

**Site-Specific Activities
Targeted Brownfields Assessment Work Plan
for the Maggie's Ditch Site, Escambia County, Florida**

April 2010

**Conducted for Escambia County under the
FDEP/EPA State Response Program Cooperative Agreement**

FDEP Contract #HW522



Prepared for:
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International Specialists in the Environment

Draft

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List of Acronyms and Abbreviations

ARAR	Applicable or Relevant and Appropriate Requirement
BGS	below ground surface
E & E	Ecology and Environment, Inc.
EPA	U.S. Environmental Protection Agency
ESA	Environmental Site Assessment
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
IDW	investigation-derived waste
LPZ	Low Permeability Zone
LUST	leaking underground storage tank
mg/kg	milligrams per kilogram
MS	matrix spike
MPZ	Main Producing Zone
MSD	matrix spike duplicate
MSL	mean sea level
PAH	polyaromatic hydrocarbon
PVC	polyvinyl chloride
REC	Recognized Environmental Conditions
SOP	standard operating procedure
SSA	Site-Specific Activities
SZ	Surficial Zone
TBA	Targeted Brownfields Assessment

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1. INTRODUCTION

This Site-Specific Activities (SSA) Targeted Brownfields Assessment (TBA) work plan for the Maggie's Ditch site in Escambia County, Florida, has been prepared by Ecology and Environment, Inc. (E & E). The work plan was tasked by the Florida Department of Environmental Protection (FDEP) in February 2010 (Task 29A) under contract HW-522. This work is being conducted by FDEP for Escambia County with Section 128(a) funding provided by the U.S. Environmental Protection Agency (EPA).

Escambia County submitted an SSA Application to FDEP in July 2009. The application was approved for funding in February 2010. This SSA TBA is being performed to assist Escambia County in determining the extent of soil contamination related to past activities in the vicinity of the Maggie's Ditch site. Escambia County has plans to develop stormwater treatment wetlands on the western portion of the Maggie's Ditch site.

The proposed scope of work has been developed based on meetings conducted with personnel representing FDEP; the observations and findings during the site reconnaissance conducted on February 23, 2010; and a review of the site file.

2. SITE DESCRIPTION

2.1 Site Location and Ownership History

Maggie's Ditch is located within the city limits of Pensacola in the southern portion of Escambia County, Florida at Township 2S, Range 30W, Section 41. The center coordinates of the site are 30°24'53.47"N, 87°14'42.02"W. Figure 1 depicts the location of Maggie's Ditch.

According to records obtained from the Escambia County Property Appraisers office and the site description in the SSA application, the site is comprised of the eastern portion of Parcel Reference Number (PRN) 000S009090001142. Also included in the scope of this investigation is PRN 000S009060030189, which is owned by Escambia County School Board. This parcel is located north of Maggie's Ditch along North S Street. Former ownership of these two parcels is shown in Table 1.

Table 1	
Parcel Ownership History, Escambia County, Florida	
PRN 000S009090001142	
Current Ownership	Escambia County
1998	Gulf Power Company
PRN 000S009060030189	
Current Ownership	Escambia County School Board
2008	Gulf Power Company
1989	Carolyn M Leader

2.2 Site Setting

The Maggie's Ditch site is an approximately 9.5-acre parcel of land located between North Q Street to the east and railroad tracks to the west. The portion of the parcel which is subject to this SSA is the eastern portion that lies east of North S Street. The western portion of this parcel contains the downstream portion of Maggie's Ditch and the Wildlife Sanctuary of Northwest Florida. Site features

from 2009 are evident on Figure 2. This site consists of a waterbody (Maggie's Ditch), associated riparian wetland, and a large maintained field. This site is surrounded by residential properties north and east and commercial/light industrial properties to the south. The lands directly adjacent to the site to the north and northeast are to be developed into a new school and school board office buildings.

2.3 Aerial Photograph Survey

A survey of aerial photographs was conducted by E & E. Aerial photographs dated 1961, 1973, 1981, 1993, and 2009 were obtained from the Florida Department of Transportation, Surveying and Mapping [1] (see Appendix A). The 2009 aerial photograph showing the Maggie's Ditch location is provided as the backdrop for Figures 2 and 3 of this work plan.

- In the 1961 aerial, the Maggie's Ditch photograph shows no development on the eastern side of the parcel currently owned by Escambia County. There are areas of disturbed soil on both the north and south sides of the actual ditch location, but vegetation covers most of the rest of the site. The other parcel included in the investigation is undeveloped in the photo.
- In the 1973 the ditch is evident. Less vegetation is present across the entire site making access roads in the south-central portion of the site (parcel held by the school board) visible. Additional structures do appear on the western portion of the site.
- In the 1981 aerial, structures are visible on the eastern portion of the site mostly on the parcel held by the school board.
- In the 1993 aerial, most of the structures have been removed. The school board property on the southeast portion of the site is being used as a parking lot.
- In the 2009 aerial, no additional structures are present. The area is free of large debris and the field appears to be maintained.

2.4 Previous Investigations/Site History

The following information has been summarized from site investigations conducted and other associated activities for the site and surrounding parcels by the Escambia County School District between May 2008 and December 2009. These investigations were conducted for the construction of a new school and school district offices to the north and east of the Escambia County owned parcels that are the subject of this work plan.

- **Phase I Environmental Site Assessment, May 13, 2008.** Thompson Engineering, Inc, submitted a Phase I Environmental Site Assessment (ESA [2]) to the Escambia County School Board. The Phase I ESA identified Recognized Environmental Conditions (REC) associated with the School District of Escambia County parcels by conducting interviews, review of recorded information, and a site reconnaissance. This assessment found the following two potential environmental issues with the site:
 - Tom Thumb Food Store No. 141 is located at 2200 West Garden ST, south of the subject property. Records review indicate a leaking underground storage tank

(LUST) incident occurred at this facility in September 1987 and remediation is ongoing. This was considered a REC.

- The on-site waterbody, Maggie's Ditch, was an illegal disposal site for construction debris. The area has since been cleaned up for a revitalization project. Since no testing was conducted for contamination this is considered a REC.
- **Limited Site Assessment, August 26, 2008.** Thompson Engineering, Inc. submitted a Limited Site Assessment [3] to the School District of Escambia County. This assessment was conducted based on the RECs found in the Phase I ESA, namely the illegal disposal site at Maggie's Ditch which resulted in polycyclic aromatic hydrocarbon (PAH) contamination. The primary purpose of the assessment was to identify the extent of carcinogenic PAHs at the site. Thompson Engineering, Inc. conducted a subsurface investigation involving the collection of soil and groundwater samples. The sampling occurred on separate events (July 2, 2008; July 29, 2008; and August 11, 2008). These three events were conducted in a grid pattern with subsequent events focusing on expanding the areas near found contaminated areas in order to delineate the extent of contamination.
- **Supplemental Limited Site Assessment, June 18, 2009.** Thompson Engineering, Inc. completed a supplemental assessment [4] in June 2009 to delineate the extent of contamination to the south. The eastern, northern, and western extents were delineated during the Limited Site Assessment conducted in 2008. Soil sampling took place in April 2009 at thirty three locations in a grid pattern to delineate the southern extent.
- **Environmental Site Assessment, December 28, 2009.** Thompson Engineering, Inc. completed an Environmental Site Assessment [5] that compiled data from the previous limited site assessments as well as data from additional soil sampling. Sixty-four additional soil samples at nineteen locations took place on October 19th, 20th, and November 13th, 2009. Based on the findings in this report four areas of the School District of Escambia County were found to have PAHs at levels above the BaP/TEQ screening levels.
- **July 29, 2009.** Keith Wilkins, Deputy Bureau Chief, Escambia County Neighborhoods/Community Services Bureau submitted an SSA application to Joseph McGarrity, FDEP, to request assistance for a TBA [6].
- **February 1, 2010.** Ramona Turner, FDEP Environmental Specialist, sent a letter to Keith Wilkins, informing him that FDEP had approved the SSA application for the Maggie's Ditch area [7].
- **Site Visit, February 23, 2010.** Personnel representing Escambia County, FDEP, and E & E conducted a site reconnaissance at the Maggie's Ditch site.

