Panamerican
Environmental, Inc.

2390 Clinton St.
Buffalo, NY 14227

Ph: (716) 821-1650
Fax: (716) 821-1607

WORK PLAN FOR INTERIM REMEDIAL MEASURE (IRM) EXCAVATION/REMOVAL OF PETROLEUM IMPACTED SOILS & UNDERGROUND STORAGE TANKS (USTs)

ENVIRONMENTAL RESTORATION PROGRAM PROJECT FOR THE BUSH INDUSTRIES SITE NO. E905029 1 NORTH MAIN STREET VILLAGE OF CATTARAUGUS, NEW YORK

Prepared for:

Village of Cattaraugus
14 Main Street
Cattaraugus, New York 14719

Prepared by:

Panamerican Environmental, Inc.
2390 Clinton Street
Buffalo, New York 14227

August 2007

Work Plan for

Interim Remedial Measure (IRM)
Excavation/Removal of Petroleum Impacted Soils &
Underground storage Tanks (USTs)

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IRM WORK PLAN

TABLE OF CONTENTS

1.0 INTRODUCTION

This document presents the scope of work for completion of an Interim Remedial Measure (IRM) to remove petroleum impacted soils identified during a Site Investigation/Remedial Alternatives Report (SI/RAR) program completed in 2006 at the Bush Site (Site) in the Village of Cattaraugus, New York (refer to Figure 1). The IRM scope of work also includes the decommissioning and removal of up to two underground storage tanks (USTs) that were tentatively identified during a building demolition/asbestos removal program completed at the Site in 2007. The IRM is being performed for the Village of Cattaraugus under the New York State Department of Conservation (NYSDEC) Environmental Restoration Program, with funds allocated by the New York State Clean Water/Air Bond Act.

1.1 Background

The Bush Site is the location of the former Setter Brothers/Bush Industries property, located at 1 North Main Street in the Town of New Albion, Village of Cattaraugus, Cattaraugus County, New York. Vacant since about 1989, the property consists of approximately 4.43-acres and is currently owned by the Village of Cattaraugus.

The Site contains the remnants of a former manufacturing facility which has been demolished to the foundation level. Concrete slab foundations from former buildings cover much of the west end of the Site up to and immediately adjacent Main Street including the area where impacted soils are to be removed as part of the IRM. Historical maps of the property indicate that a Standard Oil facility, an apple evaporator, and gasoline service were formerly associated with portions of the west end of the Site adjacent to Main Street. Nothing is left on the surface of the site relative to these former uses.

In 2006, a Site Investigation (SI) was completed and a Remedial Action Report (RAR) prepared (*Site Investigation and Remedial Action Report, Former Bush industries Site No. E905029, prepared for: Village of Cattaraugus, prepared by; PEI/URS, September 2006).* The SI/RAR concluded that petroleum impacted soils existed in the area of the former Standard Oil facility (estimated 3,500 tons) with volatile organic compound (VOC) concentrations that exceeded NYSDEC TAGM 4046 - Soil Cleanup Guidance Values (see Figure 2). The IRM discussed in this Work Plan will be undertaken to excavate and dispose of the impacted soils within the designated area shown in Figure 2.

In 2007, the Village of Cattaraugus completed the demolition of the remaining primary structures on site along with the removal of debris piles containing asbestos related materials. During this program, piping associated with potential underground storage tank (UST) was uncovered with indications that one or possibly two USTs may still be in place on site. (refer to Figure 2). A second IRM task discussed in this Work Plan will be undertaken to close and remove any USTs found in the designated locations along with impacted soil identified during UST removal.

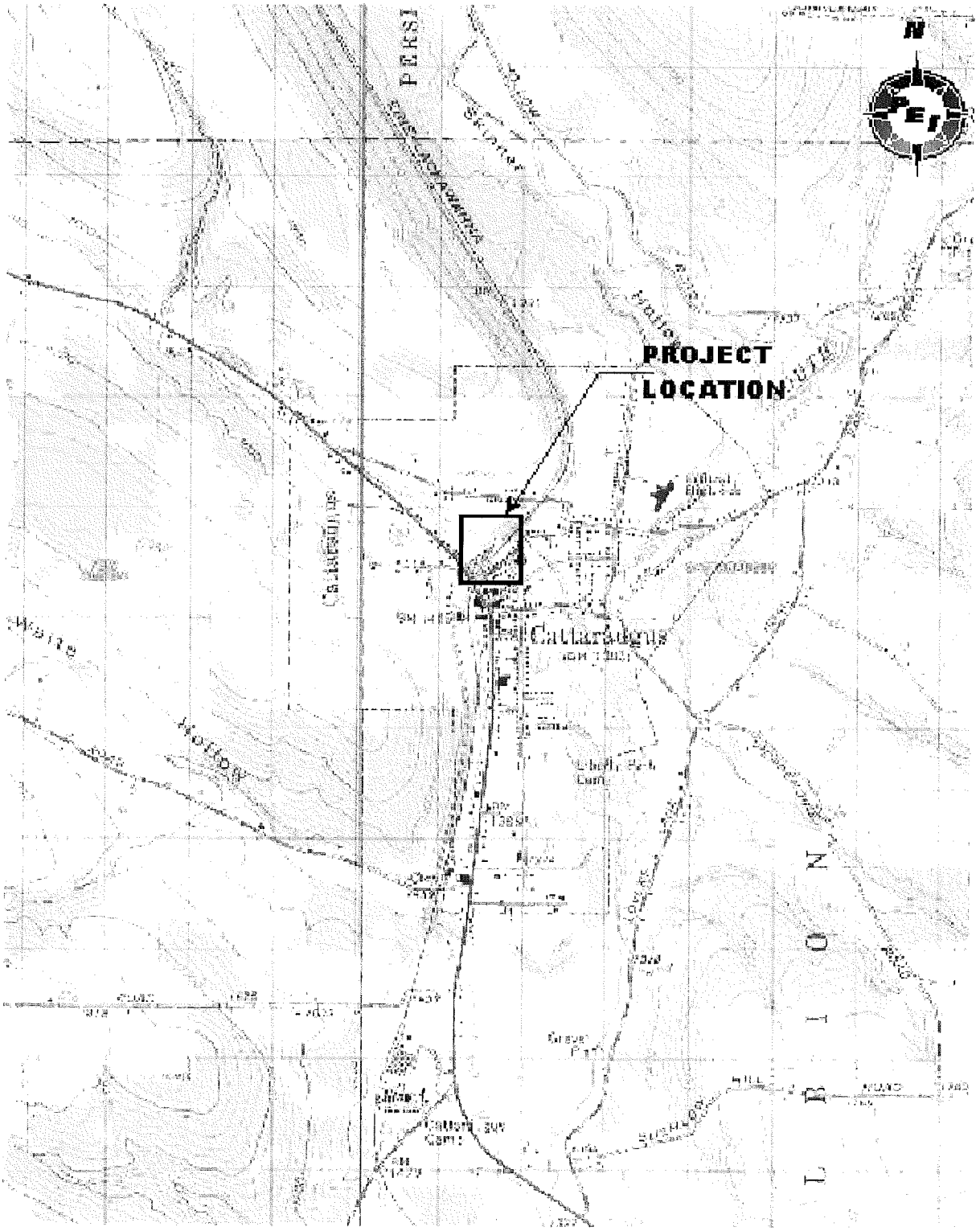

Figure 1. Project location within the Village of Cattaraugus, Cattaraugus County, New York *(USGS 7.5' Quadrangle, Cattaraugus, NY).*

