QUALITY ASSURANCE PROJECT PLAN

VAN TRAN ELECTRONICS
LOUISVILLE, JEFFERSON COUNTY, GEORGIA
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Revision 0

Prepared for:

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

Prepared by:

T N & Associates, Inc.
1220 Kennestone Circle, Suite D
Marietta, Georgia 30066

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EPA Task Monitor	:	Leo Francendese
Telephone No.	:	404-562-8772
Prepared by	:	Limari Krebs
Telephone No.	:	678-355-5550

REVIEWS AND APPROVALS

CLIENT NAME: U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 4
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QUALITY ASSURANCE PROJECT PLAN
VAN TRAN ELECTRONICS
LOUISVILLE, JEFFERSON COUNTY, GEORGIA

We the undersigned have read and approve of the quality assurance guidelines presented in this Quality Assurance Project Plan for work activities at the Van Tran Electric site in Louisville, Georgia.

Name	Signature	Date
Leo Francendese U.S. EPA On-Scene Coordinator	______________________	__________
Russell Henderson T N & Associates, Inc. Project Manager	______________________	__________
Limari Krebs T N & Associates, Inc. Project Quality Assurance Manager	______________________	__________

DISTRIBUTION LIST

This document will be distributed to the following project participants once all approval signatures have been received:

Leo Francendese
Project On-Scene Coordinator
USEPA REGION 4
61 Forsyth Street, S.W.
Atlanta, GA 30303-8960
404-562-8772
francendese.leo@epa.gov

Katrina Jones
START Project Officer
USEPA REGION 4
61 Forsyth Street, S.W.
Atlanta, GA 30303-8960
404-562-8811
Jones.katrina@epa.gov

Darryl Walker
START Assistant Project Officer
USEPA REGION 4
61 Forsyth Street, S.W.
Atlanta, GA 30303-8960
404-562-9717
Walker.darryl@epa.gov

Greg Kowalski
START Program Manager
TN & Associates, Inc.
1220 Kennestone Circle, Ste. D
Marietta, GA 30066
678-355-5550 ext. 5704
Gkowalski@tnainc.com

Russell Henderson
START Project Manager
TN & Associates, Inc.
1220 Kennestone Circle, Ste. D
Marietta, GA 30066
678-355-5550 ext. 5707
Rhenderson@tnainc.com

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1.0 INTRODUCTION

The U.S. Environmental Protection Agency (EPA) has tasked the T N & Associates, Inc., (TN&A) Superfund Technical Assessment Response Team (START) to perform a Removal Investigation under Contract Number (No.) EP-W-05-053, Technical Direction Document (TDD) No. TNA-05-003-0077, at the Van Tran Electronics site (the site), located in Louisville, Jefferson County, Georgia.

This Quality Assurance Project Plan (QAPP) describes the removal investigation activities that will be performed during the removal investigation at the site in November 2008. The overall purpose of this project is to collect information on current site conditions, which will identify the nature and extent of contamination and determine the need for federal intervention under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986. The data gathered during the field investigation will assist in determining whether site-attributable contaminants have been released into the environment and pose a threat to human health and the environment. The scope of this removal investigation is to:

1. Perform a magnetometer survey to identify potentially buried transformers; and,
2. Conduct soil sampling using a Geoprobe®, equipped with Direct Push Technology (DPT), for field and laboratory analytical purposes. Environmental samples will be field screened for polychlorinated biphenyls (PCBs) using immunoassay kits and analyzed by fixed laboratories for Target Compound List (TCL) organic parameters, Target Analyte List (TAL) inorganic parameters, PCB homologues, and dioxin/furans to identify the contamination at the site and evaluate the hazardous nature of those contaminants.

All activities and procedures discussed and described in this QAPP will be presented and conducted in accordance with the approved TN&A QAPP and the EPA Region 4 Science and Ecosystem Support Division (SESD) *Field Branches Quality System and Technical Procedures* (FBQSTP).

This QAPP documents the policies, the project organization, quality assurance (QA) requirements, and quality control (QC) procedures to be implemented for this investigation to ensure that the data are valid for use. This QAPP addresses all EPA requirements for a QAPP (QA-R5) with the elements of a field Sampling and Analysis Plan (SAP) so that field and laboratory activities are described in one document. It defines the QA/QC methods that must be implemented to ensure that data meets the requirements of the Data Quality Objectives (DQOs) and includes guidance for all fieldwork by defining in detail the sampling and data-gathering methods to be used during investigative sampling activities at the site. The Health and Safety Plan (HASP), which is issued under separate cover, defines the preventative and protective procedures that will be implemented during the field investigation to ensure the safety of the field team.

START will provide results of the sampling event in a comprehensive Removal Investigation Report summarizing field activities and analytical results. Analytical services will be provided by the EPA Contract Laboratory Program (CLP) facilities and the SESD Regional Laboratory located in Athens, Georgia, and will comply with CLP guidance and the Analytical Services Branch (ASB) Standard Operating Procedures (SOPs).

The following sections provide the details of this QAPP:

- Section 2: Describes the proposed project personnel and required training;
- Section 3: Describes the site background;
- Section 4: Describes the project and objectives;
- Section 5: Describes the sampling design and proposed field activities supporting the sampling event;
- Section 6: Describes the analytical and field screening methodology;
- Section 7: Details the data management procedures for the project; and,
- Section 8: Summarizes the proposed field activities supporting the sampling event.

2.0 PROJECT ORGANIZATION

Figure 1 presented in Appendix A represents the organizational structure for the project.

2.1 EPA START PROGRAM OFFICER

The EPA assumes the overall management of this investigation on behalf of the federal government. The EPA START Program Officer represents the EPA and is responsible for:

- Ensuring that EPA guidance and policy is followed and that EPA objectives are achieved;
- Tracking TDD budgets;
- Reviewing Work Plans;
- Providing incremental funding; and,

- Maintaining communication with the EPA Task Monitor (TM) and START Project Manager (PM).

The EPA START Project Officer is Ms. Katrina Jones.

2.2 EPA EMERGENCY RESPONSE AND REMOVAL BRANCH TASK MONITOR

The EPA Emergency Response and Removal Branch (ERRB) TM directs the project and is responsible for ensuring that the work is completed in accordance with the requirements of the Action Memorandum for the site, and for overseeing implementation of the work required under the TDD. The TM is also responsible for:

- Maintaining communications with the START PM regarding project status;
- Reviewing Monthly Progress Reports (MPRs);
- Providing oversight of field efforts; and,
- Reviewing all project deliverables prepared by START.

The EPA TM for this project is Mr. Leo Francendese.

2.3 START PROJECT MANAGER

The START PM is responsible for project performance, budget, and schedule, and for ensuring the availability of necessary personnel, equipment, subcontractors, and services. The START PM will direct the development of the field sampling plan, evaluate findings, and prepare the removal investigation report. The START PM is selected based on technical experience, project needs, and previous START project experience. Additional responsibilities include:

- Ensuring timely resolution of project-related technical, quality, safety, or waste management issues;
- Functioning as primary interface with the EPA TM, field and office personnel, and subcontractor points-of-contact;
- Monitoring and evaluating subcontractor laboratory performance (non-CLP laboratory only);
- Coordinating and overseeing work performed by field and office technical staff (including data validation [non-CLP laboratory analytical data only] and report preparation);

- Coordinating and overseeing maintenance of all project records;
- Coordinating and overseeing review of project deliverables;
- Preparing and issuing final deliverables to the EPA; and,
- Approving the implementation of corrective action.

The START PM is Mr. Russell Henderson.

2.4 START QUALITY ASSURANCE MANAGERS

The QA Managers will be responsible for ensuring that all QA/QC procedures for this project are being followed. The QA Managers will review and approve the QAPP. The QA Managers will monitor sample techniques and collection, and will address any corrective action or issue that may arise with the analytical laboratory through the EPA CLP Sample Coordinator. The QA Managers will also perform internal and external performance and system audits. The audit process will include, but not be limited to, auditing field sampling techniques. EPA CLP will be responsible for auditing CLP analytical laboratories and the SESD data validation group. START QA Manager, Ms. Limari Krebs, is responsible for reviewing the field QA sample results to ensure that project DQOs are achieved in accordance with this QAPP. START QA Manager, Mr. Jorge Sanchez, is responsible for auditing field sampling techniques.

2.5 LABORATORY RESPONSIBILITIES

The CLP laboratories and the SESD Region 4 Regional Laboratory are responsible for analyzing all samples in accordance with the CLP Statement of Work (SOW) for Organic, Inorganic, and Dioxin/Furan Analysis or the EPA Methodology for PCB homologue analysis, respectively. The EPA Region 4 CLP Sample Coordinator, Ms. Nardina Turner, will be responsible for coordinating and scheduling CLP analytical services for the project. It will also be the analytical laboratory's responsibility to properly dispose of unused sample aliquots.

2.6 DATA VALIDATION

Samples collected for this project will be submitted to EPA CLP laboratories for routine analytical service (RAS) parameters in accordance with the CLP SOW for Organics (SOM01.2), Inorganics (ILM05.4), and Dioxin/Furan Analysis (DLM02.1). In addition, SESD Region 4 Laboratory will analyze samples for PCB homologues in accordance with EPA Method 1668A. Therefore, all data validation activities for this project will be performed by the EPA ASB through the Sample Management Office (SMO).