3. GEOLOGY

3.1 Regional Geology and Hydrogeology

Three principal hydrogeologic units of importance underlie the Pensacola area. These units are, in descending order, the Surficial Aquifer System (Sand-and-Gravel Aquifer in western Florida), the Intermediate System, and the Floridan Aquifer System.

The Sand-and-Gravel aquifer occurs from ground surface to a depth of approximately 220 to 330 feet below ground surface (BGS) in the southern Escambia County and consists of a complex sequence of unconsolidated to poorly indurated sand, gravel, silt, and clay [8]. In the western Florida Panhandle, the Sand-and-Gravel Aquifer constitutes an important source of potable water.

The siliclastic deposits within the Sand-and-Gravel Aquifer include the Pleistocene-age terrace deposits, the Pliocene-age Citronelle Formation and the upper portion of the Miocene/Pliocene-age coarse clastics [8]. Given that the Sand-and-Gravel Aquifer is contiguous with ground surface and that recharge occurs principally by the direct infiltration of precipitation, the aquifer is particularly susceptible to contamination from surface sources. In southern Escambia County, the Sand-and-Gravel Aquifer is typically made up of three zones distinguished by contrasting permeabilities. These zones are referred to as the surficial zone, the low permeability zone, and the main producing zone [9].

The surficial zone (SZ) is contiguous with ground surface and contains groundwater under the water table or perched water-table conditions. This zone generally is recharged by local rainfall or by surface water bodies. The SZ consists primarily of quartz sediments with grain sizes ranging from sand to gravel [8]. In addition to sands and gravels, relatively thin, discontinuous beds of silt and clay; and thin, discontinuous beds of limonite-cemented sandstone also occur in the surficial zone. In southern Escambia County, the SZ ranges from 0 feet to an average of 75 feet thick [8].

Underlying the surficial zone is the low permeability zone (LPZ). In the southern Escambia County area, the LPZ is composed of poorly sorted sand with some clay, silt, and gravel and ranges from approximately 20 to 80 feet in thickness [9]. The LPZ receives recharge from the SZ and functions as a semiconfining unit that inhibits the vertical flow of groundwater between the overlying SZ and the underlying main producing zone.

Main Producing Zone. The main producing zone (MPZ), the most productive portion of the Sand-and-Gravel aquifer, underlies the LPZ and is the primary source of potable water in southern Escambia County. The MPZ consists of moderate to well-sorted sand and gravel with interbedded layers of sandy clay and clay. The thickness of the MPZ in southern Escambia County ranges from approximately 90 feet to 210 feet [9]. Groundwater occurs in the MPZ under semiconfined conditions. Potentiometric surface elevations of the MPZ in southern Escambia County range from approximately 0 to approximately 40 feet AMSL with higher heads present in topographically higher areas [9]. The MPZ is recharged by groundwater leakage from the SZ through the LPZ. The MPZ is tapped by most of the major potable and industrial supply wells in the southern Escambia County area [7]. In southern Escambia County and the site vicinity, the direction of groundwater flow in the MPZ is generally southward and southwestward under ambient conditions; however, pumping of potable and industrial supply wells may locally alter the groundwater flow directions in the MPZ and possibly in the overlying surficial and low permeability zones.

The base of the Sand-and-Gravel Aquifer coincides with the top of the Intermediate System, a regionally extensive and vertically persistent hydrogeologic unit of low permeability. The Intermediate System in southern Escambia County is approximately 550 to 1,200 feet thick [9] and is composed of the lower portion of the Miocene/Pliocene-age coarse clastics (where present), the upper member of the Pensacola Clay, the Escambia Sand Member of the Pensacola Clay, and the lower member of the Pensacola Clay, all of Miocene age [8]. In the southern Escambia County area, the top of the Intermediate System occurs at altitudes of approximately -160 to -280 feet MSL [7] within the lower portion of the Miocene/Pliocene-age coarse clastics, where present, or at the top of the upper member of the Pensacola Clay at depth. The Miocene/Pliocene-age coarse clastics consist of variably clayey, poorly sorted sands with some gravel and shells. The upper and lower members of the Pensacola Clay consist of sandy clays, and the Escambia Sand Member of the Pensacola Clay is composed of fine to coarse quartz sand. The Intermediate System functions as a highly efficient confining unit that effectively inhibits the downward vertical migration of groundwater between the overlying Sand-and-Gravel Aquifer and the underlying Floridan Aquifer System. For the most part, the entire sequence is poor to non-water bearing; however, relatively thin beds of sand that may yield small quantities of water exist within the unit.

The Floridan Aquifer System underlies the Intermediate System, and occurs at depths ranging from approximately 1,100 to 1,500 feet BGS in southern Escambia County [10]. The Floridan Aquifer System is composed of, in descending order, the Miocene-age Bruce Creek Limestone, the Oligocene-age Chickasawhay Formation and Bucatunna Clay, and the upper portion of the Eocene-age Ocala Limestone [11].

3.2 Site-Specific Geology and Hydrogeology

Soil borings at the site reveal that the area consists of fine to medium sands with occasional clayey sands to a depth of 10 feet BGS. Sands below 8 feet BGS were saturated at the boring locations. No monitoring wells have been installed at the site.

4. DATA QUALITY OBJECTIVES

The Data Quality Objectives for this investigation are provided in Table 2.

Table 2 Project-Specific Data Quality Objectives Maggie's Ditch Site, Escambia County, Florida	
Data Quality Objective	Project-Specific Action
Problem Statement	Shallow soil contamination, primarily PAHs and arsenic, has been detected at the Maggie's Ditch site during previous investigations. The extent of the soil contamination has not been delineated.
Identify the decision	Does site contamination pose an unacceptable risk to human health and the environment and to what extent does the contamination exceed Florida soil cleanup target levels?
Identify the decision inputs	Soil samples will be collected from locations surrounding the locations of elevated concentration detections. Sample results will be compared to FDEP's soil cleanup target levels and sediment quality effects guidelines as appropriate to delineate the known contamination and determine if further actions are warranted. Sample concentrations will also be evaluated for the

Table 2 Project-Specific Data Quality Objectives Maggie's Ditch Site, Escambia County, Florida	
Data Quality Objective	Project-Specific Action
	potential risk of exposure to both human and biota using these previously mentioned standards for comparison. FDEP and E & E will coordinate with the subcontracted laboratory to ensure that sample detection limits are appropriate for the standards listed above.
Define the boundaries of the study	The investigation will be contained within the physical boundaries of the Maggie's ditch site on the parcels described in Section 2.1. The temporal boundaries are defined by an initial one-day site reconnaissance (already complete), completion and approval of the work plan, an anticipated one-day field investigation, and the subsequent completion of a site assessment report after completion and reporting of laboratory analysis. The anticipated timeframe for the entire investigation is six months.
Develop a decision rule	If contaminant concentrations exceed comparison criteria at the locations identified, additional sampling may be warranted prior to the development of a soil removal plan.
Specify limits on decision errors	The goal of this investigation is to fully delineate the shallow soil contamination detected at the site during previous events. With that goal in mind, the consequence of Type I error—more comprehensive sampling—is acceptable. The collection of environmental samples is designed to determine at what concentrations contaminants attributable to historic site activities are present in soils. However, the limited number of environmental samples is not designed for, or amenable to, statistical applications.
Data acquisition design optimization	In the absence of statistical applications, no optimization effort applies.

5. SCOPE OF WORK/METHODOLOGY

The scope of work and methodology for completing field sampling activities is provided below. E & E expects to complete this work in one mobilization. Adjustments to the scope, pending approval by FDEP and the E & E project manager, may be made based on field conditions and field analytical data.

The investigation will be focused on delineating the PAH and arsenic contamination previously detected at the site.

