Fw: Black Leaf Removal QAPP/SSP - Revision 0

Katrina Jones to: Debbie Jourdan 09/12/2011 04:31 PM

----- Forwarded by Katrina Jones/R4/USEPA/US on 09/12/2011 04:30 PM -----

From:	Stacey DeLaReintrie <SDeLaReintrie@otie.com>
To:	Art Smith/R4/USEPA/US@EPA
Cc:	Katrina Jones/R4/USEPA/US@EPA, Darryl Walker/R4/USEPA/US@EPA, Greg Kowalski <GKowalski@otie.com>
Date:	09/12/2011 04:23 PM
Subject:	Black Leaf Removal QAPP/SSP - Revision 0

Hi Art,

The Quality Assurance Project Plan (QAPP) and Site Sampling Plan (SSP), Revision 0, for the Black Leaf Removal Investigation site is attached. Please contact me at (678) 255-7764 if you have any questions or comments regarding the QAPP. I have also attached the Word version without the figures if you would like to make edits or comments.

Regards,

Stacey DeLaReintrie, CHMM
Senior Scientist

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Engineering, Science and Construction

Black Leaf Removal QAPP_Rev_0.pdf Black Leaf Removal QAPP_Rev_0.doc

QUALITY ASSURANCE PROJECT PLAN / SITE SAMPLING PLAN

BLACK LEAF CHEMICAL REMOVAL INVESTIGATION LOUISVILLE, JEFFERSON COUNTY, KENTUCKY

Revision 0

Prepared for:

U.S. ENVIRONMENTAL PROTECTION AGENCY
Region 4
61 Forsyth Street
Atlanta, Georgia 30303

Prepared by:

Oneida Total Integrated Enterprises
1220 Kennestone Circle, Suite 106
Marietta, Georgia 30066

Contract No.	:	EP-W-05-053
Task Order No.	:	TNA-05-003-0145
Date Submitted	:	September 12, 2011
EPA Task Monitor	:	Art Smith
Telephone No.	:	502-582-5161
Prepared by	:	Stacey DeLaReintrie
Telephone No.	:	678-255-7764

REVIEWS AND APPROVALS

CLIENT NAME: U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 4
CONTRACT NO.: EP-W-05-053
TECHNICAL DIRECTION DOCUMENT NO. TNA-05-003-0145
QUALITY ASSURANCE PROJECT PLAN / SITE SAMPLING PLAN
BLACK LEAF CHEMICAL
REMOVAL INVESTIGATION
LOUISVILLE, JEFFERSON COUNTY, KENTUCKY

We the undersigned have read and approve of the quality assurance guidelines presented in this Quality Assurance Project Plan/Site Sampling Plan for work activities at the Black Leaf Chemical Removal Investigation site in Louisville, Jefferson County, Kentucky

Prepared by:

Stacey DeLaReintrie
START Project Manager

Approved by:

Limari Krebs
START Quality Assurance Manager

Art Smith
EPA Task Monitor/Quality Assurance Manager

SECTION A: Project Planning Elements		
A1. Title (*Project Name*):	Removal Investigation of the Former Black Leaf Chemical	
Project Location:	1391 Dixie Highway, Louisville, Jefferson County Kentucky	
Originating Organization:	Oneida Total Integrated Enterprises (OTIE)	
Project Manager's Name, Position, & Organization:	Stacey DeLaReintrie, Sr. Scientist, Oneida Total Integrated Enterprises (OTIE)	
Project Manager's Signature:		Date:
EPA Project Manager's Name and Position:	Art Smith, On-Scene Coordinator, Emergency Response and Removal Branch, Superfund Division, US EPA Region 4	
EPA Project Manager's Signature:		Date:
A2. Table of Contents	N/A	
A3. Distribution List	Mr. Art Smith, EPA Project Manager Ms. Katrina Jones, EPA Project Officer Mr. Darryl Walker, EPA Project Officer	
A4. Project Personnel	**Organization**	**Responsibilities**
Stacey DeLaReintrie	Oneida Total Integrated Enterprises (OTIE) US EPA START Contractor	Project Manager/ Field Team Leader/Sr. Scientist
Comments: An OTIE organizational chart is attached (Figure 1)		
A5. Background:	See KDWM's SAP	
A6. Project Description:	START anticipates collecting approximately 12 surface soil grab samples. All samples will be analyzed for organochlorine pesticides, arsenic, and lead.	
Problem Statement:	The site is a former chemical manufacturing facility. Previous investigations conducted at the site revealed elevated levels of pesticides, arsenic and lead in surface soils on-site. Based on these results, further assessment to delineate the horizontal extent of soil contamination is necessary to determine an adequate contaminant removal plan. In addition this investigation will focus on determining whether additional soil sampling is needed at adjacent off-site properties.	
Decision(s):	The decisions are for Removal Investiagtion purposes to: • Determine whether pesticides, arsenic, and lead contamination is present at or near the surface along the northern perimeter of the site at concentrations exceeding the regulatory levels. • Determine whether additional soil sampling is needed at adjacent off-site properties. Based on the laboratory findings, the Project Manager will complete a Removal Investigation report for evaluation of the site.	

Applicable Regulatory Levels	EPA Region 4 Removal Actions Levels (RALs) for Residential and Worker soil.
Decision Inputs:	Results used in the decision-making process will come from laboratory analytical results for organochlorine pesticides, total arsenic, and total lead. Laboratory analysis of soil samples collected will be performed by Gulf Coast Analytical Laboratory, an EPA-approved private laboratory.

