Work Plan for

Site Investigation/ Remedial Alternatives Report and Interim Remedial Measure

Former Randolph Foundry Site - Number E905030 Village of Randolph, New York

Prepared for:

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PART A - WORK PLAN

A1.0 INTRODUCTION

This document presents details of a work plan designed to support a Site Investigation/ Remedial Alternatives Report (SI/RAR) and an Interim Remedial Measure (IRM) at the Former Randolph Foundry site located in the Village of Randolph, New York (refer to Figure 1). The County of Cattaraugus (County) has contracted with Panamerican Environmental, Inc. (PEI) and its teaming partner TVGA Consultants (TVGA) to complete an Interim Remedial Measure (IRM) and conduct a SI/RAR program for the site. Other than a detailed Phase I environmental assessment, there have been no past investigations of this property. The Phase I concluded that there is a potential for contamination in site materials within the building and in site soils and possibly groundwater from past uses of the property. The County is interested in completing the SI/RAR and an Interim Remedial Measure (IRM) to remove the building, debris, and materials in a expeditious manner to allow for the redevelopment of the parcel and to maintain a safe environment for Village residents.

The goal of the project is to complete focused environmental investigations to accurately assess the potential for contamination, if any, its source and nature and extent and to develop sufficient data that supports an IRM and the development of long-term remedial alternatives at the site. One of the main purposes of the initial effort is to complete an Interim Remedial Measure (IRM) to expeditiously demolish the former foundry structure and remove drums, foundry sands, etc to alleviate the potential public safety and liability concerns for the County at the property and make it ready for re-use. The purpose of the site investigation is to verify that material disposed on the property is limited to foundry sands, C&D debris, and small quantities of containerized wastes and to further determine the likelihood of contamination associated with past commercial use on portions of the property. This information will allow the identification and screening of various technologies for their capability to meet specific cleanup and redevelopment concept plan objectives. The objective is to minimize or eliminate impacts from the property that effect the potential re-use of the property. As such, the scope of the investigations and/or remediation is tailored to the future use of the site.

A1.1 Site History and Description

The Randolph Foundry site is located at 2-8 Sheldon Street at the northwest corner of South Washington and Sheldon streets in the Village of Randolph, Cattaraugus County, New York. The former foundry and machine shop property is approximately179 feet by 229 feet and includes an abandoned cement block office and sheet metal manufacturing/warehouse type building. The abandoned structure, which is severely dilapidated and may be structurally unsound in some portions, contains a large garage/work area, workshop areas, former parts and machining areas, storage rooms and office type areas. Various debris, equipment, foundry sands and materials from former processes are still located at the site including

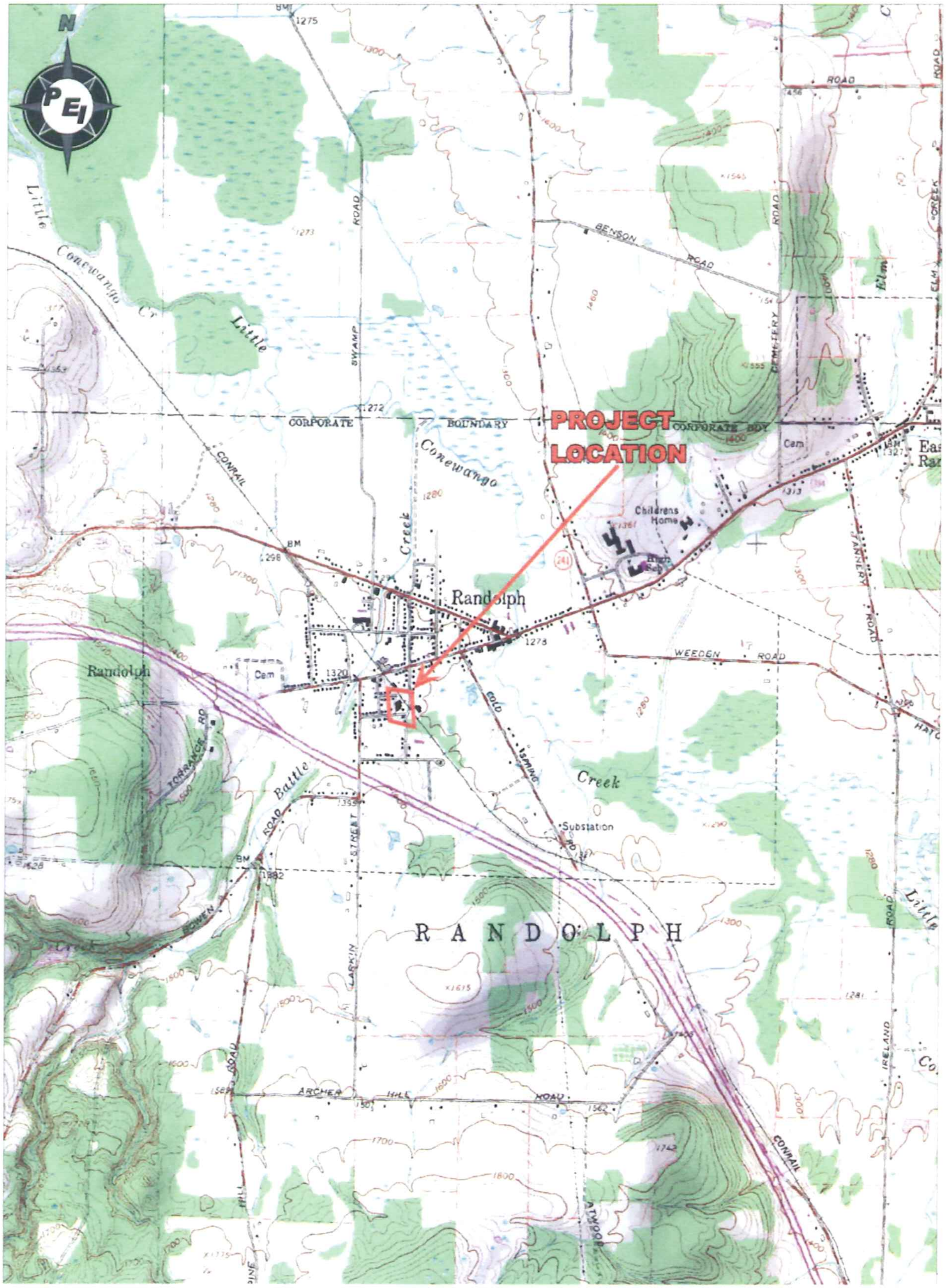


Figure 1. Project areas location in Village of Randolph, Cattaraugus County, New York *(USGS 7.5' Quadrangle, Randolph, NY 1986 [1965]).*

some 55-gallon drums and other small containers of materials. These drums are rusty and in poor condition. Foundry sand covers much of the warehouse/manufacturing area and piles are located in some areas. Parts of the site are heavily vegetated and some vegetation is growing within the more dilapidated sections. A larger hopper is located in the rear of the structure as are two large elevated transformers.

A review of historic aerial and Sanborn maps as well as building permit records indicate that the current structures and property have been altered over time. The exact date that the existing structure was built is unknown, however, historical maps indicate that a foundry and machine shop (F. H. Pike Foundry and Machine Shop) was located on the property as early as 1902. By 1929, historic maps indicate that the property was identified as the Randolph Foundry and Machine Shop. As late as 1897 however, a dairy was located on the property. Randolph Foundry was at one time owned by Aeolian (verified also by ownership records) and made piano plates out of recycled metal. The foundry was later sold and went out-of-business around 1986. This suggests that the property was used in some capacity as a foundry and machine shop since at least 1902 or at least 84 years.

PEI completed a Phase 1 Environmental Site Assessment at the site in 2005 (*Phase 1 Environmental Site Assessment, Former Foundry Building and Property, Town of Randolph, Cattaraugus County, New York, Prepared by Panamerican Environmental, Inc., for Cattaraugus County, June-July 2005*). The assessment identified potential contamination associated with foundry sands and slag piles as well as various drums/containers in poor condition containing unknown contents.

A1.2 Organization

PEI/TVGA has prepared a Work Plan, a Quality Assurance/Quality Control (QA/QC) plan, a Field Sampling Plan (FSP), a Community Participation Plan (CP), and a Health and Safety Plan (HASP). These plans are being submitted as one document which defines the total scope, technical approach, and procedures to be utilized in the completion of the IRM and SI/RAR Program.

Part A: Work Plan - provides a brief site description of the project, project outline, staffing plan, and description of individual tasks that will be completed under this work assignment.
Part B: Quality Assurance/Quality Control Plan - provides the Quality Assurance/Quality Control (QA/QC) programs which will ensure the quality of data and the ultimate defensibility of information produced during this project.
Part C: Field Sampling Plan (FSP) - provides procedures and guidance for all field sampling/investigative programs.
Part D: Citizen Participation Plan

Appendix A: Health and Safety Plan (HSP) - provides site-specific guidelines and procedures to protect the health and safety of PEI/TVGA workers and nearby residents at this site.

A1.3 Project Personnel & Subcontractors

Project Manager- Peter J. Gorton
Project Engineer - John B. Berry, P.E.
Project Geologists - Dan Riker, P.G. and Justin Ryszkiewicz
Remedial Engineers - John Berry, P.E. and Terry Ried
Project Health and Safety - Peter J. Gorton, MPH, CHCM
Project QA/QC - Frank Schieppati, Ph.D. and Robert Napieralski. C.P.G.

Analytical Laboratory - To be named - DEC Approved Contractor
Drilling/Excavation subcontractors - To be named

A2.0 TASK DESCRIPTION

The text of this section describes the logistical steps and activities to be followed complete a phased SI/RAR to determine the potential nature and extent of contamination at the site and gather all necessary data to support the development of remedial alternatives and to complete an IRM for the demolition of the foundry buildings.

The work has been divided into three primary work elements consisting of completing an initial phase site investigation of foundry sands and drums/containers within/immediately adjacent to the building followed by the building demolition IRM and then conducting the SI/RAR - site investigation to include surface/subsurface soils, groundwater program and preparing the SI remedial alternatives report. A description of activities to be performed for each work element and associated task are provide below:

A2.1 Site Investigation (Phase 1)

A2.1.1 Drum Container Inventory

A sampling program of foundry sands/slag within the structure will be completed (see below) and a detailed inventory of equipment/debris within the facility will be completed to determine the potential for hazardous materials/reuse/disposal needs. PEI/TVGA and a selected subcontractor (company that specializes in Drum/Waste Characterization) will perform this material inventory which will precede any building demolition. Initially, the information gathered during the Phase I such as site history, description of operations performed at the site, and the types of wastes that were generated in the past will be used to help determine the types of wastes that might be present. The following tasks will be performed:

- Identify waste drums/containers present and locate on a site plan (excluding empty drums)
- Consecutively number each drum/container with a unique Drum ID#
- Prepare an inventory which will include, at a minimum
    - Drum/container ID#

- Size of waste container
- Type of waste container
- Condition of waste container
- Physical description of drum contents (physical state, pH, color, odor, additional field testing as warranted)
- Field notes and comments

- Prepare a summary of results with minimum analysis necessary for proper characterization (for example, RCRA characteristics, TCLP).
- Sampling and Analysis
- Temporarily Staging (will be part of the demolition contract, if stagging is found necessary)

Based on the findings of the inventory/sampling, a determination will be made as to whether some materials can be removed during this process as a cost effective approach.