5.1 Site Survey and Wetlands Delineation

Prior to the initiation of field efforts, the City of Pensacola will be called to survey and field mark their right-of-ways in the Maggie's Ditch vicinity. Sampling will be conducted only on Escambia County and City of Pensacola properties with the exception of the sampling to be conducted on the outlying parcel owned by the School Board. If any of the designated sample locations fall outside the boundaries of the City or County owned land, the samples will be collected on the nearest boundary line.

In addition, to ensure that the sediment quality guidelines are properly applied, E & E's biologist will perform a wetlands delineation prior to the sampling effort. The wetland boundaries will be marked in the field and captured using a global positioning system equipment. Samples collected

inside the wetlands boundary will be designated as sediment samples and will be compared to sediment criteria.

5.2 Surface Soil and Shallow Subsurface Sampling

The approach for soil sampling is to collect 39 surface and 39 shallow subsurface soil samples at 39 boring locations around the previously sample locations that showed elevated levels of PAHs. Surface (land surface to 6 inches BGS; SS-interval) and shallow subsurface (6 inches to 2 feet BGS; SB-interval) soil samples will be collected from each of the 39 borings. The approximate locations of these sampling points are illustrated on Figure 3 and described in Table 3. Each surface soil sample will be collected using a pre-cleaned stainless steel hand auger. The sample volume will be homogenized in a stainless steel bowl prior to filling the appropriate sample bottles for PAHs (EPA 8270C) and arsenic (EPA 6010).

All samples will be submitted to the laboratory. However, initially, only the surface interval samples located nearest the previous sampling locations will be analyzed. The review of the results of those analyses will be used to determine whether or not the others will be analyzed.

Table 3 Sample Locations and Rationale Maggie's Ditch Site, Pensacola, FL				
Sample Type	Sample Designation	Sample Location	Rationale	Laboratory Analysis
Soil/Sediment For Initial Analysis *	A-33-A, A-33-B, A-33-D	Approximately 25 feet S, N, and E of A-33	Potential Impact Area	PAHs
	S3-4-A, S3-1-A, S-3-A, S3-2-A	Approximately 25 feet S of S3-4, S3-1, S-3, and S3-2, respectively	Potential Impact Area	PAHs and arsenic
	S-6-A, S-6-B, S-6-C	Approximately 25 feet S, E, and W of S-6	Potential Impact Area	PAHs
	S-12-A, S-12-B	Approximately 25 feet S and W of S-12	Potential Impact Area	PAHs
	S-2-A, S-2-B, S-2-C, S-2-D	Approximately 25 feet S, E, N, and W of S-2	Potential Impact Area	PAHs
	S-7-A, S-7-B, S-7-C, S-7-D	Approximately 25 feet N, E, S, and W of S-7	Potential Impact Area	PAHs
	S-10-1-A, S-10-1-B	Approximately 25 feet W and E of S-10-1	Potential Impact Area	PAHs

Table 3 Sample Locations and Rationale Maggie's Ditch Site, Pensacola, FL				
Sample Type	Sample Designation	Sample Location	Rationale	Laboratory Analysis
Soil/Sediment Contingency Sample Location	A-33-C	Approximately 50 feet S of A-33	Potential Impact Area	PAHs
	S3-4-B, S3-1-B, S-3-B, S3-2-B	Approximately 50 feet S of S3-4, S3-1, S-3, and S3-2, respectively	Potential Impact Area	PAHs and arsenic
	S-6-D	Approximately 50 feet S of S-6	Potential Impact Area	PAHs
	S-12-C, S-12-D	Approximately 50 feet S and W of S-12	Potential Impact Area	PAHs
	S-2-E, S-2-F, S-2-G	Approximately 50 feet E, N, and W of S-2	Potential Impact Area	PAHs
	S-7-E, S-7-F, S-7-G, S-7-H	Approximately 50 feet N, E, S, and W of S-7	Potential Impact Area	PAHs
	S-10-1-C, S-10-1-D	Approximately 50 feet W and E of S-10-1	Potential Impact Area	PAHs
Quality Control/ Quality Assurance	S-DUP1 through S-DUP4	TBD from the samples located approximately 25 feet of previous sample locations	Potential Impact Area Soil Duplicate Sample	PAHs (and arsenic if appropriate)
	S-DUP5 through S-DUP8	TBD from the samples located approximately 50 feet of previous sample locations	Potential Impact Area Soil Duplicate Sample	PAHs (and arsenic if appropriate) if companion sample is submitted for analysis
	S-RB1 and S-RB2	NA	Soil sampling equipment blank	PAHs and arsenic

Note: (*) All soil samples will be collected for all analysis; however, only the surface interval samples from borings located approximately 25 feet from existing sample locations will be analyzed initially. If results exceed comparison criteria, contingency samples at the deeper interval and those in line with the soil samples exceeding will be released for laboratory analysis.

NA = Not applicable.

PAHs = polycyclic aromatic hydrocarbons

TBD = To be determined.

5.3 Decontamination

Prior to mobilization, all sampling equipment will be pre-cleaned by using a full bath and scrub with an Alconox detergent solution, then a potable water rinse followed by an isopropanol rinse, and finally an analyte free water rinse. The equipment will then be allowed to air dry. After fully drying, each piece of equipment will be wrapped in aluminum foil for transport to the site. At each soil sampling location, each sampling technician will use a clean pair of nitrile gloves, as well as pre-cleaned or field-cleaned equipment (stainless steel spoons, trowels, bowls, and hand augers).

5.4 Quality Assurance/Quality Control

All sampling and field work activities will be conducted in accordance with FDEP's SOPs (DEP-SOP-001/01, February 1, 2004 update); EPA Region IV Science and Ecosystems Support Division, February 2007 SOPs for sampling and field investigations; E & E's site-specific quality assurance project plan (see Appendix B); and E & E's site-specific health and safety plan (see Appendix C).

To satisfy quality assurance/quality control requirements, two soil equipment rinsate and one groundwater equipment rinsate blank will be collected. Six duplicate soil samples, one duplicate groundwater sample, one matrix spike/matrix spike duplicate (MS/MSD) soil sample, and one MS/MSD groundwater sample will be collected. These duplicate sample locations will be determined onsite. Adjustments to the sampling plan and sample locations may be made based on field conditions, pending approval by the FDEP and E & E project managers.

5.5 Laboratory Analysis

The proposed locations, rationale, and analytical parameters for each sample are provided in Table 1. Test America will provide laboratory analysis of samples. Analyses will be performed for PAHs (EPA Method 8270C) and arsenic (EPA Method 6010).

5.6 Investigation-Derived Wastes

The investigation-derived waste (IDW) generated during site investigation activities will consist of a minimal amount of soil from the hand-auger borings. IDW generated during this investigation will be captured and collected into 55-gallon steel drums. The drums will be staged in a secure area and the contents will be properly identified on labels attached to the drums. The drums will remain onsite until sampling analytical results are available to determine the appropriate disposal method for each container. Only one drum of IDW is expected to be generated.

6. SITE INVESTIGATION REPORT

Upon receipt of the analytical results, E & E will prepare a Supplemental Contamination Assessment Report that will include:

- Introduction;
- Site description/history;
- Scope of Work describing field methodology;
- Discussion of the results;
- Discussion of findings;
- Conclusions;
- Site location and sample location map; and
- Data summary tables.

7. REFERENCES

1. Florida Department of Transportation. Aerial photographs for the Maggie's Ditch Site. 1961, 1973, 1981, 1993, 2009.

2. Thompson Engineering, Inc., Phase I Environmental Site Assessment, Proposed Downtown Elementary School Site, Pace Boulevard, Pensacola, Escambia County, Florida, May 2008.
3. Thompson Engineering, Inc., Limited Site Assessment Report, Proposed Downtown Elementary School Site, Pace Boulevard, Pensacola, Escambia County, Florida, August 2008.
4. Thompson Engineering, Inc., Supplemental Limited Site Assessment Report,, Proposed Downtown Elementary School Site, Pace Boulevard, Pensacola, Escambia County, Florida, June 2009.
5. Thompson Engineering, Inc., Environmental Site Assessment Report,, Proposed Downtown Elementary School Site, Pace Boulevard, Pensacola, Escambia County, Florida, December 2009.
6. Keith Wilkins, Deputy Bureau Chief, Escambia County Neighborhood/Community Services Bureau, Letter to Joseph McGarrity, FDEP. RE: Site-Specific Activities (SSA) Application regarding the Maggie's Ditch Site, July 29, 2009.
7. Ramona Turner, FDEP Environmental Specialist, February 1, 2010. Letter to Keith Wilkins, Escambia County Neighborhood/Community Services Bureau. Subject: Brownfield Site Specific Activities Application.
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12. Scott, T.M., 1992, "A Geological Overview of Florida," Florida Geological Survey Open File Report No. 50.