2.7 FIELD PROJECT LEADER

The Field Project Leader (FPL) is responsible for coordinating all on-site personnel, field decisions, and the overall success of the field investigation. The FPL, or designee, will coordinate and lead all sampling activities and will ensure the availability and maintenance of all sampling materials/equipment. The FPL is a highly experienced environmental professional who will report directly to the START PM.

Specific FPL responsibilities include the following:

- Function as communications link between field staff members, Site Safety Officer (SSO), the EPA TM, and the START PM;
- Oversee the mobilization and demobilization of all field equipment and subcontractors;
- Coordinate and manage the Field Technical Staff;
- Adhere to the work schedules provided by the START PM;
- Be responsible for maintenance of the field logbook and field recordkeeping;
- Initiate field task modification requests when necessary;
- Identify and resolve problems in the field;
- Resolve difficulties in consultation with the EPA TM; and,
- Implement and document corrective action procedures and provide communication between the field team and START PM.

The FPL for this site is Mr. Leland Meadows.

2.8 START SITE SAFETY OFFICER

The START SSO ensures that the HASP is prepared and implemented during field investigation activities. The SSO is knowledgeable with Occupational Safety and Health Administration (OSHA) and EPA Health and Safety requirements.

Specific SSO responsibilities include:

- Monitoring health and safety of the field sampling personnel;
- Assessing hazardous and unsafe situations;
- Developing measures to assure personnel safety during field investigations;

- Correcting unsafe acts or conditions through the regular line of authority;
- Exercising emergency authority to prevent or stop unsafe acts when immediate action is required;
- Maintaining awareness of active and developing situations; and,
- Conduct on-site safety meetings.

The START SSO is Mr. Russell Henderson.

2.9 FIELD TECHNICAL STAFF

The Field Technical Staff for this project will be drawn from TN&A's pool of qualified personnel. Field personnel are responsible for conducting all field activities according to the requirements presented in this QAPP. All of the designated field team members will be experienced professionals who possess the degree of specialization and technical competence required to effectively and efficiently perform the required work. The following START personnel will involved in the field investigation as follows:

- Ms. Nairimer Berrios-Cartagena (Jr. Scientist) Sampler
- Ms. Dannena Bowman (Jr. Scientist) Sampler, Geologist

2.10 FIELD SAMPLE COORDINATOR

The Field Sample Coordinator (FSC) is responsible for completing the Chain of Custody (COC) documentation and maintaining custody of all samples during the investigation. The FSC will also ensure the proper handling and shipping of samples.

The FSC for this project is Ms. Limari Krebs.

3.0 SPECIAL TRAINING/CERTIFICATION

Documented training is required for each individual performing activities supporting environmental data collection or analysis. The procedures used to ensure that SESD Regional Laboratory or CLP staff training is current and documented is defined in the ASB SOP and the CLP laboratory SOPs, respectively. The laboratory manager is responsible for determining specific training and certification needs, and for ensuring that any required training is documented.

Individuals implementing this QAPP must receive, at a minimum, orientation to the project's purpose, scope, and methods of implementation. This orientation is the responsibility of the 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 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.

Drill rig operations will be conducted by a driller licensed in the State of Georgia, experienced in the use of a truck-mounted Geoprobe®.

The magnetometer survey will be conducted by a company experienced in the use of a magnetometer.

4.0 SITE BACKGROUND

4.1 SITE DESCRIPTION

The site is located at 1600 Georgia Highway 17, at the southwest corner of the intersection of Georgia Highway 17 and Airport Road, less than 2,000 feet north of the single runway comprising the Louisville Municipal Airport in Louisville, Jefferson County, Georgia (see Appendix A, Figure 2). The site is designated as Tax Parcel No. 91-55 by the Jefferson County Tax Assessors Office and is located within the Louisville Industrial Airpark. The geographical coordinates for the site are 32° 59' 28.3" North Latitude and 82° 23' 10.0" West Longitude, as measured from the center of the site.

The 11.36-acre site is bounded to the north by Georgia Highway 17, to the east by Airport Road, to the south by undeveloped, mostly wooded property owned by the City of Louisville (Tax Parcel No. 90-112) and to the west by undeveloped, wooded property owned by Long Leaf Enterprises, Inc. (i.e., Mr. Bumey Thompson of Wren, Georgia), (Tax Parcel No. 91-80) (see Appendix A, Figure 3).

The dominant feature of the site is the original rectangular single story building measuring 161 feet by 226 feet (36,386 square feet). An approximate 4,000 square feet addition was added sometime in the late 1970s to the early 1980s. The single story addition is contiguous to the west wall of the original building and was built 30 feet high to facilitate operation of an overhead crane. A small metal shed is located immediately south of the southwest comer of the original building. Two intersecting asphalt driveways provide access to the building, one from Georgia Highway 17, the other from Airport Road. An asphalt parking area in front of the building intersects the driveway connected to Georgia Highway 17. Behind the building, a concrete slab runs adjacent to (and along the entire length) the south wall of the original building. Other than the building and associated paved areas, the remainder of the site consists of open fields/lawn areas and an undeveloped wooded area, which extends to contiguous properties located both west and south of the site. Two above ground storage tanks (ASTs) labeled "mineral oil" are located east of the building, adjacent to Airport Road, and immediately north of the driveway providing access from Airport Road. A gasoline pump labeled "contains lead" is adjacent to the ASTs.

A slight topographic ridge bisects the site. Surface water run-off originating from the eastern side of the ridge flows east and south towards the northeast corner of the site, through a pipe culvert underlying Airport Road and ultimately flows east along Georgia Highway 17 towards the perennial Manson Branch. Surface water run-off originating from the western side of the site flows west/northwest towards an off-site constructed drainage ditch, which ultimately discharges to the perennial Ogeechee River located south of the site.

4.2 REGIONAL GEOLOGY AND HYDROGEOLOGY

Located within the upper region of the Coastal Plain Physiographic Province (CPPP), the site lies within a most significant groundwater recharge area for the Miocene/Pliocene-Recent unconfined aquifers. The CPPP is underlain by a wedge of Cretaceous and younger sediments that dip gently towards the Gulf of Mexico and the Atlantic Ocean. The CPPP hydrogeologic units are a series of aquifers and intervening confining beds, which were created by a series of marine transgressions and regressions. The Louisville, Georgia area is underlain by sediments of the Bamwell Group and are Upper Eocene in age (40 to 36 million years). In descending order, the Barnwell Group is subdivided into the Tobacco Road Formation, the Dry Branch Formation, and the Clinchfield Formation. The Bamwell Group is underlain by the Oconee Group, which is early Late Cretaceous to Middle Eocene in age (97 to 43 million years). At the Thermo King Corporation facility located less than 1-mile north of the site, the uppermost aquifer is comprised of at least one waterbearing unit underlain by the Twiggs Clay confining layer. Depth to the uppermost aquifer ranges from 32 to 49 feet below ground surface (bgs).

4.3 SITE OPERATIONS

Prior to 1970, the on-site building was constructed as an industrial specification building on a property owned by the City of Louisville. The building may have been used as a warehouse prior to being purchased in 1970 by Van Tran Electric Corporation of Waco, Texas (Van Tran). From 1970 until sometime in 1973, Van Tran manufactured transformers containing PCBs on site. Various on-site processes related to the manufacturing of transformers included painting, baking and annealing in ovens, welding, the winding of core/coils, and assembly. Transformer manufacturing processes were ceased in 1973; however, Van Tran refurbished used transformers on site until sometime prior to 1987. Van Tran ceased on-site operations in the early 1990s. The on-site building is currently rented-out by Van Tran for use as a warehouse by Glit, Inc. of Wrens, Georgia, and Thermo King Corporation of Louisville, Georgia. At this time, various equipment owned by Van Tran remains inside the building.

4.4 PREVIOUS INVESTIGATIONS

On July 8, 1981, EPA collected soil samples on site for laboratory analysis. Analytical results indicated PCBs at a highest concentration of 660 parts per million (ppm). At that time, Van Tran acknowledged that in the past, PCB-contaminated transformer oil may have been applied to the ground surface to suppress dust. Additionally, EPA documented that water and sediment contaminated with PCBs were routinely drained to the ground surface from a bulk tank located behind the building. Also, observed by EPA at that time was an approximately 20 yard by 50 yard area behind the building, which was saturated with oil.

In a correspondence dated July 22, 1982, EPA determined that the site was not subject to the requirements of the Toxic Substance Control Act (TSCA) due to the fact that no evidence existed, which suggested PCB activity at the site after April 18, 1978. On August 6, 1982, forty 55-gallon drums of waste PCB oil and five 55-gallon drums of PCB-contaminated soil were shipped off site to the Emelle, Alabama facility operated by Chemical Waste Management, Inc.

On May 25, 1983, the site was inspected by the Georgia Environmental Protection Division (GAEPD). At the time of this inspection, two ASTs located behind the building were being used to contain waste transformer oil as part of a transformer refurbishment process. Although samples were not collected at the time of the inspection, GAEPD observed stained soil, stressed vegetation, and open/leaking transformers behind the building where approximately 2,000 used transformers were being stored. It was also noted by GAEPD that surface water run-off from the transformer storage area drained to a constructed ditch located on contiguous property to the west.