A2.1.2 Building Foundry Sand Assessment

A sampling program of foundry sands/slag within the structure will be completed to determine the potential for hazardous materials/reuse/disposal. A total of four (4) composite samples of sands within the structure will be collected for analysis at a NYSDOH certified laboratory and analyzed for Target Analyte List (TAL) metals, Target Compound List (TCL) VOCs and SVOCs, and PCBs. The sample (one) with the highest levels of metals, will also be analyzed for TCLP parameters to determine if it is potentially a hazardous waste and for potential disposal purposes. The areas of the building that contain sands will be identified and divided into four arbitrary areas/grids. Four separate composite samples will be collected. Each sample will composite sands within each different areas of the building and each area associated with each sample will be noted on the site plan.

A2.1.3 Pre-IRM Building Demolition Requirements

Prior to building demolition, a determination will be made based on the analytical results as to the nature of the foundry sands and drum/materials contents. Materials that are deemed hazardous or otherwise unsuitable to be included with the demolition of the building will be identified and will either be removed as noted above or staged outside of the building in a secure on-site staging area for later disposal. The information will be provided in the demolition bid specifications and stagging of materials, if necessary, will be part of the demolition contract.

A2.2 IRM Building Demolition

A2.2.1 Prepare Construction Bid Documents

Following approval of this Work Plan by The County and the NYSDEC/DOH, PEI/TVGA will complete final construction documents for the building demolition IRM. A set of construction drawings will be prepared showing the existing site conditions, limits of demolition, site restoration, and other details of the work to be performed by the contractor.

Lump sum bids will be requested to complete all work including demolition of the building and removal of all materials including asbestos containing materials to an approved offsite disposal site as detailed in the construction drawings and specifications. A copy of the Pre-Demolition Asbestos Inspection Report and drum/material/sand inventory will be include with the bid specifications.

The bid specifications will require the contractor to specify in his bid the method of demolition so as to create the least disturbance to adjacent properties. The end-use and/or disposal location for all building materials must be detailed in the contractor's bid.

In addition to the plans and technical specifications, PEI/TVGA will incorporate the non-technical sections (i.e. "Boiler-Plate") of the Construction Contract Documents provided by The County 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 County contract agreement forms
- Standard Clauses for all New York State and NYSDEC Contracts
- Payment Requirements
- Prevailing Wage Rate Tables (as applicable)
- MBE/WBE Requirements
- and 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.

A2.2.3 Bidding and Award of Construction

A lump sum bid will be requested to complete the demolition and disposal of all materials followed by site restoration all as indicated in the construction bid documents.

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 County's and NYSDEC objectives. A contract will be awarded to the lowest, responsible bidder.

A2.2.4 Pre-Demolition 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.
- Procure all work permits and off-site road permits required by law for the demolition and off-site removal/disposal of all building materials
- Stage Drums/Materials/Sands as necessary in a secure site area.

A2.2.5 Demolition and Disposal

The contractor will be responsible for preparing a demolition/disposal plan to be submitted to PEI/TVGA, County and NYSDEC for review. The 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 demolition and handling of asbestos containing materials.
- Off-site transport and end disposal destinations.
- End use verification to meet NYSDEC tracking requirements (Bills of Lading, etc.).
- Other requirements as specified in the construction plans and specifications

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

A2.2.6 Health and Safety Requirements

Provided in Appendix A is PEI/TVGA's Health and Safety Plan. The demolition contractor will prepare a separate health and safety plan pertaining to the demolition work for the protection of his workers and the general public.

The plan will include but not limited to:

- OSHA requirements
- Applicable laws and regulations regarding the handling and treatment of asbestos containing building materials
- Air and particulate monitoring
- dust control

- vehicle access to and from the site
- vehicle decontamination (tire wash, etc.)
- site access restrictions (fencing, gates, watchmen service, etc.).

The contractor's health and Safety plan must be submitted to PEI/TVGA, the County and NYSDEC for review prior to beginning any work.

A2.2.7 Site Restoration

Site restoration will be in accordance with the construction bid plans and specifications.

A2.2.8 Construction Monitoring

Following award of the contract, PEI/TVGA will provide a full time, on-site Resident Project Representative (RPR) to administer and inspect the implementation of the IRM, and act as The County's on-site representative. The RPR will provide daily inspection of the contractor's work, review 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.

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

PEI/TVGA will maintain project files that will include, but not be limited to: Daily Inspection Reports; Progress of the work, as compared to Contractor's schedule; Record of payments to the Contractor; Change Orders; Correspondence and backup information

Upon receipt of written notification from the Contractor that the work is substantially complete, PEI/TVGA will conduct an inspection with the County 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 County and NYSDEC will be performed once all the "punch list" items are completed by the Contractor. PEI/TVGA will prepare a final acceptance notice for the project and a summary of the total dollar amount due the Contractor.

A2.2.9 IRM CLOSURE REPORT

PEI/TVGA will develop an IRM Closure Report at the completion of construction. The CCR will be stamped by a professional engineer licensed in New York State. The report will verify that the construction was performed in substantial conformance with the approved construction plans and specifications. All applicable field forms, as-built drawings, disposal records, etc. will be appended to the report.

A2.3 Site Investigation (Phase 2)

A2.3.1 Surface/Subsurface Soil Sampling

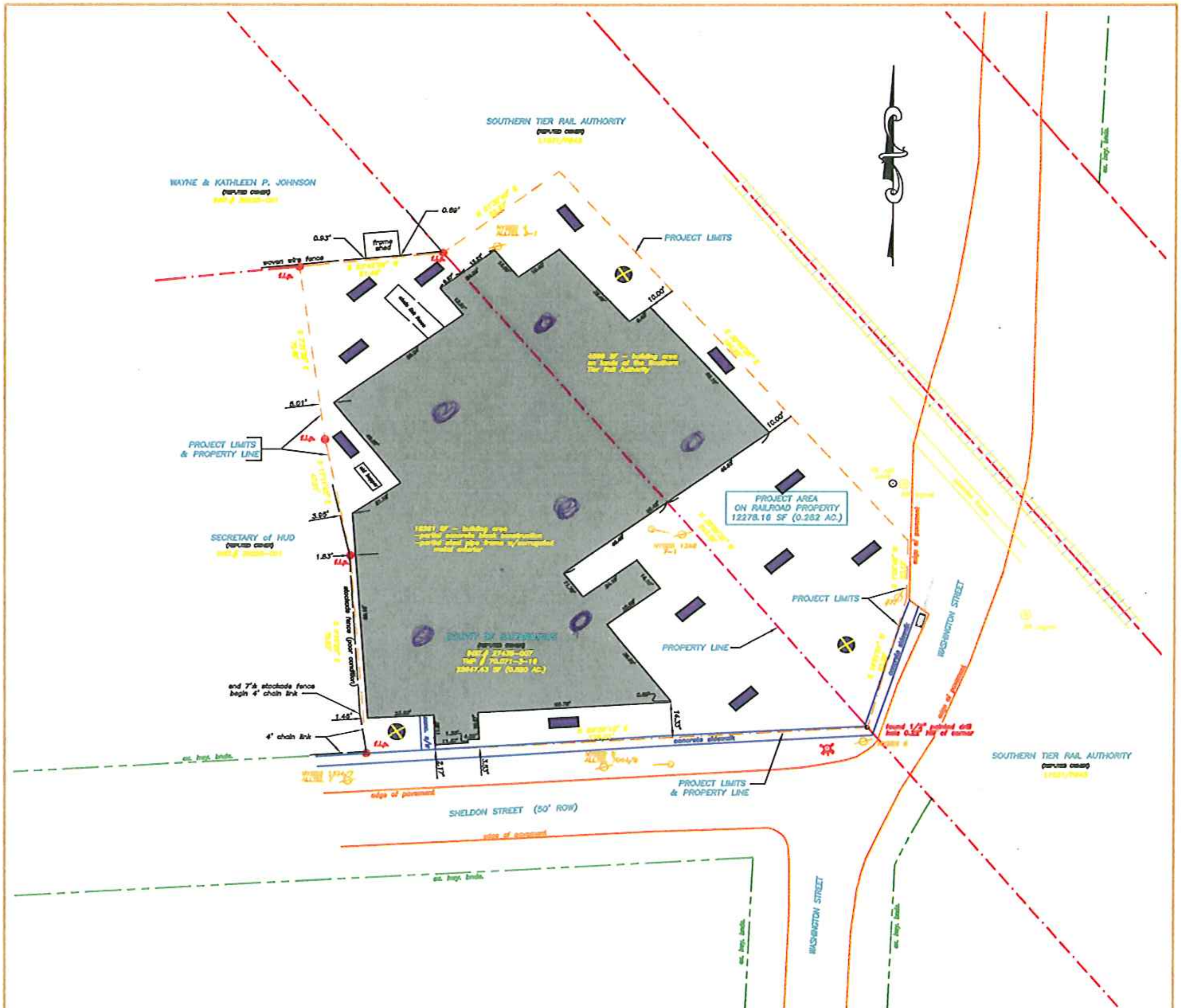
PEI/TVGA proposes to examine surface and subsurface soil/fill materials across the site by excavating a series of test trenches and/or installing Geoprobe® borings, and collecting/analyzing representative samples of the materials encountered (refer to Figure 2). Samples representative of the various soil/fill conditions on site will be collected.

A grid will be established across the property and a track hoe will be utilized in the open areas not covered with concrete/asphalt to excavate as many test trenches as practicable in one 10-hour day. It is anticipated that about 10-12 test trenches (four to eight feet long) will be excavated. The depth of excavation will be limited to: the maximum reach of the trackhoe; the top of native soil or confining layer; encountering groundwater inflow; top of bedrock. The use of test trenches as opposed to borings will afford the following: the ability to examine C&D debris and a wider subsurface area and soil/fill profile; and the ability to gain access to areas inaccessible to drill rigs. Conversely, a Geoprobe may be utilized in the areas of the site that are covered with cement from the old structural flooring (after the building has been demolished).

A PEI/TVGA geologist will visually examine and log all test trenches/borings and perform field screening for VOCs using a photoionization detector (PID). The exact locations will be subject to accessibility and the location of underground utility lines. All trenches/borings will be advanced at a minimum distance of 2.5 feet away from marked utilities, where present, to reduce the possibility of accidentally damaging an underground line. PEI/TVGA will perform a utility check (i.e., notify UFPO) prior to performing any subsurface activities. All trenches/borings will be filled with indigenous soil upon completion in the order in which it was removed. The excavation equipment will be decontaminated after completion of each test trench. The bucket will be pressure washed over each trench to remove any soil/fill materials. The wash water will be discharged onto the soil/fill backfill and allowed to infiltrate into the test trench.

It is proposed that a total of eight surface soil and eight subsurface soil samples will be collected from across the property from obvious waste materials/sands or stained areas, if any. Additionally, five background samples (i.e. offsite) will be collected in areas representative of area conditions not affected by the site. Surface soil samples will be collected from the upper two inches or immediately below the turf layer. These samples will be chosen from the test trenches which indicate the highest potential for contamination based on visual, olfactory, and screening information. Samples will not be composited. The intent of this Phase of the investigation is to identify if contamination exists. Alternatively, if no evidence of contamination is observed, samples may be collected from different depths to profile the soil/fill materials vertically.