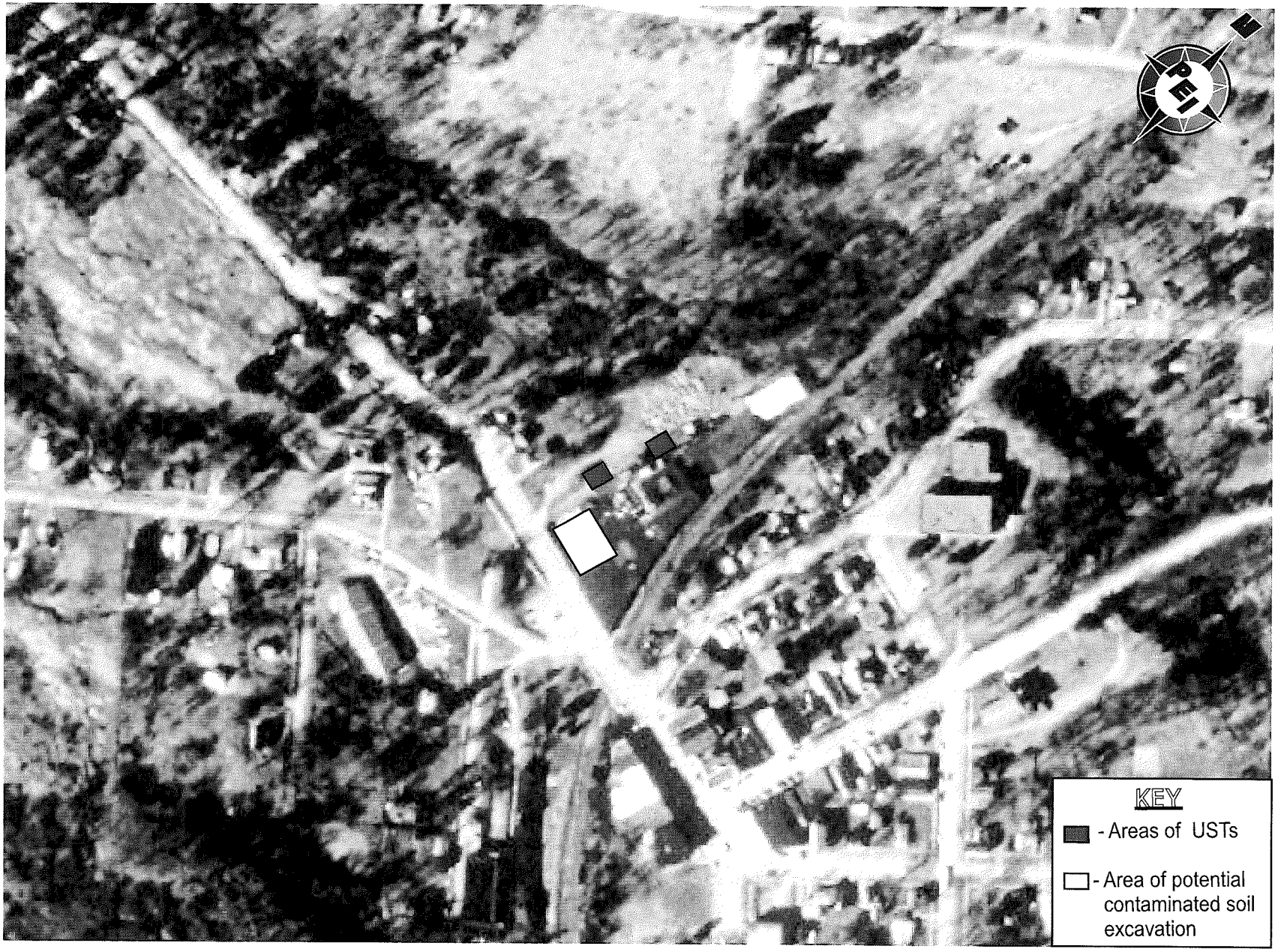

Figure 2. Approximate Petroleum/UST Work Areas on Aerial Photograph of Bush Industries Site, Village of Cattaraugus, New York.

1.2 IRM Recommendation

The IRM to be undertaken at the site will consist of: the excavation, transportation, and proper disposal of approximately 3,500 tons of petroleum impacted soils from the former Standard Oil facility area; proper closure of abandoned USTs including offsite disposal of any associated petroleum impacted soils; backfilling all excavations with clean fill; and site restoration.

1.3 Purpose and Scope

The primary purpose of the IRM is to eliminate threats to human health and/or the environment resulting from the presents of petroleum impacted soils related to the former Standard Oil facility area and possible leaking abandoned petroleum USTs. The elevated concentrations of petroleum related VOCs are a threat to human health associated with potential exposure to the contaminated soils and an environmental threat associated with the potential impact of contaminants to the groundwater.

To eliminate or mitigate these threats the IRM discussed in this Work plan will be achieved by excavating and transporting all petroleum impacted soils with concentrations exceeding TAGM 4046 Soil Cleanup Guidance Values/PART 375 to a permitted disposal facility along with the removal of any abandoned USTs and associated contaminated soils. Other scope objectives include: the collection, treatment and proper disposal of groundwater encountered during soil excavation; backfilling all excavated areas with clean fill; and final grading for proper drainage of all disturbed areas.

2.0 TECHNICAL APPROACH

2.1 Pre-Construction Tasks

The following tasks will be completed prior to beginning construction operations.

2.1.1 Prepare Construction Bid Documents

Following approval of this Work Plan by The Village and the NYSDEC, PEI will complete final construction specifications/documents for the IRM. A set of construction documents will be prepared showing the existing site conditions, approximate limits of soil excavation in the area of the former Standard Oil facility, approximate locations of suspected USTs, backfill/grading limits, and other details of the work to be performed by the remedial contractor.