PROJECT TARGET PARAMETERS, REPORTING LIMITS, AND COMPARISON VALUES

Analyte	Cas No	Residential RSL	Industrial RSL	Residential RAL	Worker RAL	RL Soil	MDL Soil
Chlorinated Pesticides (SW846-8081D) (ug/kg)							
4,4'-DDD	72-54-8	2000	7200	202000	798000	1.7	0.546
4,4'-DDE	72-55-9	1400	5100	143000	563000	1.7	0.238
4,4'-DDT	50-29-3	1700	7000	172000	781000	1.7	0.59
Aldrin	309-00-2	29	100	2860	11300	1.7	0.251
alpha-BHC	319-84-6	77	270	NL	NL	1.7	0.214
alpha-Chlordane	5103-71-9	NL	NL	NL	NL	1.7	0.323
beta-BHC	319-85-7	270	960	NL	NL	1.7	0.664
delta-BHC	319-86-8	NL	NL	NL	NL	1.7	0.401
Dieldrin	60-57-1	30	110	3030	12000	1.7	0.21
Endosulfan I	115-29-7	370000	3700000	3750000	12300000	1.7	0.176
Endosulfan II	891-86-1	NL	NL	NL	NL	1.7	0.287
Endosulfan sulfate	1031-07-8	NL	NL	NL	NL	1.7	0.276
Endrin	72-20-8	18000	180000	187000	6160	1.7	0.306
Endrin aldehyde	7421-93-4	NL	NL	NL	NL	1.7	0.171
Endrin ketone	53494-70-5	NL	NL	NL	NL	1.7	0.489
gamma-BHC (Lindane)	58-89-9	520	2100	NL	NL	1.7	0.464
gamma-Chlordane	5566-34-7	NL	NL	NL	NL	1.7	0.266
Heptachlor	76-44-8	110	380	10800	42600	1.7	0.214
Heptachlor epoxide	1024-57-3	53	190	5330	21000	1.7	0.426
Methoxychlor	72-43-5	310000	3100000	3120000	10300000	3.3	0.45
Toxaphene	8001-35-2	440	1600	44100	174000	67	15.8
Metals, Total (6010B) (mg/kg)							
Arsenic	7440-38-2	0.4	1.6	40	180	2	0.66
Lead	7439-92-1	400	800	NL	NL	0.8	0.27

Notes:
MDL - Minimum Detection Limit
mg/kg - Milligrams per kilogram
NL - Not listed
RAL - Region 4 Removal Action Levels
RL - Reporting Limit
RSL - EPA Regional Screening Levels
ug/kg - Micrograms per kilogram

Study Boundaries:	The media of interest is onsite surface soils immediately north of the site. • The study area at the site is shown in Figure 2. It includes the on-site northern perimeter boundary and off-site location in the right-of-way immediately north or the perimeter boundary • Surface soil samples will be collected from 0 to 1 feet below ground surface (bgs).
Field Study Date	September 19 - 23, 2011
Projected Lab Completion Date	7 days following laboratory receipt of samples.
Final Report Completion Date	30 days following Project Manager's receipt of final data.
Decision Rule:	The primary decision in the Data Quality Objectives (DQO) process for the site is: (1) Do surface soil laboratory sample results indicate contamination within the study areas as compared to the associated RALs? Soil samples collected will be submitted to Gulf Coast Analytical Laboratory (GCAL) in Baton Rouge, LA for chlorinated pesticide analysis by SW846-8081D, and total arsenic and total lead analysis by SW846-6010C.
Error Limits:	This sampling effort is designed to sample in areas of suspected contamination based on evidence gathered during previous investigations and former operations at the site. Random and systematic errors could be introduced during sample collection, sample handling and storage, sample analysis and data reduction. The quality control (QC) measures set forth in this QAPP/SSP and the specific analytical methods will serve to minimize these errors. QC samples will be used to monitor the accuracy and precision of the sampling activity as well as the analytical process. Data validation will document and qualify results outside the laboratory control limits.
Optimize Sampling Design:	The data collection activities will focus on identifying the presence or absence of contamination in the study area. Section B1 will describe the surface soil, sediment, and surface water sampling design in detail.

A7. Measurement Quality Objectives and Criteria

Accuracy:	Accuracy of the field sample collection procedures ensures that samples are not affected by sources external to the sample, such as sample contamination by ambient conditions or inadequate equipment decontamination procedures. Field sampling accuracy will be assessed by the data from equipment blank samples. Equipment blank samples will be analyzed to check procedural contamination and/or ambient conditions and/or sample container contamination at the site that may cause sample contamination. Accuracy also will be ensured by adhering to all sample handling procedures, sample preservation requirements, and holding time periods.