On February 8, 1984, EPA performed an EPA-funded Site Inspection, at which time, soil samples were again collected on site. Based upon the analysis of these soil samples, PCBs were detected at a highest concentration of 61 ppm (a combination of two Aroclors). EPA assigned the site a No Further Remedial Action Proposed (NFRAP).

5.0 PROJECT DESCRIPTION

5.1 PROJECT OBJECTIVES

The scope of this removal investigation is to conduct sampling and analysis activities at the site to identify the nature and extent of contamination in on-site soils. Surface and subsurface soil samples will be collected using a Geoprobe® DPT device from approximately 50 soil borings to gain an understanding of the type and distribution of impacts present at the site. All sampling activities will be conducted in accordance with the SESD FBQSTP (November 2007).

Primarily, on-site soils will be sampled to assess whether PCBs, and associated solvent chemicals including trichlorobenzenes, are present at concentrations above the Regional Screening Levels (RSLs). All samples will be field screened using PCBs immunoassay kits. A subset of the samples will also be analyzed for PCB homologues, dioxin/furans, and/or full suite organic and inorganic analysis. The analytical data gathered during this field investigation will provide EPA with sufficient information to identify the need for further federal intervention under the CERCLA.

5.1.1 Project Target Parameters and Intended Data Usage

The target parameters, laboratory reporting limits (RLs), and RSLs for this project are included in Tables 1 to 3 located in Appendix B. Table 5 in Appendix B summarizes the laboratory methods and field monitoring/screening that will be conducted for soils.

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.

These data will eventually be compared to site-specific removal action levels determined by EPA based on human health and ecological exposure risks. However, for initial comparative purposes, PCB screening data and laboratory analytical results will be compared to the RSLs.

5.2 PROJECT TASKS

The following subsections discuss tasks that START will perform to complete this work assignment allowing for modifications, as needed.

- Task 1 - Perform Project Management and Reporting
- Task 2 - Develop QAPP
- Task 3 - Develop Sampling Design
- Task 4 - Perform Field Investigation Activities and Data Acquisition
- Task 5 - Prepare the Final Report
- Task 6 - Perform TDD Close-Out activities

If the statement of work changes because of an amended work assignment, START will revise this QAPP to incorporate changes in the scope and cost.

5.2.1 Task 1 - Perform Project Management and Reporting

START will perform general TDD management activities including communications with the EPA TM, managing and tracking costs using RCMS, and attending project meetings. The anticipated period of performance for this project is from October 28, 2008 to April 20, 2009. Specifically, START will prepare MPRs in accordance with contract requirements; track costs in RCMS; submit 1900-55s as directed by the EPA TM; and, prepare and submit monthly invoices. START will report costs and level of effort for the reporting period as well as cumulative amounts expended to date.

5.2.2 Task 2 - Develop QAPP

This QAPP has been developed to outline activities to be conducted in support of the removal investigation. The QAPP lists the tasks to be performed; discusses the technical approach for each task, including identifying DQOs, determining sampling objectives and rationale for the field investigation activities, and ensuring that QA/QC measures are conducted to fulfill DQO; identifies key personnel to support this work assignment; and, provides a schedule for completing each task and submitting deliverables as required by the TDD. START has reviewed available background documents relevant to the investigation, as provided by EPA, in order to achieve a familiarity with the site and support the development of the tasks.

All efforts will be made to provide the most cost-effective approach to supporting EPA in this work assignment. The QAPP will be amended as necessary to incorporate unforeseen future activities or changes in the scope of the work assignment.

5.2.3 Task 3 - Develop Sampling Design

START will develop a sampling design in accordance with the EPA *Guidance on Choosing a Sampling Design for Environmental Data Collection* (QA/G-5S) to ensure that DQOs are fulfilled for the removal investigation. Specifically, the design will take into account data needs, key decisions, and environmental variables, such as physical and site constraints, and how the spatial and temporal boundaries of the contamination and population at risk will be identified. The sampling design presented in Section 7.1 has been developed based on the results of previous sampling investigations at the site, and input from the TM.

5.2.4 Task 4 - Perform Field Investigation Activities and Data Acquisition

START will perform field investigation activities including a magnetometer survey; screening soils for PCBs and organic vapors using immunoassay kits and a Toxic Vapor Analyzer (TVA)-1000 photoionization detector (PID)/flame-ionization detector (FID), respectively; and, the collection of environmental samples and information required to determine whether on-site contamination exists and if it exists in a pattern that suggests off-site contamination is likely. Data obtained from this field investigation will provide EPA with sufficient information to identify the need for federal intervention under CERCLA. This task will begin with EPA approval of the QAPP and will end with the demobilization of field personnel and equipment from the site.

5.2.5 Task 5 - Prepare a Final Report

START will prepare and submit a final report summarizing the existing conditions at the site; describing the field investigation activities; and, describing the surface and subsurface soil contamination at the site. The final report will provide information to assess the need for further intervention under CERCLA. Environmental and QA/QC analytical data will be evaluated and data tables will be attached to the report. Significant QA/QC issues regarding sample collection, handling, and analysis will be identified in the final report.

5.2.6 Task 6 - Perform TDD Closeout Activities

START will perform the necessary activities to closeout the TDD in accordance with the contract requirements including packaging and returning documents to the U.S. government and duplicating, distributing, and storing files, as necessary.

5.3 DELIVERABLES AND INVESTIGATION SCHEDULE

The schedule by which START anticipates submitting the associated deliverables under this work assignment is listed in Table 7 located in Appendix B.

5.4 DATA QUALITY OBJECTIVES AND CRITERIA

START has identified DQOs for the site in accordance with the EPA Guidance for the DQO Process (U.S. EPA QA/G-4, 2000b) that will define study objectives, decisions to be made, and the criteria by which the data will be assessed. These data will then be used for decision making. DQOs have been developed following these seven steps:

- Problem statement
- Identify the decisions
- Identify the inputs into the decision
- Define the boundaries of the study
- Develop decision rules
- Specify tolerable limits on decision errors
- Optimize the design for obtaining data

The information presented in the next several sections describes the DQOs identified for this investigation.

5.4.1 Problem Statement

Previous investigations at the site indicate that on-site soils are contaminated with heavy metals and PCBs (specifically, Aroclor-1260). Historically, PCB Aroclor-1260 was used in conjunction with solvents, including trichlorobenzenes, for heat insulating purposes in large transformers like those manufactured at the site. In addition, when subjected to high temperatures over long periods of time, as occurs with transformers, PCBs can produce polychlorinated dibenzofurans (PCDFs) and, in the presence of tri- or tetra-chlorobenzene, can produce some polychlorinated dibenzodioxins (PCDDs). These are highly toxic compounds that could potentially present a human and ecological exposure risk. This removal investigation will focus on the collection of surface and subsurface soil samples, up to a maximum depth of 16 feet bgs, to determine whether on-site contamination exists due to historic site operations.

5.4.2 Identify the Decisions

The purpose of this DQO step is to identify the decisions that must be supported with the data collected. This will help define the objectives of the field investigation. On-site soils are known to be impacted and a decision on whether a time-critical removal action is warranted is pending based on the results of this removal investigation. This investigation will focus on identifying contaminants of concern in the surface soils (less than 2 foot depth interval) and subsurface soils (2 to 16 feet bgs) in areas of interest as identified by the EPA TM. Therefore, the following primary decisions have been identified: (1) Do releases of hazardous substances constitute an immediate threat to human health and/or the environment? (2) Are there significant source areas which require further assessment and delineation? (3) Does the level of contamination warrant further EPA involvement?

5.4.3 Decision Inputs

The primary inputs needed to support the decision making process are contaminant levels in soil samples collected on site, and a background soil sample collected from an off-site area, unaffected by site influences. Results used in the decision-making process will come from the following:

- PCB field screening using PCB immunoassay kits;
- PCB homologue analysis for samples submitted to SESD Regional Laboratory; and,
- RAS including TCL volatile organic compounds (VOC), semi-volatile organic compound (SVOC), PCB, pesticide, and TAL metal analysis; and, dioxin/furan analysis of soil samples submitted to CLP laboratories.

5.4.4 Study Boundaries

The media of interest are on-site surface and subsurface soils. The study boundaries include the study area, sample depth, temporal boundaries such as field investigation dates and turnaround times on analytical results, and physical boundaries.

- The study area is the boundary of the site as shown in Figure 3 located in Appendix A.
- Surface soil samples will be collected from 0 to 2 feet bgs. Subsurface soil samples will be collected from 50 soil borings advanced to a maximum depth of 16 feet bgs in areas of interest identified by EPA.
- Field investigation activities are scheduled to commence on Monday, November 3, 2008 after approval of this QAPP and the Field HASP by the EPA TM. A turnaround time of 21 days from sample submittal to SESD and CLP laboratories will be requested. An additional turnaround time of 21 days from receipt of laboratory results by SESD is expected for data validation.
- The physical boundaries of the site are Georgia Highway 17 to the northwest; Airport Road to the east/southeast; and, wooded properties to the south, southwest, and west.

