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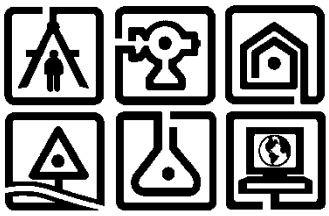
NYS Brownfield Cleanup Program



DRAFT Quality Assurance Project Plan

Former Plesser Property Site
Paradies Lane
Town of New Paltz
Ulster County, New York
BCP Site No. C356053

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NYS BROWNFIELD CLEANUP PROGRAM
QUALITY ASSURANCE PROJECT PLAN
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1.0 PROJECT DESCRIPTION

1.1 Introduction

This Quality Assurance Project Plan (QAPP) has been prepared for the implementation of the Remedial Investigation and future Remedial Action at the Former Plesser Property Site ("the Site") located on Paradies Lane in the Town of New Paltz, Ulster County, New York.

This QAPP presents the organizational structure and data quality objectives (DQOs) for the Remedial Investigation and Remedial Action, and the quality assurance (management system) and quality control methods of checks and audits to be implemented to ensure that the quantity and quality of the data required for its intended use is obtained and documented (i.e., that DQOs are met). The measurement parameters used to determine the quality of the data are precision, accuracy, completeness, representativeness and comparability, and are discussed further in this QAPP.

A Field Sampling Plan (FSP) has been prepared by C.T. Male Associates under separate cover and forms an integral part of this QAPP. The field sampling and data gathering procedures are presented in the FSP and incorporated into the QAPP. The QAPP and FSP document the laboratory quality assurance/quality control (QA/QC) procedures and field sampling and data gathering procedures that will be followed during implementation of the Remedial Investigation and Remedial Action scope of work so that valid data of a known quality is generated.

The project specific field QA/QC procedures and the project specific laboratory QA/QC procedures are presented in the text of this QAPP. The general internal laboratory QA/QC procedures are presented in the subcontractor laboratory's Quality Manual which is retained at the laboratory's place of business. The subcontract laboratory for this project is yet to be determined. The laboratory statement of qualifications is included as a supplement to this report once selected. The lab will be an ASP Level B NYSDOH certified lab.

The QAPP has been prepared in a manner consistent with the following guidance documents:

- Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, EPA/540/G-89/004, USEPA, October 1988.
- Data Quality Objectives for Remedial Response Activities: Development Process, EPA/540/G-87/003, USEPA, March 1987.
- DER-10 Technical Guidance For Site Investigation and Remediation, NYSDEC, May 2010.
- 6 NYCRR Part 375, Environmental Remediation Programs, Subparts 375-1 to 375-4 and 375-6, Effective December 14, 2006.

1.2 Site Overview

1.2.1 Site Description

The Site is an irregular-shaped parcel of undeveloped land comprised of two tax parcels in the Town of New Paltz, Ulster County, New York (Section 86.12, Block 5, Lots 13.310 and 13.320). The combined parcels are approximately 57.3 acres in size. The parcels that comprise the Site lack a physical address. The location of the Site is shown on Figure 1 – Site Location Map and an ortho-photograph depicting the Site boundaries and the surrounding areas is included as Figure 2 – Ortho-photographic Site Location Map. The tax lot boundaries of the Site and surrounding parcels are depicted on Figure 3 – Sketch Map.

The Site is currently vacant. Areas of the Site contain grassy fields and wooded lands, but have historically been developed. Remnants of foundations, concrete paved areas, an asphalt driveway, power lines and several trails exist. A small portion of the northernmost tax lot is landscaped. This portion of the Site is in close proximity to Paradies Lane. The central portion of the Site contains grassy fields. The southernmost portion of the Site is wooded with delineated wetlands. The remnant foundations, concrete paved areas, and an asphalt driveway are located in the northwestern section the Site. Several trails are present on western and central sections of the Site.

The northern section of the Site contains approximately 1,000 feet of frontage along the southern side of Paradies Lane and NYS Route 299 and 450 feet of frontage along the western side of South Ohioville Road.