8. PROFESSIONAL CERTIFICATION

I hereby affix my seal to this Targeted Brownfields Assessment Work Plan for the Maggie's Ditch Site, Escambia County, Florida, in accordance with Chapter 492 of the Florida Statutes and all applicable rules and regulations developed pursuant thereto:

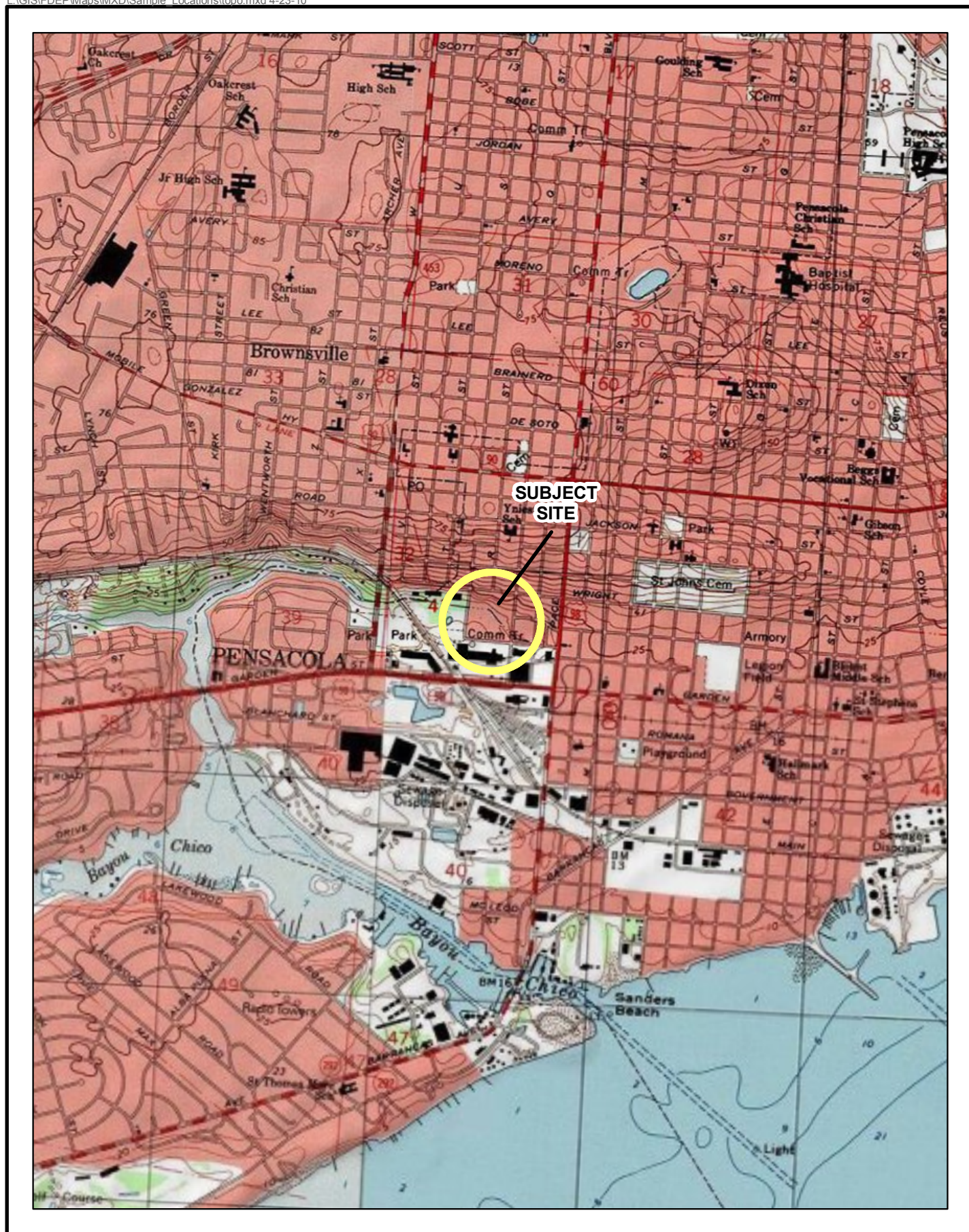
Name: **Amy R. Mixon**
P.E. License Number: **63774**
State: **Florida**

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Amy R. Mixon, P.E.

Date

Draft



1:24,000

0 0.5 1 Mile

Figure 1
Site Location Map
Maggie's Ditch
Escambia County, Florida

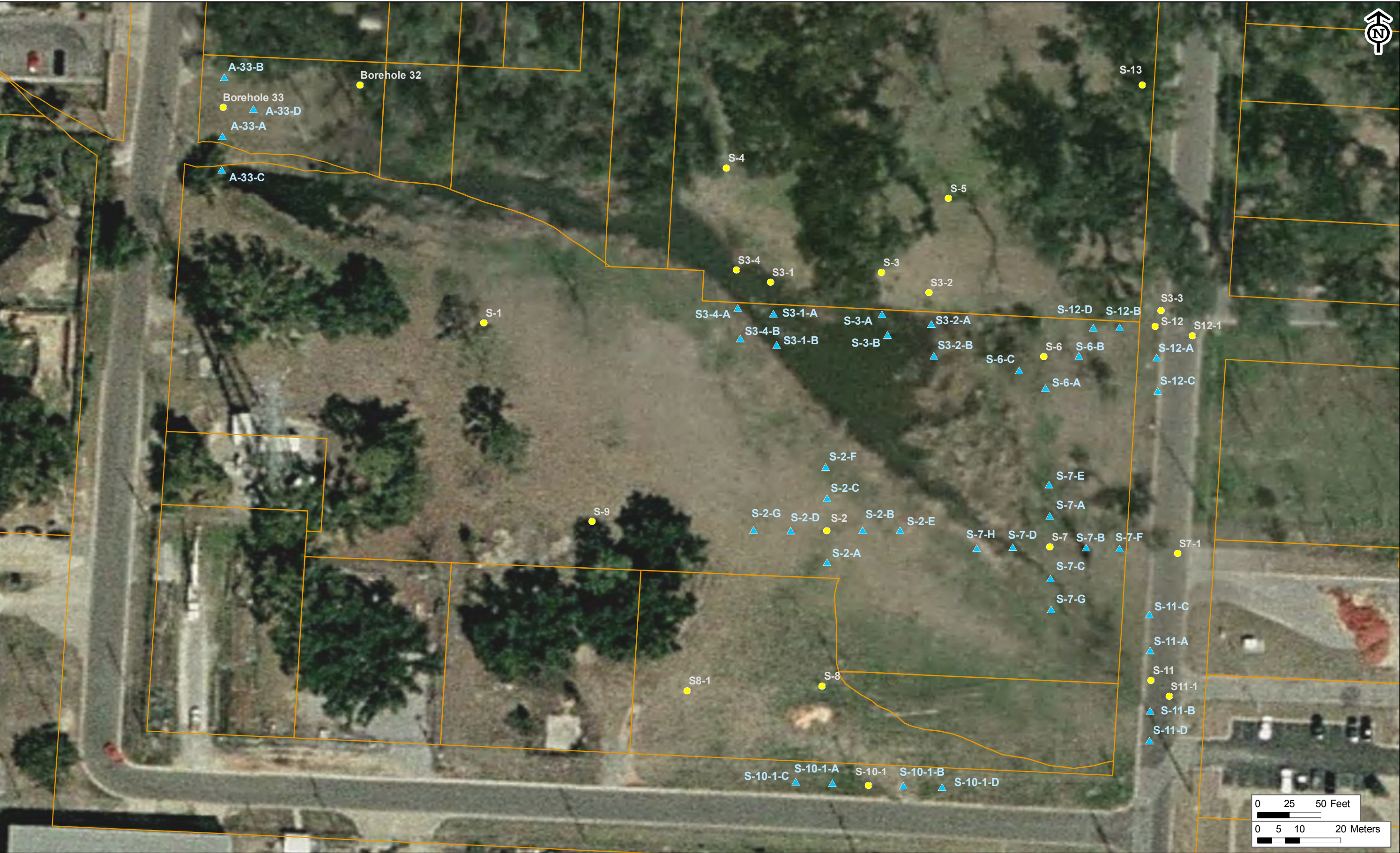
Source: USGS



SOURCE: Aerial- (c)2009 Microsoft Corporation. Parcel- 2008 Escambia County, Florida.