For bid comparison purposes lump sum bids will be requested to complete all work based on the following assumptions:

- An estimated 700 tons of surface concrete will be excavate from the surface of the former Standard Oil area to allow access to the impacted soils beneath the slab. All concrete rubble, rebar, etc. will be disposed at an approved C & D landfill. The actual tonnage of concrete to be excavated and paid for will depend on field observation and monitoring

during excavation by the Owner's Representative, and measured by landfill truck weigh receipts.

- An estimated 3,500 tons of petroleum impacted soil will be excavated from the Standard Oil facility location and disposed offsite and 500 tons of petroleum impacted soil will be excavated from each UST location (two areas to be uncovered). The actual tonnage of soil to be excavated and paid for will depend on field observation and soil monitoring by the Owner's Representative during excavation and measured by landfill truck weigh receipts.

- An estimated 10,000 gallons of groundwater will be collected during excavation by pumping to a storage tank, tested, and disposed on or offsite as necessary

- A maximum of two abandoned petroleum related USTs will be closed, each estimated at a maximum of 10,000 gallon capacity.

- An estimated 5,000 tons of approved backfill will be placed in excavated areas, compacted and final graded.

The bid specifications will require the contractor to specify in his bid the approved disposal locations for all excavated materials

In addition to the technical specifications, PEI will incorporate the non-technical sections (i.e. "Boiler-Plate") of the Construction Contract Documents provided by The Village and NYSDEC as applicable. These will include the following:

- Invitations to bid and instructions to bidders
- General conditions and supplementary conditions
- Bid forms and the Village contract agreement forms
- Standard Clauses for all New York State and NYSDEC Contracts
- Payment Requirements
- Prevailing Wage Rate Tables (as applicable)
- MBE/WBE Requirements
- Other miscellaneous required materials, as necessary

A detailed Engineer's estimate of the probable construction cost for the IRM will be prepared and submitted with the final construction documents.

2.1.2 Bidding and Award of Construction

Following preparation of the bid documents, PEI will assist the Village in advertising the project in accordance with municipal/state requirements for public construction bids. A lump sum bid will be requested along with unit prices for select items based on the assumptions listed in Section 2.1.1 to complete all IRM tasks as describe in this Work Plan.

A pre-bid meeting will be held at the site to:

- familiarize potential bidders with the site
- review the scope of work required for the project
- discuss the bidding process and submittal requirements
- review the schedule for bids and work
- and answer any questions from the prospective bidders.

Following submission, the bids will be evaluated to determine the completeness of the bid and compliance with the bidding requirements. A recommendation will be made as to which bid is most responsive in meeting the Village's and NYSDEC objectives. A contract will be awarded to the lowest, responsible bidder.

2.2 IRM Implementation

2.2.1 Pre-Construction Procedures

The contractor will complete the following tasks prior to beginning construction activities:

- Submit a health and safety plan, air monitoring plan and other plans and procedures as required by the construction specifications.
- Contact the Underground Facilities Protection Organization and have all subsurface facilities marked.
- Establish contractor work limits within the staked property boundary.
- Install safety fencing around all work areas to restrict and control public access to the site.

2.2.2 UST Closure

Tank closure in accordance with NYSDEC requirements typically includes:

- Notification to NYSDEC and utility clearances,
- Permit from the Village, notification and submission of insurance certificates
- Excavate, removal, and cleansing of the UST,
- Pump out and dispose of remaining product/water,
- Purge tanks and lines,
- Open and clean tanks,
- Drum all tank bottom sludge and properly dispose
- Dispose of clean tanks,
- Backfill to rough grade,
- Develop and submit a tank closure report

UST closure activities are required to be conducted in conformance with NYSDEC Petroleum Bulk Storage requirements and guidance contained in STARS Memo #1, Petroleum-Contaminated Soil Guidance Policy, and NYSDEC SPOTS NO. 14, Site Assessment at Bulk Storage Facilities as well as internal NYSDEC Region 9 guidance for the permanent closure of

petroleum storage tanks.

The contractor will ensure the proper removal and disposal of the tanks, contents, piping, and contaminated material in accordance with standard protocols. As outlined above, activities will include uncovering the top of the tank to obtain access, removal of residual contents and fumes, removal of the tank and adjacent soils, and cleaning and disposal of the tank.

The quantity of impacted soil surrounding an UST is estimated to be 500 tons. The actual quantity of soil to be removed will depend on the results of field observation and soil monitoring during the excavation. Soil removed during the excavation process will be field screened with a Photoionization Detector (PID) for total organic vapors (VOCs). Soil that does not appear to be impacted with petroleum hydrocarbons (<10 ppm measured with the PID) will be segregated for potential use as backfill. Segregated soil will then be sampled and tested by the Owner's representative for petroleum related VOC.s. Soil with VOC concentrations that do not exceed NYSDEC TAGM 4046 Soil Cleanup Guidance Values/PART 375 maybe used as backfill. Soils with VOC concentrations that exceed TAGM 4046/PART 375 will be disposed of as petroleum impacted soils.

2.2.3 Soil Excavation and Disposal

The contractor will be responsible for preparing a detailed excavation/disposal plan to be submitted to PEI, Village and NYSDEC for review. The excavation/disposal plan shall include, but not limited to, the following:

- Detailed construction schedule that meets the overall project schedule provided in the bid documents.
- Method of excavation and disposal (equipment, offsite transport, end use/destination, etc.) of concrete surface slab and impacted soil
- Handling of drainage/groundwater during excavation to protect the work area and offsite areas.
- End use verification to meet NYSDEC tracking requirements (Bills of Lading, etc.).
- Erosion and sedimentation control methods
- Other requirements as specified in the construction specifications

Upon acceptance of the excavation/disposal plan the contractor will commence implementation of the plan and complete all work within the approved project schedule.

The majority of the estimated quantities of soil requiring excavation are petroleum impacted soil; however, field screening with a PID will be conducted by the Owner's Representative to separate potentially non-impacted soil (less than 10 ppm) from the petroleum impacted soil. Potentially clean fill identified through the PID screening process will be segregated on site on 6-mil plastic sheeting. Segregated soil will then be sampled and tested by the Owner's representative for petroleum related VOC.s. Soil with VOC concentrations that do not exceed NYSDEC TAGM 4046 Soil Cleanup Guidance Values/PART 375 maybe used as backfill. Soils with voc concentrations that exceed TAGM 4046/PART 375 will be disposed of as petroleum impacted soils.

2.2.4 Groundwater Control

It is anticipated that groundwater will be encountered during excavation of impacted soils in the area of the former Standard Oil facility. The contractor will institute the necessary measures to collect and contain groundwater as excavation proceeds. Pumps will be utilized to capture groundwater and transfer the water to holding tanks as water is generated from the excavation. The water will be disposed of at an approved offsite facility and/or treated onsite and disposed into the sanitary sewer.