The purpose of the investigation is to determine if foundry sands or other materials are common across the property. Samples will be submitted to a NYSDOH certified laboratory



Key:

- Approximate Test Pit locations

- Approximate Monitoring Well Locations

Note: 5 Background samples will be takes at locations near the subject property

TENTATIVE SUB-SLAB SAMPLE LOCATIONS

MAP NOTES:

1. This survey was completed using Cattaraugus Abstract Corp. Search No. 43523. Other documents of record reviewed and considered as a part of this survey are noted hereon.
2. To be valid, copies hereof must contain the land surveyor's original signature and embossed or red ink seal.
3. This survey is subject to the rights of the public and others to that portion lying within the bounds of Sheldon Street and Washington Street.
4. Dates of field work: 3-30-06 and 5-15-06.
5. O = Set 5/8" rebar w/flagging — D. = deeded
   f.i.p. = found iron pin/pipe — M. = measured
   building area — C. = calculated
6. No certification is made as to the locations of underground utilities such as, but not limited to, electric, telephone, cable TV, gas, water, sanitary, and storm sewers. Only above ground feature locations are certified. Other utility locations shown hereon are approximate. Also other utilities may exist of which this surveyor has no knowledge.
7. Reference bearing = southeasterly bounds of railroad property.
8. This survey is in accord with the existing code of practice for land surveys of the New York State Association of Professional Land Surveyors.

MAP OF 0.52 AC. ON SHELDON STREET AND PROJECT LIMITS FOR AN ENVIRONMENTAL RESTORATION PROGRAM

VILLAGE OF RANDOLPH — CATTARAUGUS COUNTY — NEW YORK

Prepared by: **Frank L. Milks** NYS Licensed Land Surveyor Cattaraugus County DPW	UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF SECTION 7209 OF THE NEW YORK STATE EDUCATION LAW	HOLLAND LAND CO. SURVEY LOT 23 T 2 R 9
	CAD DRAWING: DO NOT EDIT MANUALLY	SCALE: 1" = 40' DATE: 10-02-06

and analyzed for TAL metals, Target Compound List (TCL) VOCs and SVOCs, and PCBs. Surface soil samples will not be analyzed for TCL VOCs. Subsurface samples will be collected of fill materials or based on field observations. The samples will be held at the laboratory and, based on results, two samples with elevated metal concentrations will be analyzed for TCLP metals. An analytical summary table (Table B-1) for all samples collected is provided in PART B - Quality Assurance/Quality Control Plan.

A2.3.2 Sub-Slab Soil Sampling

After building demolition, a sub-slab investigation will be performed. If it is desirable to limit destruction of the cement pad, borings will be conducted in this area using Geoprobe® direct push technology. Continuous soil sampling will be performed using the Geoprobe® with a two-inch diameter sampler resulting in three to five distinct sample cores (i.e., 0-4', 4-8', 8-12', 12-16', 16-20') at each location. A total of five-six locations will be selected. One additional soil sample will be collected for analysis based on visual, olfactory, and screening information.

The 16 surface/subsurface soil/fill samples, one sub-slab sample and two background samples, coupled with the four sand samples from within the structure (refer to section A2.1.2) will provide a comprehensive determination of conditions and characterization for disposal purposes, if required.

A2.3.3 Groundwater Program

A total of three groundwater wells will be installed, with a minimum of one well being located upgradient and two being located downgradient of the site (refer to Figure 2). Suitable borings completed during the Geoprobe program will be converted to micro-wells. Actual well locations will be selected based on information regarding contaminants, geology, and known hydrogeologic information. Existing data from the test pit and boring programs and previous hydrogeolgic investigations in the area, if any, will be used. Final well locations will be refined as information is generated during the test trench excavation program. Each well will extend to a maximum depth of 20-feet.

Based on the information obtained during the test trench excavations, it will be determined whether to utilize a Geoprobe or auger-drilling rig to install the monitoring wells. If no large obstructions or pieces of debris are observed in the soil/fill materials exposed in the test trenches, then the Geoprobe rig will be used to install mini-wells. However, if the soil/fill materials contain large amounts of debris that would preclude the use of Geoprobe drilling methods, then the auger-drilling rig will be used upon the County's and NYSDEC approval of the added expense for conventional drilling. For purposes of this work plan, it has been assumed that a Geoprobe rig will be utilized. Planned activities will be conducted as follows:

- Boreholes will be advanced to a maximum depth of 20 feet, the top of bedrock, two feet below the top of any confining layers, or 5 feet below the groundwater surface, whichever is less.
- Overburden soils will be continuously sampled from ground surface to the required depth using split spoon or macrocore samplers, as appropriate.
- Soil samples will be visually inspected, screened with a PID for VOCs, and logged by a PEI/TVGA geologist.
- The data (i.e. soil types, rock depths, groundwater depth) obtained from installation of the first boring/well will be used to guide the installation of the remaining borings/wells.
- If augers are used to advance the boring, the well will consist of a two-inch diameter, schedule 40 PVC casing equipped with a ten-foot screen and solid PVC riser pipe extending to the surface. If Geoprobe methods are used a Mini-well consisting of a 1-inch diameter PVC pipe equipped with a 10 foot slotted screen and solid riser pipe extending to the ground surface will be installed. (The actual construction details will be adjusted in the field, as necessary, to fit field conditions).
- Screens will be positioned to straddle the groundwater surface to allow monitoring of floating product, if present.
- The annulus around the screen will be filled with filter sand to one foot above the top of the screen. A three-foot thick bentonite seal will be installed and the borehole filled to the ground surface with a cement/bentonite mix.
- A steel protective casing with keyed-alike locks will be installed to complete each installation.

Following installation, the wells will be developed in accordance with standard procedures outlined in the PART C Field Sampling Plan. It is assumed that the development water will be discharged directly onto the ground downgradient of the well. Permeability tests will be conducted in all wells to determine the relative permeability of the surrounding formation. The procedures for the testing are presented in the PART C Field Sampling Plan. A round of groundwater readings will be obtained once the wells have stabilized. The elevation of the groundwater in each new well will be calculated and a groundwater contour map of the site prepared. This data, combined with the permeability and site stratigraphy data, subsequently will be utilized to determine groundwater flow directions.

Following installation and development, the three new wells will be purged and groundwater samples collected (total of three samples). The samples will be analyzed for TCL VOCs, SVOCs, PCBs and TAL metals. Both filtered and unfiltered samples will be analyzed to determine soluble and total metals concentrations, respectively.

Site Survey

Upon completion of the investigation, the soil sample locations, trenches, monitoring wells will be surveyed for horizontal and vertical coordinates using Global Positioning Survey (GPS) techniques. The surveyed locations will be plotted on the existing base map in Auto CAD 14 format.

A2.4 Supplemental Investigation

Following completion of the second phase site investigation and characterization of conditions, additional field investigations may be recommended to further evaluate remedial options.

A2.5 Site Investigation Evaluation and Reporting

After completing the site investigation, a site investigation report will be prepared summarizing all field activities and analytical results, and summarizing the findings of the site investigation program. Copies of field data, validated analytical test results, and other relevant information will be included. The site investigation report will be limited to the following:

- Specify the contaminants of concern,
- Identify specific environmental media, potential pathways and affected receptors, if any
- Identify extent of remediation necessary, to meet the property specific needs.

<u>Analytical Testing and Data Verification</u>

The following summarizes the sampling and analysis program:

Investigation /Sample Type	No. Of Locations	Sample Type/No.	QA/QC Samples	Analysis
Surface Soil	13 (eight onsite and five background)	13 surface grab		TAL metals, TCL SVOCs and PCBs
Test Trench	10-12	8 Discrete	1	TCL VOCs, SVOCs, PCBs and TAL metals
Foundry Sand	4	4 Composite	1	TCL VOCs, SVOCs, PCBs and TAL metals
Wells	3	3	2	TCL VOCs, SVOCs, pesticides, PCBs and TAL metals
SubSlab	5-6	1	-	TCL VOCs, SVOCs, PCBs and TAL metals
Totals	35-37	26	4	

Additionally, an unknown number of samples will be collected during the Drum/Container Inventory task. All samples will be submitted to a NYSDOH-certified laboratory for analysis. All analytical testing will be performed in accordance with NYSDEC Analytical Services Protocol, October 2000 edition. All samples will be analyzed using SW 846 methods. Deliverables will be in accordance with ASP Category B.

A limited data verification will be performed on all samples analyzed and a data usability summary report (DUSR) will be prepared. The data verification will be limited to a review of the following criteria: Holding times; Data completeness; Comparison of surrogate, spike, and duplicate recoveries to validation criteria; Blank contamination; 10% quantitation check that reported sample results are correct; Tentatively identified compounds (TICs) will be qualified by the laboratory only; Proper sample analysis; Sample chromatogram; NYSDEC ASP Sample Preparation and Analysis Summary Forms. Where possible, discrepancies will be resolved by PEI/TVGA chemists (i.e., no letters will be written to the laboratory). A complete data validation is not anticipated. However, if the initial limited data audit reveals significant deviations and problems with the analytical data, PEI/TVGA may recommend a complete validation of the data.

Data Evaluation

Once all the data has been collected, it will be evaluated to determine whether or not the site is contaminated, and if so, to what extent. If the site is contaminated, the data will be evaluated to determine if there are any data gaps that will need to be addressed prior to development of remedial alternatives. A Second Phase, more focused site investigation will be performed, as warranted.

Preliminary Health and Environmental Risk Evaluation

Based on the data generated in the tasks above, a preliminary evaluation of the potential risk posed to human health and the environment will be performed.

The soil and groundwater sample concentrations will be compared with standards, criteria, and guidance values (SCGs) developed for the site to determine the contaminants of concern. The contaminants of concern detected in the various media will be reviewed to determine their mobility and potential risks. Potential migration pathways and receptors also will be identified. Completed exposure pathways and receptors (human and ecological) will then be identified. Should it appear that there is a significant potential risk to either human health or the environment, then a Qualitative Risk Assessment, may be recommended for consideation.

As part of the preliminary evaluation of potential receptors, records will be reviewed to determine if there are any private or industrial wells located within a one-half mile radius of the site. Considering that the area is serviced by municipal water supply, it is not likely that any wells will be identified, however, should any be identified, a contingency plan for sampling them will be developed as necessary based on the results of the groundwater sampling at the site. If a groundwater plume is detected at the site, an assessment will be performed in conjunction with the County and the NYSDEC to determine whether sampling of the private/industrial wells is appropriate

Preliminary Identification of Remedial Alternatives

Based on the data obtained from the first phase of the site investigation, potentially applicable remedial alternatives will be identified for the site. This task will be implemented concurrently with the site investigations, and will, out of necessity, be iterative in nature. Data from the field will be input into the development of the alternatives and in turn, the potential remedial alternatives will dictate the type of data, which needs to be collected. At the completion of the first phase site investigation, should it be determined that there are obvious data gaps which will require supplemental investigations to be performed, Remedial Investigations will be implemented.

Preliminary Data Submission

Following completion of the initial phase of field investigation and evaluation of the data, the raw data and preliminary evaluation will be submitted to the County and NYSDEC. The intent of this preliminary evaluation will be twofold; first to define the geology/hydrogeology of the site and to determine the extent and nature of any potential contaminants. Secondly, this evaluation will be used to assess the fate and transport potential of any contaminants in addition to identifying potential receptors. This information also will be utilized to identify potentially applicable remedial alternatives and their applicability to meet the goals of the site, provide the basis for discussions regarding additional investigations and for input into the remaining sub-tasks.

A total of Four copies of the site investigation report will be submitted to the County for distribution and review. Any comments will be incorporated, as applicable into the final site investigation report.

A2.6 Remediation Plan

Based on review of site investigation data and meetings with the County and NYSDEC, PEI/TVGA will develop a formalized list of remedial goals and/or presumptive remedies applicable to this site. The final list will be presented in the final site investigation report.