● Existing Sample Location
□ Parcel Boundary

**Figure 2 Existing Sample Concentrations
Maggie's Ditch
Escambia County, Florida**



SOURCE: Aerial- (c)2009 Microsoft Corporation. Parcel- 2008 Escambia County, Florida.

- Existing Sample Location
- ▲ Proposed Sample Location
- ▭ Parcel Boundary

**Figure 3 Existing and Proposed Sample Locations
Maggie's Ditch
Escambia County, Florida**

APPENDIX A
Historical Aerial Photographs

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1961 Aerial
Maggie's Ditch
Escambia County, Florida

Source: FDOT 1961



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1973 Aerial
 Maggie's Ditch
 Escambia County, Florida

Source: FDOT 1973



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1981 Aerial
Maggie's Ditch
Escambia County, Florida

Source: FDOT 1981



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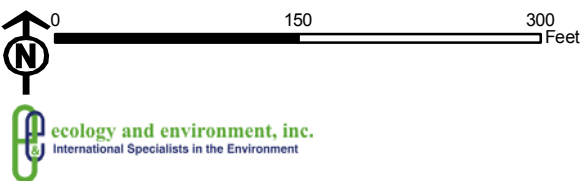
ecology and environment, inc.
 International Specialists in the Environment

1993 Aerial
 Maggie's Ditch
 Escambia County, Florida

Source: FDOT 1993



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2009 Aerial
Maggie's Ditch
Escambia County, Florida

Source: BingMaps 2009

APPENDIX B
Quality Assurance Project Plan

Draft

Maggie's Ditch Targeted Brownfields Assessment Quality Assurance Project Plan

Project Management

Project Organization and Responsibility

FDEP Program Manager: Joe McGarrity, Bureau of Waste Cleanup, Brownfields Section.
FDEP Project Manager: Joe McGarrity, Bureau of Waste Cleanup, Brownfields Section.
FDEP Field Manager: Melissa Garvin, Bureau of Waste Cleanup, Brownfields Section.
E & E Program Manager: Richard Stephens, Tallahassee
E & E Project Manager: Amy Mixon, Pensacola

Problem Identification and Objectives

Concentrations of polynuclear aromatic hydrocarbons (PAHs), and arsenic above Soil Cleanup Target Levels (SCTLs) have been found in surface and shallow subsurface soils collected from the Maggie's Ditch site. Further assessment of this contamination is necessary to determine the extent. Further detail regarding findings and known conditions on the property and surrounding area, is presented in Sections 1 through 3 of the work plan.

Based on the results of the previous site investigations, additional investigation of surface (0 to 6 inches) and subsurface (6 inches to 2 feet) soils will be conducted. Based on the results of this additional investigation, further sampling or preparation of a remedial action plan may be recommended.

The objectives for this investigation are to:

- Delineate the extents of PAH and arsenic in surface and shallow subsurface soils on the Maggie's Ditch site;
- Collect surface soil samples (0 to 6 inches) and conduct laboratory analyses to evaluate if soils have been impacted by historical activities;
- Collect subsurface soil samples (6 to 24 inches) and conduct laboratory analyses (as necessary based on shallow soil sample results) to evaluate if soils have been impacted by historical activities;
- Request the appropriate analytical methods or modified methods from the subcontract to use and meet Quality Assurance Targets for Precision, Accuracy, method detection limits, and practical quantitation limits. Target levels for the constituents of concern are equal to or less than the respective Florida SCTLs specified in Chapter 62-777, Florida Administrative Code (F.A.C.). The appropriate laboratory analytical methods to achieve these target levels have been specified in the work plan. In addition, E & E has notified the subcontract laboratory of the target level requirements; and
- Evaluate data generated during this sampling effort to determine whether further investigation or remedial activities are required in the residential areas near the. The sampling data will be compared to FDEP's SCTLs and sediment quality guidelines as appropriate as specified in Chapter 62-777, F.A.C.

Project Description/Project Timeline

Elevated levels of PAHs and arsenic have been identified in surface and shallow subsurface soil at the Maggie's Ditch site during investigation activities performed on adjacent school board property. Additional sampling is needed to fully delineate the extent of the contamination on County property and

City right-of-ways. In addition, an outparcel currently owned by the school board will be included in the sampling effort. Site details and description are provided in the Site-Specific Activities Targeted Brownfields Assessment Work Plan for the Maggie's Ditch Site, Escambia County, Florida.

Measurement Data Acquisition

During sample collection, the field team will document key observations about surface and subsurface soils.

Sampling Design

Previous investigations have revealed areas of contamination that may be associated with past activities at the site or on adjacent properties. The additional sampling effort will focus on further delineating contamination in surface (0 to 6 inches) and shallow subsurface (6 to 24 inches) soil in these areas. At each soil sample location, a surface and subsurface soil sample will be collected. However, only the surface soil sample will be submitted for laboratory analysis initially. The subsurface soil samples and the samples further from the previous locations will be held at the laboratory for analysis as needed based on results of the surface samples nearest the existing locations. Further details regarding the proposed sampling locations are presented in E & E's work plan.

Sampling and Analytical Methods Requirements

All sampling and fieldwork activities will be conducted in accordance with FDEP's standard operating procedures (SOPs), EPA's Region 4's *Field Branches Quality System and Technical Procedures* for sampling and field investigations; and E & E's site-specific health and safety plan.

All laboratory analysis will be conducted in accordance with the EPA's *Test Methods for the Evaluating Solid Waste* (SW-846) and EPA Contract Laboratory Program (CLP) procedures. All samples will be evaluated for PAHs and arsenic. Up to eight duplicate soil samples will be collected for analysis by all analytical methods. Additionally, two soil equipment rinsate blanks will be collected for analysis by all methods.

Laboratory and Field Equipment

- Preventive Maintenance – Field Equipment: All sampling equipment will be decontaminated in accordance with FDEP and EPA SOPs.
- Calibration and Corrective Action – Field Equipment: Field analytical equipment will be calibrated (if applicable) prior to mobilization to the site and recalibrated off site prior to and at the conclusion of each workday.
- Preventive Maintenance – Laboratory Equipment: Laboratory equipment will be maintained in accordance with EPA CLP laboratory SOPs.
- Calibration and Corrective Action – Laboratory Equipment: All laboratory equipment calibrations will be conducted in accordance with EPA SW-846 and CLP analytical methods.

Sample Handling and Custody Requirements

Sampling procedures will be documented in the field notebook. All samples will be documented on a chain of custody.

Analytical Precision and Accuracy

All laboratory control limits for accuracy (percent recovery) and precision (relative percent difference; RPD) will be conducted in accordance with applicable laboratory SOPs.

Quality Control Requirements

- Field Quality Control: All field quality control procedures will be conducted in accordance with FDEP and EPA SOPs.
- Laboratory Quality Control: All laboratory quality control procedures will be conducted in accordance with EPA procedures.
- Data Management and Documentation: All analytical data will be managed in accordance with EPA CLP SOPs.

Field Investigation and Report

Field Investigation

The field investigation scope of work and methodology is described in detail in E & E's work plan for the additional soil sampling at the Maggie's Ditch site.