The adjacent and surrounding land use is a mix of commercial and residential property. NYS Thruway Exit 18 lies to the west of property. Paradies Lane borders the northern and western corner of the Site; NYS State Route 299 borders the Site to the north; South Ohioville Road lies to the east of the Site and there are a number of

commercial and residential properties along South Ohioville and vacant land lies to the south.

1.2.2 Site's Environmental Setting

The Site has historically been used for farming purposes; mainly as an orchard. Analytical results from previous environmental investigations show elevated levels of metals, mainly arsenic and lead, typical of lead arsenate pesticides that were commonly used in commercial orchard operations up to the 1950's and 60's. There is also some evidence of semi-volatile organic compounds associated with an oil spill (NYSDEC Spill No. 14-018290) near where the old barn was located.

Several environmental assessments were conducted at the property. The following summarizes the Site's environmental history.

2014 Chazen Phase I ESA

The Chazen report identified the following recognized environmental conditions:

- Historical uses of the central and northeastern sections of the Site included an apple orchard. The owner reported that pesticides exist in shallow soils in the area of the former orchard; however, supporting documentation and concentration information was not provided. It is also not known if pesticides were applied according to their labeled directions. Given the reported presence of pesticides in soil, but the limited associated information, this is considered a Significant Data Gap (SDG).

- Five structures (i.e., one barn, one garage and three unidentified structures), constructed circa 1949, were previously located on the Site. The three unidentified structures were demolished circa 1978-1994, while the remaining barn and garage were demolished in 2003. Records searched could not confirm if any of the five structures contained heating systems and the usage of the three unidentified structures. This lack of information represents an SDG.

- A waste pile was noted in the southwestern section of the Site (area of one demolished unidentified structure) and included empty containers of raw product (e.g., approximately twenty 1-gallon buckets for oil/grease, one 5-gallon fuel container, two 15-gallon drums with unknown contents). No

staining and/or odors were noted on surfaces underneath these containers; however, it is unknown if containers were empty when placed in this area and what were the contents of these containers. Therefore, this waste storage is considered an SDG.

- A Shell gasoline station is located adjacent to the Site, is associated with one open NYSDEC spill, and identified as a Petroleum Bulk Storage (PBS) facility. Four underground storage tanks (USTs) exist on-site: 8,000-gallon gasoline, 6,000-gallon gasoline, 4,000-gallon diesel, and 1,500-gallon petroleum. One spill incident (No. 9814530) was reported for discovery of soil contamination during tank removal and has not been granted closure by the NYSDEC. Presumed groundwater flow direction in this area is away from the Site (southeast); however, this could not be confirmed so the Spill represents an SDG for the Site. In addition, this Spill incident indicates that potential vapor intrusion issue cannot be ruled out for the Site but it should be noted that the NYSDOH does not currently regulate petroleum compounds when considering vapor intrusion concerns.

- A rusted empty and unlabeled 55-gallon container was noted in front of the auto-repair garage property encroachment but still on-site. No staining and/or leakage were noted in the area; however, the historical drum contents are unknown and therefore considered an SDG.

- A small clearing is noted in the extreme southwest corner of the Site in the 1994 aerial photograph but appears subsequently wooded. The reason for a temporary clearing is unknown; however, there was no evidence of material storage or stressed vegetation; therefore it is not a REC.

- An adjacent auto repair facility's overflow parking area encroaches onto the central eastern section of the Site. A close-up inspection of the encroachment could not be conducted as it was incorporated in the neighboring property. This is considered an SDG, although, evidence of releases was not observed in this area.

2014 Phase II ESA Findings

Based on the results of the Phase I ESA, a Phase II ESA was performed. A total of forty-two soil borings were advanced on the Plesser Property, Paradies Lane, New Paltz, New York property.

- Laboratory data for soil samples was obtained from the UST area, located within the northeastern portion of the Site (SB-7) revealed low level concentrations for several targeted VOCs at depths between 8 and 12 feet bgs.

- Surficial soil samples were obtained from within the historical orchard areas (central and north–northeastern portions of the property). These samples indicated elevated concentrations of arsenic and lead, exceeding unrestricted and restricted residential NYSDEC Subpart 375-6: Remedial Program Soil Cleanup Objectives, December 2006.