The type of decisions which will need to be made during remediation and the data needed to support those decisions may include, but not be limited to, the following:

- Impact to local restoration efforts.
- The media to be investigated.
- Number, type and locations of samples.
- Analytical parameters and protocols.
- Toxicity of contaminants of concern, if any.
- Potentially impacted receptors and exposure pathways.
- Impact of site contamination on proposed future site use.
- Type and extent of remediation required to allow desired property use.
- Future use and cleanup goals.

A brief description of the activities to be performed for the remedial effort are provided below.

IRM and Operable Units

The purpose of remedy selection is to identify and evaluate the most appropriate action for a particular contaminated site or area of that site. Based on the data review and the meetings with the County and NYSDEC, PEI/TVGA will develop a formalized list of remedial goals, remedial action objectives and/or presumptive remedies applicable to this site including whether an additional IRM is necessary (i.e., removal of USTs, removal of petroleum/hazardous waste contamination, etc.). Also, the need to address the site in terms of operable units will be examined. Section 4.1 of DER-10 will be used as a guide during this process. As mentioned, a preliminary list will be developed at the start of the investigation during the work plan stage. The goal of this stage is to identify and evaluate the most appropriate action for the site. The final list, based on the findings of the assessment, will be presented at the end of the report. Under this task, the data generated during the site investigation will be utilized to determine the extent to which the SCGs developed for the site have been exceeded or contravened.

A2.6.1 Identification of Remedial Goals

Under this task, the data generated during the site investigation will be utilized to determine the remedial goals for the site. For the ERP program the primary goal will be to be protective of public health and the environment given the intended use of the site. Section 4 of DER-10 will be used as the basis for remedial goals and remedy selection.

A2.6.2 Qualitative Health and Risk Assessment

Should it be determined during the site investigation that the contaminants at the site pose a significant potential risk to human health and/or the environment, then a qualitative risk assessment (RA) may be performed after approval and authorization by the County and NYSDEC. This RA will address the potential risk associated with exposure of humans and/or wildlife to contaminated media. This RA will be based on a no-action scenario (i.e., assumed that the site will not be remediated prior to reuse). This will allow the risk associated with current conditions to be assessed.

The data collected by PEI/TVGA during the field investigation will be utilized in the RA to assess the potential migration pathways, identify potential chemicals of concern, and potentially exposed populations (i.e., future users, maintenance workers and other workers) and/or wildlife. The health risks will be assessed for all completed exposure pathways.

The results of the RA will be utilized in evaluating various potential remedial alternatives which might be implemented at the site to mitigate the potential health risks and to negotiate cleanup levels with DEC under the ERP program. The results of the RA will be utilized to determine whether or not the site is suitable for some other use such as light industrial and/or commercial/retail development with limited remediation, or will require some type of extensive remediation for residential use. The results will also be used in evaluating various potential remedial alternatives, which might be implemented at the site to mitigate the potential health risks and to negotiate cleanup levels with NYSDEC.

A2.6.3 Development of Alternatives

A list of media-specific (groundwater, soil/fill, air,) remedial action objectives will be developed prior to initiation of the investigation as noted above, and will be refined throughout the investigation based on the site characterization data. A comparison between site contaminants, and contaminant-specific cleanup criteria (TAGM 4046, TOGS, Division of Fish & Wildlife) will aid in the determination of the remedial action objectives. PEI/TVGA will develop a basis of design for the site, quantifying the media to which remedial actions might be applied. Quantity estimates will be based not only on the physical boundaries of the site, but on other factors including hydrogeologic conditions and migration pathways.

General response actions capable of satisfying the remedial action objectives for the site will be developed for each media. Each of the following four general response action categories will be considered: No action, as required by the National Contingency Plan (NCP); Institutional Actions; Containment; and Treatment/Disposal. These categories encompass the range of options to either eliminate or destroy hazardous constituents present, contain hazardous materials onsite, or limit the exposure to humans and the environment through engineering and/or institutional controls.

For this site, if contamination is limited, completing the IRM may encompass the final remedy for the site. A maximum of three remedial technologies (i.e. excavation, in situ treatment, encapsulation, etc.) will be identified for each of the general response categories. These remedial technologies subsequently will be evaluated for effectiveness, reliability, implementability and cost. Only those technologies which are known to be technically feasible, reliable, effective, implementable, and cost-effective for use will be considered further. One remedial technology will be selected, for each media and carried into the development and detailed evaluation of alternatives.

Remedial technologies for each of the media will be combined into alternatives, which, for the most part, meet the remedial action objectives for the project (Note that the No Action alternative is included as required by the NCP, even though it does not generally meet objectives.) Presumptive remedies also will be identified, as applicable, for inclusion in the detailed evaluation of alternatives. Should it be determined that the existing data is insufficient to adequately evaluate the alternatives, further investigation may be required at this stage.

A2.6.4 Detailed Evaluation of Alternatives

Following development of potentially applicable remedial alternatives, a detailed evaluation of up to six alternatives will be performed in accordance with the requirements of guidance document 6 NYCRR 375-1.10, Remedy Selection. Alternatives developed will be evaluated in order to select the most appropriate and cost-effective remedy for the site. The alternatives are compared first against the six evaluation criteria listed in the guidance document. The threshold criteria include overall protection of human health and the environment and compliance with SCGs. The primary balancing criteria include: long-term effectiveness and permanence; reduction of toxicity, mobility, or volume through treatment; short-term impacts and effectiveness; implementability; and cost. Modifying criteria include community and state acceptance. Once the alternatives have been individually assessed against the six criteria, a comparative analysis is conducted to evaluate the relative performance of each alternative in relation to each evaluation criterion.

Based on the comparison made under the evaluation of alternatives, one alterative or approach will be recommended for remediation of the site. This alternative will provide protection to public health and the environmental and be consistent with State clean-up goals, while attaining SCGs in a cost-effective manner. The remedial process will document comparisons made with respect to the threshold, primary balancing, and modifying criteria, and the decision process which led to the recommendation of the alternative. Since a focused remedial approach or presumptive remedy will likely be undertaken for the site, the Screening of Alternatives step generally undertaken will, in all likelihood, be eliminated. If however, more evaluation is necessary to select between two similar alternatives, the alternatives will be screened with respect to: protecting human health and the environment; attaining SCGs; cost-effectiveness; utilizing permanent solutions or resource recovery technologies to the maximum extent practicable; and satisfying regulatory preferences for treatment that reduces toxicity, mobility, or volume.

A2.6.5 Preparation of Remedial Alternatives Report

Following completion of the development and evaluation of alternatives, a Remedial Alternatives Report will be prepared along with a draft of the Proposed Remedial Action Plan (PRAP). This report will summarize the various technologies which were considered, the evaluation and selection of preferred technologies, assembly of selected technologies into alternatives, detailed evaluation of the alternatives, and selection of the preferred alternative for the site. The report will be combined with the SI to form a single report.

PART B - QUALITY ASSURANCE/QUALITY CONTROL PLAN

B1.0 INTRODUCTION

This Quality Assurance/Quality Control Plan is designed to provide an overview of QA/QC procedures. It will give specific methods and QA/QC procedures for chemical testing of environmental samples obtained from the site. In addition, it will ensure the quality of the data produced.

The organizational structure for this project is presented in the PART A. It identifies the names of key project personnel. The project manager will be responsible for verifying that QA procedures are followed in the field. This will provide for the valid collection of representative samples. The Project Manger will be in direct contact with the analytical laboratory to monitor laboratory activities so that holding times and other QA/QC requirements are met. The number of samples, sample media, and analytical parameters/methods are provided in Table B-1.

The Project Geologist will be responsible for coordinating the activities of all personnel involved with implementing the project in the field, and will be in daily communication with the Project Manager. This person will verify that all field work is carried out in accordance with the approved project Field Sampling Plan.

In addition to overall project coordination, the Project Manager will be responsible for overseeing both the analytical and field QA/QC activities. The ultimate responsibility for maintaining quality throughout the project rests with the Project Manager.

The analytical laboratory proposed to be used for the analysis of samples will be a certified NYSDOH ELAP laboratory for the appropriate categories. The QA Manager of the laboratory will be responsible for performing project-specific audits and for overseeing the quality control data generated.

B2.0 DATA QUALITY OBJECTIVES

B2.1 Background

Data quality objectives (DQOs) are qualitative and quantitative statements, which specify the quality of data required to support the investigation for the site. DQOs focus on the identification of the end use of the data to be collected. The project DQOs will be achieved utilizing the definitive data category, as outlined in *Guidance for the Data Quality Objectives Process,* EPA QA/G-4 (September 1994). All sample analyses will provide definitive data, which are generated using rigorous analytical methods, such as reference methods approved by the United States Environmental Protection Agency (USEPA). The purpose of this investigation is to determine the nature and extent of contamination at the site.

Within the context of the purpose stated above, the project DQOs for data collected during this investigation are:

- To assess the nature of contamination in surface and subsurface soil, and groundwater.
- To maintain the highest possible scientific/professional standards for each procedure.
- To develop enough information to assess if the levels of contaminates identified in the media sampled are hazardous or non-hazardous.

B2.2 QA Objectives for Chemical Data Measurement

Sample analytical methodology for the media sampled and data deliverables will meet the requirements in NYSDEC Analytical Services Protocol, October 2000 edition. Laboratories will be instructed that completed **Sample Preparation and Analysis Summary forms** are to be submitted with the analytical data packages. The laboratory also will be instructed that matrix interferences must be cleaned up, to the extent practicable. Data usability summary reports (DUSRs) will be generated. In order to achieve the definitive data category described above, the data quality indicators of precision, accuracy, representativeness, comparability, and completeness will be measured during offsite chemical analysis.

B2.2.1 Precision

Precision examines the distribution of the reported values about their mean. The distribution of reported values refers to how different the individual reported values are from the average reported value. Precision may be affected by the natural variation of the matrix or contamination within that matrix, as well as by errors made in field and/or laboratory handling procedures. Precision is evaluated using analyses of a laboratory matrix spike/matrix spike duplicate (for organics) and matrix duplicates (for inorganics), which not only exhibit sampling and analytical precision, but indicate analytical precision through the reproducibility of the analytical results. Relative Percent Difference (RPD) is used to evaluate precision. RPD criteria must meet the method requirements identified in the attached table.

B2.2.2 Accuracy

Accuracy measures the analytical bias in a measurement system. Sources of error are the sampling process, field contamination, preservation, handling, sample matrix, sample preparation, and analysis techniques. These data help to assess the potential concentration contribution from various outside sources. The laboratory objective for accuracy is to equal or exceeds the accuracy demonstrated for the applied analytical methods on samples of the same matrix. The percent recovery criterion is used to estimate accuracy based on recovery in the matrix spike/matrix spike duplicate and matrix spike blank samples. The spike and spike duplicate, which will give an indication of matrix effects that may be affecting target compounds, are also a good gauge of method efficiency.

B2.2.3 Representativeness

Representativeness expresses the degree to which the sample data accurately and precisely represent the characteristics of a population of samples, parameter variations at a sampling point, or environmental conditions. Representativeness is a qualitative parameter, which is most concerned with the proper design of the sampling program or sub-sampling of a given sample. Objectives for representativeness are defined for sampling and analysis tasks and are a function of the investigative objectives. The sampling procedures, as described in the Field Sampling Plan (Part C), have been selected with the goal of obtaining representative samples for the media of concern.