Report

Upon receipt of the analytical results, E & E will prepare a report. The report will include a discussion of each of the following:

- Introduction;
- Site description/history;
- Scope of Work describing field methodology;
- Discussion of the results;
- Conclusions;
- Site location, sample location, and data summary maps;
- Data summary tables; and
- References.

Data Validation and Usability

Verification of Sampling Procedures

All field sampling will be conducted in accordance with FDEP's SOPs; EPA Region 4's *Field Branches Quality System and Technical Procedures* for sampling and field investigations; and E & E's work plan for the Maggie's Ditch Assessment. Any deviations from the proposed scope of work and/or field SOPs will be documented in the field log book and reported in the methodology section of the report.

Data Usability

All validated data will be compared to State of Florida SCTLs (Rule 62-777) or sediment quality guidelines as appropriate.

APPENDIX C
Health and Safety Plan

Draft

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**SITE-SPECIFIC
HEALTH AND SAFETY PLAN**

Project: Maggie's Ditch Site, Escambia County, Florida

Project No.: Targeted Brownfields Assessment

Project Location: Maggie's Ditch Site, Pensacola, Escambia County, Florida

Proposed Date of Field Activities: May 2010

Project Director: Richard Stephens

Project Manager: Amy Mixon

Prepared by: Amy Mixon

Date Prepared: April 12, 2010

Approved by: Davy Crawley

Date Approved: _____

1. INTRODUCTION

1.1 POLICY

It is E & E's policy to ensure the health and safety of its employees, the public, and the environment during the performance of work it conducts. This site-specific health and safety plan (SHASP) establishes the procedures and requirements to ensure the health and safety of E & E employees for the above-named project. E & E's overall safety and health program is described in *Corporate Health and Safety Program for Toxic and Hazardous Substances* (CHSP). After reading this plan, applicable E & E employees shall read and sign E & E's Site-Specific Health and Safety Plan Acceptance form.

This SHASP has been developed for the sole use of E & E employees and is not intended for use by firms not participating in E & E's training and health and safety programs. Subcontractors are responsible for developing and providing their own safety plans.

This SHASP has been prepared to meet the following applicable regulatory requirements and guidance:

Applicable Regulation/Guidance
29 CFR 1910.120, Hazardous Waste Operations and Emergency Response (HAZWOPER)
Other:

1.2 SCOPE OF WORK

Description of Work: Conduct surface and shallow subsurface soil sampling across the site to delineate existing PAH and arsenic contamination.

Equipment/Supplies: Table 8-1 provides a list of the equipment to complete the proposed tasks.

The following is a description of each numbered task:

Task Number	Task Description
1	Soil.
2	Field decontamination.

1.3 SITE DESCRIPTION

Site Map: A site map is attached at the end of this plan.

Site History/Description (see project work plan for detailed description): The parcel is located in the middle of the 9,915-acre preserve and consists of a total of 8 acres. The site was also used as a cattle pasture and a cattle dipping vat (CDV) was erected and used in the 1930s through 1950s to eradicate the Texas cattle fever [1]. Cattle were dipped every 14 days over a year period until free of ticks. Once the cattle were dipped in an arsenical solution and passed inspection they could be moved across state lines. Previous site assessments performed for Orange County indicate the presence of arsenic in site soils and groundwater. However, based on the history of the site, organochlorine and organophosphorus pesticides could be an issue.

Is the site currently in operation? Yes ☒ No

Locations of Contaminants/Wastes: PAHs and arsenic in site soils

Types and Characteristics of Contaminants/Wastes:

☒ Liquid	☒ Solid	Sludge	Gas/Vapor
Flammable/Ignitable	☒ Volatile	☒ Corrosive	☒ Acutely Toxic
Explosive	Reactive	☒ Carcinogenic	Radioactive
Medical/Pathogenic	Other:		

2. ORGANIZATION AND RESPONSIBILITIES

E & E team personnel shall have on-site responsibilities as described in E & E's standard operating procedure (SOP) for Site Entry Procedures (GENTECH 2.2). The project team, including qualified alternates, is identified below.

Name	Site Role/Responsibility
Amy Mixon	Project Manager
Davy Crawley	Field Lead and Site Safety Officer
Staff	Field Team

3. TRAINING

Prior to work, E & E team personnel shall have received training as indicated below. As applicable, personnel shall have read the project work plan, sampling and analysis plan, and/or quality assurance project plan prior to project work.

Training	Required
40-Hour OSHA HAZWOPER Initial Training and Annual Refresher (29 CFR 1910.120)	X
Annual First Aid/CPR	X
Hazard Communication (29 CFR 1910.1200)	X
40-Hour Radiation Protection Procedures and Investigative Methods	
8-Hour General Radiation Health and Safety	
Radiation Refresher	
DOT and Biannual Refresher	X
Other:	

4. MEDICAL SURVEILLANCE

4.1 MEDICAL SURVEILLANCE PROGRAM

E & E field personnel shall actively participate in E & E's medical surveillance program as described in the CHSP and shall have received, within the past year, an appropriate physical examination and health rating.

E & E's health and safety record (HSR) form will be maintained on site by each E & E employee for the duration of his or her work. E & E employees should inform the site safety officer (SSO) of any allergies, medical conditions, or similar situations that are relevant to the safe conduct of the work to which this SHASP applies.

Is there a concern for radiation at the site? Yes ☒ No

If no, go to 5.1.

4.2 RADIATION EXPOSURE

4.2.1 External Dosimetry

Thermoluminescent Dosimeter (TLD) Badges: TLD badges are required to be worn by all E & E field personnel on all E & E sites.

Pocket Dosimeters: _____

Other: _____

4.2.2 Internal Dosimetry

☐ Whole body count

☐ Bioassay

☐ Other

Requirements: _____

4.2.3 Radiation Dose

Dose Limits: E & E's radiation dose limits are stated in the CHSP. Implementation of these dose limits may be designated on a site-specific basis.

Site-Specific Dose Limits: As stated in E & E's CHSP.

ALARA Policy: Radiation doses to E & E personnel shall be maintained as low as reasonably achievable (ALARA), taking into account the work objective, state of technology available, economics of improvements in dose reduction with respect to overall health and safety, and other societal and socioeconomic considerations.

5. SITE CONTROL

5.1 SITE LAYOUT AND WORK ZONES

Site Work Zones: The work zones will be established by the field team leader as soon as the field team mobilizes to the site.

Site Access Requirements and Special Considerations: To be determined

Illumination Requirements: Work to be performed during daylight hours

Sanitary Facilities (e.g., toilet, shower, potable water): Potable water, toilet and shower are available nearby. The field effort is expected to take only one day to complete

On-Site Communications: Cellular phone

Other Site-Control Requirements: To be determined

5.2 SAFE WORK PRACTICES

Daily Safety Meeting: A daily safety meeting will be conducted for all E & E personnel and documented on the Daily Safety Meeting Record form or in the field logbook. The information and data obtained from applicable site characterization and analysis will be addressed in the safety meetings and also used to update this SHASP, as necessary.

Work Limitations: Work shall be limited to a maximum of 12 hours per day on site. If 12 consecutive days are worked, at least one day off shall be provided before work is resumed. Work will be conducted in daylight hours unless prior approval is obtained and the illumination requirements in 29 CFR 1910.120(m) are satisfied.

Weather Limitations: Work shall not be conducted during electrical storms. Work conducted in other inclement weather (e.g., rain) will be approved by project management and the regional safety coordinator or designee.

Other Work Limitations: To be determined as necessary

Buddy System: Field work will be conducted in pairs of team members according to the buddy system.

Line of Sight: Each field team member shall remain in the line of sight and within verbal communication of at least one other team member.

Eating, Drinking, and Smoking: Eating, drinking, smoking, and the use of tobacco products shall be prohibited in the exclusion and contamination reduction areas, at a minimum, and shall only be permitted in designated areas.

Contamination Avoidance: Field personnel shall avoid unnecessary contamination of personnel, equipment, and materials to the extent practicable.