DTCS concluded subsurface soil impacts exceeding soil guidance standards were encountered within eleven soil borings (SB-19, 25, 30 31, 32 - 34, 36, 39 and SB-42) in that portion of the property historically utilized as an orchard. The two compounds of concern within these samples are arsenic and lead. The site was evaluated in 2012 and 2013 through completion of a Phase I environmental site assessment, two (2) environmental investigations, and a geotechnical evaluation. Results of the investigations revealed that a gasoline station occupied northwestern portions of the site between 1931 and 1978; a two (2) to 10-foot thick layer of fill material containing cinders and ash, glass, brick, asphalt, wood, concrete, tires, metal and garbage overlies the entirety of the site; the existence of at least four (4) petroleum underground storage tanks; native soils in the vicinity of the former fueling dispensing island subjectively impacted by petroleum; and the detection of metals in fill/soil at concentrations exceeding soil cleanup levels for Unrestricted Use of the site.

1.3 Objectives and Scope of Work

It is the objective of the Remedial Investigation and Remedial Action and this QAPP to obtain and present representative data of a known quality and sufficient quantity. To achieve these objectives, the scope of work will include the following items:

<u>Remedial Investigation</u>

The Remedial Investigation scope of work will involve the collection of discrete fill/soil material for waste characterization purposes for the disposal facility(s). Remedial Investigation sampling will involve completion of test pits utilizing a manual hand shovel, hand auger and/or excavator to aid in the collection of discrete surface, near-surface and/or subsurface soil samples. The frequency and required laboratory analysis for the soil samples will be dictated by the disposal facility for waste characterization purposes. Remedial sampling will not be for the purpose of delineating the extent of Site contaminants as part of a Site investigation and will not be conducted to evaluate the effectiveness of the Remedial Action. Conversely, and per Sections 2.2(a)(1) and 2.2(a)(2) of DER-10, Category A Data Deliverable Packages will be prepared by the laboratory for analytical data associated with the Remedial sampling. The data will not be subject to data validation and a data usability summary report (DUSR) will not be generated.

Remedial Action

The proposed Remedial Action for the Site is detailed in the Remedial Action Work Plan (RAWP) as prepared by C.T. Male Associates. In general, the remedial action will include excavation of fill/soil material overlying the Site's native soils and disposal of the fill/soil material off-site at a permitted disposal facility; excavation of subjectively impacted native soils and disposal of the soils off-site at a permitted disposal facility; closure by removal of underground petroleum storage tanks; collection of confirmatory post-excavation soil samples for laboratory analysis; temporary storage and staging of Remedial Investigation and remedial action derived wastes; and backfilling of excavations with imported fill.

The confirmatory post-excavation soil samples will be collected from the sidewalls and bottom of impacted fill/soil material and/or native soil excavations. The samples will be analyzed for Target Compound List (TCL) volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), PCBs, and Pesticides, Target Analyte List (TAL) Metals, and cyanide.

Confirmatory post-excavation soil samples may be collected from the tank closure excavation. Sampling of this excavation will be dependent on whether the tank closure excavation is located within the larger fill/soil excavation listed above or if the tank closure excavation is a standalone excavation. The laboratory analysis for

soil samples collected from a standalone tank closure excavation will be discussed with the NYSDEC Project Manager. At a minimum, the samples will be analyzed for the STARS list of VOCs and SVOCs.

The imported fill will meet the requirements of Section 6.7(d) of 6 NYCRR 375 and will be tested in accordance with Section 5.4(e) of DER-10. Grab and composite samples of the fill will be collected and analyzed for TCL VOCs, SVOCs, PCBs, and Pesticides, TAL Metals, and cyanide. The analytical results will be compared to SCOs for Commercial Use Sites. Only fill material exhibiting analytical results at concentrations below Commercial Use SCOs will be allowed to be used as Site backfill.

2.0 PROJECT ORGANIZATION AND RESPONSIBILITIES

C.T. Male Associates is responsible for providing professional services associated with the quality control/quality assurance of the Remedial Investigation and Remedial Action. These will include project management, and coordination and scheduling of activities in-house and with qualified subcontractors. The work tasks that will be performed by a subcontractor to C.T. Male Associates include: analytical laboratory testing and analytical data validation.