2.2.5 Confirmation sampling

Confirmatory soil samples will be collected from the excavation bottom and side-walls at the Standard Oil facility area and UST locations. The previously discussed Site Investigation (SI) conducted in the former Standard Oil area identified the vertical extent of petroleum impacted soils as approximately twelve feet below ground surface. The lateral extent of petroleum impacted soils is estimated as shown on Figure 2. However, the lateral extent was not completely defined (between each soil boring) during the SI. The objectives of confirmation soil sampling are to confirm that petroleum impacted soil has been excavated where the extent is already known; evaluate the concentrations of remaining residual petroleum compounds in the Site soils, and to supplement the evaluation at locations along the lateral extent of the contamination area.

Samples will be collected with decontaminated, stainless steel trowels/spoons from the excavator bucket and transferred to glass jars supplied by the laboratory. Standard PEI sampling protocols consistent with the NYSDEC Sampling Guidelines and Protocols will be followed during sample collection, identification, labeling, and storing. Soil samples will be immediately transferred following collection to a certified laboratory under proper chain-of-custody documentation.

A maximum of 8 confirmatory soil samples will be collected from the bottom and the side-walls of the former Standard Oil excavation and a maximum of 5 samples (one bottom and each sidewall) collected per UST location. Additional soil samples may be required based on field conditions encountered. These soil samples will be analyzed by the laboratory in accordance with EPA Method 8021 (STARS) based on the previous assessment results and history of petroleum use. The excavation will be considered complete when field screen PID measurements are less than 10 ppm and confirmatory soil sample analytical results are below the NYSDEC TAGM 4046 Soil Cleanup Guidance Values/PART 375 or when the property limits/utility corridors have been reached.

Immediately after acceptance of confirmatory sample results, excavated areas will be backfilled with clean fill and compacted as discussed in Section 2.2.6 Backfilling.

2.2.6 Backfilling

Based on the results of the SI program, it is anticipated that the majority of soil excavated at the former Standard Oil location will be petroleum impacted soils. Therefore, backfill material will

have to be imported from an offsite source and verified clean in accordance with NYSDEC – DER-10 Imported Fill Specifications. Presently, the Village has stockpiled on Site a quantity of fill material that PEI will sample and have analyzed in accordance with DER-10 for its suitability as excavation backfill to be placed by the IRM contractor. If the quantity of onsite fill is deemed unsuitable, and/or the quantity insufficient, the contractor will procure additional offsite clean fill that meets the above requirements. To assure the consistency of material from any source a sample will be required for every 1000 ton of material to be imported to the site. Different sources will require separate samples for each 1,000 ton or one sample if less than 1,000 ton. The contractor will provide documentation to the Village of the origin/location of the source of the fill and analytical data, as appropriate. Also, any fill material source will not be accepted until NYSDEC, at its discretion, has an opportunity to inspect that source.

All backfill material will be placed in one foot lifts and compacted with approved vibratory compaction equipment.

2.2.7 Air Monitoring Program

Although this site and program are not associated with a hazardous waste site or hazardous wastes, the contractor must prepare an air monitoring plan based on guidance presented in NYSDEC TAGM # 4031 - "Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites" and in DER-10 Appendix 1A 'Generic Community Air Monitoring Plan"

Fugitive dust is particulate matter which becomes airborne and contributes to air quality as a nuisance and public health concern. Particulate concentrations will be monitored continuously at the upwind and downwind perimeters of the work zone during IRM excavation/active site work which involved disturbance of site soils. The monitoring will 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 action level (refer to HSAP Section 3.0). In addition, dust levels will be visually assessed during all intrusive work activities. The following action levels will apply:

- If the downwind PM-10 particulate level is 15 micrograms per cubic meter (mg/m^3) greater than background (upwind) for the 15-minute period or if dust is observed leaving the work area, then dust suppression techniques will be employed. Work will continue with dust suppression techniques as long as downwind PM-10 levels do not exceed 15 mg/m^3 above background and provided no visible dust is migrating from the work area.
- Levels above the action level will require work to be halted and a re-evaluation will be made with the Village Representative and NYSDEC.

All readings must be recorded in the project log book/daily monitoring sheets.

During all site grading and excavation activities the contractor shall maintain on site a water truck or other approved means of dust suppression to reduce dust conditions to below levels stipulated above. The use of road sweepers should be minimized due to dust generation.

2.2.8 Erosion and Sediment Control

As part of the excavation/disposal plan discussed in section 2.2.3 above the contractor will prepare an erosion and sediment control plan that depicts how site drainage/groundwater will be handled during construction to prevent contaminated water and/or sediment leaving the site (silt fences, etc).

2.2.9 Site Restoration

Site restoration will be required in accordance with the construction specifications. The Site will be restored to the grades matching the surrounding topography that will eliminate potential ponding while maintaining proper drainage across the site.

3.0 HEALTH AND SAFETY

Provided in Appendix A is PEI's Health and Safety Plan. The contractor will prepare a separate health and safety plan for the protection of his workers and the general public.
The plan will include but not limited to:

- OSHA requirements
- dust control/air monitoring
- vehicle access to and from the site
- vehicle decontamination (tire wash, etc.)
- site access restrictions (fencing, gates, watchmen service, etc.).

4.0 CONSTRUCTION MONITORING

Following award of the contract, PEI will provide a full time, on-site Resident Project Representative (RPR) to administer and inspect the construction of the IRM, and act as The Village's onsite representative. The RPR will provide daily inspection of the contractor's work, conduct independent air monitoring (dust/particulate monitoring), review the Contractor's invoices for accuracy, and provide preliminary approval for payment based on the amount of accepted work completed by the contractor. The contractor will provide the RPR "bills of lading" for all material leaving the site for off-site disposal and for fill material brought to the site as backfill.

Additionally, PEI will issue necessary interpretations and clarifications of the contract documents and issue the Village and NYSDEC instructions to the Contractor. Work directive changes and change orders will be prepared, as necessary, in conjunction with the Village and the NYSDEC. PEI will provide independent estimates of the value of the change orders.

PEI will maintain project files that will include: Daily Inspection Reports; Progress of the work, as compared to Contractor's schedule; Record of payments to the Contractor; Change Orders; Security and Safety Logs; Air monitoring data; Correspondence and backup information as necessary.

Upon receipt of written notification from the Contractor that the work is substantially complete, PEI will conduct an inspection with the Village and NYSDEC and develop a "punch list" of items that remains to be completed and the approximate value of these items. A final inspection of the site with the Village and NYSDEC will be performed once all the "punch list" items are completed by the Contractor. PEI will prepare a final acceptance notice for the project and a summary of the total dollar amount due the Contractor.