5.4.5 Decision Rule

The primary decision in the DQO process for the site relating to soils is: What soils on site exceed the associated RSLs for PCBs, heavy metals, and VOCs? All on-site soil samples will be field screened for PCBs using immunoassay kits. Based on field screening results, approximately 20 percent (20%) of the samples will be submitted to SESD Regional Laboratory for PCB Homologue analysis in accordance with EPA Method 1668A. A subset of these samples will be archived for future dioxin/furans analysis. Approximately, ten percent (10%) of the samples will be submitted to a CLP laboratory for PCB analysis only in accordance with the CLP SOW SOM01.2 to confirm the immunoassay results. Based on TVA-1000 PID/FID screening results, an additional 10% of the samples will be submitted to CLP laboratories for full suite organic and inorganic analysis by CLP SOW SOM01.2 and CLP SOW ILM05.2, respectively. Analytical results will be used to determine whether contaminants of concern exist on site and whether federal invention under CERCLA is needed.

5.4.6 Error Limits

Sections 6.2.5 and 6.2.8 will describe the error limits introduced through soil sample collection, mixing, storage, transportation, and analysis.

5.4.7 Optimize Sampling Design

Section 6.1 will describe the soil sampling design in detail.

5.5 MEASUREMENT QUALITY OBJECTIVES

Measurement quality objectives can be expressed in terms of accuracy, precision, completeness, and sensitivity goals. Accuracy and precision are monitored through the analysis of QC samples (Section 7.6.2). Completeness is a calculated value. Sensitivity is monitored through instrument calibration and the determination of MDLs and RLs (see Appendix B, Tables 1 through 3). Qualitative quality objectives, expressed in terms of comparability, are not addressed as part of this sampling design since sampling locations are biased and not random.

- **Accuracy** is defined as the degree of agreement between an observed value and an accepted reference value. Accuracy shall be measured through the collection of blanks, performance evaluation samples, and blind spike samples.
- **Precision** is defined as degree to which a set of observations or measurements of the same property, obtained under similar conditions, conform to themselves. Precision shall be measured through the collection of duplicate field samples.
- **Completeness** is the amount of data collected as compared to the amount needed to ensure that the uncertainty or error is within acceptable limits. The goal for data completeness is 100%. However, the project will not be compromised if 99% of the samples collected are analyzed with acceptable quality.
- **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** 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. Sensitivity is addressed primarily through the selection of appropriate analytical methods, equipment, and instrumentation. The methods selected for this assessment were chosen to provide the sensitivity required for the end-use of the data. This is a quantitative assessment and is monitored through the instrument calibrations and calibration verification samples and the analysis of procedural blanks with every analytical batch.
- **Method Detection Limits** (MDLs) for all analysis will be those identified through EPA Method 1668A and the CLP SOW methods identified in Tables 1 to 3.
- **Reporting Limits** (RLs) for all analysis are based on a low calibration standard and are described in each analytical method identified above. Sample-specific reporting limits will be calculated and reported with the final data. There may be numbers reported that are below the RL. These numbers must be flagged appropriately. When the analysis demonstrates a non-detect at the MDL, the data shall be flagged with a “U.” The value reported is the MDL, adjusted by any dilution factor used in the analysis. When an analyte is detected between the lower quantitation limit and the MDL, the data shall be flagged with a “J.” The value reported is an estimate.

5.6 DATA AND DOCUMENT CONTROL

START will prepare and submit a final report summarizing the existing conditions at the site; describing the field investigation activities; and, describing the nature of multi-media contamination at the site. The report will provide information to assess the need for federal intervention under CERCLA at the site. Environmental and QA/QC analytical data will be evaluated and data tables will be attached to the report. Significant QA/QC issues regarding sample collection, handling, and analysis will be identified in the report.

The TN&A internal QC process requires that all project deliverables be reviewed to promote technical adequacy and completeness. The TN&A QA manager or designee will perform internal QC checks of work assignment activities. Internal QC checks will address adherence to this QAPP and the TN&A QAPP for START.

START will retain all file information related to the site in the Marietta, Georgia, TN&A office. Upon EPA request, the entire site file, including all documents generated under the work assignment, will be inventoried and submitted to EPA or to an EPA-designated location within three weeks of the request. In addition, START will provide digital copies of all documents generated under the work assignment, including reports, e-mails, and figures if requested by EPA. All documents generated for the work assignment are the property of EPA and will be retained as part of EPA files. All EPA files will be delivered to EPA at the conclusion of the START contract.

A draft version of the report will be available for review and commenting by EPA within four weeks following receipt of final and validated analytical results from CLP. A final version of the report will be available within two weeks following receipt of comments by EPA. Laboratory data will be released to the EPA TM as it becomes available, if desired. Table 7 in Appendix B lists the schedule for the deliverables and investigation.

6.0 SAMPLE DESIGN, DATA GENERATION, AND ACQUISITION

6.1 SAMPLE DESIGN

A Geoprobe® with DPT will be used to advance 50 soil borings on site to a maximum depth of 16 feet bgs. One background sample will be collected from a property in the area, but not directly adjacent to the site property, to ensure that comparison to applicable background is conducted. The background sample will be collected from an area located a sufficient distance from potential impacts from on-site contamination. Sampling locations will be identified during the field investigation based on field observations by the EPA TM or the FPL, and Geoprobe® accessibility. An acetate-lined Macrocore® sampler will be used to extract soil cores from each soil boring in 4 foot depth intervals. One soil sample will be collected from each soil boring for VOC analysis where PID/FID screening results indicate the highest organic vapor levels. Each 4-foot soil core will then be composited into one sample and field screened for PCBs using immunoassay kits.

START anticipates submitting 50 samples, excluding QA/QC samples, to the SESD Regional Laboratory for PCB homologue analysis by EPA Method 1668A and to CLP laboratories for PCB Aroclor analysis by CLP SOW SOM01.2. In addition, approximately 50 soil samples, excluding QA/QC, will be submitted to CLP laboratories for full routine analytical services parameters in accordance with CLP SOW SOM01.2 and ILM05.4. Samples selected for full suite analysis will come from the sample depth interval where VOC sampling was performed. Table 4, located in Appendix B, identifies the sample numbers, types of samples proposed, and the rationale.

Additional QA/QC samples including blanks, spikes, and split duplicates will be collected as required in FBQSTP SESDPROC-011-R2.

6.2 FIELD SAMPLING METHODS AND PROCEDURES

6.2.1 Mobilization

START will provide the necessary personnel, equipment, supplies, materials, and facilities for the execution of the field investigation. Activities may include the mobilization of equipment and vehicles, and site access coordination with federal, state, local, and private entities.

6.2.2 Site Control and Access

Due to the location of the property, no problems with unauthorized personnel interfering with site operations are anticipated. If, at any time, investigation activities cannot, in the opinion of the FPL, SSO, or sample team leaders, be conducted due to the proximity of unauthorized persons or other unforeseen conditions or situations, then operations will cease until such time as they can be safely resumed.

During the investigation, field vehicles will be located such that they do not interrupt or impede flow of traffic through the area. Keys to each vehicle will be located with team leaders, as appropriate. Each field vehicle will maintain a copy of this QAPP and the site specific HASP during all investigation activities.

6.2.3 Site Mapping

The location of all sampling stations will be collected using a Trimble® Global Position System (GPS) instrument. GPS coordinates will be collected at each sampling location during the field event. As specified in SESD's FBQSTP Global Positioning System procedure (SESDPROC-107-R1), stations will be located with one meter accuracy. If a location is in an area where a GPS signal cannot be received, the GPS of the sampling location will be collected from the nearest point where a signal is received and any deviations noted in the field logbook.

6.2.4 Magnetometer Survey

START has subcontracted ARM Environmental Services located in Columbia, South Carolina to perform a magnetometer survey of suspect areas identified during a previously conducted Ground Penetrating Radar (GPR) survey. PCB-containing transformers are believed to have been buried throughout the property during former operations. The magnetometer survey will be conducted concurrently, yet independently, of the soil sampling investigation.

6.2.5 Sample Collection

START will collect approximately 200 soil samples from 50 soil boring locations using a Geoprobe® DPT with Macrocore® sampler. Samples for VOC analysis will be collected directly from the liner using Terra Core® samplers from the depth interval where FID/PID screening results indicate the highest organic vapor concentration. VOC Terra Core® soil samples will be placed directly into three 40 milliliter (mL) pre-weighed vials. The contents of each 4-foot soil core will then be placed into a zip-top bag, composited, and screened for PCBs using immunoassay kits. Information identifying the location, sample depth interval, and date/time will be inscribed on each zip-top bag. Samples identified for laboratory analysis following PCB field screening will be placed in glass containers, processed (see below), packaged for shipment, and submitted to the applicable laboratory for analysis.

All soil samples will be logged using the Unified Soil Classification System (USCS) by START. All field observations and descriptions will be recorded in the logbook. Upon completion of soil sampling, soil borings will be properly abandoned by grouting each boring bottom to top with bentonite. In paved areas, the upper 6-inches will be capped with asphalt patch.

Additional QA/QC samples will be collected as required in the FBQSTP SESDPROC-011-R2 and as outlined in Section 6.6.2 of this QAPP. All samples collected will be immediately preserved in accordance with FBQSTP SESDPROC-005-R1 and CLPGFS guidelines.