Personnel from C.T. Male Associates, the subcontract laboratory and data validator can be reached at the following addresses:

- C.T. Male Associates
  Contact: Jim McIver and Steve Bieber
  50 Century Hill Drive, New York 12110
  Phone: (518) 786-7400
  Email: k.moline@ctmale.com and s.bieber@ctmale.com

- Laboratory:
  TBD

- Data Validator:
  Environmental Data Services, Inc.
  502 Strawberry Plains Road
  Williamsburg, Virginia 23188
  Phone: (757) 564-0090
  Web: www.env-data.com

A description of the responsibilities by title of the key individuals is presented as follows:

Project Principal Daniel Reilly is responsible for the review of the Remedial Investigation and Remedial Action activities and reports for their technical adequacy and conformance to the scope of work.

Quality Assurance Officer Steve Bieber is responsible for the independent review of the Remedial Investigation and Remedial Action documents and reports to check that appropriate project documentation of the quality control activities performed

exist and are maintained, and for conducting field and sampling audits. Analytical data will also be reviewed by this individual for accuracy and completeness.

Project Manager Jim McIver is responsible for the overall coordination and implementation of the project, the management of staff and resources, the implementation of schedules, the conformance by technical staff and subcontractors to the scope of work, assessing the adequacy of the work being performed, implementing corrective action as necessary, interaction with the client and regulatory agencies, maintaining complete project documentation, and report preparation.

Health and Safety Coordinator Jeff Marx is responsible for implementation of the project specific Health and Safety Plan and for resolution of safety issues which arise during completion of the work. The Health and Safety Coordinator or designee will be present during completion of the field work.

Laboratory Quality Assurance Officer is responsible for review of the laboratory data quality control procedures and documentation to determine if the QA objectives are being met, to report non-conforming events to the laboratory technical staff and Project Manager, and to implement corrective action as necessary.

Laboratory Director is responsible for all activities within the laboratory, and for the performance of the laboratory work tasks in accordance with the project work plans, interactions with the Project Manager, and the adherence to project schedule.

Project Geologist/Engineer/Scientist is responsible for coordinating and conducting the field activities, coordinating with subcontractors, ensuring adherence of activities to the QAPP and the FSP, evaluation of the collected data, soil classifications, report preparation and interaction with Project Manager and Project Team.

Project Team is responsible for adequately performing the work tasks in accordance with the project work plans so that the objectives of the project are achieved, notifying the Project Manager of any non-conformance to the work plan so that corrective actions can be taken as necessary, and notifying the Project Manager of unforeseen conditions so that modifications to the work plan, if necessary, can be approved and implemented.

Data Validator is responsible for review of all analytical data generated from the confirmatory and documentation post-excavation soil sampling as part of the Remedial Action. Analytical data from the Remedial Investigation, aqueous samples collected from the groundwater treatment system and samples collected from the imported fill will not undergo data validation. The data validator will review analytical data in accordance with New York State Department of Environmental Conservation Guidance for the Development of Data Usability Summary Reports and prepare a report documenting if the analytical data is valid and usable. The report will also present data rejection and qualification, where necessary, based on laboratory performance.

3.0 QUALITY ASSURANCE OBJECTIVES FOR DATA MEASUREMENT

3.1 General

The Quality Assurance (QA) objective for this project is to produce data which is technically valid and of a known quality that meets the needs of its intended use. In this section the data quality objectives (DQOs) are defined by describing the intended use of the data; defining the type of data needed (i.e., physical or analytical); specifying the analytical levels, as established by EPA, appropriate to the data uses; specifying the quality control checks on field and laboratory procedures and frequency of checks; and presenting the quality control acceptance criteria.

Laboratory quality assurance objectives for data measurement are established for each measurement parameter in terms of precision, accuracy, completeness, representativeness and comparability. These terms form an integral part of the laboratory's quality assurance programs in that DQOs are set for each parameter.

3.2 Data Uses and Types

The data to be generated during the proposed work will be completion of the Remedial Investigation, Remedial Action, and health and safety during implementation of the field activities. Both physical data including air and particulate monitoring and analytical data from soil and water (groundwater treatment system) will be needed to provide the necessary information to complete the steps in the Remedial Investigation and Remedial Action. The scope of work and analytical data proposed and its purposes are presented in the RAWP and summarized in Section 1.3 of this report.