Sample Handling: Protective gloves of a type designated in Section 7 will be worn when containerized samples are handled for labeling, packaging, transportation, and other purposes.

Vermiculite Handling: N/A No shipping of samples will be required

Other Safe Work Practices: To be determined as necessary

6. HAZARD EVALUATION AND CONTROL

6.1 PHYSICAL HAZARD EVALUATION AND CONTROL

Potential physical hazards and their applicable control measures are described in the following table for each task.

Hazard	Task Number	Hazard Control Measures
Biological (flora, fauna, etc.)	1, 2	• Potential hazard: Poison Ivy, Snakes, Bee Stings. • Establish site-specific procedures for working around identified hazards. • Other:
Cold Stress	NA	• Provide warm break area and adequate breaks. • Provide warm noncaffeinated beverages. • Promote cold stress awareness. • See <i>Cold Stress Prevention and Treatment</i> (attached at the end of this plan if cold stress is a potential hazard).
Compressed Gas Cylinders	NA	• Use caution when moving or storing cylinders. • A cylinder is a projectile hazard if it is damaged or its neck is broken. • Store cylinders upright and secure them by chains or other means. • Other:
Confined Space	NA	• Ensure compliance with 29 CFR 1910.146. • See SOP for Confined Space Entry. Additional documentation is required. • Other:
Drilling	NA	• See SOP for Health and Safety on Drilling Rig Operations. Additional documentation may be required. • Other: • Other:
Drums and Containers	1, 2	• Ensure compliance with 29 CFR 1910.120(j). • Consider unlabeled drums or containers to contain hazardous substances and handle accordingly until the contents are identified. • Inspect drums or containers and assure integrity prior to handling. • Move drums or containers only as necessary; use caution and warn nearby personnel of potential hazards. • Open, sample, and/or move drums or containers in accordance with established procedures; use approved drum/container-handling equipment. • Other:
Electrical	1, 2	• Ensure compliance with 29 CFR 1910 Subparts J and S. • Locate and mark energized lines. • De-energize lines as necessary. • Ground all electrical circuits. • Guard or isolate temporary wiring to prevent accidental contact. • Evaluate potential areas of high moisture or standing water and define special electrical needs. • Other:

Hazard	Task Number	Hazard Control Measures
Excavation and Trenching	NA	- Ensure that excavations comply with and personnel are informed of the requirements of 29 CFR 1926 Subpart P. - Ensure that any required sloping or shoring systems are approved as per 29 CFR 1926 Subpart P - Identify special personal protective equipment (PPE) (see Section 7) and monitoring (see Section 8) needs if personnel are required to enter approved excavated areas or trenches. - Maintain line of sight between equipment operators and personnel in excavations/trenches. Such personnel are prohibited from working in close proximity to operating machinery. - Suspend or shut down operations at signs of cave in, excessive water, defective shoring, changing weather, or unacceptable monitoring results. - Other:
Fire and Explosion	NA	- Inform personnel of the location(s) of potential fire/explosion hazards. - Establish site-specific procedures for working around flammables. - Ensure that appropriate fire suppression equipment and systems are available and in good working order. - Define requirements for intrinsically safe equipment. - Identify special monitoring needs (see Section 8). - Remove ignition sources from flammable atmospheres. - Coordinate with local fire-fighting groups regarding potential fire/explosion situations. - Establish contingency plans and review daily with team members. - Other:
Heat Stress	1, 2	- Provide cool break area and adequate breaks. - Provide cool noncaffeinated beverages. - Promote heat stress awareness. - Use active cooling devices (e.g., cooling vests) where specified. - See <i>Heat Stress Prevention and Treatment</i> (attached at the end of this plan if heat stress is a potential hazard).
Heavy Equipment Operation	NA	- Define equipment routes, traffic patterns, and site-specific safety measures. - Ensure that operators are properly trained and equipment has been properly inspected and maintained. Verify back-up alarms. - Ensure that ground spotters are assigned and informed of proper hand signals and communication protocols. - Identify special PPE (Section 7) and monitoring (Section 8) needs. - Ensure that field personnel do not work in close proximity to operating equipment. - Ensure that lifting capacities, load limits, etc., are not exceeded. - Other:
Heights (Scaffolding, Ladders, etc.)	NA	- Ensure compliance with applicable subparts of 29 CFR 1910. - Identify special PPE needs (e.g., lanyards, safety nets, etc.) - Other

Hazard	Task Number	Hazard Control Measures
Power Tools	NA	· Ensure compliance with 29 CFR 1910 Subpart P. · Other:
Sunburn	1, 2	· Apply sunscreen. · Wear hats/caps and long sleeves. · Other:
Utility Lines	NA	· Identify/locate existing utilities prior to work. · Ensure that overhead utility lines are at least 25 feet away from project activities. · Contact utilities to confirm locations, as necessary. · Other:
Weather Extremes	1, 2	· Potential hazards: · Establish site-specific contingencies for severe weather situations. · Provide for frequent weather broadcasts. · Weatherize safety gear, as necessary (e.g., ensure eye wash units cannot freeze, etc.). · Identify special PPE (Section 7) needs. · Discontinue work during severe weather. · Other:
Other: Slips, trips, falls	1, 2	· Identify potential hazards

6.2 CHEMICAL HAZARD EVALUATION AND CONTROL

6.2.1 Chemical Hazard Evaluation

Potential chemical hazards are described by task number in Table 6-1.

6.2.2 Chemical Hazard Control

An appropriate combination of engineering/administrative controls, work practices, and PPE shall be used to reduce and maintain employee exposures to a level at or below published exposure levels (see Section 6.2.1).

Applicable Engineering/Administrative Control Measures: To be determined

PPE: See Section 7.

6.3 RADIOLOGICAL HAZARD EVALUATION AND CONTROL

6.3.1 Radiological Hazard Evaluation

No radiological hazards are expected at the site.

Table 6-1

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Applicable Engineering/Administrative Control Measures: _____

PPE: See Section 7.

7. LEVEL OF PROTECTION AND PERSONAL PROTECTIVE EQUIPMENT

7.1 LEVEL OF PROTECTION

The following levels of protection (LOPs) have been selected for each work task based on an evaluation of the potential or known hazards, the routes of potential hazard, and the performance specifications of the PPE. On-site monitoring results and other information obtained from on-site activities will be used to modify these LOPs and the PPE, as necessary, to ensure sufficient personnel protection. The authorized LOP and PPE shall only be changed with the approval of the regional safety coordinator or designee. Level A is not included below because Level A activities, which are performed infrequently, will require special planning and addenda to this SHASP.

Task Number	B	C	D	Modifications Allowed
1		(X)	X	
2		(X)	X	

Note: Use "X" for initial levels of protection. Use "(X)" to indicate levels of protection that may be used as site conditions warrant.

7.2 PERSONAL PROTECTIVE EQUIPMENT

The PPE selected for each task is indicated below. E & E's PPE program complies with 29 CFR 1910.120 and 29 CFR 1910 Subpart I and is described in detail in the CHSP. Refer to 29 CFR 1910 for the minimum PPE required for each LOP.

PPE	Task Number/LOP				
	1	2	3	4	5
Full-face APR					
PAPR					
Cartridges:					
H					
GMC-H	(X)	(X)			
GMA-H					
Other:					
Positive-pressure, full-face SCBA					
Spare air tanks (Grade D air)					
Positive-pressure, full-face, supplied-air system					
Cascade system (Grade D air)					
Manifold system					

PPE	Task Number/LOP				
	1	2	3	4	5
5-Minute escape mask					
Safety glasses	X	X			
Monogoggles					
Coveralls/clothing					
Protective clothing:					
Tyvek	(X)	(X)			
Saranex					
Other:					
Splash apron		(X)			
Inner gloves:					
Cotton					
Nitrile					
Latex					
Other:					
Outer gloves:					
Viton					
Rubber					
Neoprene					
Nitrile	X	X			
Other:					
Work gloves	(X)				
Safety boots (as per ANSI Z41)	X	X			
Neoprene safety boots (as per ANSI Z41)					
Boot covers (type: neoprene)	(X)				
Hearing protection (type: <u>over ear protectors or foam ear plugs</u>)					
Hard hat					
Face shield		(X)			
Other:					
Other:					

8. HEALTH AND SAFETY MONITORING

Health and safety monitoring will be conducted to ensure proper selection of engineering/administrative controls, work practices, and/or PPE so that employees are not exposed to hazardous substances at levels that exceed permissible exposure/dose limits or published exposure levels. Health and safety monitoring will be conducted using the instruments, frequency, and action levels described in Table 8-1. Health and safety monitoring instruments shall have been appropriately calibrated and/or performance-checked prior to use.