B2.2.4 Comparability

Comparability is a qualitative parameter expressing the confidence with which one data set can be compared with another. A DQO for this program is to produce data with the greatest possible degree of comparability. This goal is achieved through using standard techniques to collect and analyze representative samples and reporting analytical results in appropriate units. Complete field documentation will support the assessment of comparability. Comparability is limited by the other parameters (e.g., precision, accuracy, representative-ness, completeness, comparability), because only when precision and accuracy are known can data sets be compared with confidence. In order for data sets may be comparable, it is imperative that contract-required methods and procedures be explicitly followed.

B2.2.5 Completeness

Completeness is defined as a measure of the amount of valid data obtainable from a measurement system compared to the amount that was expected to be obtained under normal conditions. It is important that appropriate QA procedures be maintained to verify that valid data are obtained in order to meet project needs. For the data generated, a goal of 90% is required for completeness (or usability) of the analytical data. If this goal is not met, then NYSDEC and PEI/TVGA project personnel will determine whether the deviations might cause the data to be rejected.

B3.0 SAMPLING LOCATIONS, CUSTODY, HOLDING TIMES, & ANALYSIS

Sampling locations and procedures are discussed in PART A - Work Plan. Procedures addressing field and laboratory sample chain-of-custody and holding times are presented in the PART C - Field Sampling Plan. All holding times begin with validated time of sample receipt (VTSR) at the laboratory. The laboratory must meet the method required detection limits which are referenced within the methods.

B4.0 CALIBRATION PROCEDURES AND FREQUENCY

In order to obtain a high level of precision and accuracy during sample processing procedures, laboratory instruments must be calibrated properly. Several analytical support areas must be considered so the integrity of standards and reagents is upheld prior to instrument calibration. The following sections describe the analytical support areas and laboratory instrument calibration procedures.

B4.1 Analytical Support Areas

Prior to generating quality data, several analytical support areas must be considered; these are detailed in the following paragraphs.

Standard/Reagent Preparation - Primary reference standards and secondary standard solutions shall be obtained from National Institute of Standards and Technology (NIST), or other reliable commercial sources to verify the highest purity possible. The preparation and maintenance of standards and reagents will be accomplished according to the methods referenced. All standards and standard solutions are to be formally documented (i.e., in a bound logbook) and should identify the supplier, lot number, purity/concentration, receipt/preparation date, preparers name, method of preparation, expiration date, and any other pertinent information. All standard solutions shall be validated prior to use. Care shall be exercised in the proper storage and handling of standard solutions (e.g., separating volatile standards from nonvolatile standards). The laboratory shall continually monitor the quality of the standards and reagents through well documented procedures.

Balances - The analytical balances shall be calibrated and maintained in accordance with manufacturer specifications. Calibration is conducted with two Class AS" weights that bracket the expected balance use range. The laboratory shall check the accuracy of the balances daily and they must be properly documented in permanently bound logbooks.

Refrigerators/Freezers - The temperature of the refrigerators and freezers within the laboratory shall be monitored and recorded daily. This will verify that the quality of the standards and reagents is not compromised and the integrity of the analytical samples is upheld. Appropriate acceptance ranges (2 to 6°C for refrigerators) shall be clearly posted on each unit in service.

Water Supply System - The laboratory must maintain a sufficient water supply for all project needs. The grade of the water must be of the highest quality (analyte-free) in order to eliminate false-positives from the analytical results. Ultraviolet cartridges or carbon absorption treatments are recommended for organic analyses and ion-exchange treatment is recommended for inorganic tests. Appropriate documentation of the quality of the water supply system(s) will be performed on a regular basis.

B4.2 Laboratory Instruments

Calibration of instruments is required to verify that the analytical system is operating properly and at the sensitivity necessary to meet established quantitation limits. Each instrument for organic and inorganic analyses shall be calibrated with standards appropriate to the type of instrument and linear range established within the analytical method(s). Calibration of laboratory instruments will be performed according to specified methods.

In addition to the requirements stated within the analytical methods, the contract laboratory will be required to analyze an additional low level standard at or near the detection limits. In general, standards will be used that bracket the expected concentration of the samples. This will require the use of different concentration levels, which are used to demonstrate the instrument's linear range of calibration.

Calibration of an instrument must be performed prior to the analysis of any samples and then at periodic intervals (continuing calibration) during the sample analysis to verify that the instrument is still calibrated. If the contract laboratory cannot meet the method required calibration requirements, corrective action shall be taken as discussed in Section B7.0. All corrective action procedures taken by the contract laboratory are to be documented, summarized within the case narrative, and submitted with the analytical results.

B5.0 INTERNAL QUALITY CONTROL CHECKS

Internal QC checks are used to determine if analytical operations at the laboratory are in control, as well as determining the effect sample matrix may have on data being generated. Two types of internal checks are performed and are described as batch QC and matrix-specific QC procedures. The type and frequency of specific QC samples performed by the contract laboratory will be according to the specified analytical method and project specific requirements. Acceptable criteria and/or target ranges for these QC samples are presented within the referenced analytical methods.

QC results which vary from acceptable ranges shall result in the implementation of appropriate corrective measures, potential application of qualifiers, and/or an assessment of the impact these corrective measures have on the established data quality objectives. Quality control samples including any project-specific QC will be analyzed are discussed below.

B5.1 Batch QC

<u>Method Blanks</u> - A method blank is defined as laboratory-distilled or deionized water that is carried through the entire analytical procedure. The method blank is used to determine the level of laboratory background contamination. Method blanks are analyzed at a frequency of one per analytical batch.

<u>Matrix Spike Blank Samples</u> - A matrix spike blank (MSB) sample is an aliquot of water spiked (fortified) with all the elements being analyzed for calculation of precision and

accuracy to verify that the analysis that is being performed is in control. A MSB will be performed for each matrix and organic parameter only.

B5.2 Matrix-Specific QC

Matrix Spike Samples - An aliquot of a matrix is spiked with known concentrations of specific compounds as stipulated by the methodology. The matrix spike (MS) and matrix spike duplicate (MSD) are subjected to the entire analytical procedure in order to assess both accuracy and precision of the method for the matrix by measuring the percent recovery and relative percent difference of the two spiked samples. The samples are used to assess matrix interference effects on the method, as well as to evaluate instrument performance. MS/MSDs are analyzed at a frequency of one each per 20 samples per matrix.

Matrix Duplicates - The matrix duplicate (MD) is two representative aliquots of the same sample which are prepared and analyzed identically. Collection of duplicate samples provides for the evaluation of precision both in the field and at the laboratory by comparing the analytical results of two samples taken from the same location. Obtaining duplicate samples from a soil matrix requires homogenization (except for volatile organic compounds) of the sample aliquot prior to filling sample containers, in order to best achieve representative samples. Every effort will be made to obtain replicate samples; however, due to interferences, lack of homogeneity, and the nature of the soil samples, the analytical results are not always reproducible.

Rinsate (Equipment) Blanks - A rinsate blank is a sample of laboratory demonstrated analyte-free water passed through and over the cleaned sampling equipment. A rinsate blank is used to indicate potential contamination from ambient air and from sample instruments used to collect and transfer samples. This water must originate from one common source within the laboratory and must be the same water used by the laboratory performing the analysis. The rinsate blank should be collected, transported, and analyzed in the same manner as the samples acquired that day. Rinsate blanks for nonaqueous matrices should be performed at a rate of 10 percent of the total number of samples collected throughout the sampling event. Rinse blanks will not be performed on samples (i.e., groundwater) where dedicated disposable equipment is used.

Trip Blanks - Trip blanks are not required for nonaqueous matrices. Trip blanks are required for aqueous sampling events. They consist of a set of sample bottles filled at the laboratory with laboratory demonstrated analyte free water. These samples then accompany the bottles that are prepared at the lab into the field and back to the laboratory, along with the collected samples for analysis. These bottles are never opened in the field. Trip blanks must return to the lab with the same set of bottles they accompanied to the field. Trip blanks will be analyzed for volatile organic parameters. Trip blanks must be included at a rate of one per volatile sample shipment.

B6.0 CALCULATION OF DATA QUALITY INDICATORS

B6.1 Precision

Precision is evaluated using analyses of a field duplicate and/or a laboratory MS/MSD which not only exhibit sampling and analytical precision, but indicate analytical precision through the reproducibility of the analytical results. RPD is used to evaluate precision by the following formula:

$$RPD = \frac{(X_1 - X_2)}{[(X_1 + X_2)/2]} \times 100\%$$

where:

X_1 = Measured value of sample or matrix spike
X_2 = Measured value of duplicate or matrix spike duplicate

Precision will be determined through the use of MS/MSD (for organics) and matrix duplicates (for inorganics) analyses.

B6.2 Accuracy

Accuracy is defined as the degree of difference between the measured or calculated value and the true value. The closer the numerical value of the measurement comes to the true value or actual concentration, the more accurate the measurement is. Analytical accuracy is expressed as the percent recovery of a compound or element that has been added to the environmental sample at known concentrations before analysis. Analytical accuracy may be assessed through the use of known and unknown QC samples and spiked samples. It is presented as percent recovery. Accuracy will be determined from matrix spike, matrix spike duplicate, and matrix spike blank samples, as well as from surrogate compounds added to organic fractions (i.e., volatiles, semivolatiles, PCB), and is calculated as follows:

$$Accuracy\ (\%R) = \frac{(X_s - X_u)}{K} \times 100\%$$

where:

X_s - Measured value of the spike sample
X_u - Measured value of the unspiked sample
K - Known amount of spike in the sample

B6.3 Completeness

Completeness is calculated on a per matrix basis for the project and is calculated as follows:

$$Completeness\ (\%C) = \frac{(X_v - X_n)}{N} \times 100\%$$

where:

X_v - Number of valid measurements

X_n - Number of invalid measurements
N - Number of valid measurements expected to be obtained

B7.0 CORRECTIVE ACTIONS

Laboratory corrective actions shall be implemented to resolve problems and restore proper functioning to the analytical system when errors, deficiencies, or out-of-control situations exist at the laboratory. Full documentation of the corrective action procedure needed to resolve the problem shall be filed in the project records, and the information summarized in the case narrative. A discussion of the corrective actions to be taken is presented in the following sections.

B7.1 Incoming Samples

Problems noted during sample receipt shall be documented by the laboratory. The PEI Project Manager shall be contacted immediately for problem resolution. All corrective actions shall be documented thoroughly.

B7.2 Sample Holding Times

If any sample extraction and/or analyses exceed method holding time requirements, the PEI Project Manager shall be notified immediately for problem resolution. All corrective actions shall be documented thoroughly.

B7.3 Instrument Calibration

Sample analysis shall not be allowed until all initial calibrations meet the appropriate requirements. All laboratory instrumentation must be calibrated in accordance with method requirements. If any initial/continuing calibration standards exceed method QC limits, recalibration must be performed and, if necessary, reanalysis of all samples affected back to the previous acceptable calibration check.

B7.4 Reporting Limits

The laboratory must meet the method required detection limits listed in NYSDEC ASP , 10/95 criteria. If difficulties arise in achieving these limits due to a particular sample matrix, the laboratory must notify PEI project personnel for problem resolution. In order to achieve those detection limits, the laboratory must utilize all appropriate cleanup procedures in an attempt to retain the project required detection limits. When any sample requires a secondary dilution due to high levels of target analytes, the laboratory must document all initial analyses and secondary dilution results. Secondary dilution will be permitted only to bring target analytes within the linear range of calibration. If samples are analyzed at a secondary dilution with no target analytes detected, the PEI Project Manager will be immediately notified so that appropriate corrective actions can be initiated.