3.3 Data Quality Needs

To support data collection activities in obtaining quality data, EPA has established a series of analytical levels that are appropriate to investigation/remediation data uses. The analytical levels are defined as follows:

Level I	Field screening or analysis using portable instruments. Qualitative data.
Level II	Field analyses using more sophisticated portable analytical instruments. Qualitative and quantitative data can be obtained.

Level III	Laboratory analyses using standard EPA approved procedures/methods.
Level IV	Laboratory analyses by NYSDEC ASP (Analytical Services Protocol) - Category B Data Deliverable with QA/QC protocols and documentation.
Level V	Analyses by non-standard methods.

The data collection activities, the environmental media, the intended use of the data and the corresponding analytical levels that will be used to produce the project data are summarized in Table 1.

Table 1
Summary of Work Tasks and Corresponding Analytical Levels

Data Collection Activities	Sample Media & Description	Data Use[(a)]	Analytical Level
PID Monitoring	Soil Vapors	1, 2	I
Air & Dust Monitoring	Air/Ambient Air/Particulates	2	II
Test Pits, Soil Excavations, Groundwater Treatment System, and Soil and Treated Groundwater Sampling.	Surface, Near-Surface and Subsurface Soil, and Treated Groundwater for Laboratory Analyses and Field Instrumentation.	1	I, III and IV

Note:
(a) Data Uses Key:
1 - Remedial Investigation and Remedial Action.
2 - Health and Safety and Community Air Monitoring During Remedial Action.

Another consideration besides defining the Data Quality Needs is what level of cleanup will be required for the Site. The applicable or relevant and appropriate requirements (ARARs) are related to defining satisfactory cleanup efforts. In order to be able to evaluate the data generated with respect to potential ARARs, the samples will need to be analyzed by analytical methods that can achieve detection limits below or at existing ARAR values. The analytical methods selected for this project are designed to achieve ARAR values.

3.4 Quality Control Checks and Acceptance Criteria

To monitor and document the integrity of such factors as sample variability, sampling equipment cleanliness, sampling technique, analytical reproducibility and sample handling which can affect data quality, several field quality control checks will be implemented with the Remedial Action confirmatory post-excavation soil samples. These will include taking equipment/field blanks after the sampling equipment has been decontaminated to check for cross contamination and equipment cleanliness, and taking replicate samples to monitor analytical precision/reproducibility and sampling technique. For this project the field Quality Control (QC) checks will consist of one equipment/field blank, and one replicate sample during sampling activities for every twenty (20) analytical samples per media type (i.e. soil).

Laboratory quality control checks will be those specified in EPA Methods or in the most recent NYSDEC ASP for the analytical method performed and could consist of some of the following:

- Blanks (method, preparation),
- initial and continuing calibrations,
- surrogate spikes,
- matrix spikes/matrix spike duplicates,
- ambient samples,
- duplicate samples, and
- control samples/matrix spike blanks.

The laboratory will be responsible for performing what is necessary for complying with appropriate standards and certifications of the selected EPA method and ASP requirements. The laboratory quality control acceptance criterion is method specific and will be the laboratory's responsibility to meet the most recent ASP criteria.

4.0 SAMPLING PROCEDURES

Procedures for sampling are presented in the Field Sampling Plan (FSP) and include the following:

- Selection of sampling sites and media to be sampled,
- specific sampling procedures for each environmental media to be sampled, and for QC samples to be taken,
- field soil screening procedures,
- a description of the containers, procedures and equipment used for sample collection, preservation, transport and storage,
- procedures for preparing the sample containers and sampling equipment prior to sampling and decontamination of sampling equipment during sampling,
- chain of custody procedures and forms, and
- description of the procedures, forms and notebooks to be used to document sampling activities, sample conditions and field conditions.

5.0 SAMPLE CUSTODY

Proper chain of custody will be established and maintained through a series of steps, beginning in the field and ending with final disposition of the analyzed sample(s). At the time of the field sampling, an external chain of custody form will be utilized to track sample collection until delivery to the analytical laboratory. An internal or "intra-laboratory" chain of custody will be used by laboratory personnel to track the sample(s) from the point it is received/logged and passed through the laboratory process. Chain of custody procedures are discussed in Section 8.0 the FSP.