	Laboratory accuracy is assessed through the analysis of System Monitoring Compounds (SMC), Laboratory Control Samples (LCS), Matrix Spikes (MS), Matrix Spike Duplicates (MSD), or Standard Reference Materials (SRM) and the determination of percent recoveries (%R). SOPs for laboratory analyses will contain the required accuracy, precision, sensitivity of the analyses.
Precision:	Precision is defined as degree to which a set of observations or measurements of the same property, obtained under similar conditions, conform to themselves. Laboratory and field precision will be assessed through the calculation of the relative percent difference (RPD) and relative standard deviation (RSD) for three or more replicate samples. RPDs of 30 percent and 50 percent for water and soil sample field duplicates, respectively, will be used as advisory limits for analytes detected in both the investigative and field duplicate samples at concentrations greater than or equal to five times its quantitation limit. Precision control limits are included in the laboratory's SOPs.
Completeness:	Completeness is the amount of data collected as compared to the amount needed to ensure that the uncertainty or error is within acceptable limits. It is the ratio of the number of valid sample results to the total number of samples analyzed with a specific matrix and/or analysis. The goal for data completeness is 99%.
Representativeness	Representativeness is the degree to which data accurately and precisely represent a characteristic of a population. This is a qualitative assessment and is addressed primarily in the sample design, through the selection of sampling sites and procedures that reflect the project goals and environment being sampled. It is ensured in the laboratory through (1) the proper handling, homogenizing, compositing, and storage of samples and, (2) analysis within the specified holding times so that the material analyzed reflects the material collected as accurately as possible.
Sensitivity	Sensitivity is the capability of a test method or instrument to discriminate between measurement responses representing different levels (e.g., concentrations) of a variable of interest. Field screening equipment sensitivity will be monitored using the NIST SRM checks at the beginning and end of each day. The laboratory selected for analyzing the samples collected during this field investigation will evaluate and monitor its method and instrument sensitivity through the development of the laboratory MDLs and RLs. All environmental data will be reported to the analyte's laboratory-specific method detection limit (MDL); i.e., positive results below the RL, but greater than the MDL, will be reported by the laboratory and flagged as estimated (J). MDLs will be adjusted on a sample-by-sample basis, as necessary, based on dilutions, sample volume, and percent moisture.

Level of Quality Control Effort:	Several QC samples will be analyzed for this project to provide a means to assess field and laboratory performance. Field QC samples consist of field duplicates and equipment rinsate blanks. Laboratory QC samples include MS/MSD, LCS, and Performance Evaluation Samples. The level of QC effort provided by the laboratory will be equivalent to the level of QC effort specified under the contract laboratory program (CLP) for the Routine Analytical Service parameters to be tested. All data packages submitted to START will be Level II. SW-846 methodologies will be utilized for the scope of work for this project.

A8. Special Training/Certifications

Documented training is required for each individual performing activities supporting environmental data collection or analysis. The OTIE Human Resources (HR) Department maintains an individual file for each OTIE employee which includes training records.

Individuals implementing this QAPP/SSP must receive, at a minimum, orientation to the project's purpose, scope, and methods of implementation. This orientation is the responsibility of the START PM or designee. Any field team members involved with sample collection or handling will have received 40-hour hazardous waste operations and emergency response (HAZWOPER – 29 CFR 1910.120) training. The Site Safety Officer (SSO) will have received 8-hour supervisor training course (HAZWOPER – 29 CFR 1910.120) and any other safety-related training defined in the project HASP.

A9. Documents and Records

This section defines the specific records and data that must be maintained for each field activity to ensure that samples and data are traceable and defensible. Field data reporting shall be conducted principally through the transmission of the information written in bound, paginated field logbooks to provide a secure record of field activities; and data sheets containing tabulated results of measurements made in the field. All field records and documentation must comply with the documentation requirements defined in the SESD FBSQTP Logbooks (SESDPROC-010-R3).

SCHEDULE OF DELIVERABLES

DELIVERABLE	DUE DATE
MPR	25th of every month
QAPP/SSP, Rev. 0	September 9, 2011
Removal Investigation Report, Rev. 0	30 days after receipt of final analytical results
Removal Investigation Report, Rev. 1	30 days after receipt of EPA comments

Notes:

MPR – Monthly Progress Reports
QAPP/SSP – Quality Assurance Project Plan/ Site Sampling Plan
Rev. – Revision

SECTION B: Data Generation and Acquisition

B1. Sampling Design

An authoritative sampling design was chosen based on the data quality objectives of the study.

On-site Soil Sampling

On-site soil sampling will be conducted at 12 locations on site or in the right-of-way immediately north of the property boundary to identify whether site contaminants have migrated to adjacent areas of the site and to determine if additional sampling is warranted in adjacent off-site properties.

START anticipates submitting approximately 12 samples (excluding quality control samples) to an EPA-approved laboratory for total arsenic and lead analysis by EPA Method SW846-6010C and chlorinated pesticides by Method SW846-8081D.

SAMPLE IDENTIFICATION, ANALYTICAL METHODOLOGY, SAMPLE CONTAINERS, AND PRESERVATIVES FOR SAMPLES

Sample ID	Location	Matrix	Analysis EPA Method	Sample Container	Preservative
BLC-SS-40 thru BLC-SS-52;	On-site along Northern Property Boundary	Soil	Pesticides SW846-8081D	One 8-oz glass jar	Cool to 4 °C
			Arsenic/Lead SW846-6010C	One 8-oz glass jar	Cool to 4 °C
BLC-SS-53 and BLC-SS-54	Duplicate Samples	Soil	Pesticides SW846-8081D	One 8-oz glass jar	Cool to 4 °C
			Arsenic/Lead SW846-6010C	One 8-oz glass jar	Cool to 4 °C
BLC-RS-01	QC Sample	QC Water	Pesticides SW846-8081D	Two 1-Liter amber bottles	Cool to 4 °C
			Arsenic/Lead SW846-6010C	One 1- Liter poly bottle	HNO_3 to pH <2 Cool to 4 °C

Notes:

BLC – Black Leaf Chemical
HNO_3 – Nitric acid
mL – Milliliter
oz – Ounce
RS – Rinsate Sample
SS – Surface Soil

Maps or Diagrams with sample locations: See Figure 2.