B7.5 Method QC

All QC method-specified QC samples, shall meet the method requirements referenced in the analytical methods. Failure of method-required QC will result in the review and possible qualification of all affected data. If the laboratory cannot find any errors, the affected sample(s) shall be reanalyzed and/or re-extracted/redigested, then reanalyzed within method-required holding times to verify the presence or absence of matrix effects. If matrix effect is confirmed, the corresponding data shall be flagged accordingly using the flagging symbols and criteria. If matrix effect is not confirmed, then the entire batch of samples may have to be reanalyzed and/or re-extracted/redigested, then reanalyzed at no cost to the PEI. PEI shall be notified as soon as possible to discuss possible corrective actions should unusually difficult sample matrices be encountered.

B7.6 Calculation Errors

All analytical results must be reviewed systematically for accuracy prior to submittal. If upon data review calculation and/or reporting errors exist, the laboratory will be required to reissue the analytical data report with the corrective actions appropriately documented in the case narrative.

B8.0 DATA REDUCTION, VALIDATION, AND USABILITY

B8.1 Data Reduction

Laboratory analytical data are first generated in raw form at the instrument. These data may be either in a graphic or printed tabular format. Specific data generation procedures and calculations are found in each of the referenced methods. Analytical results must be reported consistently. Identification of all analytes must be accomplished with an authentic standard of the analyte traceable to NIST or USEPA sources. Individuals experienced with a particular analysis and knowledgeable of requirements will perform data reduction.

B8.2 Data Validation

Data validation is a systematic procedure of reviewing a body of data against a set of established criteria to provide a specified level of assurance of validity prior to its intended use. All analytical samples collected will receive a limited data review. The data validation will be limited to a review of holding times, completeness of all required deliverables, review of QC results (surrogates, spikes, duplicates) and a 10% check of all samples analyzed to ensure they were analyzed properly. The methods as well as the general guidelines presented in the following documents will be used during the data review USEPA *Contract Laboratory Program (CLP) Organic Data Review, SOP Nos. HW-6, Revision #11* and USEPA *Evaluation of Metals Data for the Contract Laboratory Program* based on 3/90, SOW, Revision XI. These documents will be used with the following exceptions:

- Technical holding times will be in accordance with NYSDEC ASP, 10/95 edition.

- Organic calibration and QC criteria will be in accordance with NYSDEC ASP, 10/95 edition. Data will be qualified if it does not meet NYSDEC ASP, 10/95 criteria.

Where possible, discrepancies will be resolved by the PEI project manager (i.e., no letters will be written to laboratories). A complete analytical data validation is not anticipated. However, if the initial limited data audit reveals significant deviations and problems with the analytical data, project personnel may recommend a complete variation of the data.

B9.0 REFERENCES

Comprehensive Environmental Response Compensation and Liability Act (CERCLA) Quality Assurance Manual, Final Copy , Revision I, October 1989.

National Enforcement Investigations Center of USEPA Office of Enforcement. *NEIC Policies and Procedures.* Washington: USEPA.

New York State Department of Environmental Conservation (NYSDEC). 1995. *Analytical Services Protocol*, (ASP) 10/95 Edition. Albany: NYSDEC

PART C - FIELD SAMPLING PLAN

C1.0 INTRODUCTION

This Field Sampling Plan (FSP) is designed to provide procedures for the field activities outlined in the Work Plan for the investigation at the Former Randolph Foundry site. It will serve as the field procedures manual to be strictly followed by all personnel. Adherence to these procedures will ensure the quality and usability of the field data collected. In addition to the field procedures outlined in this document, all personnel performing field activities must comply with:

- The appropriate Health and Safety guidelines found in the Health and Safety Plan (HSP) Appendix A;
- The Quality Assurance/Quality Control measures outlined in Part B; and
- The scope of work outlined in the Work Plan, Part A.

C2.0 SOIL INVESTIGATION

C2.1 Subsurface Soil Sampling

This section discusses the procedures for collecting an aliquot of sample for chemical analysis. Subsurface soil samples will be obtained as outlined in Section A2.2. The detailed procedure is outlined below:

1. Inspect test pit and/or boring core stratigraphy, sample soil and records depth interval. Record any physical characteristics (e.g., obvious contamination, odor, or discoloration) in the field logbook. Simultaneously place the probe of a calibrated PID into the exposed soil. Record the instrument readings in the field logbook.
2. Samples are to be collected at locations and frequency as discussed in Section A2.1 and A2.3 of PART A.
3. If not dedicated, decontaminate sampling implements after use and between sample locations.
4. Record field sampling information in the field logbook. Label each sample container with the appropriate sample identification data and place sample in a cooler for shipment to the laboratory.
5. Initiate chain-of-custody procedures.

C2.1.1 Test Pit Procedures

Summary

Test pit sampling is a standard method of soil sampling to obtain representative samples for identification as well as to serve as a means of obtaining a large amount of information about the subsurface.

The following steps describe the procedures for test pit operations.

Field Preparation

1. Verify underground utilities have been found.
2. Review scope of work, safety procedures and communication signals with all site personnel. Identify local suppliers of sampling expendable and overnight delivery services. Pre-clean the sampling equipment prior to use, as necessary.
3. Mark/review trench locations. The specific locations will be determined in the field. Trench locations will be selected based on several factors, including areas of visible potential surface contamination/debris, pre-determined locations to examine representative areas across the site, and vegetative obstructions (see A2.3).
4. After completing each trench and sampling (as described above), subsurface soil will be backfilled. Backfilling will occur in the order in which the soil was removed. The backhoe will then be decontaminated over the test pit. The pit will then be filled in with clean overburden/topsoil and/or the fill that was previously on the surface, as available.

Excavation and Sample Collection

1. Maneuver the backhoe into position
2. Commence excavation with the backhoe positioned upwind of the excavation. Conduct continuous air monitoring with appropriate air monitoring equipment. Screen the soil for volatile organic compounds as it is placed on the soil pile.
3. Test trenching will be carried out in the following manner and as directed by PEI/TVGA's site representative:
    - For each test trench, topsoil and/or cover soil (if any) will be excavated and placed on plastic sheeting.
    - Soil/fill below the topsoil will be excavated to the depth directed by PEI/TVGA's site representative and placed on plastic sheeting separate from the topsoil/cover soil.
    - At completion of excavation all equipment in contact with the soil/fill will be steam cleaned over the trench after backfilling.
    - All trenches will be backfilled with indigenous soil in the order in which the material was removed with the topsoil/cover soil placed last to cover the trench.

4. A geologic log will be recorded as each trench is excavated. Upon completing the excavation of the pit, visually inspect the horizons of the soil for discoloration or staining and photo document the pit. The following information will be recorded for each test pit on the Test Pit Log:

- The total depth, length, and width of the excavation.
- The depth and thickness of distinct soil or lithologic units.
- A lithologic description of each unit.
- A description of any man-made materials or apparent contamination.
- Elevation of incoming water, if encountered.
- Depth to groundwater and/or bedrock.
- Using dedicated stainless steel spoons, collect soil samples as detailed in Section C2.1. Soil samples will be collected directly from the bucket of the backhoe. The backhoe will collect a sample from a specific soil horizon and bring the sample back to the ground surface. **No personnel shall enter the excavation to collect samples unless a confined permit has been obtained.** Each soil sample will be placed directly into appropriate sample bottles/jars.

5. Carefully and clearly label the sample bottles and jars with the appropriate bottle label.
6. Place each jar in an ice-filled cooler.
7. Use the chain-of-custody form to document the types and numbers of test pit samples collected and logged.
8. Record the time and date of sample collection as well as a description of the sample and any associated air monitoring measurements in the field logbook.
9. All excavated soil will be returned to the trench following completion of excavation activities at each individual trench location. Each test pit will be backfilled and compacted prior to moving to the next. During the test pit operations an attempt will be made to segregate clean from dirty soil using visual observations and PID screening. When the test pit is being filled, if dirty soil was encountered, it will be placed in the bottom of the pit and covered with clean soil.
10. Decontamination sampling equipment - Decontaminate backhoe bucket prior to commencing and between locations.

Post Operations

1. Organize field notes. All relevant information recorded in the field logbook and the Test Pit Log.
2. All samples should be shipped to the laboratory as soon as possible, but no more than 24 hours after being collected.

Reference: American Society for Testing Material (ASTM), 1992, ASTM D1586-84, Standard Method for Penetration Test and Split Barrel Sampling of Soils.

C2.1.1.a Unified Soil Classification System

Soils are classified for engineering purposes according to the Unified Soil Classification System (USCS) adopted by the United States Army Corps of Engineers and Bureau of Reclamation. Soil properties which form the basis for the USCS are:

- Percentage of gravel, sand, and fines
- Shape of the grain-size distribution curve
- Plasticity and compressibility characteristics

According to this system, all soils are divided into three major groups: coarse-grained, fine-grained, and highly-organic (peaty). The boundary between coarse-grained and fine-grained soils is taken to be the 200-mesh sieve (0.074 mm). In the field the distinction is based on whether the individual particles can be seen with the unaided eye. If more than 50% of the soil by weight is judged to consist of grains that can be distinguished separately, the soil is considered to be coarse-grained.

The coarse-grained soils are divided into gravelly (G) or sandy (S) soils, depending on whether more or less than 50% of the visible grains are larger than the No. 4 sieve (3/16 inch). They are each divided further into four groups:

W: Well graded; fairly clean (<5% finer than 0.074 mm)

P: Poorly graded (gap-graded); fairly clean (<5% finer than 0.074mm)

C: Clayey (>12% finer than 0.074mm); plastic (clayey) fines. Fine fraction above a line with plasticity index above 7.

M: Silty (>12% finer than 0.074 mm); nonplastic or silty fines. Fine fraction below a line and plasticity index below 4.

The soils are represented by symbols such as GW or SP. Borderline materials are represented by a double symbol, as GW-GC.

The fine-grained soils are divided into three groups: inorganic silts (M), inorganic clays (C), and organic silts and clays (O). The soils are further divided into those having liquid limits lower than 50% (L), or higher (H).

The distinction between the inorganic clays C and the inorganic silts M and organic soils O, is made on the basis of a modified plasticity chart. Soils CH and CL are represented by points above the A-line, whereas soils OH, OL, and MH correspond to positions below. Soils ML, except for a few clayey fine sands, are also represented by points below the A-line. The organic soils O are distinguished from the inorganic soils M and C by their characteristic odor and dark color.

C2.1.1.b Visual Identification

Soil properties and other observed characteristics normally identified in the field are defined below:

- Color
- Moisture conditions
- Grain size (estimated maximum grain size & estimated percent by weight of fines (material passing No. 200 sieve)
- Gradation
- Grain shape
- Plasticity
- Predominant soil type

Secondary components of soil:

- Classification symbol
- Other features such as organic, chemical, or metallic content, compactness, consistency, cohesiveness near plastic limit, dry strength, source - residual, or transported (aeolian, water borne, glacial deposit, etc.)

C2.1.2 Geoprobe Drilling Program

Soil sampling will also be conducted using Geoprobe drilling methods.

Macro Core Drilling Procedures

<u>Summary</u>

Geoprobe Macro Core direct push sampling is a standard method of soil sampling to obtain representative samples for identification as well as to serve as a means of obtaining a specific amount of information about the subsurface.

The following steps describe the procedures for Macro Core direct push drilling operations.