5.0 IRM CLOSURE/FINAL ENGINEERING REPORT

PEI will develop an IRM Final Engineering Report (FER), including UST Closure Reporting, as necessary, at the completion of construction. The FER will be signed by a professional engineer licensed in New York State. The FER will certify that the construction was performed in substantial conformance with the approved construction specifications. All applicable field forms, disposal records, etc. will be appended to the report.

APPENDIX A

Health and Safety Plan

APPENDIX A
HEALTH AND SAFETY PLAN

A1.0 INTRODUCTION

The following health and safety procedures will be followed by PEI personnel performing construction monitoring activities described in the Work Plan .

A1.1 Purpose

Directed at protecting the health and safety of the field crew during field activities, the following site-specific Health and Safety Plan (HSP) was prepared to provide safe procedures and practices for personnel engaged in conducting the field activities associated with this plan. The plan has been developed using the Occupational Safety and Health Administration (OSHA) 1910 regulations as guidance. The purpose of this HSP is to establish personnel protection standards and mandatory safety practices and procedures for this task specific effort. This plan assigns responsibilities, establishes standard operating procedures, and provides for contingencies that may arise during the field efforts.

A1.2 Applicability

The provisions of the plan are mandatory for all personnel engaged in field activities. All personnel who engage in these activities must be familiar with this plan and comply with its requirements. The plan is based on available information concerning the project area and planned tasks. If more data concerning the project area becomes available which constitute safety concerns, the plan will be modified accordingly. One crew member will be designated Field Safety Officer and will be responsible for in-field safety. Any necessary modifications to the plan will be made by the Field Safety Officer after discussion with the PEI Project Manager and Safety Manager. All modifications will be documented in the HSP plan and field book and provided to the Project Manager and the Health and Safety Manager for approval. A copy of this plan will be available for review by all on-site personnel. In addition, a copy of the plan will be provided to all subcontractors prior to their initial entry onto the site.

Before field activities begin, all personnel will be required to read the plan. All personnel must agree to comply with the minimum requirements of the site-specific plan, be responsible for health and safety, and sign the Statement of Compliance for all on-site employees before site work begins.

A1.3 Field Activities

The tasks associated with the performance of the field work include:

1. Soil confirmation sampling
2. Construction monitoring of IRM activities

A1.4 Personnel Requirements

Key personnel are as follows:

Project Manager:	Mr. Peter J. Gorton
Project Engineer:	Mr. John B. Berry,P.E.
Resident Project representative:	Justin J. Ryszkiewicz
Safety Manager:	Mr. Peter J. Gorton

Site personnel and their duties are outlined below.

The Project Manager will be responsible for all personnel and subcontractors on-site and designates duties to on-site personnel. The Project Manager has the primary responsibility for:

1. Assuring that personnel are aware of the provisions of the HSP plan and are instructed in the work practices necessary to ensure safety for planned procedures and in emergencies;
2. Verifying that the provisions of this plan are implemented;
3. Assuring that appropriate personnel protective equipment (PPE), if necessary, is available for and properly utilized by all personnel;
4. Assuring that personnel are aware of the potential hazards associated with site operations;
5. Supervising the monitoring of safety performances by all personnel to ensure that required work practices are employed; and,
6. Maintaining sign-off forms and safety briefing forms.

Field Safety Manager:

1. Monitor safety hazards to determine if potential hazards are present;
2. Determine changes to work efforts or equipment needed to ensure the safety of personnel;
3. Evaluate on-site conditions and recommend to the Field Manager modifications to work plans needed to maintain personnel safety;
4. Determine that appropriate safety equipment is available on-site and monitor its proper use;

5. Monitor field personnel and potential for exposure to physical hazards, such as heat/cold stress, safety rules near heavy equipment and borings;
6. Halt site operations if unsafe conditions occur or if work is not being performed in compliance with this plan;
7. Monitor performance of all personnel to ensure that the required safety procedures are followed. If established safety rules and practices are violated, a report of the incident will be filed and sent to the Project Manager within 48 hours of the incident; and,
8. Conduct daily safety meetings as necessary.

Field Personnel: The responsibility of each field crew member is to follow the safe work practices of this HSP and in general to:

1. Be aware of the procedures outlined in this plan;
2. Take reasonable precautions to prevent injury to him/herself and to his/her co-workers;
3. Perform only those tasks that he/she believes can be done safely and
4. Immediately report any accidents or unsafe conditions to the safety personnel and Project Manager;
5. Notify the safety personnel and Project Manager of any special medical problems (i.e., allergies or medical restrictions) and make certain that on-site personnel are aware of any such problems;
6. Think Safety First prior to and while conducting field work; and,
7. Do not eat, drink or smoke in work areas.

Each crew member has the authority to halt work should he deem conditions to be unsafe. Visitors will be required to report to the Field Manager or designee and follow the requirements of this plan.

A2.0 SITE DESCRIPTION AND SAFETY CONCERNS

The property is the location of the former Setter Brothers/Bush Industries property, located at 1 North Main Street in the Town of New Albion, Village of Cattaraugus, Cattaraugus County, New York. Vacant since about 1989, the property consists of approximately 4.43-acres and is currently owned by the Village of Cattaraugus.

For a more in-depth background of the uses of the property, refer to Section 1.1 – Background.

The following summarizes the potential chemical, physical and biological hazards.

A2.2 Hazard Evaluation

Based on the nature of the potential project hazards and tasks, the hazard potential is deemed low. Specific health and safety concerns particular to the project tasks include an awareness of potential low levels of petroleum hydrocarbons, PAH and metal contamination, underground utilities, and manual/mechanical operation of field equipment. During the IRM, extreme care must be taken so as not to damage an underground utility. The location of utilities will be marked by the utility company prior to construction.

A2.2.1 Chemical Hazards

The site investigation conducted at the site indicates that the area is composed of primarily fill material as an extension of the industrial nature of the site. Potential chemicals of concern could include petroleum compounds, various chemicals that were present from glues, acids, and solvents for laminates and veneers, any chemicals associated with dumping of fill and C&D materials in various locations and along the slope to the creek; and the possibility of other materials/chemicals associated with other process on portion of the property (tire vulcanization).

Potential routes of exposure include:

1. Skin contact;
2. Inhalation of vapors or particles;
3. Ingestion; and,
4. Entry of contaminants through cuts, abrasions or punctures.

The anticipated levels of personnel protection will include Level D personal protective equipment:

1. Long sleeve shirt and long pants (recommended),
2. Work boots,
3. Hard hats, if work is conducted around heavy equipment or overhead hazards,
4. Safety Glasses
5. Gloves to include work gloves and chemical resistant gloves when sampling potentially contaminated materials.