6.2.6 Equipment Decontamination Procedures

All field sampling equipment will be cleaned and decontaminated accordance with the FBQSTP Field Equipment Cleaning and Decontamination procedures (SESDPROC-205-R1). Spoons will be decontaminated in accordance with FBQSTP SESDPROC-205-R1 prior to mobilization to the site. The Geoprobe® drill rig and all associated non-dedicated/reusable (augers, pipes, bits, tools, etc) equipment will be decontaminated before drilling begins, between each soil boring, and after fieldwork is complete in accordance with FBSQTP SESDPROC-205-R1.

6.2.7 Management of Investigation-Derived Waste

All investigation derived waste (IDW) will be managed according to the procedures found in the FBQSTP Management of Investigation-Derived Waste procedure (SESDPROC-107-R1). The following identifies the types of IDW that could be generated during the investigation. IDW will generally consist of personal protective equipment including disposable latex gloves and boot covers. Personal protective equipment (PPE) are used mainly to prevent cross contamination, provide personnel protection, and provide sanitary conditions during sampling activities. If contact with concentrated wastes occurs, personal protective equipment will be secured in a 55-gallon drum on site, until sample analytical results are received. If, in the best professional judgment of the FPL, PPE can be rendered non-hazardous, it will be double-bagged and deposited in an industrial waste container, as directed in the FBQSTP SESDPROC-107-R1.

6.2.8 Sample Processing and Custody

All samples will be collected, containerized, preserved, handled, and documented in accordance with the EPA FBQSTP and the EPA CLP Guidance for Field Samplers (CLPGFS) dated July 2007. The following activity procedures will be followed during field sampling:

- Sample and Evidence Management SESDPROC-005-R1
- Equipment Inventory and Management Procedure SESDPROC-108-R2
- Packing, Marking, Labeling, and Shipping of Environmental and Waste Samples SESDPROC-209-R1

Both hard and electronic copies of the referenced procedures, in addition to the site-specific HASP, will be maintained by the FPL for reference during all phases of the field sampling activities. Any deviations in sampling procedures specified in this QAPP will be documented, including the reason for the deviation, in the field logbooks.

6.2.8.1 Chain of Custody

All Chain-of-Custody (COC) and record keeping procedures will be in accordance with FBQSTP SESDPROC-005-R1 and the CLPGFS. COC procedures are comprised of the following elements: 1) maintaining sample custody, and 2) documentation of samples for evidence. COC forms will be completed and generated with Forms II Lite® software as per the current START contract requirements.

6.2.8.2 Station and Sample Identification

Station identification numbers (IDs) will be assigned as follows:

- VTRIB01 – VTRIB50, where VT stands for Van Tran Electronics site, RI stands for Removal Investigation, B stands for Boring, and the stations are numbered sequentially beginning at -01.

Sample IDs will be assigned using the following format:

- VTRI-B**-A to VTRI-B**-D where VT stands for Van Tran Electronics site, the B stands for Boring, ** corresponds to the station location boring number, A through D to denote the appropriate 4-foot soil core as follows A = 0-4 ft bgs, B = 4-8 ft bgs, C = 8-12 ft bgs, and D = 12-16 ft bgs .

6.2.8.3 Sample Labels

Sample labels will be prepared and affixed to each sample container sent to the CLP laboratory. The labels will be prepared using waterproof, non-erasable ink as specified in FBQSTP SESDPROC-005-R1 and CLPGFS. Sample labels will be generated with Forms II Lite® software as per the current START contract requirements.

6.2.8.4 Sample Custody Seals

The samples collected and containerized will be sealed as soon as possible following collection as specified in the FBQSTP SESDPROC-005-R1 and CLPGFS. The sample custodian will write the date and their signature or initials on the seal.

6.2.8.5 Sampling Equipment and Sample Containers

Sampling equipment used during the field investigation will include a Geoprobe® drill rig (and all associated equipment), dedicated stainless steel spoons, disposable acetate-lining for soil core sampling, disposable zip-top bags, sampling jars, and disposable Terra Core® samplers. All equipment will be handled in accordance with the FBQSTP Equipment Inventory and Management procedure (SESDPROC-108-R2).

Sample containers for samples submitted to the laboratories will be obtained from the START warehouse in Marietta, Georgia. The START warehouse obtains its sample containers directly from Environmental Sampling Supply, Inc. and purchases only QC-quality containers that have independent analytical verification of cleanliness. The remaining aliquots for samples will be placed into QC quality glass jars, and placed on ice in accordance with the requirements specified in the FBQSTP SESDPROC-209-R1 and CLPGFS.

6.2.8.6 Chain-of-Custody Record

The field COC is used to record the custody of all samples sent to the laboratory. All samples shall be accompanied by a COC, completed and maintained as specified in FBQSTP SESDPROC-005-R1. The COC documents transfer of custody of samples from the sample custodian to another person, the laboratory, or other organizational elements. To simplify the COC and eliminate potential litigation problems, as few people as possible will have custody of the samples or physical evidence during the investigation.

The COC also serves as a sample logging mechanism for the laboratory sample custodian. Forms II Lite® software will be used to log samples and create a COC for all samples or physical evidence collected. A separate COC will be used for each final destination or laboratory utilized during the investigation.

6.2.9 Demobilization

START will remove all equipment and restore all site sampling locations, which may have been disturbed during the field investigation.

7.0 FIELD SCREENING, ANALYTICAL METHODS, AND VALIDATION

The information in this section includes the field screening and analytical methods that will be used to identify contamination in soil samples at the site.

7.1 PCB IMMUNOASSAY FIELD SCREENING

All soil samples collected will be screened in the field for PCBs using the RaPID Assay® System in accordance with EPA SW 846 Method 4020 and the RaPID Assay® System User's Guide (Attachment 1). The RaPID Assay® System is a field portable instrument that applies the principles of enzyme-linked immunosorbent assay to the determination of PCBs. The RaPID Assay® System uses a PCB-labeled enzyme conjugate and paramagnetic particles coated with PCB-specific antibodies, where the analyte PCB (which may be in the sample) and the labeled PCB compete for the antibody binding sites and bind in proportion to their original concentration. The presence of PCBs is detected by a colored reaction, where the color development is inversely proportional to the concentration of PCBs in the sample (e.g., the darker the color, the less PCBs present in the sample). The color developed is quantified with a small, handheld photometer. The RaPID Assay® System provides no information on Aroclor identification.

The RaPID Assay® System consists of three primary components including the RaPID Prep Soil Collection Kit®, the assay kit itself, and the RPA-I RaPID Analyzer®, which is the small photometer.

7.2 CLP ROUTINE ANALYTICAL SERVICES ANALYSIS

Ten percent (10%) of the soil samples collected will by analyzed for full suite RAS parameters by CLP laboratories in accordance with CLP SOW SOM01.2 and ILM05.4, respectively. An additional 10% of the soil samples collected will be analyzed for PCBs only in accordance with CLP SOW SOM01.2. The SOWs for the CLP laboratories are presented as Attachment 2.

7.3 CLP DIOXIN/FURAN ANALYSIS

A subset of the soil samples collected for full suite RAS parameters analysis will also be analyzed for dioxin/furans by CLP SOW DLM01.2. Samples will be selected in the field and archived for up to 14 days to allow for the EPA CLP Sample Coordinator to schedule dioxin/furans analysis. The CLP SOW for DLM01.2 is presented as Attachment 2.

7.4 PCB HOMOLOGUE ANALYSIS

Twenty percent (20%) of the samples collected will be analyzed for PCB homologues in accordance with EPA Method 1668A by the SESD Region 4 Laboratory located in Athens, Georgia. Attachment 3 presents a copy of EPA Method 1668A.

7.5 SAMPLE VALIDATION

All samples collected will be submitted to either SESD Region 4 Laboratory or CLP laboratories for analysis. SESD and CLP data is compliant with EPA Order 5360.1 A2, which requires data to withstand independent review and confirmation. Validation of analytical data will be conducted by the EPA ASB through the SMO. SMO will perform data assessment on laboratories' hardcopy and electronic deliverables based on contractual and technical requirements outlined in the SOW, Request for Proposal (RFP), and in accordance with the National Functional Guidelines (NFG) and Data Validation Standard Operating Procedures for CLP Routine Analytical Services Version 2.1. SMO will assess data for completeness, compliance, recalculation checks, and instrument output. A case narrative and data qualifier report will be generated for each set of lab data. The case narrative provides a summary of any deficiencies associated with each lab data set. The data qualifier report alerts the project leader of quality control problems identified during the data validation process. 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).

Review and validation of all data from samples collected the week of November 3, 2008 should be completed within 45 working days upon receipt of the samples. The data review and validation is scheduled for completion the week of December 22, 2008.

7.6 QUALITY ASSURANCE

QA procedures must begin in the planning stage and continue through sample collection, analyses, reporting, and final review. The methods used to ensure data quality are discussed below.

7.6.1 Organization and Responsibilities

The FPL has overall responsibility for field QA. Off-site laboratory analyses for samples collected will be conducted through the CLP. The precision, comparability and accuracy of sample analyses will be addressed in accordance with the CLP NFG for Organic, Inorganic, or Dioxin/Furan Data Review or EPA Method 1668A for soil PCB homologues.

