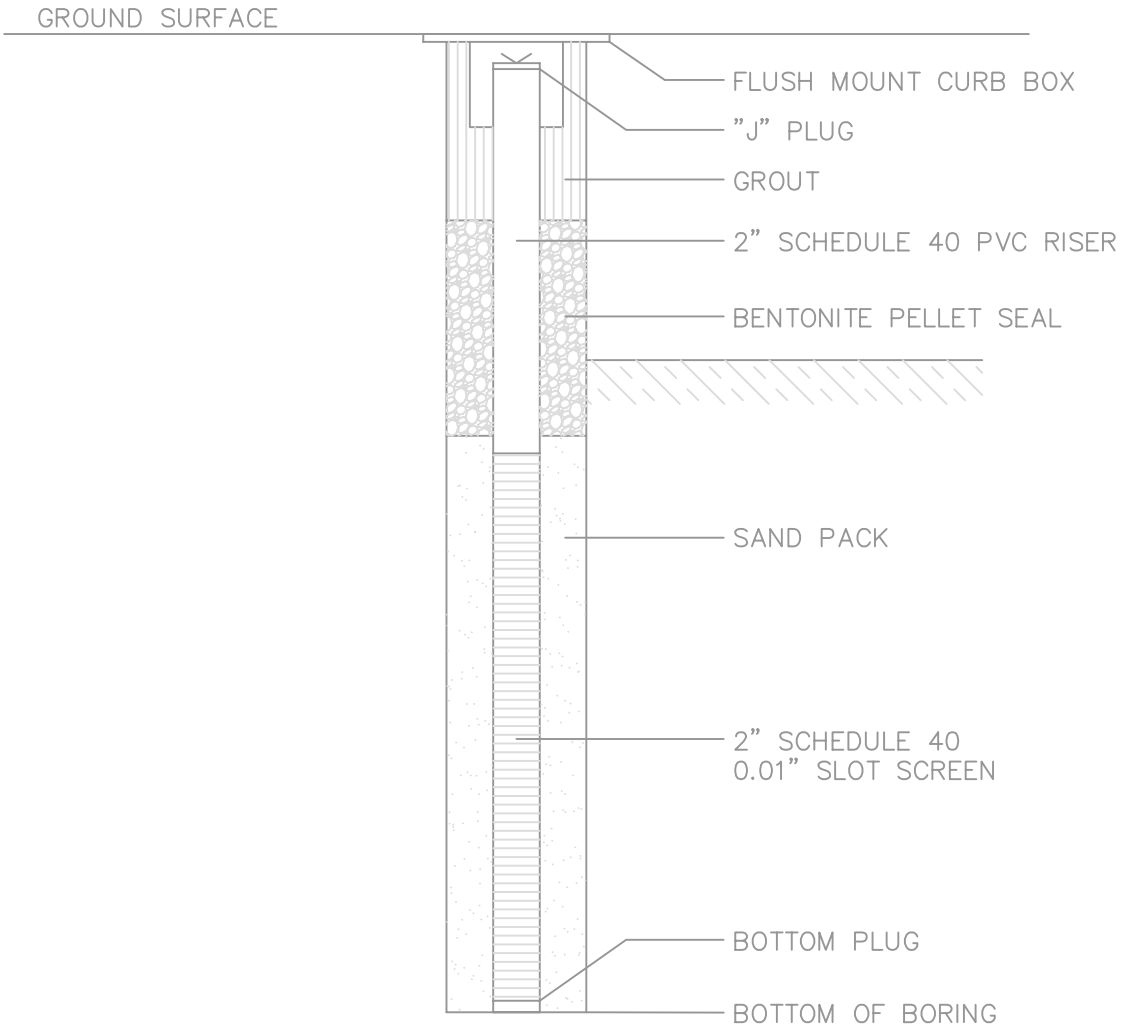
Attachment 3 – Typical Monitoring Well Construction Schematic Diagram

MONITORING WELL CONSTRUCTION DETAIL



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WELL CONSTRUCTION DETAIL

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