6.0 CALIBRATION PROCEDURES

Calibration procedures for field equipment including the photo-ionization detector (PID) meter and dust monitors are presented in Section 7.0 of the FSP. Calibration procedures for laboratory equipment/instrumentation consist of the production and use of current certifiable standards and the measurement/adjustment of the instrument response. The laboratory is responsible for maintaining records documenting use of current standards and acceptable instrument responses. The laboratory is required to flag analytical data that has had potential contamination or poor instrument calibration that may have occurred during the analytical process.

7.0 SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

The analytical parameters, sample preparation and analysis methods, acceptable holding times and required method detection limits are presented in Table 2. The analytical methods specified reflect the requirements of the most recent NYSDEC ASP.

Table 2
Analytical Methods and Requirements

Analytical Parameters	EPA Method	Holding Times(1)	Contract Required Quantitative Limits (as noted)(2)
TCL Volatile Organic Compounds (VOCs)	8260	Soil: 7 Days to Analysis (cool to 4° C). Water: 5 Days Unpreserved to Analysis, 12 Days Preserved (HCl to pH<2) to Analysis.	10-100 ug/kg (Soil) 1 to 10 ug/l (Water)
TCL Semi-Volatile Organic Compounds	8270	5 Days to Extraction, 40 Days to Analyze	330 to 800 ug/kg (Soil) 10-25 ug/l (Water)
TCL Pesticides	8081	5 Days to Extraction, 40 Days to Analyze	1.7 to 170 ug/kg (Soil) 0.05-1 ug/l (Water)
TCL PCBs	8082	5 Days to Extraction, 40 Days to Analyze	33 to 67 ug/kg (Soil) 0.5-1 ug/l (Water)
TAL Metals	6010/7000 Series	180 Days except for Mercury (26 Days)	0.3 to 500 mg/kg (Soil) 3 to 5,000 ug/l (Water)
Cyanide	9010C/9012B	12 Days	1 mg/kg Soil) 10 ug/l (Water)
TCLP VOCs	1311/8260	7 Days to Extraction, 7 Days to Analyze	10ug/l
TCLP SVOCs	1311/8270	7 Days to Extraction, 7 Days to Analyze	5 to 100 ug/l
TCLP Chlorinated Pesticides & PCBs	1311/8081	7 Days to Extraction, 7 Days to Analyze	0.5 to 100 ug/l
TCLP Herbicides	1311/8151	7 Days to Extraction, 7 Days to Analyze	7 to 12 ug/l

TCLP Metals	1311/6010B	180 Days to Extraction, 180 Days to Analyze	50-10,000 ug/l
TCLP Mercury	1311/7470A	5 Days to Extraction, 28 Days to Analyze	50 ug/l
Hexavalent Chromium	1311/7196A	30 Days to Analyze	1,000 ug/kg (Soil)
Corrosivity (pH)	9040C	24 Hours	Not Applicable
Ignitability	1010A/1020B	Not Applicable	Not Applicable
Total Petroleum Hydrocarbons (TPH) including DRO and GRO	8015B	14 Days	5 to 10 mg/kg (Soil)

Note:
1) Holding times are relative to the verifiable time of sample receipt at the laboratory.
2) The listed method detection limits are practical quantitation limits (PQLs). The method detection limit (MDL) is the best possible detection. Laboratories report PQLs which are typically 4 times the MDL for liquids and varies for solids depending on the quantity of contamination present. Efforts will be made to obtain the lowest possible detection limit. When the guidance value or standard value is below the detection limit, achieving the detection limit will be considered acceptable for meeting that guidance or standard value.

Where matrix interference is noted, analytical clean-ups will be required to be performed by the laboratory following the procedures specified in SW-846 or the most current NYSDEC ASP, as applicable. In general, samples shall not be diluted more than 1 to 5.

8.0 DATA REDUCTION, VALIDATION AND REPORTING

The field measurement data and the laboratory analyses results of detected parameters will be compiled and tabulated to facilitate comparison and evaluation, and will be included in the final report(s). The tabulated data will include at a minimum:

- soil analysis results,
- treated groundwater analysis results, and
- quality control results (equipment/field blanks, replicates/duplicates).