B2. Sampling Methods, General Procedures

Soil sampling will be conducted to determine the extent of contamination along the northern property boundary of the site. A maximum of 12 samples will be collected as part of this Removal Investigation. Soil samples will be collected in accordance with FBQSTP Soil Sampling (SESDPROC-300-R1). One grab surface soil sample will be collected from a depth of 0-2 foot bgs from each sample location. Soil samples will be submitted for laboratory analysis of lead and arsenic by Method SW846-6010C and chlorinated pesticides by Method SW846-8081D.

Approximately four additional QA/QC samples including blanks, spikes, and duplicates will be collected

as required in FBQSTP Field Sampling Quality Control (SESDPROC-011-R2). All samples collected will be immediately preserved in accordance with FBQSTP Sample and Evidence Management (SESDPROC-005-R1) guidelines. The GPS will be handled in accordance with the FBQSTP Global Positioning System procedure (SESDPROC-110-R2). All equipment will be handled in accordance with the FBQSTP Equipment Inventory and Management procedure (SESDPROC-108-R2).

List of sampling equipment:

- Handheld GPS - Trimble GeoXT
- Stainless steel bowls and spoons
- Hand Auger

List of Sampling Supplies
Stainless Steel Bowls
Stainless Steel Scoop/spoons
Ziploc baggies
Nitric acid preservative
1 Liter Ultra Pure Water (12)
Coolers
Ice
Strapping tape
Custody Seals
Chain of Custody
Sample Jar labels
Vermiculite

Decontamination Supplies
Buckets
Brushes
Garden Sprayers
Water
Aluminum foil
Distilled water
Paper towels

PPE
Nitrile gloves
hand sanitizer
hand soap
water
insect repellent
hand wipes
sunscreen

Equipment
Camera
Logbooks

Any Investigation Derived Wastes (IDW) will be properly disposed of according to best management practices and regulatory requirements.

B3. Sampling Handling and Custody

All samples will be handled and custody maintained in accordance with the SESD *Operating Procedure for Sample Evidence Management*, SESDPROC-005-R1.

The following activity procedures will be followed during field sampling:

- Field Sampling Quality Control SESDPROC-011-R2
- Packing, Marking, Labeling, and Shipping of Environmental and Waste Samples SESDPROC-209-R1

B4. Analytical Methods

SW846-:	Soil samples will be submitted to a private laboratory for analysis of chlorinated pesticides and select metals. All samples will be analyzed according to the methods outlined in Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW-846) and Methods for Chemical Analysis of Water and Wastes. • Organochlorine pesticides will be solvent extracted from the solid/aqueous sample, separated by gas chromatography (GC), and detected using an electron capture detector. • Select metals will be analyzed by ICP/AES. During the ICP procedure, samples are digested prior to analysis. The digestate is then analyzed. The basis of the method is the measurement of atomic emission by an optical spectroscopic technique. Samples are nebulized and the aerosol that is produced is transported to the plasma torch where excitation occurs. Characteristic atomic-line emission spectra are produced by a radio frequency. The spectra are dispersed by a grating spectrometer and the intensities of the emission lines are monitored by photomultiplier tubes. The photocurrents from the photomultiplier tubes are processed and controlled by a computer system.

B5. Quality Control

Field:	All equipment will be handled in accordance with the FBQSTP Equipment Inventory and Management procedure (SESDPROC-108-R2). Field precision is assessed through the collection and measurement of field duplicates at a rate of one duplicate per 10 analytical samples or, at a minimum, one per site. These analyses measure both field and laboratory precision. The results, therefore, may have more variability than laboratory duplicates that measure only laboratory performance. **Matrix Spike/Matrix Spike Duplicate** Samples for laboratory QC analyses such as the MS/MSD will be designated as specified in SESDPROC-011-R2. One MS/MSD sample will be designated for every 20 samples submitted to the private laboratory. START anticipates designating one soil sample for MS/MSD analysis.

	Duplicate Samples Field duplicates will be collected and analyzed for chemical constituents to measure the cumulative uncertainty (i.e., precision) of the sample collection, splitting, handling, storage, preparation and analysis operations, as well as natural sample heterogeneity that is not eliminated through simple mixing in the field. Field duplicates are two samples prepared by mixing a volume of sample and splitting it into two separate sample containers that are labeled as individual field samples. Co-located duplicate samples will be collected at 10% of the soil sample locations. Following collection of the initial sample, the duplicate sample will be re-collected from the same location using clean equipment. Field duplicates are labeled as individual environmental samples and are not identified to the laboratory as duplicate samples. The duplicate sample will be identified with a sequential sample number and identified on the regional copy of the chain of custody so that there is no indication to the laboratory that the sample is a duplicate. The sample will be submitted to the private laboratory for analysis along with the other soil samples collected during the investigation. START anticipates collecting two soil field duplicate samples. **Rinsate Blank** Equipment blank samples will be collected at a frequency of one per 20 or fewer sampling equipment decontamination procedures. Equipment blank samples, collected by routing deionized water (for inorganic analyses), or organic-free water (for organic analyses) through decontaminated sampling equipment, will be analyzed to check procedural contamination and/or ambient conditions and/or sample container contamination at the site that may cause sample contamination. One rinsate blank will be collected during this investigation.
Laboratory:	The analytical laboratory will have a QC program to ensure the reliability and validity of the analyses performed at the laboratory. The laboratory's QC Plan will describe the policies, organization, objectives, QC activities, and specific QA functions used by the laboratory. All analytical procedures are documented in writing in writing as SOPs and each SOP will include a QC section that addresses the minimum QC requirements for the procedure. The internal QC checks might differ slightly for each individual procedure but in general the QC requirements include the following elements: • Field/Trip blanks • Method blanks • Reagent/preparation blanks (applicable to inorganic analysis) • Instrument blanks • Calibration verifications • MS/MSDs • Surrogate (or SMC) spikes • Analytical spikes • Field duplicates • Laboratory duplicates • Laboratory control standards