<u>Field Preparation</u>

1. Verify underground utilities have been found.
2. Review scope of work, safety procedures and communication signals with all site personnel. Identify local suppliers of sampling expendable and overnight delivery services. Pre-clean the sampling equipment prior to use, as necessary.
3. Mark/review boring locations. The specific locations will be determined in the field. Boring locations will be selected based on several factors, including areas of visible

potential surface contamination, pre-determined locations to examine representative areas across the site, and vegetative obstructions (see A2.3).

4. After completing each boring hole, subsurface soil will be backfilled. The boring hole will then be filled in with spoils and/or clean sand, if any available.

Excavation and Sample Collection

1. Maneuver the Geoprobe rig into position
2. Commence drilling with the Geoprobe rig positioned upwind of the excavation. Conduct continuous air monitoring with appropriate air monitoring equipment. Screen the soil for volatile organic compounds as it is placed in a staged area.
3. Geoprobe borings will be carried out in the following manor and as directed by PEI/TVGA's site representative:
    1. Start up drill rig and raise mast.
    2. If there is pavement use star bit with rig in rotary setting to penetrate pavement.
    3. If you are setting a road box excavate a hole large enough to set the road box before you advance the borehole.
    4. Unthread the bottom of the sample tube and inset a new sample liner. Thread the shoe on the bottom of the sample tube.
    5. Thread the drive cap on the top of the sample tube.
    6. Align the sample tube so it is plumb in both directions. This will assure you drill a straight borehole. It is important to drill a straight borehole.
    7. Drive the top of the sample tube to ground surface.
    8. Unthread the drive cap and thread on the pull cap.
    9. Pull the sample tube from the ground. Use caution so as not to pinch your hand between the drill rods, pull cap or rig during any of these steps.
    10. With the sample tube from the ground unthread the cutting shoe and pull the sample liner from the sample tube. You may need to use needle nose pliers to reach in the sample tube and grab the liner. Cut the sample liner lengthwise in two places and take it to the client.
    11. Insert a new liner and thread on the cutting shoe.
    12. Align the sample tube so it is plumb in both directions. The will assure you drill a straight borehole. It is important to drill a straight borehole.
    13. Push the sample tube to ground surface and thread a four-foot long drill rod onto the top of the sample tube. Thread on the drive cap and drive the top of the drill rod to ground surface.
    14. Unthread the drive cap and thread on the pull cap.
    15. Pull the drill rod from the ground.
    16. Remove the pull cap from the drill rod and thread it on the sample tube
    17. Pull the sample tube from the ground.
    18. Repeat step 10, 11, 12 and 13.
    19 After completing 13 add a second drill rod and drive it to ground surface. The borehole should now be 12 feet deep.

20. This procedure is repeated until the desired depth or refusal is reached.
21. For each Geoprobe boring, the sleeve/core will be placed on plastic sheeting.
22. The soil stratigraphy will be excavated to the depth directed by PEI/TVGA's site representative and placed on plastic sheeting.
23. At completion of probe excavation all equipment in contact with the soil/fill will be cleaned in a decontamination area using Alconox and water.
24. All probe holes will be backfilled with indigenous soil in the order in which the material was removed with the topsoil/sand/cover soil placed last to cover the hole.

4. A geologic log will be recorded as each borehole is excavated. Upon completing the excavation of the borehole, visually inspect the horizons of the soil for discoloration or staining and photo document the pit. The following information will be recorded for each boring on the Geoprobe Log:

-The total depth, length of boreholes, and width if excavation.
-The depth and thickness of distinct soil or lithologic units.
-A lithologic description of each unit.
-A description of any man-made materials or apparent contamination.
-Elevation of incoming water, if encountered.
-Depth to groundwater and/or bedrock.

5. Using dedicated stainless steel spoons, collect soil samples as detailed in Section C2.1. Soil samples will be collected directly from the plastic sleeve of the probe core. Each soil sample will be placed directly into appropriate sample bottles/jars.
6. Carefully and clearly label the sample bottles and jars with the appropriate bottle label. Place each jar in an ice-filled cooler.
7. Use the chain-of-custody form to document the types and numbers of borehole samples collected and logged.
8. Record the time and date of sample collection as well as a description of the sample and any associated air monitoring measurements in the field logbook.
9. All excavated soil will be returned to the probe hole following completion of excavation activities at each individual trench location. Each probe hole will be backfilled and compacted prior to moving to the next.
10. Decontamination sampling equipment - Decontaminate all rods, shoes, and other geoprobe tools prior to commencing and between locations.

<u>Post Operations</u>

1. Organize field notes. All relevant information recorded in the field logbook and the Boring Log.
2. All samples should be shipped to the laboratory as soon as possible, but no more than 24 hours after being collected.

<u>Reference</u>: American Society for Testing Material (ASTM), 1992, ASTM D1586-84, Standard Method for Penetration Test and Split Barrel Sampling of Soils.

C3.0 GROUNDWATER INVESTIGATION

C3.1 Monitoring Well Installation Procedures

<u>Summary</u>

The following procedure outlines a NYSDEC-approved method of constructing groundwater monitoring wells within unconsolidated material which enables monitoring of groundwater elevation and acquiring groundwater samples for laboratory testing. The open hole method means you simply place the well screen and riser inside the drilled borehole. For this method to be used the borehole must remain open to the required total depth of the well. Stick-up or road box completion. The following is a step-by-step method for the open-hole method of installing a monitoring well.

<u>Procedure</u>

1. Thread a cap on the bottom section of well screen.
2. If more than one section of well screen is required, thread it to the bottom section
3. Having the riser section close at hand lower the screen into the borehole.
4. Add the riser sections to the screen. Do not drop the screen in the borehole.
5. Add riser sections as require until the bottom screen section touches the bottom of the borehole.
6. If completing the well with a road box, mark the riser so it will be two inches below the lid of the road box and then cut the riser.
7. Place a slip cap over the top of the rise section.
8. Place sand in the space between the borehole and the PVC screen and riser to the depth the inspector request. Place the sand in very slowly so it does not bridge in the well bore.
9. Place bentonite and cement above the sand-pack.
10. Grout in the road box with concrete mix.

C3.2 Well Development Procedures

<u>Summary</u>

Following completion of drilling and well installation, and no sooner than 24 hours after installation, each well will be developed by a surge block method followed by pumping or bailing until the discharged water is relatively sediment free and the indicator parameters (pH, temperature, and specific conductivity) have reached steady-state. Developing the well not only removes any sediment, but may improve the hydraulic properties of the sand pack. Well development water will be placed on the ground surface downgradient of the well. The effectiveness of the development measures will be closely monitored in order to keep the volume of discharged waters to the minimum necessary to obtain sediment-free samples.

Steady-state pH, temperature, and specific conductivity readings will be used as a guide for discontinuing well development.

Procedure

1) An appropriate well development method should be selected, depending on water level depth, well productivity, and sediment content of the water. Well development options include: (a) bailing; (b) manual pumping; and (c) powered suction-lift or submersible pumping. Any of these options may be exercised in concert with surging of the well screen using an appropriately sized surge block.

2) Equipment should be assembled, decontaminated, if necessary, and installed in the monitoring well. Care should be taken not to introduce contaminants to the equipment during installation.

3) Well development should proceed by repeated removal of water from the well until the discharged water is relatively sediment-free. Volume of water removed, pH and conductivity measurements, are recorded on the Well Development/Purging Logs.

4) Well development will occur no sooner than 24 hours after installation. Well development will continue until readings of <50 NTUs are obtained.

C3.3 Groundwater Well Purging/Sampling

Summary

To collect representative groundwater samples, groundwater wells must be adequately purged to sampling. Purging will require removing three to five volumes of standing water in rapidly recharging wells and at least one volume from wells with slow recharge rates. Sampling should commence as soon as adequate recharge has occurred.

The wells will be sampled following procedures found in Section C3.5. The samples will be labeled and shipped following procedures outlined in Sections C6.0 and C7.0 and analyzed according to the program outlined in the QA/QC Plan (Part B).

C3.4 Well Purging Procedures

Well development will be performed as specified in Section A2.3.

Procedure

1) The well cover will be carefully removed to avoid any foreign material enter the well. The interior of the riser pipe will be monitored for organic vapors using a PID. If reading of greater than 5 ppm is recorded, the well will be vented until levels are below 5 ppm before pumping is started.

2) Using an electronic water level indicator, the water level below top of casing will be measured. Knowing the total depth of the well, it will be possible to determine the volume of water in the well. The end of the probe will be washed with soap and rinsed with deionized-water between wells.

3) Dedicated new polyethylene discharge and intake tubing (½ inch diameter HDPE) will be used for each well. During this evacuation of the well, the intake opening of the pump tubing will be positioned just below the surface of the well water. If the water level drops, then the tubing will be lowered as needed to maintain flow. Pumping from the top of the water column will ensure proper flushing of the well. Pumping will continue until the required volumes are removed.
If the well purges to dryness and recharges rapidly (within 15 minutes), water will continue to be removed as it recharges until the required volumes are removed. If the well purges to dryness and is slow recharge (greater than 15 minutes), evacuation will be terminated.

4) Purging will continue until three volumes of water have been removed. Well volumes will be calculated. Measurements for pH, temperature, turbidity, and conductivity will be recorded during the purging along with physical observations.

5) Well purging data are to be recorded in the field notebook and on the Well Development/Purging Log.

C3.5 Groundwater Sampling Procedures

Procedure

1) Well sampling may be performed on the same date as purging at any time after the well has recovered sufficiently to sample, or within 24 hours after evacuation, if the well recharges slowly. If a well does not contain or yield sufficient volume for all required laboratory analytical testing, then a decision will be made to prioritize analyses. If a well takes longer than 24 hours to recharge, then a decision will be made after consultation with NYSDEC whether the sample will be considered valid.

2) After well purging is complete and the well has recharged sufficiently per the previous item, a sample will be collected by pumping into appropriate containers.

3) All sample bottles will be labeled in the field using a waterproof permanent marker. Procedures outlined in Section C6.0 will be followed.

4) Samples will be collected into verifiably clean sample bottles (containing required preservatives) and placed on ice in coolers for transport to the analytical laboratory. Chain-of-custody will be initiated. The analytical laboratory will certify that the sample bottles are analyte-free.

5) A separate sample will be collected into a 120 milliliter (mL) plastic specimen cup to measure pH, conductivity, turbidity, and temperature off the well in the field.

6) Well sampling data are to be recorded in the field notebook and on the Well Development/Purging Log.

C4.0 DOCUMENTATION

Summary

Each subsurface test pit and boring core will be logged in a bound field notebook during drilling by the supervising geologist. Field notes will include descriptions of subsurface material encountered during test pit and drilling, sample numbers, and types of samples recovered from the test pits and wells. Additionally, the geologist will note time and material expenditures for later verification of contractor invoices.

Upon completion of daily drilling activities, the geologist will complete the Daily Drilling Record and initiate chain-of-custody an any samples recovered for geotechnical or chemical testing. Following completion of the drilling program, the geologist will transfer field logs onto standard boring log forms and well completion logs for the site investigation report.

C5.0 SAMPLING CONTAINER SELECTION REQUIREMENTS

The selection of sample containers is based on both the media being sampled and the analysis of interest.