Field logs will also be compiled and included, in part, in the text and appendices of the final report(s), and will consist of:

- test pit logs,
- organic vapor headspace analysis logs, and
- environmental services field logs.

Observations or problems encountered during field activities which could affect the quality of the data or its validity will be noted on the appropriate field log.

The laboratory will generate ASP Category B Data Deliverable Package(s) for the Remedial Action confirmatory post-excavation soil samples analytical results that may be submitted as a separate volume to the final report(s). It will include analytical results and quality control data deliverables as required by the most recent NYSDEC ASP. ASP Category B Data Deliverable Package(s) for the waste characterization and imported fill samples are not required. ASP Category A Data Deliverables will be provided for the waste characterization and imported fill samples.

Internal data validation will be performed by the laboratory QA officer to ensure that the data package is complete and meets the criteria of the RAWP and this QAPP. Any problems encountered in performing the analyses by the laboratory such as out of limits surrogate recoveries, and comments on the quality and limitations of specific data and the validity of the data will be described in the case narrative of the laboratory report.

External data validation will be performed by Environmental Data Services, Inc. who will utilize the USEPA National and Regional Validation Guidelines/Procedures and the NYSDEC Guidance in the Development of Data Usability Summary Reports to determine the applicable qualifications of the data. The validator will then prepare a NYSDEC Data Usability Summary Report (DUSR) in accordance with NYSDEC guidelines. The data validator will not be involved in any other portions of the project. The selected data validator's qualifications and work experience is included Appendix B. The NYSDEC DUSR guidance is presented in Appendix C for reference.

9.0 INTERNAL QUALITY CONTROL

Field QC will consist of taking equipment/field blanks and replicate samples. Field instrumentation will also be calibrated prior to use and the calibration maintained as discussed in the FSP (Section 7.0).

Internal laboratory QC will generally consist of:

- Method (instrument) blanks,
- initial and continuing calibrations,
- surrogate spikes,
- matrix spikes/matrix spike duplicates,
- duplicate samples, and
- laboratory control samples/matrix spike blanks.

The QC samples will be run in accordance with the protocols and frequencies specified in the NYSDEC ASP, SW-846 and EPA Methods as applicable for the analyses being performed.

10.0 PERFORMANCE AND SYSTEMS AUDITS

10.1 Field Audits

Field performance audits will consist of taking replicate samples and equipment/field blanks and analyzing them for the same parameters as other samples.

Field system audits will be conducted during field operations to ensure that the field activities are being conducted correctly and in accordance with the scope of work. The project field supervisor will check that the field instrumentation is calibrated prior to use, that field measurements are taken correctly, that equipment is properly decontaminated, and that the field activities are properly documented. Any deficiencies will be reported to the project manager and discussed with the field staff immediately and corrective action taken. The person conducting the field audits will document the field system audits by use of a field report and submit the report to the project manager for review on a bi-weekly basis at a minimum. The project quality assurance officer, scientist/geologist/engineer or project manager will conduct system audits as appropriate or warranted.

The project manager will review the field system audit reports and the field documentation for completeness and correctness, and check that the work is proceeding on schedule and in accordance with the work plans.

10.2 Laboratory Audits

Laboratory system audits are not required if the laboratory maintains New York State Department of Health (NYSDOH) Environmental Laboratory Accreditation Program (ELAP) certification. The laboratory selected for this project will be ELAP certified and a copy of the laboratory ELAP certification documentation will be provided. Part of this certification process typically includes periodic performance evaluations and on-site systems audits.

11.0 PREVENTATIVE MAINTENANCE

C.T. Male Associates keeps an inventory of all field equipment and it is kept locked in a designated area. The field equipment is signed out when in use and its condition checked upon its return. The equipment is kept in good working order and frequently checked and calibrated by qualified employees. Additionally, select equipment (i.e., PID) is routinely serviced for cleaning and calibration by an independent repair facility.

The project geologist/engineer/scientist and field sampler are responsible for assuring that the field equipment is tested, cleaned, charged and calibrated in accordance with the manufacturer's instructions prior to taking the equipment out into the field.