Modifications may include chemically resistant gloves, boots/booties, and overalls. If monitoring levels indicate levels requiring respiratory protection (sustained readings at or above 5 ppm above a daily established background), work will be halted pending discussions with field and office management. If any readings are recorded above background, work will proceed with caution and breathing zone monitoring will be conducted.

A2.2.2 Physical Hazards

Depending on the time of year, weather conditions or work activity, some of the following potential physical hazards could result from project activities:

1. Noise;
2. Heat Stress;
3. Cold Stress;
4. Slips, trips, and falls;
5. Exposure to moving machinery or stored energy;
6. Physical eye hazards;
7. Lacerations and skin punctures;
8. Back strain from lifting equipment;
9. Electrical storms and high winds;
10. Contact with overhead or underground utilities.

Slips, Trips, and Falls. Field personnel shall become familiar with the general terrain and potential physical hazards which would be associated with accidental risk of slips, trips, and/or falls. Special care shall be taken along the steep embankment and when performing sediment sampling requiring wading into the creek. Workers will observe all pedestrian and vehicle rules and regulations. Extra caution will be observed while working near roadways and while driving in reverse to ensure safety.

Noise. All personnel shall wear hearing protection devices, such as ear muffs or ear plugs, if work conditions warrant. These conditions would include difficulty hearing while speaking to one another at a normal tone within three feet. If normal speech is interfered with due to work noise, the field safety officer will initiate the mandatory use of hearing protection around the backhoe, or other noise-producing equipment or events.

Heat/Cold Stress. Heat stress work modification may be necessary during ambient temperatures of greater than 29° C (85° F) while wearing normal clothing or exceeding 21° C (70° F) while wearing personnel protective clothing. Because heat stress is one of the most common and potentially serious illnesses at work sites, regular monitoring and preventive measures will be utilized should conditions warrant. This may include additional rest periods, supplemental fluids, restricted consumption of drinks containing caffeine or alcohol, use of cooling vests, or modification of work practices.

Most of the work to be conducted during the investigations is expected to consist of light manual labor and visual observation. Given the nature of the work and probable temperatures, heat stress hazards are not anticipated.

If work is to be conducted during winter conditions, cold stress may be a concern to the

health and safety of personnel. Wet clothes combined with cold temperatures can lead to hypothermia. If air temperature is less than 40° F (4° C) and an employee perspires, the employee must change to dry clothes. The following summary of the signs and symptoms of cold stress are provided as a guide for field and safety personnel.

Incipient frostbite is a mild form of cold stress characterized by sudden blanching or whitening of the skin.

Chilblain is an inflammation of the hands and feet caused by exposure to cold moisture. It is characterized by a recurrent localized itching, swelling, and painful inflammation of the fingers, toes, or ears. Such a sequence produces severe spasms, accompanied by pain.

Second-degree frostbite is manifested by skin with a white, waxy appearance and the skin is firm to the touch. Individuals with this condition are generally not aware of its seriousness because the underlying nerves are frozen and unable to transmit signals to warn the body. Immediate first aid and medical treatment are required.

Third-degree frostbite will appear as blue blotchy skin. The tissue is cold, pale, and solid. Immediate medical attention is required.

Hypothermia develops when body temperature falls below a critical level. In extreme cases, cardiac failure and death may occur. Immediate medical attention is warranted when the following symptoms are observed:

1. Involuntary shivering
2. Irrational behavior
3. Slurred speech
4. Sluggishness

Fire and Explosion. These hazards will be minimal for activities associated with this project. All heavy equipment will be equipped with a fire extinguisher..

Trenching and Excavations. There are a variety of potential health and safety hazards associated with excavations. These include:

- Surface encumbrances, such as structures, fencing, stored materials, etc., may interfere with safe excavations;
- Below- and above-ground utilities, such as water and sewer lines, gas lines, power lines, telephones, and optical cable lines, etc.;
- Overhead power lines and other utilities which may be contacted by the excavation equipment;
- Vehicle and heavy equipment traffic around the excavations;
- Falling loads from lifting or digging equipment;
- Water accumulation within excavations;
- Hazardous atmospheres, such as oxygen deficiency, flammable gases or vapors,

and toxic gases which may occur in excavations,
- Falling into or driving equipment or vehicles into unprotected or unmarked excavations; and,
- Cave-in of loose rocks and soil at the excavation face.

OSHA requirements for trenching and excavations are contained in 29 CFR, subpart P, 1926:650 thru 1926.652.

Basic minimum excavation requirements should include:
- Personnel entry into excavations should be minimized, whenever possible and no entry will occur in pits below 4 feet in depth.
- Sloping, shoring or some other equivalent means should be utilized, as required.
- Surface encumbrances such as structures, fencing, piping, stored material etc. which may interfere with safe excavations should be avoided, removed or adequately supported prior to the start of excavations. Support systems should be inspected daily.
- Underground utility locations should be checked and determined and permits as necessary should be in place prior to initiating excavations. Local utility companies will be contacted at least two days in advance, advised of proposed work, and requested to locate underground installations. When excavations approach the estimated location of utilities, the exact location should be determined by careful probing or hand digging and when it is uncovered, proper supports should be provided.
- A minimum safe distance of 15 feet should be maintained when working around overhead high-voltage lines or the line should be de-energized following appropriate lock-out and tag-out procedures by qualified utility personnel.
- Excavations five feet or more deep if entered will require an adequate means of exit, such as a ladder, ramp, or steps and located so as to require no more than 25 feet of lateral travel. Under no circumstances should personnel be raised using heavy equipment.
- Personnel working around heavy equipment, or who may be exposed to public vehicular traffic should wear a traffic warning vest. At night, flourescent or other reflective material is recommended to be worn.
- Heavy equipment or other vehicles operating next to or approaching the edge of an excavation will require that the operator have a clear view of the edge of the excavation, or that warning systems such as barricades, hand or mechanical signals, or stop logs be used. If possible the surface grade should slope away from the excavation.
- Personnel should be safely located in and around the trench and should not work underneath loads handled by lifting or digging equipment.
- Hazardous atmospheres, such as oxygen deficiency (atmospheres containing less than 19.5% oxygen), flammable gases or vapors (airborne concentrations greater than 20% of the lower explosive limit), and toxic gases or vapors (airborne

concentrations above the OSHA Permissible Exposure Limit or other exposure limits) may occur in excavations. Monitoring should be conducted for hazardous atmospheres prior to entry and at regular intervals. Ventilation or respiratory protection may be provided to prevent personnel exposures to oxygen deficient or toxic atmospheres. Periodic retesting (at least each shift) of the excavation will be conducted to verify that the atmosphere is acceptable. A log or field book records should be maintained.