7.6.2 Field QA/QC Samples

The following sections describe the number and types of QC samples that will be collected and submitted to the CLP laboratory during the field investigation. Appendix B, Table 5 details the QA/QC samples to be collected and Table 6 presents the appropriate sample containers and preservatives to be used per sample type. Approximately 10 additional QA/QC samples including blanks, spikes, and splits will be collected as required in the FBQSTP SESDPROC-011-R2. All samples will be preserved as needed and immediately be placed on ice in accordance with the FBQSTP SESDPROC-011-R2.

Cooler Blanks

A cooler (temperature) blank will be placed in a cooler so that the temperature of each cooler can be measured accurately upon receipt at the laboratory without compromising sample integrity. Cooler blanks are not assigned a unique field sample identification number.

Trip Blank

One soil trip blank per cooler containing samples for VOC analysis will be collected. Since all samples for the sampling event will be soil, the trip blanks will be comprised of laboratory clean sand. START anticipates submitting five soil trip blank samples.

Preservative Blank

No preservatives will be used for field samples during the sampling event; therefore, no preservative blank will be collected during the investigation.

Rinsate Blank

Rinsate blank samples will not be collected during this investigation since all only solids will be sampled for analysis.

Metals Blank

Metals blanks are required when collecting aqueous samples. All samples collected will be soils; therefore, no metals blank will submitted for analysis during this investigation.

Matrix Spike/Matrix Spike Duplicate

Samples for laboratory quality control analyses such as the matrix spike/matrix spike duplicate (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 CLP laboratory. START anticipates designating four soil samples for MS/MSD analysis.

Duplicate 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. 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 SESD or CLP laboratory for analysis along with the other soil samples collected during the investigation. START anticipates collecting five soil field duplicate samples.

7.6.3 Analytical Laboratory Quality Control

Laboratory QA/QC procedures and MDLs will be in accordance with EPA Method 1668A (PCB Homologue), CLP SOW SOM02.1, CLP SOW ILM05.4, and CLP SOW DLM01.2 procedures mentioned above.

7.7 INSTRUMENT/EQUIPMENT CALIBRATION AND FREQUENCY

Laboratory and field equipment will be calibrated in accordance with laboratory SOPs or the manufacturers' recommendations. Field equipment refers to articles used for on-site screening and testing, whereas laboratory equipment refers to articles used in the laboratory in support of data collection (e.g., refrigerators). Laboratory instruments are units used for sample analysis (e.g., GC/ECD).

7.7.1 Field Equipment

TVA-1000 FID/PID will be used during the removal investigation to monitor the breathing zone for health and safety requirements, as well as VOC screening of samples. The TVA-1000 will be calibrated daily, or as field conditions change, with calibration gases and the results of calibration will be recorded in the field logbook. 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. 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.

7.7.2 Laboratory Equipment and Instruments

Laboratory equipment and instrument calibration procedures will be completed in accordance with the laboratory SOPs and the CLP SOWs.

7.7.3 Inspection/Acceptance of Supplies and Consumables

All supplies and consumables that may directly or indirectly affect the quality of the project must be clearly identified and documented by field personnel. Acceptance criteria are based on the individual characteristics of the supply or consumable to be used. Typical examples of supplies and consumables include sample bottles, calibration gases, materials for decontamination activities, deionized water, and potable water. For each item identified, field personnel shall document the inspection, acceptance testing requirements, or specifications (i.e., concentration, purity, source of procurement) in addition to any requirements for certificates of purity or analysis. All acceptance certificates will be retained on file.

Acceptance criteria must be consistent with overall project technical and quality criteria. If special requirements are needed for particular supplies or consumables, a clear agreement should be established with the supplier (i.e., particular concentration of calibration gas).

The FPL is responsible for insuring that consumables are properly inspected and that the documentation procedures stated above have been accomplished.

8.0 DOCUMENTATION 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).

8.1 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.

8.2 LABORATORY DATA

Laboratory documentation requirements for CLP laboratories are defined in the SOWs. The laboratory analyzes the samples according to specified analytical protocols, assembles a data package (deliverables are specified by contract), and submits the package to the SESD, Athens, Georgia. The data package is given a technical quality assurance review (validation) and a report of this review is prepared. The validated data are entered into the Region 4 Laboratory Information Management System (R4LIMS) with final data reports being generated by this system.

8.3 ELECTRONIC DATA DELIVERABLES

Analytical data will be managed electronically using the Scribe environmental data management system as required by the START-3 contract. SESD ASB will submit electronic results to the data manager in an electronic data deliverable (EDD) format. All EDDs produced by SESD ASB will be uploaded to the Scribe data management system and will conform to the Region 4 DART software system.

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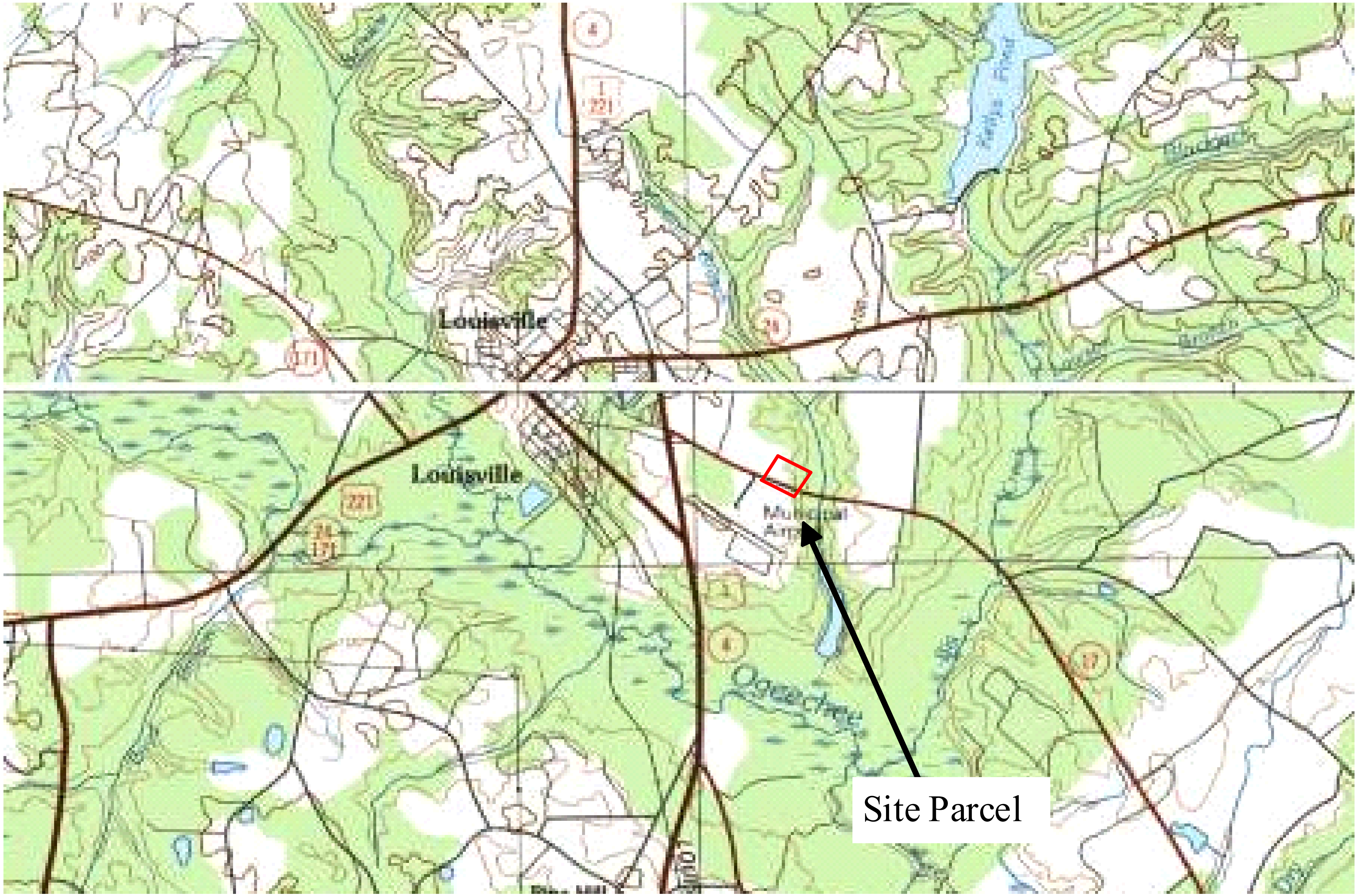
9.0 FIELD WORK SUMMARY

START anticipates performing field activities the week of November 3, 2008 and anticipates sampling activities to take approximately six days. EPA is responsible for acquiring site access. EPA reserves the right to conduct oversight during field activities. If access has not been obtained to certain properties or additional locations are identified and EPA is not present during field activities, then START will attempt to gain access for sampling as necessary.

START will conduct sampling activities after the QAPP has been approved by EPA and access to the sample locations has been obtained. Field activities will be conducted and QA samples will be collected, in accordance with procedures documented in the FBQSTP SESDPROC-011-R2 and SESDPROC-200-R1. The proposed START health and safety protocol to be followed during the investigation is described in the site HASP, which will be submitted under separate cover.