	• Internal standard areas for GC/MS analysis; control limits • Mass tuning for GC/MS analysis Data obtained will be properly recorded. The data package will include a full deliverable package capable of allowing the recipient to reconstruct QC information and compare it to QC criteria. The laboratory will reanalyze any samples analyzed in nonconformance with the QC criteria, if sufficient volume is available. It is expected that sufficient volumes/weights of samples will be collected to allow for reanalysis when necessary.

B6. Instrument/Equipment Testing, Inspection and Maintenance

All equipment will be handled in accordance with the FBQSTP Equipment Inventory and Management procedure (SESDPROC-108-R2).

B7. Instrument/Equipment Calibration and Frequency

All equipment will be calibrated according to the manufacture's instructions. In addition, all equipment will be handled in accordance with the FBQSTP Equipment Inventory and Management procedure (SESDPROC-108-R2).

Field Equipment

Field instrumentation will be operated and calibrated according to the manufacturers' specifications. Field equipment calibration will be completed according to the frequency schedule outlined by the equipment manufacturer. In addition, a label specifying the scheduled date of the next calibration will be attached to each piece of field equipment. If this identification is not feasible, then calibration records for the equipment will be readily available for reference. Should any of the field equipment become inoperable, it will be removed from service and tagged to indicate that repair, recalibration, or replacement is needed. Calibration documentation procedures, at a minimum, will include the following:

- Entries to the field logbooks will be made at least daily whenever the instrument is in use; and,
- Calibration records that include: Calibrator's name; Standard(s) used; Date/time of calibration; and Corrective actions taken

The Marietta, Georgia START office will be notified so that prompt service or substitute equipment can be obtained. Backup systems will be available for each instrument in use and will be calibrated prior to use in the field.

Laboratory Instrument Calibration

Calibration procedures for a specific laboratory instrument will consist of initial calibration (3- or 5-points), initial calibration verification (ICV) and continuing calibration verification (CCV). The SOP for each analysis performed in the laboratory describes the calibration procedures, their frequency, acceptance criteria and the conditions that will require recalibration. In these cases, the initial calibration will be verified using an independently prepared calibration verification solution. The laboratory maintains a sample logbook for each instrument which will contain the following information: instrument identification, serial number, date of calibration, analyst, calibration solutions run and the samples associated with these calibrations. Calibration of laboratory equipment will be based on approved written procedures. Records of calibration, repairs, or replacement will be filed and maintained by the designated laboratory personnel performing QC activities. These records will be filed at the location where the work is performed and will be subject to QA audit. For the applicable instruments, the laboratory will maintain a factory-trained repair staff with in-house spare parts or will maintain service contracts with vendors. The

records of calibration will be kept as follows:

- A label will be affixed to each instrument showing description, manufacturer, model numbers, date of last calibration, by whom calibrated (signature), and due date of next calibration reports and compensation or correction figures will be maintained with instrument;
- A written stepwise calibration procedure will be available for each piece of test and measurement equipment; and
- Any instrument that is not calibrated to within the manufacturer's original specification will display a warning tag to alert the analyst that the device carries only a "Limited Calibration".
- Calibration dates are recorded on logsheets or electronically by data processing systems

All analyses will be governed by the appropriate laboratory SOPs, and appropriate calibration procedures and frequencies can be found in each SOP.

Pesticide Analysis by Methods 8081

Prior to analysis using the Gas Chromatograph (GC), the instrument is calibrated using a five-point calibration curve. Single point calibration is used for multi-component pesticides (typically toxaphene and technical chlordane). For multi-component analytes, the mid level standard must be analyzed as part of the initial calibration. This single point calibration is used to quantitate multi-component analytes. The analyst may include a full five-point calibration for any of the multi-component analytes with the initial calibration. The 12 hour calibration verification sequence must be analyzed within 12 hours of the start of the initial calibration and at least once every 12 hours thereafter if samples are being analyzed. If more than 12 hours have elapsed since the injection of the last sample in the analytical sequence, a new analytical sequence must be started with a 12 hour calibration. A mid level calibration standard is used for the 12 hour calibration. The AB calibration mix is analyzed as the continuing calibration standard. At a minimum, this is analyzed after every 20 samples, including MS, laboratory control standards (LCS), and method blanks. If 12 hours lapse, the 12 hour standard sequence will be analyzed instead. The continuing calibration standard need not include multi-component analytes.