12.0 DATA ASSESSMENT PROCEDURES

The field and laboratory generated data will be assessed for precision, accuracy, representativeness, completeness, and comparability (PARCC parameters). Both quantitative and qualitative procedures will be used for these assessments.

The criteria for assessment of field measurements will be that the measurements were taken in accordance with the procedures specified in the FSP using calibrated instruments. Assessment of the sampling data with respect to field performance will be based on the criteria that the samples were properly collected and handled. Field replicate and equipment/field blank sample results will be used in assessing the sampling technique and representativeness of the samples collected.

The laboratory will calculate and report the precision, accuracy, and completeness of the analytical data. Precision will be expressed as the relative percent difference (RPD) between values of duplicate samples. Accuracy will be expressed as percent difference (PD) for surrogate standards and matrix spike compounds. Completeness is a measure of the amount of valid data derived from a set of samples based on the total amount expected to be derived under normal conditions. The precision and accuracy results will be compared to the QC acceptance criteria specified for each test method in the most recent NYSDEC ASP.

The representativeness of the analysis is dictated primarily by the field sampling technique and sample location, as opposed to laboratory operations. The laboratory will take steps to ensure that the analysis is representative of the sample being submitted. The criteria for ensuring representativeness of the analysis are careful aliquot selection and proper compositing techniques. Laboratory performance will be based on the criteria that the samples were properly handled prior to submission to the laboratory, that the laboratory aliquots taken for analysis are representative (i.e., oversized particles discarded, sample thoroughly mixed except when dealing with volatile organics), that the samples were analyzed within holding times, and that no cross-contamination has occurred based on the method blank results. Data comparability will be assessed based on analyses being performed within required holding times, on consistent units of measure, and that analyses were performed in strict adherence with NYSDEC and EPA analytical methods/protocols.

13.0 CORRECTIVE ACTIONS

The work will be performed in accordance with the approved RAWP, the contents of the approved FSP and the approved QAPP. Any persons identifying unacceptable conditions or deficiencies in the work being performed such as deviation from or omission of health and safety procedures, sampling procedures or other field procedures, will immediately notify the project field supervisor, where applicable, and the project manager. The unacceptable conditions or deficiencies will be documented and submitted to the project manager. The project manager, with assistance from the technical quality review staff, if necessary, will be responsible for developing and initiating appropriate corrective action, documenting the corrective action and verifying that the corrective action has been effective.

Depending on the significance and potential impact of the problem or deficiency requiring corrective action, the NYSDEC and 188 Warburton Limited Partnership will be notified, as warranted, as soon as practical after becoming aware of the situation.

14.0 QUALITY ASSURANCE REPORTS TO MANAGEMENT

Field system audit/field reports from the project team, where applicable, will be submitted to the project manager on a bi-weekly basis at a minimum. The field report will include the project name, location, time, date, weather, temperature range, work in progress, conformance with schedule, persons present at the Site (arrival and departure times), observations, work start-up and stoppage, items to verify, information or action required, any attachments identified, and the reporting persons signature. The field report notifies the management as to the progress, conformance with the work plan, and any problems that may affect quality control. Field personnel will also keep log books and field notebooks that will discuss day to day procedures followed, any problems encountered, etc. A copy of the field notes will be given to the project manager at least bi-weekly to keep the project manager informed of the project status and as a quality control check. The project manager will review the reports and field notes to assess the quality of the data gathering efforts to make sure the objectives of the work are being met, to make sure the work is progressing on schedule, that the work is being conducted in accordance with the work plan, and that any problems encountered are addressed. These reports will be utilized in assessing the data quality with respect to field activities and the findings will be discussed in the final report(s) where applicable.

Documentation of each phase of the project and all work tasks performed are kept in the file on the project. The documentation is available at all times for review by the Quality Assurance Officer, who will randomly check files for their completeness.

If any occurrences or conditions are encountered during the course of work that may require a change in the scope of work or departure from the approved work plan, the NYSDEC will be notified and the situation reported as soon as possible.

APPENDIX A
Laboratory Certifications

APPENDIX B

Data Validator Qualifications and Experience

APPENDIX C

Guidance for the Development of Data Usability Summary Reports