C6.0 SAMPLE LABELING

Summary

In order to prevent misidentification and to aid in the handling of environmental samples collected during the field investigation, the procedures listed below will be followed:

Procedure: Affixed to each sample container will be a non-removable (when wet) label. The sample bottle will be wrapped with 2-inch cellophane tape. Apply label and wrap with tape to cover label. The following information will be written with permanent marker:

1. Site name
2. Sample identification
3. Project number
4. Date/time
5. Sampler's initials
6. Sample preservation
7. Analysis required

Each sample of each matrix will be assigned a unique identification alpha-numeric code. An example of this code and a description of its components is presented below:

Examples:

1. PEI-RF-ss1
   Where: PEI= Panamerican Environmental, Inc.
   RF = Randolph Foundry
   SS-1 = surface soil sample 1
2. PEI-RF-TP1-2-3
   Where: TP1 = Test Pit 1
   2-3 = Sample Depth in feet

List of Abbreviations

Sample Type

TP =	Test Pit
BH=	Geoprobe Borehole
BSS=	Building Sand Sample
SW =	Surface Water
SED =	Sediment
SB =	Soil Boring
SS =	Surface Soil (0-2" depth)
MSB =	Matrix Spike Blank
NSS =	Near Surface Soil (1' - 2' depth)
EB =	Equipment Rinse Blank
HW =	Hydrant Water (Decon/Drilling Water)

GW =	Groundwater
TB =	Trip Blank
RB =	Rinse Blank
MS/MSD =	Matrix Spike/Matrix Spike Duplicate

C7.0 SAMPLE SHIPPING

Summary

Proper documentation of sample collection and the methods used to control these documents are referred to as chain-of-custody procedures. Chain-of-custody procedures are essential for presentation of sample analytical chemistry results as evidence in litigation or at administrative hearings held by regulatory agencies. Chain-of-custody procedures also serve to minimize loss or misidentification of samples and to ensure that unauthorized persons do not tamper with collected samples.

The procedures used in the predesign field activities follow the chain-of-custody guidelines outlined in *NEIC Policies and Procedures*, prepared by the National Enforcement Investigations Center (NEIC) of the USEPA Office of Enforcement.

Procedure:

1) The chain-of-custody record should be completely filled out with all relevant information.
2) The white original travels with the samples and should be placed in a Ziplock bag and taped inside the sample cooler.
3) Place about 3 inches of inert cushioning material (such as vermiculite or zonolite) in bottom of cooler.
4) Place bottles in cooler so they do not touch (use cardboard dividers).
5) Put VOA vials in Ziplock bags and place them in the center of the cooler.
6) Pack bottles, especially VOA vials, in ice in plastic bags.
7) Pack cooler with ice in Ziplock plastic bags.
8) Pack cooler with cushioning material.
9) Put paperwork in plastic bags and tape with masking tape to inside lid of cooler.
10) Tape drain shut.
11) Wrap cooler completely with strapping tape at two locations. Secure lid by taping. Do not cover any labels.
12) Place lab address on top of cooler.
13) Ship samples via overnight carrier the same day that they are collected.
14) Put "This side up" labels on all four sides and "Fragile" labels on at least two sides.
15) Affix numbered custody seals on front right and left of cooler. Cover seals with wide, clear tape.

PART D - CITIZEN PARTICIPATION PLAN

D1.0 INTRODUCTION

The County of Cattaraugus presently owns the Former Randolph Foundry property. PEI/TVGA has been retained to complete an IRM and conduct an SI/RAR program for the site as part of an overall strategy to redevelop the parcel. Revitalization will involve a broad segment of the community which needs to be informed during the study process. This need for public information is consistent with NYSDEC' emphasis on providing the maximum amount of information and public dialogue during projects that have impact on the community's environment. This section of the plan has been developed using the requirements for citizen participation activities for the environmental restoration ("brownfields") program in 6 NYCCR Part 375 and applicable guidance is set forth in the NYSDEC DER "Municipal Assistance For Environmental Restoration Projects ("Brownfields") Program Procedures Handbook", dated December 1997.

The Citizen Participation Plan (CP) describes a vehicle for establishing clear and open communication between the County/Village, the consultant, the NYSDEC/NYSDOH, affected residents, community advocacy groups, and elected officials. The communication channels established under the plan will aid in identifying possible sources of environmental contamination and, in later phases, selecting the remedial alternative which meets economic and environmental objectives while accomplishing local-defined community development goals.The CP includes three main components:

(1)Preparing project fact sheets which describes the site history, economic and environmental objectives, and study activities. The study schedule will be an integral part of this data source. Fact sheets will be supplemented as additional information is developed. Specific community and environmental issues will be described.

(2)Presenting well designed, open, and effectively publicized community workshops at a strategic juncture of the study process. It will be designed to engage the community and strengthen the project by building consensus on remedial action.

(3)Establishing well-publicized information outlets and contacts for the project. Contacts will include media outlets, local government officials, individuals that may have first-hand site-related information, adjacent land owners, and representatives of interested organizations, among others.

Each of these elements are discussed in more detail in this plan, along with an assignment of responsibility for carrying out each task. The County and NYSDEC project managers and public participation specialists along with the consultant are responsible for this process. PEI/TVGA personnel will assist. All CP products will be developed in draft form by the responsible participant and reviewed by the NYSDEC prior to public release. Where appropriate, citizen participation activities will be coordinated with municipal review activities and procedures.

D2.0 CITIZEN PARTICIPATION ELEMENTS

D2.1 Project Description and Objectives

The Randolph Foundry site is located at 2-8 Sheldon Street at the northwest corner of South Washington and Sheldon streets in the Village of Randolph, Cattaraugus County, New York. The former foundry and machine shop property is approximately179 feet by 229 feet and includes an abandoned cement block office and sheet metal manufacturing/warehouse type building. The abandoned structure, which is severely dilapidated and may be structurally unsound in some portions, contains a large garage/work area, workshop areas, former parts and machining areas, storage rooms and office type areas. Various debris, equipment, foundry sands and materials from former processes are still located at the site including some 55-gallon drums and other small containers of materials. These drums are rusty and in poor condition. Foundry sand covers much of the warehouse/manufacturing area and piles are located in some areas. Parts of the site are heavily vegetated and some vegetation is growing within the more dilapidated sections. A larger hopper is located in the rear of the structure as are two large elevated transformers.

A review of historic aerial and Sanborn maps as well as building permit records indicate that the current structures and property have been altered over time. The exact date that the existing structure was built is unknown, however, historical maps indicate that a foundry and machine shop (F. H. Pike Foundry and Machine Shop) was located on the property as early as 1902. By 1929, historic maps indicate that the property was identified as the Randolph Foundry and Machine Shop. As late as 1897 however, a dairy was located on the property. Randolph Foundry was at one time owned by Aeolian (verified also by ownership records) and made piano plates out of recycled metal. The foundry was later sold and went out-of-business around 1986. This suggests that the property was used in some capacity as a foundry and machine shop since at least 1902 or at least 84 years.

The goal of the project is to complete focused environmental investigations to accurately assess the potential for contamination, if any, its source and nature and extent and to develop sufficient data that supports an IRM and the development of long-term remedial alternatives at the site. One of the main purposes of the initial effort is to complete an Interim Remedial Measure (IRM) to expeditiously demolish the former foundry structure and remove drums, foundry sands, etc to alleviate the potential public safety and liability concerns for the County at the property and make it ready for re-use. The purpose of the site investigation is to verify that material disposed on the property is limited to foundry sands, C&D debris, and small quantities of containerized wastes and to further determine the likelihood of contamination associated with past commercial use on portions of the property. This information will allow the identification and screening of various technologies for their capability to meet specific cleanup and redevelopment concept plan objectives. The objective is to minimize or eliminate impacts from the property that effect the potential re-use of the property. As such, the scope of the investigations and/or remediation is tailored to the future use of the site.

D2.2 Schedule

It is PEI/TVGA intention to have the IRM and SI/RAR for this property completed within twelve months, however, the initiation of the IRM may extend this time frame.

D2.3 Local Document Repository

An information repository will be established for the project. The repository will provide a convenient outlet for information regarding the site including interim reports. The repository will be located where it provides the maximum opportunity for residents to view site-related documents and should be well known in the community. Access via public transit will be a consideration in selecting the site. In addition, the site should be accessible to the handicapped and open after normal working hours. Repository personnel will be briefed in the nature of the available materials.

The County will be responsible for designating the location of the information repository.

D2.4 Identification/Contact List of Affected/Interested Parties

A contact list will be developed for use in informing residents of the agencies and individuals involved in the study process and as a mailing list for meeting notices, fact sheets and other relevant documents. The County will provide the contact list and the location of the repository. As the study progresses, this list may be expanded but will include, in its initial form:

11. owners of properties which are adjacent to the property
12. organizations and groups with potential interest in the activities
13. local news media
14. people who have information about the property
15. local government officials

D2.5 Municipal and DEC/DOH Contacts

County and DEC/DOH contacts are as follows:

County of Cattaraugus: Joseph G. Keller, County Treasurer
County of Cattaraugus
303 Court Street
Little Valley, New York 14755
716-938-9111 ext. 2386

DEC Project Manger: Eugene W. Melnyk, P.E.
NYSDEC Region 9
270 Michigan Avenue
Buffalo, New York 14203-2999
716-851-7220
716-821-7226 (fax)

DOH Project Manager: Mr. Cameron O'Connor
NYSDOH
584 Delaware Avenue
Buffalo, New York 14202
716-47-4385

D2.6 Significant Issues of Public Interest

Any significant issues of public interest will be identified and specified in fact sheets and public meetings.

D2.7 Specific Citizen Participation Activities

Fact Sheet Preparation

An initial fact sheet will be developed prior to initiating field investigations. It will be targeted to local residents in an effort to provide the maximum amount of information regarding the activity they will see in their neighborhood and community. The fact sheet will discuss the site history, community development objectives, an overview of the study process, the project schedule, and upcoming opportunities for participating in project activities. A contact list will be provided along with the location of a public document repository.

A revised fact sheet will be prepared prior to the community workshop when the draft SI/RAR has been produced. It will be designed to provide the community with information about the site which will enable them to participate more fully in the workshop process.

Public Meetings/Community Workshop

Prior to finalizing the SI/RAR and/or PRAP, a community workshop will be held. The purpose of the workshop will be to inform the community of the findings of the investigations and to present the remedial alternatives. The PEI/TVGA technical team will assist the County/NYSDEC in developing information in lay terms and will assist the discussion of technical information.

The location, date, and time of the workshop will be promoted through the media channels identified above. Promotional activities will provide at least 15 days notice of the workshop.

Announcements will clearly state the purpose of the meeting, contact people, and the locations where draft reports are available.

The meeting will be conducted as an interactive workshops where small groups have access to group facilitator. This process minimizes the potential for small groups of individuals to dominate discussions at the expense of less assertive individuals. At the conclusion of the workshop, the facilitator will summarize the issues and suggestions developed in each group. A 45-day comment period will follow the community workshop which will enable residents that are more comfortable with written communication to provide comments.

The County will provide the meeting place and promote the workshop, PEI/TVGA will provide technical representation at the workshop.

A Responsiveness Summary that addressed public comment about the PRAP will be prepared and notification of public availability of ROD will occur.

Public Inquiries

The County Project Manager will be the primary point of contact for inquiries during the project. At their discretion, technical issues will be referred to PEI/TVGA's Project Manager. Field Personnel will be instructed not to be evasive and will be educated as to the appropriate contact person should there be resident inquiries during their field investigations. In addition, they will be provided with fact sheets for distribution to interested residents.

Local Educational Opportunity

At the request and with the help of the County, PEI/TVGA will help develop educational opportunities with the local school thru which the science, engineering, and regulatory aspects of the project are exposed to students as the project progresses.