Metals Analysis by Method 6010B

The Inductively Coupled Plasma (ICP) emission spectrophotometer instruments are calibrated by use of a minimum of three calibration standards prepared by dilution of certified stock solutions. An analysis blank is prepared with one calibration standard at the quantitation limit for the metal. The other standards bracket the concentration range of the samples. Calibration standards will contain acids at the same concentration as the digestates. A continuing calibration standard, prepared from a different stock solution than that used for preparation of the calibration standards, is prepared and analyzed after each ten samples or each two hours of continuous operation. The value of the continuing calibration standard concentration must agree with + 10 percent of the initial value (+ 20 percent for mercury analysis) or the appropriate corrective action is taken which may include recalibrating the instrument and reanalyzing the previous ten samples. For the ICP, linearity near the quantitation limit will be verified with a standard prepared at a concentration of two times the quantitation limit. This standard must be run at the beginning and end of each sample analysis run or a minimum of twice per eight-hour period.

B8. Inspection/Acceptance for Supplies and Consumables

All critical supplies and consumables for this field investigation are inspected and maintained in accordance with the following procedures: SESDPROC-108-R2

All equipment will be handled in accordance with the FBQSTP Equipment Inventory and Management procedure (SESDPROC-108-R2). The individuals responsible for ensuring that these requirements are met are: The OTIE Field Team Leader and Project Manager, Mr. Stacey DeLaReintrie will be responsible for ensuring these requirements are met.

B9. Non-direct Measurements:

Optional (Applicability of this item is site-specific).

B10. Data Management

The project manager will be responsible for ensuring that all requirements for data management are met. All data generated for this field investigation, whether hand-recorded or obtained using an electronic data logger will be recorded, stored and managed according to the following procedures:

SESD Operating Procedure for Control of Records, SESDPROC-002-R3.
SESD Operating Procedures for Logbooks, SESDPROC-010-R3.

SECTION C: Assessment/Oversight

C1. Assessments and Response Actions

Assessments will be conducted during the field investigation according to the *SESD Operating Procedure for Project Planning*, SESDPROC-016-R1 to ensure the QAPP is being implemented as approved. The Project Manager is responsible for all corrective actions while in the field.

C2. Reports to Management

The Project Manager will be responsible for notifying the EPA Project Manager if any circumstances arise during the field investigation that may adversely impact the quality of the data collected.

SECTION D: Data Validation and Usability

D1. Data Review, Verification, and Validation

This section defines the specific records and data that must be maintained for each field activity to ensure that samples and data are traceable and defensible. Field data reporting shall be conducted principally through the transmission of the information written in bound, paginated field logbooks to provide a secure record of field activities; and data sheets containing tabulated results of measurements made in the field. All field records and documentation must comply with the documentation requirements defined in the SESD FBSQTP Logbooks (SESDPROC-010-R3).

Field Data

Site conditions during sampling and the care with which samples are handled may factor into the degree to which samples represent the media from which they are collected. This, in turn, could affect the ability of decision makers to make accurate and timely decisions concerning the contamination status of the site. As appropriate, logbooks are assigned to, and maintained by, key field team personnel.

Information to be recorded and retained in the logbook during this assessment includes:

- Name of laboratory and contacts to which the samples were sent, turnaround time (TAT) requested, and data results, when possible
- Termination of a sample point or parameter and reasons
- Unusual appearance or odor of a sample
- Measurements, volume of flow, temperature, and weather conditions
- Additional samples and reasons for obtaining them
- Eliminated samples and reasons for elimination
- Levels of personal protection equipment used (with justification)
- Meetings and telephone conversations held with regulatory agencies, project manager, or supervisor
- Details concerning any samples split with another party
- Details of QC samples obtained
- Sample collection equipment and containers, including their serial or lot numbers
- Field analytical equipment, and equipment utilized to make physical measurements
- Calculations, results, and calibration data for field sampling, field analytical, and field physical measurement equipment
- Property numbers of any sampling equipment used, if available
- Sampling station identification
- Date and time of sample collection
- Description of the sample location
- Description of the sample
- Sampler(s) name(s) and company
- How the sample was collected
- Diagrams of processes
- Maps/sketches of sampling locations
- Weather conditions that may affect the sample (e.g., rain, extreme heat or cold, wind, etc.)

Field logbook assignments shall be recorded in the Site Logbook or other central file whose location is known by the FPL and the PM.

Together, field logbooks and sample documentation including COC forms provide a record that should allow a technically qualified individual to reconstruct significant field activities for a particular day without resorting to memory.

Laboratory Data

Case narratives will be prepared which will include information concerning data that fell outside laboratory acceptance limits, and any other anomalous conditions encountered during sample analysis. The CLP equivalent Level II data package shall include the following data elements:

Case Narrative:

- Any deviations from intended analytical strategy
- Laboratory lot number/sample delivery group (SDG)
- Numbers of samples and respective matrices
- QC procedures utilized and also references to the acceptance criteria
- Laboratory report contents
- Project name and number
- Condition of samples 'as-received'
- Discussion of whether or not sample holding times were met
- Discussion of technical problems or other observations which may have created analytical difficulties
- Discussion of any laboratory QC checks which failed to meet project criteria
- Signature of the laboratory QA Manager

Chemistry Data Package:

- Case narrative for each analyzed batch of samples
- Summary page indicating dates of analyses for samples and laboratory QC checks
- Cross referencing of laboratory sample to project sample identification numbers
- Data qualifiers to be used should be adequately described
- Sample preparation and analyses for samples
- Sample results
- MS and MS duplicate recoveries, laboratory control samples, method blank results, calibration check compound, and system performance check compound results

For this investigation, laboratory will provide a 7-day TAT for the analytical data package and EDD. The 7-day timeframe begins the day the laboratory receives a given sample for analysis.