APPENDIX A

FIGURES



Van Tran Electronics Parcel Boundary

Note: Parcel information provided by Jefferson County tax assessors office. Topographical information provided by Maptech

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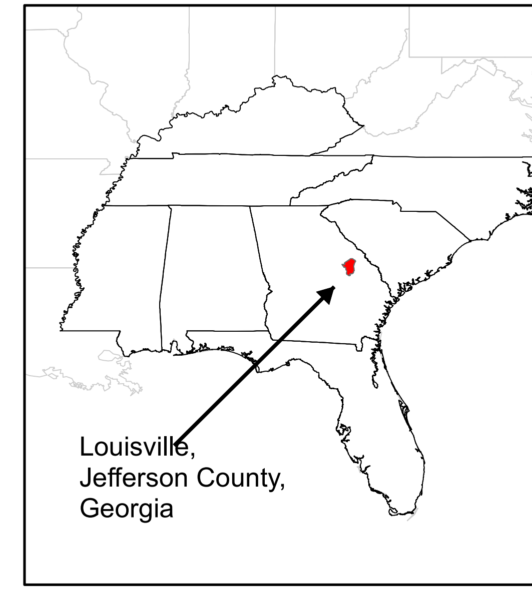
Scale 1:100,000



United States Environmental Protection Agency

VAN TRAN ELECTRONICS
JEFFERSON COUNTY
LOUISVILLE, GEORGIA

FIGURE 1
TOPOGRAPHICAL MAP

T N & Associates, Inc.
EPA Region 4 START
In association with Shaw E&I and Aerostar

C:\GIS_Workspace\1000 S Dennis Street\mxd's\Enfield Figure 2.mxd

Legend

Rivers and Streams

Van_Tran_Parcel

Note: Parcel information provided by Jefferson County tax assessors office. Ortho photo and River information provided by Georgia Data Clearnghouse <http://gis.state.ga.us>.

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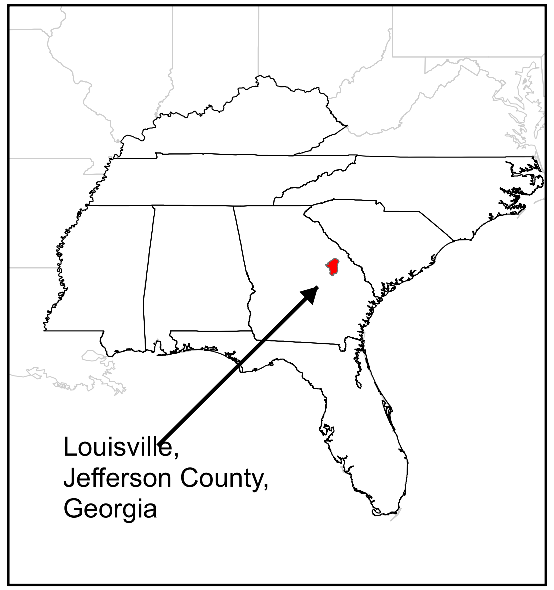
150 75 0 150 Meters



United States Environmental Protection Agency

VAN TRAN ELECTRONICS
JEFFERSON COUNTY
LOUISVILLE, GEORGIA
TDD: TNA-05-003-0077

FIGURE 2
SITE LAYOUT MAP

T N & Associates, Inc.
EPA Region 4 START
In association with Shaw E&I and Aerostar

C:\GIS_Workspace\1000 S Dennis Street\mxd's\Enfield Figure 2.mxd

APPENDIX B

TABLES

TABLE 1
CLP SOW ILM05.4 (Metals) REPORTING LIMITS
VAN TRAN ELECTRONICS

Analyte	CAS No.	RSL	ICP-AES Soil, mg/kg
Aluminum	7429-90-5		20
Antimony	7440-36-0		6
Arsenic	7440-38-2		1
Barium	7440-39-3		20
Beryllium	7440-41-7		0.5
Cadmium	7440-43-9		0.5
Calcium	7440-70-2		500
Chromium	7440-47-3		1
Cobalt	7440-48-4		5
Copper	7440-50-8		2.5
Iron	7439-89-6		10
Lead	7439-92-1		1
Magnesium	7439-95-4		500
Manganese	7439-96-5		1.5
Mercury	7439-97-6		0.1
Nickel	7440-02-0		4
Potassium	7440-09-7		500
Selenium	7782-49-2		3.5
Silver	7440-22-4		1
Sodium	7440-22-4		500
Thalliu	7440-28-0		2.5
Vanadium	7440-62-2		5
Zinc	7440-66-6		6

Notes:

RSL - Regional Screening Levels
ICP - Inductively Coupled Plasma
AES - Atomic Emission Spectra
mg/kg - Milligrams per kilogram

TABLE 2
CLP SOW SOM02.1 (Organic) REPORTING LIMITS
VAN TRAN ELECTRONICS

Compound Name	CAS No.	RSL	Low Soil (µg/kg)	Medium Soil (µg/kg)
VOC				
Dichlorodifluoromethane	75-71-8		5.0	250
Chloromethane	74-87-3		5.0	250
Bromomethane	74-83-9		5.0	250
Vinyl Chloride	75-01-4		5.0	250
Chloroethane	75-00-3		5.0	250
Trichlorofluoromethane	75-69-4		5.0	250
1,1-Dichloroethene	75-35-4		5.0	250
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1		5.0	250
Acetone	67-64-1		10	500
Carbon Disulfide	75-15-0		5.0	250
Methyl Acetate	79-20-9		5.0	250
Methylene Chloride	75-09-2		5.0	250
trans-1,2-Dichloroethene	156-60-5		5.0	250
Methyl tert-Butyl Ether	1634-04-4		5.0	250
1,1-Dichloroethane	75-34-3		5.0	250
cis-1,2-Dichloroethene	156-59-2		5.0	250
2-Butanone	78-93-3		10	500
Bromochloromethane	74-97-5		5.0	250
Chloroform	67-66-3		5.0	250
1,1,1-Trichloroethane	71-55-6		5.0	250
Cyclohexane	110-82-7		5.0	250
Carbon Tetrachloride	56-23-5		5.0	250
Benzene	71-43-2		5.0	250
1,2-Dichloroethane	107-06-2		5.0	250
1,4-Dioxane	123-91-1		100	5,000
Trichloroethene	79-01-6		5.0	250
Methylcyclohexane	108-87-2		5.0	250
1,2-Dichloropropane	78-87-5		5.0	250
Bromodichloromethane	75-27-4		5.0	250
cis-1,3-Dichloropropene	10061-01-5		5.0	250
4-Methyl-2-pentanone	108-10-1		10	500
Toluene	108-88-3		5.0	250
trans-1,3-Dichloropropene	10061-02-6		5.0	250
1,1,2-Trichloroethane	79-00-5		5.0	250
Tetrachloroethene	127-18-4		5.0	250
2-Hexanone	591-78-6		10	500
Dibromochloromethane	124-48-1		5.0	250
1,2-Dibromoethane	106-93-4		5.0	250
Chlorobenzene	108-90-7		5.0	250
Ethylbenzene	100-41-4		5.0	250
o-Xylene	95-47-6		5.0	250

Compound Name	CAS No.	RSL	Low Soil (µg/kg)	Medium Soil (µg/kg)
m,p-Xylene	1330-20-7		5.0	250
Styrene	100-42-5		5.0	250
Bromoform	75-25-2		5.0	250
Isopropylbenzene	98-82-8		5.0	250
1,1,2,2-Tetrachloroethane	79-34-5		5.0	250
1,3-Dichlorobenzene	541-73-1		5.0	250
1,4-Dichlorobenzene	106-46-7		5.0	250
1,2-Dichlorobenzene	95-50-1		5.0	250
1,2-Dibromo-3-chloropropane	96-12-8		5.0	250
1,2,4-Trichlorobenzene	120-82-1		5.0	250
1,2,3-Trichlorobenzene	87-61-6		5.0	250
SVOC				
1,1'-Biphenyl	92-54-4		--	170
1,2,4,5-Tetrachlorobenzene	95-94-3		--	170
2,2'-Oxybis(1-chloropropane)	108-60-1		--	170
2,4,5-Trichlorophenol	95-95-4		--	170
2,4,6-Trichlorophenol	88-06-2		--	170
2,4-Dichlorophenol	120-83-2		--	170
2,4-Dimethylphenol	150-67-9		--	170
2,4-Dinitrophenol	51-28-5		--	330
2,4-Dinitrotoluene	121-14-2		--	170
2,6-Dinitrotoluene	606-20-2		--	170
2-Chloronaphthalene	91-58-7		--	170
2-Chlorophenol	95-57-8		--	170
2-Methylnaphthalene	91-57-6		--	170
2-Methylphenol	95-48-7		--	170
2-Nitroaniline	88-74-4		--	330
2-Nitrophenol	88-75-5		--	170
3,3'-Dichlorobenzidine	91-94-1		--	170
3-Nitroaniline	99-09-2		--	330
4,6-Dinitro-2-methylphenol	534-52-1		--	330
4-Bromophenylphenyl ether	101-55-3		--	170
4-Chloro-3-methylphenol	59-50-7		--	170
4-Chloroaniline	106-47-8		--	170
4-Chlorophenylphenyl ether	7005-72-36		--	170
4-Methylphenol	106-44-5		--	170
4-Nitroaniline	100-01-6		--	330
4-Nitrophenol	100-02-7		--	330
Acenaphthene	83-32-9		--	170
Acenaphthylene	208-96-8		--	170
Acetophenone	98-86-2		--	170
Anthracene	120-12-7		--	170
Atrazine	1912-24-9		--	170
Benzaldehyde	100-52-7		--	170
Benzo(a)anthracene	56-55-3		--	170
Benzo(a)pyrene	50-32-8		--	170