- Personnel should not work in excavations that have accumulated water or where water is accumulating unless adequate precautions have been taken. These precautions can include special support or shield systems, water removal systems such as pumps, or safety harnesses and lifelines. Groundwater entering the excavation should be properly directed away and down gradient from the excavation.
- Safety harnesses and lifelines should be worn by personnel entering excavations that qualify as confined spaces.
- Excavations near structures should include support systems such as shoring, bracing, or underpinning to maintain the stability of adjoining buildings, walls, sidewalks, or other structures endangered by the excavation operations.
- Loose rock, excavated or other material, and spoils should be effectively stored and retained at least two and preferably 5 feet or more from the edge of the excavation. Barriers or other effective retaining devices may be used in order to prevent spoils or other materials from falling into the excavation.
- Walkways or bridges with standard guardrails that meet OSHA specifications will be provided where employees, the public, or equipment are required to cross over excavations.
- Adequate barrier physical protection should be provided and excavations should be barricaded or covered when not in use or left unattended. Excavations should be backfilled as soon as possible when completed.
- Safety personnel should conduct inspections prior to the start of work and as needed throughout the work shift and after occurrence that increases the hazard of collapse (i.e., heavy rain, vibration from heavy equipment, freezing and thawing, etc.).
- Personnel working in excavations should be protected from cave-ins by sloping and/or benching of excavation walls, a shoring system or some other equivalent means in accordance with OSHA regulations. Soil type is important in the determination of the angle of repose for sloping and benching, and the design of shoring systems.

A2.2.3 Biological Hazards

Biological hazards can result from encounters with mammals, insects, snakes, spiders, ticks, plants, parasites, and pathogens. Mammals can bite or scratch when cornered or surprised. The bite or scratch can result in local infection with systemic pathogens or

parasites. Insect and spider bites can result in severe allergic reactions in sensitive individuals. Exposure to poison ivy, poison oak or poison sumac results in skin rash. Ticks are a vector for a number of serious diseases. Dead animals, organic wastes, and contaminated soil and water can harbor parasites and pathogens. These hazards will be reduced to non-existent if work is conducted during late fall and winter months. The following are highlighted because they represent more likely concerns for the site-specific tasks and location:

Bees, Ants, Wasps and Hornets. Sensitization by the victim to the venom from repeated stings can result in anaphylactic reactions. If a stinger remains in the skin, it should be removed by teasing or scraping, rather than pulling. An ice cube placed over the sting will reduce pain. An analgesic-corticosteroid lotion is often useful. People with known hypersensitivity to such stings should consult with their doctor about carrying a kit containing an antihistamine and aqueous epinephrine in a pre-filled syringe when in endemic areas. Nests and hives for bees, wasps, hornets and yellow jackets often occur in the ground, trees and brush. Before any nests or hives are disturbed, an alternate sampling location should be selected. If the sample location cannot be relocated, site personnel who may have allergic reactions shall not work in these areas.

Storm Conditions. When lightening is within 10 miles of the work site, all personnel should evacuate to a safe area.

Sun. When working in the sun, personnel should apply appropriate sun screening lotions (30 sun screen or above), and/or wear long sleve clothing and hats.

Field personnel should refrain from handling any foreign objects such as hypodermic needles, glass, etc.

A3.0 SAFE WORKING PRACTICES

A3.1 General Practices

The following general safe work practices apply:

- Eating, drinking, chewing gum or tobacco and smoking are prohibited within the work area as part of safe work practices.
- Contact with potentially contaminated substances should be avoided. Puddles, pools, mud, etc. should not be walked through if possible. Kneeling, leaning, or sitting on equipment or on the ground should be avoided whenever possible.
- Upon leaving the work area, hands, face and other exposed skin surfaces should be thoroughly washed.
- Unusual site conditions shall be promptly conveyed to the site manager and safety personnel as well as the project management for resolution.
- A first-aid kit shall be available at the site.

- Field personnel should use all their senses to alert themselves to potentially dangerous situations (i.e., presence of strong, irritating, or nauseating odors).
- Personal hygiene practices such as no eating, drinking or smoking will be followed.
- If severe dusty conditions hazardous to the crew are present, soils will be dampened to mitigate dust. All equipment will be cleaned before leaving the work area.
- Field personnel must attend safety briefings and should be familiar with the physical characteristics of the investigation, including:
    - Accessibility to associates, equipment, and vehicles.
    - Areas of known or suspected contamination.
    - Site access.
    - Routes and procedures to be used during emergencies.
- Personnel will perform all investigation activities with a buddy who is able to:
    - Provide his or her partner with assistance.
    - Notify management / emergency personnel if emergency help is needed.
- Excavation activities shall be terminated immediately in event of thunder and/or electrical storm.
- The use of alcohol or drugs at the site is strictly prohibited.

A4.0 PERSONAL SAFETY EQUIPMENT

As required by OSHA in 29 CFR 1920.132, this plan constitutes a workplace hazard assessment to select personal protective equipment (PPE) to perform the site investigation.

The PPE to be donned by on-site personnel during this investigation are those associated with the industry standard of level D. Protective clothing and equipment to initiate the project will include:

- Work clothes
- Work boots
- Work gloves as necessary
- Hard hat if work is conducted in areas with overhead danger
- Hearing protection as necessary

Modifications may include chemically resistant gloves, boots/booties, and overalls. If monitoring levels indicate levels requiring respiratory protection (sustained readings at or above 5 ppm above a daily established background), work will be halted pending discussions with field and office management.

A5.0 SITE CONTROL

Site control will be established near each work zone (drilling or excavation locations).

The purpose is to control access to the immediate excavation/trenches from individuals not associated with the project. Site control will be established within ten feet of the drilling unit or other heavy equipment. The work area will be appropriately designated as an exclusion area.

A5.1 Work Zones (For excavations/drilling using heavy equipment or deeper than 3 feet)

Each excavation will be set up in work zones to include an exclusion area and support zone. Exact configuration of each zone is dependent upon location, weather conditions, wind direction and topography. The safety manager will establish the control areas daily at each excavation.

An area of 10 feet (as practical) around each excavation will be designated as the exclusion area. This is the area where potential physical hazards are most likely to be encountered by field personnel. The size of the exclusion area may be altered to accommodate site conditions and the drilling/excavation location. A personal decontamination area will be established at the perimeter of the work zone consisting primarily of a boot wash.

A support area will be defined for each field activity. Support equipment will be located in this clean area. Normal work clothes are appropriate within this area. The location of this area depends on factors such as accessibility, wind direction (upwind of the operation.), and resources (i.e., roads, shelter, utilities). The location of this zone will be established daily.