Review and validation of all data from samples collected the week of September 19, 2011 should be completed within 30 working days upon receipt of the samples. The data review and validation is scheduled for completion the week of October 3, 2011.

Electronic Data Deliverables

Analytical data will be managed electronically using the Scribe environmental data management system as required by the START-3 contract. The laboratory shall also prepare and verify an EDD. The format of the EDD shall be in the approved Region 4 format. All EDDs produced by the laboratory will be uploaded to the Scribe data management system and will conform to the Region 4 DART software system.

D2. Verification and Validation Methods

Data validation is the process of verifying that qualitative and quantitative information generated relative to a given sample is complete and accurate. Data validation procedures shall be performed for both field and laboratory operations as described below. Validation of analytical data will be conducted by START. START will perform data assessment on laboratories' hardcopy and electronic deliverables based on contractual and technical requirements outlined in the analytical method and in accordance with the NFGs. The FPL will review the data qualifier report to determine any data limitations and the impact of any qualified data on overall data usability for the project. Detailed guidance for data assessment may be found in the *Guidance for Data Quality Assessment* (EPA QA/G-9 2000).

Procedures Used to Evaluate Field Data

Procedures to evaluate field data for this project primarily include checking for transcription errors and review of field logbooks/field data sheets, on the part of field crewmembers. Further, results of all instrument calibration will be reviewed by the START QA Manager to ensure that all criteria that are specified in this QAPP/SSP are followed. Data collected from instruments not meeting calibration standards will be re-measured once the calibration problem has been solved. The FPL will be the responsible for ensuring that these measurements are re-taken.

The evaluation of equipment blanks and other field QC samples will provide definitive indications of the data quality. If a problem arises, it should be able to be isolated via the complete sample tracking and documentation procedures that will be performed. If such a problem does arise, corrective action can be instituted, documented, and reported to the agencies via the Quality Control Summary Report. If data are compromised due to a problem, appropriate data qualifications will be used to identify the data.

The handling, preservation and storage of samples collected during the sampling program will be monitored on an on-going basis. The project laboratories will document sample receipt including proper containers and preservation at the time samples are logged into their individual laboratory. The sample receipt records (a required data package deliverable) as well as the COC documentation will also be assessed during data validation. Sample handling, storage or preservation problems identified during data validation will result in appropriate qualification of data.

Procedures Used to Validate Laboratory Data

The purpose of chemistry data validation is to verify that the data are of known quality, are technically valid, are legally defensible, satisfy the project objectives, and are usable for their intended purpose. The objectives of the data validation process will be to:

- Assess compliance to project specific procedures and programs.
- Evaluate system process control through review of control charts (if applicable).
- Verify that no systematic errors exist within the data sets.
- Assess field QC samples to determine if sampling has adversely impacted the reported results and, therefore, usability.
- Assess both method and laboratory performance through tabulation of QC outliers.

Provide measures of data quality in terms of precision, accuracy, and completeness so that overall usability can be determined. The following guidance documents shall serve as the basis for data validation:

- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic

Methods Data Review, (OSWER 9240.1-48, EPA-540-R-08-01, June 2008)

- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, (OSWER 9240.1-45, EPA 540-R-04-004, October 2004)

The USEPA reviewed and approved a proposal to perform data validation using a "tiered" approach. One hundred percent (100%) of the data packages will be evaluated and qualified for all quantitative QC elements e.g., spike recoveries, method and field blank contamination, and duplicate sample %RSD using hard-copy summary forms. This Summary Validation of 100% of the data is equivalent to an EPA CLP "QA Level III" validation and is considered Tier 1. Specific QC elements that will be reviewed during the Summary Validation include:

- Presence and completeness of COC and "cooler receipt form" (also known as sample receipt form) documentation
- Sample Index (correlation of field sample ID to laboratory sample ID)
- Laboratory Case Narrative (method deviations and QC anomalies)
- Analytical holding times
- Where applicable, laboratory control standard recoveries
- Method blank contamination
- Surrogate spike recoveries
- Matrix spike compound recoveries
- Matrix spike/matrix spike duplicate RPD values
- Field duplicate RPD values
- Laboratory Duplicate RPD values
- Summaries of instrument blanks (e.g., initial calibration blank, CCB, if specified in method)
- Review of reagent/preparation blanks (inorganics)
- Review of Laboratory Control Standards (LCS)
- Instrument stability and performance (e.g., tuning, DDT/endrin breakdown, serial dilution)
- Summaries of internal standards

Project-specific Data Validation Memos will be completed for the validation completed.

D3. Reconciliation with User Requirements

N/A

****Footnotes**: This Quality Assurance Project Plan (QAPP) has been prepared and approved according to the EPA *Requirements for Quality Assurance Project Plans (EPA QA/R5 EPA/240/B-01/003)*, U.S. Environmental Protection Agency, Office of Environmental Information, Washington, DC, March 2001(USEPA, 2001). This document will be used to ensure that the environmental data collected for this project are of the type and quality for the intended purposes.