Compound Name	CAS No.	RSL	Low Soil (µg/kg)	Medium Soil (µg/kg)
Benzo(b)fluoranthene	205-99-2		--	170
Benzo(g,h,i)perylene	191-24-2		--	170
Benzo(k)fluoranthene	207-08-9		--	170
Bis(2-chloroethoxy)methane	111-91-1		--	170
Bis(2-chloroethyl)ether	111-44-4		--	170
Bis(2-ethylhexyl)phthalate	117-81-7		--	170
Butylbenzylphthalate	85-68-7		--	170
Caprolactam	105-60-2		--	
Carbazole	86-74-8		--	170
Chrysene	218-01-9		--	170
Dibenzo(a,h)anthrancene	53-70-3		--	170
Dibenzofuran	132-64-9		--	170
Diethylphthalate	84-66-2		--	170
Dimethylphthalate	131-11-3		--	170
Di-n-butylphthalate	84-74-2		--	170
Di-n-octylphthlalate	117-84-0		--	170
Fluoranthene	206-44-0		--	170
Fluorene	86-73-7		--	170
Hexachlorobenzene	118-74-1		--	170
Hexachlorobutadiene	87-68-3		--	170
Hexachlorocyclopentadiene	77-47-4		--	170
Hexchloroethane	67-72-1		--	170
Indeno(1,2,3-cd)pyrene	193-39-5		--	170
Isophorone	78-59-1		--	170
Napthalene	91-20-3		--	170
Nitrobenzene	98-95-3		--	170
n-Nitroso-di-n-propylamine	621-64-7		--	170
n-Nitroso-diphenylamine	86-30-6		--	170
Pentachlorophenol	87-86-5		--	330
Phenanthrene	85-01-8		--	170
Phenol	108-95-2		--	170
Pyrene	129-00-0		--	170
Pesticides				
alpha-BHC	319-84-6		--	1.7
beta-BHC	319-85-7		--	1.7
delta-BHC	319-86-8		--	1.7
gamma-BHC	58-89-9		--	1.7
Heptachlor	76-44-8		--	1.7
Aldrin	309-00-2		--	1.7
Heptachlor epoxide	111024-57-3		--	1.7
Endosulfan I	959-98-8		--	1.7
Dieldrin	60-57-1		--	3.3
4,4'-DDE	72-55-9		--	3.3
Endrin	72-20-8		--	3.3
Endosulfan II	33213-65-9		--	3.3
4,4'-DDD	72-54-8		--	3.3

Compound Name	CAS No.	RSL	Low Soil (µg/kg)	Medium Soil (µg/kg)
Endosulfan sulfate	1031-07-8		--	3.3
4,4'-DDT	50-29-3		--	3.3
Methoxychlor	72-43-5		--	17.0
Endrin ketone	53494-70-5		--	3.3
Endrin aldehyde	7421-93-4		--	3.3
alpha-Chlordane	5103-71-9		--	1.7
gamma-Chlordane	5103-74-2		--	1.7
Toxaphene	8001-35-2		--	170.0
PCB				
Aroclor-1016	12674-11-2		--	33.0
Aroclor-1221	11104-28-2		--	33.0
Aroclor-1232	11141-16-5		--	33.0
Aroclor-1242	53469-21-9		--	33.0
Aroclor-1248	12672-29-6		--	33.0
Aroclor-1254	11097-69-1		--	33.0
Aroclor-1260	11096-82-5		--	33.0
Aroclor-1262	37324-23-5		--	33.0
Aroclor-1268	11100-14-4		--	33.0

Notes:

RSL - Regional Screening Levels
µg/kg - Micrograms per kilogram
PCB - Polychlorinated biphenyls
VOC - Volatile organic compounds
SVOC - Semivolatile organic compounds

TABLE 3
CLP SOW DLM01.2 (Dioxin/Furan) REPORTING LIMITS
VAN TRAN ELECTRONICS

Compound name	CAS No.	RSL	Soil, ng/kg
2,3,7,8-TCDD	1746-01-6		1.0
1,2,3,7,8-PeCDD	40321-76-4		5.0
1,2,3,4,7,8-HxCDD	39227-28-6		5.0
1,2,3,6,7,8-HxCDD	57653-85-7		5.0
1,2,3,7,8,9-HxCDD	19408-74-3		5.0
1,2,3,4,6,7,8-HpCDD	35822-46-9		5.0
OCDD	3268-87-9		10
2,3,7,8-TCDF	51207-31-9		1.0
1,2,3,7,8-PeCDF	57117-41-6		5.0
2,3,4,7,8-PeCDF	57117-31-4		5.0
1,2,3,4,7,8-HxCDF	70648-26-9		5.0
1,2,3,6,7,8-HxCDF	57117-44-9		5.0
1,2,3,7,8,9-HxCDF	72918-21-9		5.0
2,3,4,6,7,8-HxCDF	60851-34-5		5.0
1,2,3,4,6,7,8-HpCDF	67562-39-4		5.0
1,2,3,4,7,8,9-HpCDF	55673-89-7		5.0
OCDF	39001-02-0		10

Notes:

RSL - Regional Screening Levels
ng/kg - Nanograms per kilogram

TABLE 4
SOIL SAMPLE LOCATIONS
VAN TRAN ELECTRONICS

Station ID	Sample Number [a]	Location	Rationale
VTRIB01	VTRI-B01-A Through VTRI-B01-D	Background sample in location to be determine in the field	Background soil sample for comparison to soil sample results
VTRIB02 ↓ VTRIB50	VTRI-B##-A Through VTRI-B##-D	On-site; Exact location to be determined in the field	Determine the presence or absence of hazardous constituents

Notes:

VT - Vantran Electronic
RI - Removal Investigation
B## - same as Boring Station ID
A - A, B, C, and D correspond to the 4-foot soil core depth interval from which the sample was collected. (eg. A = 0-4 ft bgs, B = 4-8 ft bgs, etc)

TABLE 5
QUALITY ASSURANCE/QUALITY CONTROL SAMPLES
VAN TRAN ELECTRONICS

Station ID	Sample Number	Location	Rationale
Station ID for parent sample	VTRI-B##-201 VTRI-B##-202 VTRI-B##-203 VTRI-B##-204 VTRI-B##-205	Duplicate soil sample; To be determined in the field	Verify laboratory precision
#R4DART#	VTB-TB-01 (Day 1) VTB-TB-02 (Day 2) VTB-TB-03 (Day 3) VTB-TB-04 (Day 4) VTB-TB-05 (Day 5)	Soil Trip Blank	Determine if volatiles are being released during shipment

Notes:

VT – Vantran Electronic
RI – Removal Investigation
B## – Parent Sample Boring Station ID
TB – Trip Blank

TABLE 6
ANALYTICAL METHODOLOGY, SAMPLE CONTAINERS, AND PRESERVATIVES
VAN TRAN ELECTRONICS

Matrix	Analysis	EPA Method	Sample Container	Preservative
Soil	VOC	CLP SOW SOM02.1	Terra Core® Sampler plus three 40-mL vials	Cool to 4 °C
	Percent Moisture		One 2-oz glass jar	
	BNA/Pesticides/PCB		One 8-oz glass jar	
	PCB only		One 8-oz glass jar	
	Metals	CLP SOW ILM05.4	One 8-oz glass jar	
	Dioxin/Furans	CLP SOW DLM02.0	One 8-oz glass jar	
	PCB Homologue	EPA Method 1668A	One 8-oz glass jar	

Notes:

°C - Degree Celsius
BNA - Base, Neutral, and Acid Extractables
CLP - Contract Laboratory Program
DLM - Dioxin Laboratory Method
mL - Milliliter
ILM - Inorganic Laboratory Method
oz - Ounce
PCB - Polychlorinated Biphenyl
SOM - Synthetic Organic Method
SOW - Statement of Work
VOC - Volatile Organic Compounds

TABLE 7
SCHEDULE OF DELIVERABLES
VAN TRAN ELECTRONICS

DELIVERABLE	DUE DATE
MPR	25th of every month
QAPP, Rev. 0	October 31, 2008
QAPP, Rev. 1	2 weeks after receipt of EPA comments
Removal Investigation Report, Rev. 0	4 weeks after receipt of final validated analytical results from laboratory
Removal Investigation Report, Rev. 1	2 weeks after receipt of EPA comments

Notes:

MPR – Monthly Progress Reports
QAPP – Quality Assurance Project Plan
Rev. – Revision

ATTACHMENT 1

ATTACHMENT 2

ATTACHMENT 3