Upon completion of each test pit all excavation, the excvation will be filled (no pit will be left open unattended) and support equipment will be steam cleaned before leaving the site.

A6.0 EMERGENCY INFORMATION

In the event of an emergency, the field team members or the site safety manager will employ emergency procedures. A copy of emergency information will be kept in the field vehicle and will be reviewed during the initial site briefing. Copies of emergency telephone numbers and directions to the nearest hospital will be prominently posted in the field vehicle.

A6.1 Emergency Medical Treatment And First Aid

A first aid kit large enough to accommodate anticipated emergencies will be kept in the

field vehicle. If any injury should require advanced medical assistance, emergency personnel will be notified and the victim will be transported to the hospital.

In the event of an injury or illness, work will cease until the safety manager and field manager have examined the cause of the incident and have taken appropriate corrective action. Any injury or illness, regardless of extent, is to be reported to the project manager.

A6.2 Emergency Telephone Numbers and Hospital

Emergency telephone numbers for medical and chemical emergencies will be posted in the field vehicle are listed below:

Ambulance **911**
Fire **911**
Police - NYS Troopers **911**
Poison Control Center **1-800-888-7655**
PEI Health & Safety Manager:
Mr. Peter J. Gorton: Work - 821-1650
Cellular - 308-8220
NYSDEC Spills Hotline-1-800-457-7362
NYSDEC Project Manager, Linda Ross -716-851-7220
NYSDOH Project Manager, Matt Forcucci-716-847-4385
Village of Cattaraugus, Village Clerk, Jodi E. Miller-716-257-3661

Hospital **Tri-County Memorial Hospital**

100 Memorial Drive
Gowanda, NY 14070 US

Directions	**Mileage**
Start out going Northwest on Main Street (NY-353)	9.3 miles
Turn NY-353 becomes US-62	4.5 miles

Turn SHARP LEFT onto NY-39/W. Main Street		0.3 miles
Turn RIGHT onto Aldrich St.		0.1 miles
Turn LEFT onto Memorial Street		0.2 miles
Total Estimated Time: 21 minutes	Total Distance:	14.54 miles

See attached map for route to the Tri-County Memorial Hospital Facility

Verbal communications between workers or use of a site vehicle horn repeated at intervals of three short beeps shall be used to signal all on-site personnel to immediately evacuate the area and report to the vehicle parking area.

A6.3 Emergency Standard Operating Procedures

The following standard operating procedures are to be implemented by on-site personnel in the event of an emergency. The field managers shall manage response actions.

- Upon notification of injury to personnel, the designated **emergency signal shall be sounded**, if necessary. All personnel are to terminate their work activities and assemble in a safe location. The emergency medical service and hospital emergency room shall be notified of the situation. If the injury is minor, but requires medical attention, the field safety manager shall accompany the victim to the hospital and provide assistance in describing the circumstances of the accident to the attending physician.
- Upon notification of an equipment failure or accident, the field safety manager shall determine the effect of the failure or accident on site operations. If the failure or accident affects the safety of personnel or prevents completion of the scheduled operations, all personnel are to leave the area until the situation is evaluated and appropriate actions taken.
- Upon notification of a natural disaster, such as tornado, high winds, flood,

thunderstorm or earthquake, on-site work activities are to be terminated and all personnel are to evacuate the area.

A6.4 Emergency Response Follow-Up Actions

Following activation of the Emergency Response Plan, the field safety manager shall notify the project manager and other PEI/URS managers. The field safety manager shall submit a written report documenting the incident within two working days.

A6.5 Medical Treatment For Site Accidents/Incidents

The field safety manager shall be informed of any site-related injury, exposure or medical condition resulting from work activities. All personnel are entitled to medical evaluation and treatment in the event of a site accident or incident.

A6.6 Site Medical Supplies and Services

The field safety manager or a trained first aid crew member shall evaluate all injuries at the site and render emergency first-aid treatment as appropriate. If an injury is minor but requires professional medical evaluation, the field safety manager shall escort the employee to the appropriate emergency room. For major injuries occurring at the site, emergency services shall be requested.

A first-aid kit shall be available, readily accessible and fully stocked. The first-aid kit shall be located within specified vehicles used for on-site operations.

A6.7 Universal Precautions

Universal precautions shall be followed on-site at all times. This consists of treating all human blood and certain body fluids as being infected with Human Immune Deficiency Virus (HIV), Hepatitis B virus (HBV), and other bloodborne pathogens. Clothing and first-aid materials visibly contaminated with blood or other body fluids will be collected and placed into a biohazard bag. Individuals providing first aid or cleanup of blood- or body-fluid contaminated items should wear latex gloves. If providing CPR, a one-way valve CPR device should be used. Biohazard bags, latex gloves, and CPR devices will be included in the site first-aid kits.

Work areas visibly contaminated with blood or body fluids shall be cleaned using a 1:10 dilution of household bleach. If equipment becomes contaminated with blood or body fluids, and can not be sufficiently cleaned, the equipment shall be placed in a plastic bag and sealed.

Any personnel servicing the equipment shall be made aware of the contamination, so that proper precautions can be taken.

A7.0 RECORD KEEPING

The Field Manager and safety manager are responsible for site record keeping. Prior to the start of work, they will review this Plan.

A Site Safety Briefing will be completed prior to the initiation of investigation activities. This shall be recorded in The field log book An Accident Report should be completed by the Field Manager in the event that an accident occurs and forwarded to the office administrative manager.

A8.0 PERSONNEL TRAINING REQUIREMENTS

A8.1 Initial Site Entry Briefing

Prior to initial site entry, the field safety manager shall provide all personnel (including site visitors) with site-specific health and safety training. A record of this training shall be maintained. This training shall consist of the following:

- Discussion of the elements contained within this plan
- Discussion of responsibilities and duties of key site personnel
- Discussion of physical, biological and chemical hazards present at the site
- Discussion of work assignments and responsibilities
- Discussion of the correct use and limitations of the required PPE
- Discussion of the emergency procedures to be followed at the site
- Safe work practices to minimize risk
- Communication procedures and equipment
- Emergency notification procedures

A8.2 Daily Safety Briefings

The field safety manager will determine if a daily safety briefing with all site personnel is needed. The briefing shall discuss the specific tasks scheduled for that day and the following topics:

- Specific work plans
- Physical, chemical or biological hazards anticipated
- Fire or explosion hazards
- PPE required
- Emergency procedures, including emergency escape routes, emergency medical treatment, and medical evacuation from the site
- Weather forecast for the day
- Buddy system

- Communication requirements
- Site control requirements
- Material handling requirements