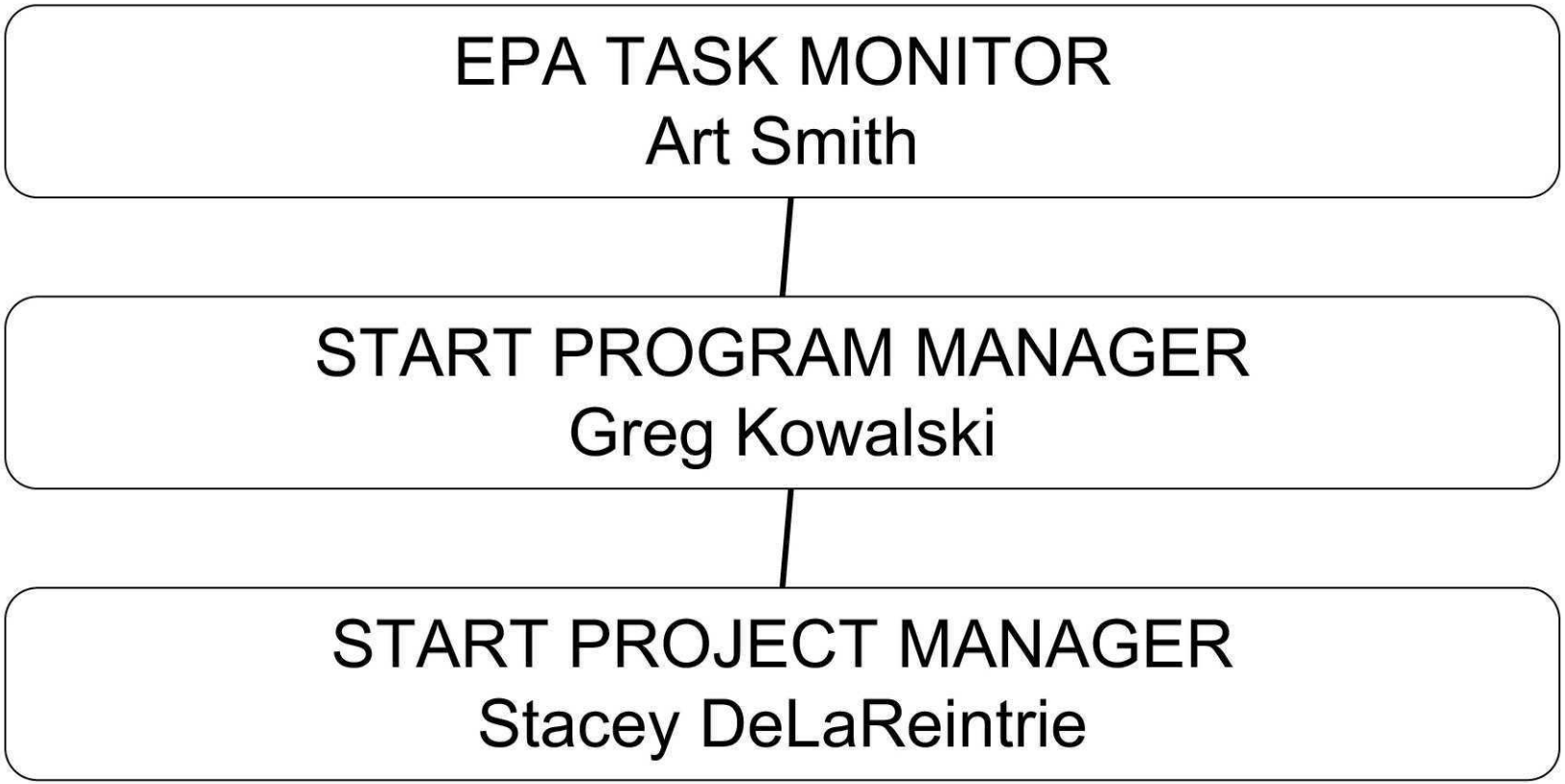


FIGURE 1
ORGANIZATIONAL CHART

BLACK LEAF CHEMICAL
REMOVAL INVESTIGATION
Louisville, Jefferson County, Kentucky
TDD: TNA-05-003-0145

OTIE
Oneida Total Integrated Enterprises

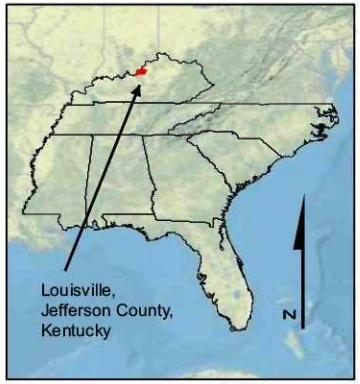
Legend

Site Boundary

Proposed Sample Location

Notes:
BLC - Black Leaf Chemical

Feet
0 300 600



United States Environmental Protection Agency

BLACK LEAF CHEMICAL
REMOVAL INVESTIGATION
LOUISVILLE
JEFFERSON COUNTY
KENTUCKY
TDD No. TNA-05-003-0145

FIGURE 2
PROPOSED SAMPLE
LOCATIONS MAP

OTIE
Omaha Total Integrated Enterprises

E:\GIS Workspace\Black Leaf Chemical Map Author: Doug Fraley