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Table 8-1

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9. DECONTAMINATION PROCEDURES

All equipment, materials, and personnel will be evaluated for contamination upon leaving the exclusion area. Equipment and materials will be decontaminated and/or disposed and personnel will be decontaminated, as necessary. Decontamination will be performed in the contamination reduction area or any designated area such that the exposure of uncontaminated employees, equipment, and materials will be minimized. Specific procedures are described below.

Equipment/Material Decontamination Procedures (specified by work plan): Immediately before and after use; detergent (liquinox) scrub w/ brushes; clean water rinse (for all pumps and equipment exposed to contaminated water); deionized water rinse; nanograde isopropanol rinse; air drying and, if not dry then, analyte-free water rinse.

Ventilation: All decontamination procedures will be conducted in a well-ventilated area.

Personnel Decontamination Procedures: Boot and glove wash—Alconox/liquinox and tap water wash with clean rinse. Field personnel will take a hygienic shower off-site following completion of each day's fieldwork.

PPE Requirements for Personnel Performing Decontamination: Nitrile gloves, safety glasses, safety boots, overalls/clothing, and nitrile outer gloves (if needed).

Personnel Decontamination in General: Following appropriate decontamination procedures, all field personnel will wash their hands and face with soap and potable water. Personnel should shower at the end of each work shift.

Disposition of Disposable PPE: Disposable PPE must be rendered unusable and disposed as indicated in the work plan.

Disposition of Decontamination Wastes (e.g., dry wastes, decontamination fluids, etc.): All decontamination wastes will be disposed of in accordance with FDEP and EPA guidelines.

10. EMERGENCY RESPONSE

This section contains additional information pertaining to on-site emergency response and does not duplicate pertinent emergency response information contained in earlier sections of this plan (e.g., site layout, monitoring equipment, etc.). Emergency response procedures will be rehearsed regularly, as applicable, during project activities.

10.1 EMERGENCY RESPONSIBILITIES

All Personnel: All personnel shall be alert to the possibility of an on-site emergency; report potential or actual emergency situations to the team leader and SSO; and notify appropriate emergency resources, as necessary.

Team Leader: The team leader will determine the emergency actions to be performed by E & E personnel and will direct these actions. The team leader also will ensure that applicable incidents are reported to appropriate E & E and client project personnel and government agencies.

SSO: The SSO will recommend health/safety and protective measures appropriate to the emergency.

Other: _____

10.2 LOCAL AND SITE RESOURCES (including phone numbers)

Ambulance: 911

Hospital: Baptist Hospital, 1000 West Moreno Street, Pensacola, Florida

Directions to Hospital (map attached at the end of this plan): See Attached Directions and map

Poison Control: (800) 282-3171

Police Department: 911

Fire Department: 911

Client Contact: Joe McGarrity/Melissa Garvin

Site Contact: Joe McGarrity/Melissa Garvin

On-Site Telephone Number: None

Cellular Telephone Number: E&E (850) 637-5018

Radios Available: NA

Other: _____

10.3 E & E EMERGENCY CONTACTS

E & E Emergency Response Center (24 Hours): 716/684-8940

Corporate Health and Safety Director, Dr. Paul Jonmaire: 716/684-8060 (office)
716/655-1260 (home)

Other: Dan Foss, Regional Health and Safety Coordinator 850/574-1400 (office)
850/671-3085 (home)

10.4 OTHER EMERGENCY RESPONSE PROCEDURES

On-Site Evacuation Signal/Alarm (must be audible and perceptible above ambient noise and light levels): To be determined

On-Site Assembly Area: To be determined

Emergency Egress Route to Get Off Site: To be determined

Off-Site Assembly Area: To be determined

Preferred Means of Reporting Emergencies: Cellular phone

Site Security and Control: In an emergency situation, personnel will attempt to secure the affected area and control site access.

Emergency Decontamination Procedures: To be determined

PPE: Personnel will don appropriate PPE when responding to an emergency situation. The SSO and Section 7 of this plan will provide guidance regarding appropriate PPE.

Emergency Equipment: Appropriate emergency equipment is listed in Attachment 1. Adequate supplies of this equipment shall be maintained in the support area or other approved work location.

Incident Reporting Procedures: To be determined

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**ATTACHMENT 1
EQUIPMENT/SUPPLIES CHECKLIST**

INSTRUMENTATION	No.	EMERGENCY EQUIPMENT	No.
OVA		First aid kit	X
Thermal desorber		Stretcher	
O ₂ /explosimeter w/cal. kit		Portable eye wash	
Photovac tip		Blood pressure monitor	
HNu (probe: _____ eV)		Fire blanket	X
Magnetometer		Fire extinguisher	X
Pipe locator		Thermometer (medical)	
Weather station		Spill kit	
Draeger tube kit (tubes: PCE)			
Brunton compass			
Real-time cyanide monitor			
Real-time H ₂ S monitor			
Heat stress monitor			
Noise equipment		DECONTAMINATION EQUIPMENT	
Personal sampling pumps and supplies		Wash tubs	X
MiniRam dust monitor		Buckets	X
Mercury monitor		Scrub brushes	X
Spare batteries (type: 12 Volt Marine, AAA, AA, 9 Volt)	X	Pressurized sprayer	
		Spray bottle	X
		Detergent (type: <u>Liquinox</u>)	X
RADIATION EQUIPMENT/SUPPLIES		Solvent (type: <u>Isopropanol</u>)	X
Documentation forms		Plastic sheeting	X
Portable ratemeter		Tarps and poles	X
Scaler/ratemeter		Trash bags	X
1" NaI gamma probe		Trash cans	
2" NaI gamma probe		Masking tape	
ZnS alpha probe		Duct tape	X
GM pancake probe		Paper towels	X
Tungsten-shielded GM probe		Face mask	X
Micro R meter		Face mask sanitizer	
Ion chamber		Step ladders	
Alert monitor		Distilled water	X
Pocket dosimeter	X	Deionized water	X
Dosimeter charger			
Radiation warning tape			
Radiation decon supplies			
Spare batteries (type: _____)			
SAMPLING EQUIPMENT		MISCELLANEOUS (Cont.)	
8-oz. jars	X	Gatorade or equivalent	X
Half-gallon bottles		Tables	

**ATTACHMENT 1
EQUIPMENT/SUPPLIES CHECKLIST**

VOA bottles		Chairs	
String		Weather radio	
Hand bailers		Two-way radios	
Thieving rods with bulbs		Binoculars	
Spoons	X	Megaphone	
Knives		Cooling vest	
Filter paper			
Bottle labels	X		
		SHIPPING EQUIPMENT	
		Coolers	X
MISCELLANEOUS		Paint cans with lids	
Pump		Vermiculite	
Surveyor's tape	X	Shipping labels	X
100' Fiberglass tape	X	DOT labels:	X
300' Nylon rope		"Up"	X
Nylon string	X	"Danger"	
Surveying flags	X	"Inside Container Complies ..."	X
Camera	X	Hazard Group	
Film		Strapping tape	X
Bung wrench		Baggies	X
Soil auger	X	Custody seals	X
Pick	X	Chain-of-custody forms	X
Shovel	X	Federal Express forms	
Catalytic heater		Clear packing tape	X
Propane gas		Permanent markers	X
Banner tape		Bubble Wrap	X
Surveying meter stick	X		
Chaining pins and ring			
Logbooks (large, small)	X		
Required MSDSs			
Intrinsically safe flashlight	X		
Potable water	X		